Traumashastra

(Bio-Psychosocial Perspectives of Trauma)

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Published by:

IMHRC

Indian Mental Health and Research Centre
Lucknow, India
www.imhrc.org

This Edition Published June 2019
Price: ₹1000/-

About Editors

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Foreword

"Traumashastra" is a book published by Indian Mental Health & Research Centre (IMHRC) coming out of the proceedings of a very well organised "International Conference on Bio-psychosocial Perspectives of Trauma" held in January, 2019 at Shia P.G. College, Lucknow (India). The book has been edited by a young team which includes Syed Sajid Husain Kazmi, Director Indian Mental Health & Research Centre; Kashif Hasan, Amity School of Communication, Amity University, Lucknow, Dr. Agha Parvez Masih, Associate Professor, Department of Zoology, Shia P.G. College, Lucknow and Mohd Ali, Assistant Professor, Department of Education, Shia P.G. College, Lucknow.

"Trauma" is a distressing word and it can either be physical or psychological. The above mentioned conference was basically aimed at disseminating knowledge about various bio-psychosocial aspects of trauma, including the emotional and social-behavioural changes. This book contains contributions of eminent authors/researchers on the consequences of traumatic experience and the associated problems in daily functioning and an unfavourable social outcome. Authors have tried to correlate the behavioural symptoms such as social dysfunction across multiple domains on community integration, including loss of important relationships, disrupted family life, poor work related quality of life and reduced individual activity.

I am sure that the book will be of great help to the students and research scholars working on various aspects of bio-psychosocial perspectives of trauma.

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Preface

Our topic here is Trauma, discussed in context of Bio-psychosocial Model. This approach gives equal importance to the biological factors along with psychological and social factors in the understanding any psychopathology. Earlier, the Biological model was prevalent but now we are fully aware of various Psychological and Social factors which play equally important role in predisposing, precipitating and perpetuating any medical as well as mental illness.

In this book we have published original empirical as well as review papers which were presented by researchers from diverse academic backgrounds and specialties in the 1st International Conference on Biopsychosocial Perspectives of Trauma, 2019 organised by Indian Mental Health & Research Centre at Shia P.G. College.

This book is intended for students in psychology and the more cognitively oriented branches of neuroscience, as well as for readers who are merely curious about what these fields might have to contribute to our understanding of the Trauma. However, we hope that our professional colleagues will also find much to engage with here. So we've done our best to produce a book that holds interest on all levels – for undergraduates, graduates, and researchers alike. We have tried not to presuppose any significant background in any of the sciences that we discuss and we hope that this book will serve as a useful companion for many of those pursuing the interdisciplinary study of Trauma.

Editors

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ISSUES IN PSYCHOLOGICAL MANAGEMENT OF TRAUMA

Anamika Srivastava[1] *& Prof. S. Z. H. Zaidi*[2]

Introduction

This chapter is intended for academicians and professionals who work in the field of managing trauma and is not intended for self-help process(es). This chapter highlights certain evidence based therapies and techniques for managing the trauma psychologically. Moreover, the key aspect will focus on the issues pertaining to the implementation of these techniques as a mental health professional. The key issues will be related to ensuring the candidature of a client for a certain class of therapy, following a model of coping and assessing the stage in which the client is at different points in time, formulating the case, understanding the feasibility and prognostic issues, delivering the active/passive/mixed approach, assessing both, the process and outcome of therapy and revising the formulation as desired every time.

Trauma… why study and manage trauma?

American Psychological Association (APA, 2004) defines trauma as an extremely emotional response to an event construed as highly negative. APA further asserts that though trauma is a normal reaction to an adverse event, still the effects may be so intense that they might interfere with an individual's ability to function normatively in daily living. The psychological damage caused due to specific traumas – such as natural calamities and disasters, rape, incest, physical abuse or abuse of any other nature – may be hard of individuals to cope by themselves. In psychology, even no coping is a kind of coping. We talk of emotion focused, problem focused, religious copings irrespective of assessing the candidature of specific inclination of the coping required by the individual (Greenberg et al., 2004; D'Zurilla et al., 2010). We need to attend to both, the content and emotional requirement behind the statement of the traumatised client. Once this candidature is ascertained, then only we may formulate the entire case based upon any theoretical model of interest be in four 'P's (Predisposing factors, Precipitating factors, Perpetuating factors, Protecting factors) (Kumar et al., 2011); ABC (Antecedent, Behavior, Consequent) (Bischoff et al., 2995); CAB (Cognitions, Affect, Behavior) (Breckler, 1984); Kanfer and Saslow's behaviour functional approach (Mace et

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al., 1982), or any specific cognitive, behavioural, humanistic/existential approach. It is worth mentioning that without formulation, no therapy could be effective and long lasting!

EBT and techniques for managing psychological aspect of trauma… Issues in implementing them at each stage in general

Evidence-based approaches (Norcross &Wampold, 2011) include cognitive-behavioral therapies inculcating techniques like Prolonged Exposure (Ironson et al., 2002), Cognitive Processing (Deblinger et al., 2011); and Eye Movement Desensitization and Reprocessing (Shapiro, 2002). Any book or scholarly article might discuss at length the intricacies of these approaches, though we will stick to the issues with which this chapter is intended. Psychotherapy is a time – bound one – to – one interaction of the therapist with patient wherein an active bond is initiated by the therapist throughout the process solely aimed for the therapeutic changes in the patient and giving the patient a platform to relive, resurrect and bounce back from unhealthy painful experiences (Woolberg, 1965). Therapy is usually considered as applying the Rogerian core conditions is therapy, but we need to imbibe the idea that correct way is not the clinical way; clinical way may not be the structured way; and structured way may not be the correct way towards the realms of psychotherapy practise. Therapy is not just in catharsis and venting, it is also in discouraging at just logical time. It is good to not open the gates within an individual which you may not close or atleast currently not equipped to handle. It is logical to show some conditional regard with appropriate logic aimed towards health of patient than just being unconditional, non – judgemental and therefore so predictable like any other passive therapist. Actual therapy process not only rests on theories, but also on the common sense with logical reasoning. While starting to work, we need to be assured that don't fear committing mistakes as they are bound to happen if and only if you work. Moreover, as a famous principle of behaviour therapy floats is actions that are done can be undone and redone. This notion gives so much of confidence every time we dreaded of committing a mistake. This keeps us going! Also, one need not get overconfident of doing whatever one feels like. We need to inculcate a habit of always questioning the logic of our every move during the discussion of cases with colleagues, supervisors or even while introspecting, which makes us realise that discussions not only keeps your cognitions under check but also provides you with a secure environment where

you will be taken care of despite making mistakes. As a result of such continual practise of preparing your therapy sessions and having an agenda, by also being flexible that at times some emergency issues take over the agenda but this need not become a pattern. Over a course of time, one realises that approach shifts to being super – cautious about the process and keeping on hold of a thought being implemented until at least visited attentively by self. The thumb rule of therapy is "Never go to extremes" in anything that you deliver. This also proves as a check for therapists under training and in their professional life ahead.

Many recent researches quote that objectively there is no difference in the prognosis of patients treated with psychotherapy along with medications and those with only medications; although subjectively those treated with psychotherapy along with medications show more of ups and downs in the process of reaching to the recovery. These researches may be true in the literal sense but we need not only be concerned with the output rather the process as well! The phase of recovery may be same for both the groups, but in the hands of a trained professionals, the patients tend to experience 'corrective emotional experiences' and realise their potential in the times of adversity which makes them even more resilient and logical in their approach. The process of therapy is equally rewarding as is the prognosis. Moreover, we cannot outcast the role of multicausality of factors in any form of recovery and there is a possibility that the impact of psychotherapy may not be immediate like that of medications. The author is also a strong proponent of ideology that 'believe makes it come true'. If one believes in something, one will find reasons to do it, doing and trying something with faith definitely increases the chances of success. While practicing, we need to be strong believer of effectiveness of psychotherapy but on the opposite side, we also practise to keep a check on 'false resolution of symptoms' which is majorly characterised by sudden positive changes which are short lived.

Skills required to be inculcated and also kept under constant check

Talking of the attributes and skills' level required by a therapist to be effective is a complex phenomenon. Not only is that non –professionals are doing wrong by not being ethical in practice in their area of expertise, rather there are certain professionals who have not acquired much skill to practise but are still practising. Also, if we think of the times when academic courses were non-existent, still we had skilful professionals working for the field. In gist, I want to

that you are skilful until you have not put in efforts for it. Complementarily, merely saying that something interests you and you like practising it also does not justifies your clinical acumen unless the time, energy, efforts are not exhausted to pursue this interest. Still if we are to choose a characteristic most applicable to the practise of psychotherapy, I would rate dedication over knowledge, intelligence, good results/gold medal, YAVIS syndrome (Schofield, 1964), etc. The reasoning behind this is that a dedicated individual committed to serve the field will surpass all other adjectives combined and will find a way or the other out to meet the needs of acquisition, for both knowledge and skills. I also consider that acquisition of both these is just a default end product of the process of practising and discussing with your supervisors.

Moreover, the skills can also be categorised as macro and micro level. Macro level skills will include the skills specific to a particular therapy like 'disputing the irrational belief' in Ellis's REBT and 'mastery pleasure rating' in Beck's Cognitive Therapy (Dobson, 2019). The micro skills are common to all therapies and form the core of all while building rapport, reflecting, summarising, paraphrasing in the process of therapy and while terminating the therapy (Nelson & Jones, 2002). This could be considered something congruent to Jerome Frank's Specific and Non – specific factors in therapy (Frank et al., 1957). In my opinion, a clinician needs to have a Pandora box of both these sort of skills as one technique does not suffices for a variety of problems and hence the requirement of learning to do practise a variety. Anyways in India, majority of patients do not receive the therapy of which they fulfil the candidature rather they get stuck by what the therapists believes in and practises with most of the patients.

General Therapy Guidelines

A general guideline while working with the patients of psychological trauma is inclusive of:

➢ **The Relating Phase** (Main task: to start establishing a collaborative working relationship)

- To understand internal frame of reference, techniques like active reflective listening, being genuine and consistent, empathy, unconditional positive regard, establishing rapport and trust,

to ward off personal values, believes and other biases.

- Showing attention and interest by working upon the working alliance, maintain boundaries in therapeutic relation, adopting a relaxed, open body posture, leaning slightly forward at times. Making use of appropriate gaze and eye contact, conveying through appropriate facial expressions, being sensitive to the need for personal space and height, being careful about clothing and grooming.

- Appropriately using the summarizing and structuring skills so as to make room for corrective emotional experiences.

- Managing resistances in disclosing, attending to self-talk by actively trying to encourage and invite patient for discussions and clarifications. This was also achieved by trying to read between the lines and by using the strategy of buying time.

➢ **The Understanding Phase** (Main task: to assess and agree on a shared definition of patient's problems resulting in the manifestation of traumatic experience)

- To assess and elicit feelings and physical reactions, skills like active listening, asking open, closed, leading, clarifying questions appropriately, using Visual Analog Scale to rate the intensity of emotions, encouraging to monitor feelings.

- Assessing thinking and cognitions by building upon a knowledge base of the information provided, asking questions appropriately, using thought eliciting strategies like visualizing, role-playing, live observations, task assignments and reading between the lines thereby encouraging patient to monitor thoughts and perceptions as per the Situation – Thoughts – Consequences (STC) Worksheet.

- Assessing communication and actions by gathering information both inside and outside of therapy situation, asking questions appropriately, using silence as a strategy, encouraging patient to monitor as per the STC Worksheet, forming hypotheses about communication and action skills to be improved.

- Making appropriate use of challenging skills, feedback skills and

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disclosing skills so as to suit the sole purpose of helping.

- • Ensuring regular summarizing, monitoring, and record keeping.

➢ **The Changing Phase** (Main task: to assist patient so that the problem and problem situations are addressed more skillfully)

- • Helping to solve problems approach by clarifying goals, generating and exploring options, assisting planning, practicing the alternative, evaluating the outcomes.

- • Switching between training and facilitating skills as per the need to combine them to best effect.

- • Using cognitive rehearsals and role plays for training and refining the practice.

- • Improving communication and action skills by imparting monitoring skills using methods like diaries, visual analog scales, STC logs, etc.

- • Assisting patient to create preferential rules by challenging demand rules.
- • Assisting patient to create coping self – talk by making use of self – statements which enable focused and directed self – dialogue.

➢ **The Maintenance Phase** (Main task: to maintain the unending motivation necessary for dealing with situations)

- • Focusing on communicating positive assets so as to develop sense of control over the situations.

- • Imparting skills towards being tolerant of failures and set – backs as an option.

- • Inculcating the skill of applying an option of 'leaving a situation as it is' without settling the things in one of the extremes of win or loose.

➢ **The Termination Phase** (Main task: reviewing progress and summarizing learning)

- • The format of mutual open termination had been followed with an open invitation from therapist's side towards entering the therapeutic relation again whenever the need arises. The techniques involve communication skills, summarizing and concluding skills along with skills necessary

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towards dealing with feelings appropriately.

- Reinforcing the capacity for self – help skills making use of all the above inputs in real life situations

In conclusion, psychotherapy needs to be initiated with ascertaining the candidature of the patient, progressed with logic, discussions and supervision and terminated with caution in a pre – planned way. Whenever the laymen curiosity outshoots the skilled clinician's acumen, one needs to wait and rethink which need is getting fulfilled and is it for the patients' benefit. Keeping a regular check and not going to extremes is the key.

The authors would like to end the write up with these burning topics… Since every end is a new beginning!

Did I ascertain the candidature of client for therapy?

Is it feasible to provide *this* therapy, for *this* duration, in *this* city (if they are living in some distant city), at *this* intensity of symptoms? Or is it ethical enough to *REFER to someone else?*

Therapy required by client versus therapy available with clinician. How to bridge this gap?

Deducing a specific model of coping and working accordingly with a rationale for every step towards prognosis of the case. Formulate the case exhaustively… understanding the feasibility and prognostic issues… delivering the active/passive/mixed approach… assessing both, the process and outcome of therapy… and revising the formulation as desired every time.

Am I working in extremes?

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PSYCHOLOGICAL INTERVENTIONS IN TRAUMA

Soni Jaiswal[1]

Trauma– Meaning and Definition:

Trauma is the response to a deeply distressing or disturbing event that overwhelms an individual's ability to cope, causes feelings of helplessness, diminishes their sense of self and their ability to feel the full range of emotions and experiences. According to the National Child Traumatic Stress Network, trauma can be defined as an event or series of events that involve fear or threat. There are various definitions of trauma have been reported by the researchers. Few mostly used definitions are as follows:

"Traumatisation occurs when both internal and external resources are inadequate to cope with the external threat."

- van der Kolk, 1989

"At the moment of trauma, the victim is rendered helpless by overwhelming force. Traumatic events overwhelm the ordinary systems of care that give people a sense of control, connection, and meaning. The severity of traumatic events cannot be measured on any single dimension; simplistic efforts to quantify trauma ultimately lead to meaningless comparisons of horror. The salient characteristic of the traumatic event is its power to inspire helplessness and terror."

-Herman, 1992 & 1997

In general, trauma can be defined as a psychological, emotional response to an event or an experience that is deeply distressing or disturbing. Trauma refers to something upsetting such as being involved in an accident, having an illness or injury, losing a loved one, and going through a divorce or rape or torture. Trauma is pervasive throughout the world and it never discriminates. In a survey conducted by World Health Organization (WHO) it was reported that at least a third of more than 125,000 people surveyed in 26 different countries had experienced trauma. The number increased to 70% when the sample was limited to people experiencing disorders as defined by DSM-IV. But the number found in the study is much lesser than the actual number of people experiencing trauma. As far as prevalence of trauma is concerned it has been seen that every individual at least once experiences traumatic event in their life.

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Causes of Trauma:

Trauma does not always consider an experience of stressful of upsetting event but it also includes witnessing a stressful or upsetting event or situation. There are various situations or events which can cause traumatic experience in an individual. Few causes are as follows:

Physical abuse is any intentional act causing injury or bodily harm to another person by way of bodily contact. Any kind of physical abuse can cause trauma in an individual.

Sexual abuse or sexual assault causes trauma in all the genders. But somehow women reports trauma due to sexual abuse more than men do. Sexual abuse refers to undesirable sexual behavior or unwanted sexual contact by an individual upon another.

Domestic violence or community violence also causes trauma in individuals. Usually domestic violence are not exposed or expressed so people having trauma due to the same are not treated. Due to community violence people or group of people gets traumatized and it can have severe impact also.

Emotional abuse is an attempt to control someone using emotion. It is same as physical abuse and the only difference is that emotional abusers don't use physical forms of harming others. Emotional abuse includes intimidating and threats, criticism, undermining, being made to feel guilty, economic abuse and so on. It causes trauma in individuals and its impact may last for longer period.

Neglect (Emotional or Physical) is also a kind of behavior which causes trauma to the individuals. The act of neglect can be emotional or physical and both causes trauma.

Parental Mental Health Issues are mostly traumatizing for individuals. These issues can include severe depression, suicide or other mental health issues in parents, institutionalized or hospitalized parent(s), incarcerated parent(s), and addiction or substance abuse in parent(s). Since these issues have long term effect it can cause severe trauma in most of the population.

Natural disasters can also cause trauma in people to greater extent. Natural disaster is a natural event such as flood, earthquake, drought, or hurricane that causes great damage or loss. People who experience or witness these events might get traumatized.

Sudden and violent death of a loved one can be severely traumatizing for an individual. Severity of trauma depends on the closeness or level of relationship with the lost person.

Witnessing a war can also be the cause of trauma in people. As it was explained in the beginning that without experiencing just witnessing an upsetting event can also cause trauma. If there was great loss of people in the war then there are high chances that it would be greatly traumatizing for survivors.

These are some common causes of trauma. However, the list of causes is not limited to the above mentioned causes. Any situation can be traumatizing for one person but not for the other so there are always individual differences in context of being traumatized. Trauma due to road accident is also very common. This is the second leading cause of trauma in India. It was reported that 22.8% of all traumas are transport-related injuries. India accounts for one-fifth of global deaths due to road accidents. A trauma related death occurs in India every 1.9 minutes.

Common Reactions to Trauma:

As we know that there are individual differences in perceiving traumatizing or upsetting situation. In the same way there are individual differences in reaction to traumatizing events. Most often it is found that shock or denial is the first typical response to traumatizing event. Over time, these reactions can change and other long-term reactions can develop. Some common reactions are denial, anger, confusion, persistent feeling of sadness and despair, worry, numbness, hurt, fear, self-blame, disbelief, shock, anxiety, revulsion, guilt, shame, betrayal, withdrawal, embarrassment, flashbacks, unpredictable emotions, feeling of isolation and hopelessness, and jealousy. Reactions to trauma can be categorized into following categories physical reactions, behavioral reaction, emotional reaction and psychological reaction.

Physical reaction includes fatigue or exhaustion, disturbed sleep, nausea, vomiting, dizziness, headaches, excessive sweating and increased heart rate.

Behavioral reaction includes avoiding reminders of the event, inability to stop focusing on occurred event, getting immersed in recovery-related tasks, losing touch with normal daily routines, changed appetite, and turning to substance dependence.

Emotional reaction includes fear, anxiety, panic, shock, feeling numb, avoiding others, continuing alarm, guilt, and oversensitivity.

Psychological reactions include hyper-vigilance, intrusive memories, shame or guilt, anxiety, depression, irritability or anger, mental avoidance, PTSD (Post-traumatic Stress Disorder), dissociative disorder and substance abuse.

These are all common reactions to any stressful or traumatizing situation or event. These reactions become a concern when it starts affecting one's daily functioning and persists for longer period. However, it requires proper attention and management for relief.

Management of Trauma:

People seek different mode of treatment for different kind of trauma. If the individual experiences physical trauma then there is high probability that he/she would look for pharmacological treatment and the management is immediate as well. But when it comes to psychological trauma then due to stigma present in the society there can be great delay in identification of the traumatic experience. Once the traumatic experience has been identified and it is persistent for longer period after the traumatic event then people start thinking of the management. For psychological trauma also there are both the modalities of treatment (pharmacological/medical and non-pharmacological/psychological) available to the person. Medical intervention is always for immediate relief but psychological intervention is given for long term management and to prevent from severe reaction to the traumatic events. Psychological intervention is useful in all kinds of traumatic experiences.

Psychological Intervention:

Psychological interventions include several types of psychotherapies which are effective in managing psychological impacts of trauma and also in preventing an individual from having severe reaction to the traumatic event. These several types of psychological intervention include, psychological debriefing, psychological first aid (PFA), cognitive restructuring therapy, cognitive processing therapy, exposure-based therapies, coping skills therapy, psycho-education, eye movement desensitization and reprocessing (EMDR), and cognitive-behavioral therapy (CBT). These psychological interventions are intended to prevent the development of trauma-related symptoms in the individuals.

Psychological Debriefing –

In psychological debriefing patients having traumatic experiences are explained about the normal reaction to the traumatic events in order to maintain their extreme reactions and prevent them from severe reactions. Through this intervention technique patients' awareness about the traumatic events is increased and they are encouraged or motivated to share their experiences and emotional responses to traumatic events. Number of sessions and process of the intervention can differ patient to patient. Psychological debriefing can be done individually and in group setting as well.

It also includes Critical Incident Stress Debriefing (CISD) and Critical Incident Stress Management (CISM). CISD is usually a facilitator-led group process. It is conducted with individuals having traumatic experience soon after a traumatic event (36-72 hours). The structure of the sessions can differ individual to individual. The formal structure of the intervention is consists of seven steps: Introduction; Fact Phase; Thought Phase; Symptom Phase; Teaching Phase; and Re-entry Phase. CISD is a secondary prevention intervention technique. This technique was originally developed for those individuals who are indirectly exposed to the traumatic events. Mainly this intervention is done by a team of individuals familiar with the organization and mental health professionals. This approach is very flexible in nature and structure. Here, facilitators help the individuals to manage or normalize their stress reactions or responses to traumatic events and introduce adaptive coping skills and provide additional resources as well. Regarding the efficacy of CISD some studies suggested that this might be ineffective and may have harmful effects if conducted with all the individuals having trauma (not specifically PTSD) (Litz et al., 2002; Mitchell et al., 1999; van Emmerick et al., 2002). There was a study conducted in which CISD was reported to be an effective intervention (Rose et al., 2002).

In meantime CISD was expanded and transformed into CISM. CISM is a multi-level and comprehensive crisis intervention program and it aims to reduce the severity of traumatic stress experienced by the individuals. In comparison to CISD, CISM contains more methods and tools such as pre-incident training for prone individuals, one-on-one individual crisis support, demobilizing, and defusing. Demobilizing refers to providing information about coping and stress to a large groups of emergency workers and defusing refers to asking the individuals to explore and discuss the incident and their emotional reactions to

it and generally it is done with a small group. In CISM there are referral procedures for sending people for psychological services (AHRQ, 2012).

Psychological First Aid (PFA)

PFA consists of set of helping actions. These actions are aimed at reducing first traumatic event distress and then helping the individuals for short-term and long-term adaptive functioning. PFA was designed as a first step towards management of complex trauma and it was constructed around eight core actions (AHRQ, 2012). These core eight actions are (1) contact and engagement, (2) safety and comfort, (3) stabilization, (4) information gathering, (5) practical assistance, (6) connection with social supports, (7) information on coping support, and (8) linkage with collaborative services. PFA services are mainly provided by mental health professionals, counselors, and other professionals who can provide immediate support to the individuals. PFA has advantage of high portability. It can be provided to the survivors anywhere. Initial step is always important in case of trauma because if it is not treated well in the beginning then it may have adverse effect on the individual and others as well. However, PFA services may crucial role in the management of stress occurred due to traumatic experiences.

Cognitive-Behavioral Therapy (CBT)

CBT is the most widely researched and used therapeutic techniques. There are several studies conducted and reported the efficacy of CBT for various traumatic symptoms and other mental disorders. CBT is a therapeutic technique which focuses on the relationship among thoughts, feelings, and behaviors. And it also looks upon how change in any of these three domains can affect the functioning of the other domains. For example, altering a person's unhealthy behavior can lead to helpful thinking and improved emotional regulation. CBT techniques target individuals' current or ongoing problems and symptoms unlike some other psychotherapeutic techniques. It can be provided either in individual or group format. Number of sessions taken to deliver CBT differs individual to individual. Typically, it takes 12-16 sessions to provide CBT and again it differs individual to individual. CBT has been found very effective for the treatment of PTSD and depression. CBT works on principles of changing irrational beliefs and conditioning to treat disorders. It includes components from both behavioral and cognitive therapy. CBT has been effective in treating many mental disorders. There is specific trauma-focused cognitive behavior therapy (TF-CBT) which incorporates specific strategies for traumatic events

or experiences. These strategies include exposure, cognitive restructuring, and various coping skills. TF-CBT is an evidence-based treatment which addresses the specific emotional and mental health related need of children, adolescents and adults. It has been successfully resolving a broad array of emotional and behavioral difficulties associated with simple and complex trauma experiences. In 1990s, this approach to psychotherapy was developed with the intention of serving children and adolescents who had traumatic experience due to sexual abuse. This therapy technique has expanded over the years and now includes services for adults as well. TF-CBT techniques are mostly brief in nature and involve weekly sessions. Duration of sessions is usually 60-90 minutes. This therapy can be done either in group or as individual therapy also.

Exposure-based therapy, kind of TF-CBT, is a technique where individual is confronted with the traumatic stimuli step by step and the confrontation is continued till the time individual's anxiety is reduced to a certain level. In vitro (mental imagery) and in vivo (real or actual situation), both kind of exposure is used in this therapy based on the suitability of the individuals. This therapy aims to dissolve the conditioned emotional response to traumatic stimuli and individual gradually learn that nothing "bad" will happen and it eventually decreases the anxiety or stress in the individual. The sessions typically last for 60-90 minutes and sessions are conducted weekly or biweekly. Typically, 8-12 sessions are conducted but differ individual to individual.

Cognitive restructuring, also known as cognitive reframing, is an important part of CBT. This technique was drawn from cognitive therapy and it helps individuals to identify, challenge and alter stress-inducing thought patterns and beliefs. It was first developed as a part of CBT and REBT (Rational Emotive Behavior Therapy). The main goal of this technique is to identify the individual's distorted thoughts and then correct or replace them with more adaptive or rational thoughts. The first step of the cognitive restructuring is to monitor and record antecedent (A), behavior (B), and consequences (C). Once we have the complete record of the thought or thinking process then we think carefully about whether our thoughts may have been wrong or have distortion and then we record our analysis. The final step is that when we identify the wrong aspect of our thought then we make correction or replace that thought with more accurate or rational thought. This technique generally takes place over 8-12 sessions lasting for 60-90 minutes.

Eye Movement Desensitization and Reprocessing (EMDR) is an integrative psychotherapy approach. This is extensively researched and has been found to be effective for treatment of trauma and PTSD. It is set of standardized protocols that incorporate elements from many different treatment approaches. This therapy can only be provided by proper trained and licensed mental health professionals. It can never be done by the individual himself. EMDR combines the imagery exposure of the traumatic event with concomitant induction of rhythmic eye movement. This strategy believes to help reprogram brain function so that the emotional impact of traumatic event can gradually be diminished and eventually solved. During therapy session, individual relives traumatic experience in brief doses while the therapist directs his/her eye movement. The individual is asked to recall the traumatic experience and work on incompatibility between positive and negative cognitions. Individual is asked to contemplate memory of traumatic event while focusing on fast moving fingers of clinician. After 10-12 eye movement, the individual is asked to assess the strength of memory and associated belief within the frame of positive cognition. EMDR typically takes 8-12 sessions of 90 minutes per week.

Psychoeducation is an important approach to psychotherapy. It is the first step of many therapies in dealing various mental disorders. Psychoeducation includes complete information about the disorder. Psychoeducation for trauma includes information about nature and type of trauma, prevalence and impact of trauma, possible causes of trauma, possible consequences of trauma, and available management options for trauma. It also includes providing resources or reading materials and providing information about the researches on trauma. This psychotherapeutic technique normalizes the individuals to a certain extent and helps clinicians to build rapport with them as well. Usually in sexual traumatic experiences or mental disorders people are not easily identifying their need to take management or not taking any help due to stigma associated with the event or disorder itself. Psychoeducation or awareness about the problem helps people to come up and share their problem. They understand the situation in proper way that they never thought of. Psychoeducation is an ongoing psychotherapy technique and it can also be combined with other psychotherapy techniques.

Conclusion:

Trauma is an unpleasant or upsetting experience or response to stressful or

traumatic symptoms and then get help for their management. Gradually people started breaking the stigma associated with it and started talking about it. Once the traumatic symptoms are identified, the second step is to assess the severity and for this purpose there are standardized tools available. For the management of trauma both the modes (medical and psychological) are available as per suitability. This chapter is about psychological intervention techniques and it covers the most widely used psychotherapies for trauma. There is a rich literature on psychological interventions after traumatic experience and various studies support the efficacy of the same. We should agree that we cannot take into consideration only the psychotherapy, but the clinician too. The therapist's personality is a major factor which could lead to success in trauma therapy. However, it is clear from the literature and research findings that psychological intervention techniques are effective in treating trauma cases and it gives long-term benefit. It also provides prevention to the individuals from experiencing complex or severe trauma.

Coping skills therapy is very effective in treating trauma experiences. People having traumatic experiences have maladaptive coping skills which affect their overall functioning. Due to traumatic experience individual's thought or thinking process gets affected and it affects the coping skills as well. Gradually the symptoms deteriorate and coping skills get maladaptive. Adaptive coping skills are taught to the individuals to manage traumatic symptoms and daily functioning. Coping skills training is provided independently or it can also be combined with other psychotherapeutic techniques. It typically requires 8-12 sessions lasting over 60-90 minutes per week. Efficacy of coping skills training has been proven in various research studies.

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TRAUMA MANAGEMENT: SELF-CARE TECHNIQUES

Nity Sharma[1], Usha Sharma[2] & Hema MA[3]
'Everybody has a right to have a future that is not dictated by the past'

Karen Saakvitne

Every individual generally feels stressed out at times due to some awful, overwhelming situations and circumstances. The word *trauma* is used in day-to-day language to mean a highly stressful event that devastates a person's ability to cope. Stress is a part of everyday life and is a natural physical and mental reaction to life experiences. But trauma from a violent event is much beyond the average physical, mental, or emotional strain of daily living. The events that cause trauma can be extremely upsetting and severely damaging in nature like having met a life-threatening accident, losing a loved one, going through a divorce, rape or torture. Therefore, trauma is not a part of normal life; it leaves the victim with a deep wound, changing his life entirely as it once existed. The American Psychiatric Association's Diagnostic and Statistical Manual (DSM-IV) defines a 'traumatic event' as one in which a person experiences, witnesses, or is confronted with actual or threatened death or serious injury, or threat to the physical integrity of oneself or others. The term 'trauma' originates from the Greek word *trauma* (wound). This term can be interpreted in the context of both physical and psychic wound. In other words, trauma refers to both a medical as well as a psychiatric condition. Medically, 'trauma' refers to a serious or critical bodily injury, wound, or shock. Psychiatrically, 'trauma' has assumed a different meaning and refers to an experience that is emotionally painful, distressful, or shocking, which often results in lasting mental and physical effects (National Institute of Mental Health, 2001).

While trauma is a normal reaction to a terrible event, the effects can be so severe that they interfere with an individual's ability to live a normal life, thereby impacting him not only physically but psychologically as well. Psychological trauma is the experience of an event or enduring conditions, in which, the individual's ability to integrate his/her emotional experience is overwhelmed,

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or, the individual experiences (subjectively) a threat to life, bodily integrity,
or
sanity (Pearlman &Saakvitne, 1995).Psychological trauma devastates the coping ability of the affected person, who then begins to dread death, annihilation, mutilation etc. There can be multiple events leading up to the traumatic experience. It includes incidents that are private (e.g. sexual assault, domestic violence, child abuse/neglect, witnessing interpersonal violence) or public in nature (e.g. war, terrorism, natural disasters). It also includes the responses to chronic or repetitive experiences such as child abuse, neglect, combat, urban violence, concentration camps, battering relationships, and enduring deprivation. There are two components to a traumatic experience: the objective and the subjective. It is the subjective experience of the objective events that constitutes the trauma. The more one believes that one is endangered, the more traumatized one would be (Jon Allen, 1995). Psychologically, the bottom line of trauma is overwhelming emotion and a feeling of utter helplessness. There may or may not be bodily injury, but psychological trauma is coupled with physiological upheaval that plays a leading role in the long-range effects. It is an individual's subjective experience that determines whether an event is traumatic or not.

In other words, trauma is defined by the experience of the survivor. Different individuals react to trauma in their own way, depending on the nature of their traumatic experiences and the circumstances surrounding them. Two people could undergo the same noxious event and one person might be traumatized while the other person might remain relatively unaffected. Moreover, the difference lies in the specific aspects of an event that may be traumatic for one individual and not for the other. The details or meaning of an event those are most distressing for one person may not be same for another person. Trauma comes in many different forms and types, and there are vast differences among people who experience trauma. But the similarities in response patterns intersect the array of causal factors and victims.

The prevailing belief is that greater amount of harm is done when a person is directly exposed to traumatic experiences. The victims or the individuals who experience the trauma are obviously the intensely affected population. However, second-hand exposure to trauma can also be equally or more traumatic, according to the National Institute of Mental Health (NIMH, 2006).

time, of working with trauma-effected clients. It has been identified as a 'job hazard' of trauma counselling. Working with trauma-affected individuals over time affects the counsellor's frame of reference about self, others, and the world as well as their self-capacity, ego resources, and memory (Pearlman & Saakvitne, 1995). More specifically, this kind of work has a cumulative transformative effect on counsellors because they empathically enter into the traumatized person's experience and suffering. While primary victims of crime might be identified easily, secondary victims such as family members or care-providers may not be so readily identifiable and may not receive needed services. Therefore, it is of utmost importance for the care-givers to not only help their clients but also to help themselves in remaining physically and mentally healthy while attending to the needs of their clients and providing them treatment.

The chapter covers this crucial requirement of the affected population, by putting together the aspects of trauma in victims, care-givers, and then moving on to the management techniques, specifically throwing light upon the self-care techniques which can be used by the affected person, that is, the victim and the caregivers for management of their own trauma.

Trauma in Victims

Trauma can be caused by an overwhelmingly negative event that causes a lasting impact on the victim's mental and emotional stability. While many sources of trauma are physically violent in nature, others are psychological. Some common sources of trauma include: rape, domestic violence, natural disasters, severe illness or injury, the death of a loved one and witnessing an act of violence. Trauma is often but not always associated with being present at the site of a trauma-inducing event. Trauma can also be sustained after witnessing something from a distance. It depends on a person's vulnerability and his coping ability that how well he would be able to deal with it and take care of his social and emotional well-being. Substance Abuse and Mental Health Services Administration (SAMHSA), describes individual trauma as resulting from 'an event, series of events, or set of circumstances that is experienced by an individual as physically or emotionally harmful or life threatening and that has lasting adverse effects on the individual's functioning and mental, physical, social, emotional, or spiritual well-being'.

There are various and diverse types of trauma. The extent to which trauma influences the mental health of an individual depends on the nature of trauma, as

well as on the individual's coping capabilities. Often trauma is followed by depression, anxiety, and PTSD. Traumatic events include events in which a person experiences or witnesses something very frightening and horrifying (APA DSM-IV, 2000). Traumatic events involve threats to life or physical and emotional integrity, such as sexual violence, torture or forced displacement of oneself or of others. They are accompanied by a sense of powerlessness and loss of control. Trauma fighter's differently views their traumatic experiences, many survivors have triggers which they have experienced and lead to intense physical and emotional reactions. Schneider (2017) in her article, 'Self-Care when you are healing from trauma', stated that there are wide range of people who are impacted by trauma in diverse forms, for example a mother whose baby died in womb, a childhood sexual abuse survivor, a father whose teenage child committed suicide, a survivor of 5 miscarriages and failed attempts of IVF, person working in intolerably toxic work environment, a child who witnessed domestic violence, child or women who has survived trafficking. The people who have managed to survive these types of trauma have common shared experiences of suffering and loss. However, the stories of the individuals would be different but the loss they have faced is similar and working towards their healing and recovery is like giving a new life to the individual. Response of a client to trauma is as unique as the individual. Few may show evidence of Post-Traumatic Stress Disorder (PTSD) via symptoms of hypervigilance, numbness, intrusive flashbacks, generalized unease and dread (DSM-V, 2014) and some may develop complex PTSD i.e. a more severe and pronounced version of PTSD as a result of exposure to chronic sustained trauma over a long period of time (Herman, 2015).

The impact of trauma on individuals, families, and communities is a behavioral health concern that requires an appropriate consideration to manage it effectively. Trauma has no boundaries with regard to age, gender, socioeconomic status, race, ethnicity, or sexual orientation. For this reason, the need to address trauma is increasingly seen as an integral part of the healing and recovery process of effective behavioral health care programs.

Signs and Symptoms of Trauma in Victims

While the causes and symptoms of trauma are various, there are some basic signs of trauma that should be taken care of. The impact of trauma is personal

have experienced trauma are impacted physically, emotionally, behaviourally, cognitively, spiritually, neurobiologically and relationally. According to *Morgan Adams* (2019), people who have endured traumatic events will often appear shaken and disoriented; they may not respond to conversation normally and might often appear withdrawn or lost. Another prominent sign of a trauma victim is anxiety. Anxiety due to trauma can manifest in problems such as night terrors, edginess, irritability, poor concentration and mood swings. These are some of the common symptoms of trauma however, they are not exhaustive. Individuals respond to trauma in different ways. Sometimes trauma is virtually unnoticeable even to the victim's closest friends and family members, at other times, it may manifest slowly and may go un-noticed. Trauma can manifest in days, months or even years after the actual event. Victims may face a wide range of immediate, short-term, and long-term reactions after the trauma. Individual trauma is also affected by pre-victimization and post-victimization factors related to one's experiences, degree of personal and social support, resilience, and exposure to supportive services. The symptoms of trauma can broadly be summarized as physical or emotional in nature.

Emotional Symptoms of Trauma

Emotion is one of the most common ways in which trauma manifests. Trauma tends to evoke two emotional extremes: feeling either heightened level of emotions (overwhelmed) or too little emotions (numb). Some common emotional symptoms of trauma include denial, anger, sadness and emotional outbursts (Adams, 2019). Victims are likely to experience a wide range of different emotions, such as fear, anger, sadness, guilt, etc. In the immediate aftermath the victim may feel vulnerable, the world might seem threatening, and the future uncertain. Therefore, fear and panic are explainable emotional responses. Sometimes, victim might even feel angry because one doesn't feel in control of his life any more. Some people may start blaming themselves for what happened and feel guilty about the event. Some may experience survivor guilt (guilt over surviving while others did not), although they aren't responsible for it in any way (Z. Lewczuk and J. Bell, 2005). Victims of trauma may redirect the overwhelming emotions they experience toward other sources, such as friends or family members. This is one of the reasons why trauma is difficult for care-givers as well. It becomes extremely difficult for the care-givers to help such victims who affect their emotional state. But a little caution

Psychological or mental trauma involves painful feelings and frightening thoughts invoked by witnessing or experiencing a traumatic event. While most people process and deal with these feelings after a short time, some people are unable to do so.

Physical Symptoms of Trauma

Trauma often manifests physically as well in addition to the emotional and psychological symptoms. Some common physical signs of trauma include paleness, lethargy, fatigue, poor concentration and a racing heartbeat. The victim may have anxiety or panic attacks and be unable to cope in certain circumstances. The experience could trigger physical symptoms such as palpitations, patchy sleep, poor concentration, agitation, dizziness, etc (Z. Lewczuk and J. Bell, 2005). Increased risk of cardiac distress, irritable bowel syndrome, chronic pain, sleep disturbances, lethargy, fatigue of body, loss of appetite, decreased libido etc. are some other physical symptoms that a victim may display. The physical symptoms of trauma can be as real and alarming as those of physical injury or illness, and care should be taken to manage stress levels after a traumatic event.

Effects of Trauma in Victims

The devastating effects of trauma can take place either over a short period of time or over the course of weeks or even years. The sooner the trauma is addressed, the better chance a victim has of recovering successfully and fully. Short-term and long-term effects of trauma can be similar, but long-term effects are generally more severe. Short-term mood changes are fairly normal after trauma, but if the shifts in mood last for longer than a few weeks, a long-term effect can occur. Trauma can result in changes to the brain and immune systems, increase physical and mental stress, Reactions during and in the immediate aftermath of trauma as described by Spiegel (2008) include: being dazed, unawareness of serious injury, experiencing the trauma as if it were in a dream, floating over their own body attachment difficulties, seeking comfort from imaginary protectors, also referred to as ego-states (in cases of child abuse). If traumatic events are not handled adequately and there is no or insufficient intervention, trauma remains unresolved. Levine (2005) states that unresolved trauma can potentially have some or all of the effects, like: alter people's habits and outlook on life, take its toll on family and interpersonal relationships, trigger physical symptoms and disease, cause problems with decision-making, lead to addictions, cause dissociation, and precipitate self-destructive

behaviours. Any effects of trauma should be addressed immediately to prevent permanence, and to help the affected population recover timely.

Trauma of Caregivers

Trauma impacts not just the survivor, but everyone around them including their families and related communities. Such a widened scope of impact may be the cumulative effect of working with perpetrators of trauma or survivors of traumatic life events, as part of everyday work, thus, referred to by different nomenclature as Vicarious Traumatization (VT), Compassion Fatigue (CF), or Secondary Trauma (Osofsky, Putnam & Lederman, 2008).According to the American Counselling Association, vicarious trauma is the term that describes the phenomenon associated with the 'cost of caring' for others (Perlman &Saakvitne, 1995). In this context of understanding vicarious trauma, it is also important to differentiate the phenomenon from another closely related term 'burnout' which is a phenomenon that builds up over a period of time and can also be taken care of with a change in routine or time off (Figley, 1996).

The ripple effect of trauma on the caretakers has been acknowledged in the Diagnostic and Statistical Manual – V (2013) for the efforts driven towards immediate engagement with the crisis and sustained care provided to meet the physical and emotional needs of the survivors (Siegel, 2014). In this regard, the manual recognises the work of frontline responders such as doctors, nurses, police, fire fighters, counsellors and teachers. Many victims of trauma experience physical, behavioural, cognitive and emotional problems which may require continuing care for many years. Such experiences of victims require persistent caregiving by spouses, parents, or other family members who are called informal caregivers for their services alongside the professional role of service providers in the administrative, medical and health sectors (Blake, 2008).

With due credits to the service provided by every individual in varied roles and professions in helping the victims of trauma, this section focuses on the formal caregiving role of mental health professionals and the informal role of family and peers. The emphasis on these caregiving roles is based on the association of the role with a range of adverse effects including anxiety, depression, poor physical health and poor quality of life among informal caregivers (Blake, 2008). Psychiatrists are more susceptible to secondary traumatization than other health care workers with direct patient care (Sprang, Clark, & Whitt-

Woosley, 2007). Further, in case of counsellors, vicarious trauma, is a state of tension and preoccupation of the stories/trauma experiences described by clients which more often than not results in a state of arousal, thus, having an impact on the counsellor's health and personal life (American Counselling Association).

A deeper understanding of vicarious traumatization would need a look into the causal factors of the phenomenon.

Etiology of Vicarious Traumatization

There are many causal factors of vicarious traumatization. Many researchers have identified the contribution of different factors. According to Bloom (2003), the causal factors of vicarious traumatization may be classified as biological, psychological, social, organisation and moral.

- *Biological factors:* The people suffering from trauma are often overwhelmed by their emotions. In such a state, the role of a good caregiver lies in helping the victim to express their emotional states and respond by regulating their own emotional contagion. While such an act facilitates the sufferer of trauma, it suppresses the caregiver's own physiological states of hyperarousal, fear, anger, and grief which is likely to have a negative impact on the physical and emotional health of the caregiver, thus, resulting in vicarious traumatization.

- *Psychological factors:* A central focus of the concept of vicarious traumatization is a disturbed frame of reference. An experience of trauma is likely to destroy the positive ideas and beliefs about oneself, others and the world. Similarly, constant exposure to traumatized people can have an effect on the positive illusions of the caregivers, thus, disturbing and misaligning their frame of reference about their self and the world. This would result in an unhealthy state of mental health and well-being.

- *Social factors:* The training imparted to mental health professionals includes development of careful listening skills, avoiding giving in to their own inclinations to distance themselves, and to empathize with the experience and emotions of others. These skills forbid the caregivers, specifically the counsellors and psychologists from using social defenses like ignorance and shifting topics of discussion, which may lead to experience of vicarious traumatization by mental health professionals.

- *Organisational factors:* Organizational settings that refuse to accept the severity and pervasiveness of traumatic experience in the population they are serving will thereby refuse to provide the social support that is required for caregivers. The caregiver, embedded in a situation of powerlessness and lack of social support, may find that all efforts to bring this assistance to bear are foiled by the institutional setting within which he or she is practicing. In this way, organizational factors may also contribute to the development of vicarious trauma.

- *Moral, Spiritual and Philosophical factors:* There are profound conflicts inherent in the ideological framework of present-day caregiving which play a role in making caregivers more vulnerable to the effects of vicarious traumatization (Bloom, 1995). The effects of such conflicts are not direct, but instead comprise a background 'noise'. These include the violation of healing, the commodification of health care, the shortcomings of the medical model, a bias towards individualism, and the issue of individual violence embedded within a context of cultural violence.

Signs of Caution for caregivers

It is a prevailing belief that the nature provides ample indications in the direction of a red or a green signal for behaviour. In the context of vicarious traumatization, Mueller (n.d.) classifies the warning signs at personal, interpersonal and organisational level.

At the personal front, a caregiver may suffer from hyper-vigilance, hopelessness, inability to embrace complexity, inability to listen and avoidance of the victim. The behavioural manifestation of these symptoms would be in the form of anger, fear, cynicism and sleeplessness. This might further result in chronic exhaustion, physical ailments, minimizing tendency and guilt. Such disturbances would extend to have an impact on interpersonal relationships in the form of increased conflict, negative feelings when reached out by others, losing interest in family rituals, routines and social activities. An effect of these actions would result in the inability to manage relationships and work, feelings of helplessness, detachment and withdrawal. Further, an undulated effect of interpersonal signs would be on the high rates of turnover, absences and tardiness in the organisation, poor communication between individuals/departments, missed deadlines, incomplete/poor work quality,

increased customer complaints, negative atmosphere/low morale, less motivation/energy and finally, a lack of psychological safety.

Despite having knowledge of these signals, the onus of recognition of these signs and responsibility of appropriate actions on the signals is on the concerned individual.

Risk Factors of Vicarious Trauma

Risk factors are realities that make a person more vulnerable to experiencing vicarious trauma. According to the Headington Institute (n.d.), personal risk factors arise from an interaction between the individual, the situation in which the caregiver is placed and the cultural context. Understanding these risk factors will simplify the process of identification of strategies to be adopted to prevent or address vicarious trauma.

1. Personal factors

- *Personality and coping style:* Vicarious Trauma is dependent on the personality and coping styles of individuals. For people who tend to avoid problems or difficult feelings, blame others for their difficulties, or withdraw from others when things get hard, coping may be more problematic. On the other hand, people who are able to ask for support, understand themselves and others, and who actively try to solve their problems may be less susceptible to severe vicarious trauma.

- *Personal history*: It seems possible that people with a history of trauma are likely to identify more closely with the particular type of pain or loss experienced by others. Such care givers have a tendency to readily imagine, or even remember, such losses happening to themselves, thereby increasing their vulnerability to experience severe vicarious trauma and distress related to their own personal trauma histories.

- *Current life circumstances:* Stress and competing needs in an individual's life could accumulate and make it more challenging to take care of themselves while also working effectively and compassionately with those suffering from trauma. Such added stressors in other areas of life can make the caregiver more vulnerable to vicarious trauma.

- *Social support:* Research strongly suggests that lack of good social support puts you at increased risk for vicarious trauma because everyone who works with people or communities that have been harmed or traumatized, will at times find it difficult to describe to friends or family the nature and challenges of this sort of work.

- *Spiritual resources:* A source of meaning, purpose, and hope provides a context to the comprehension of events in the surroundings. A lack of connection with such a source may be a risk factor for developing more problematic vicarious trauma.

- *Work style:* Unsustainable professional and work-life boundaries coupled with unrealistic ideals and expectations about work can contribute to vicarious trauma.

2. Situational factors

- *Professional role, work setting, and exposure:* Situational challenges vary with time and space. However, research suggests that caregivers who are in a position of responsibility and engaged with the victims for a longer duration are likely to experience vicarious trauma.

- *Agency support:* Organizations fostering poor culture of effective management, open communication, and good staff care, increase their staffs' risk of vicarious trauma while providing care to victims.

3. Cultural factors

- *Cultures of intolerance:* Sexism, racism, injustice, intolerance, and ethnic hatred are part of the fabric of many societies. This opens the chance of caregivers feeling unwelcomed or generally perceived as part of the problem by the victims of trauma or their immediate family. Such feelings increase their vulnerability to experiencing more intense vicarious trauma.

- *Cultural styles of expressing distress while extending and receiving assistance:* The ways in which an individual typically expresses distress and extends or asks for support are greatly influenced by the culture in which he/ she grows up. Inability to understand cross-cultural differences in expressing distress and extending and receiving assistance can contribute to an increased risk of vicarious trauma.

- ***The culture of humanitarian work:*** Caregiving as a profession is often characterized by self-neglect, toughing it out, risk-taking, and denial of personal needs. All of these can contribute to be a severe cause of developing vicarious trauma.

Thus, vicarious trauma is a dynamic process encompassing factors that are most problematic. The factors influencing the experience at a particular time and space is variable and therefore, may be different from what will affect caregivers on another day. This reinforces the need to develop effective and culture specific ways of working with trauma.

Trauma Management

Management is a learned behavior and a part to be integrated in the victims and caregivers. By commitment and consistent practice one can help themselves in improving their management skills. The sufferers and caregivers can help themselves by proactively supporting self-care management practices, by building or strengthening healthy state of mind and engaging in activities would help in lowering the physiological adrenal surge (which gets active in fight or flight mode situation). This helps the people suffering from trauma to reprocess and release their traumatic events and the recovery and healing becomes possible. As per Schneider (2017) self-care is vital to trauma as it is the pillar to recovery and helps survivors encompass the spiritual, physical, social and emotional facets of healing. Further, it has been found that lack of awareness among survivors and caregivers related to the self-care is very limited. With reference to this few self-care techniques have been described further that would help in catering the needs of care givers and victims.

Trauma Management in Victims

An individual's care towards self is very important for healing and coping with trauma. There are different techniques to manage trauma and its effects, as explained by various mental health professionals, social workers working in the field of trauma, psychologists, and therapists. There could be no one practice which will be probably best for individuals suffering from trauma. Different self-care techniques have been suggested by Arabi (2016) and Alameda County consumers and family members (2013) to help the victims choose the best option for themselves and strengthen their self with confidence.

1. Positive affirmations

The trauma sufferer's subconscious mind needs to be reprogrammed with positive assurance as it gets affected by the actions, abusive words to which victim have undergone. This makes the sufferer negative about himself and automatically destructive thoughts arise among them affecting their day to day lives. Feelings of the victims get mixed and hold the sufferer back from embracing the power and agency to rebuild oneself. Here, a thought reminding oneself like *'I am beautiful, inside and out'*, whenever the harmful thought or emotion associated with trauma occurs will help victims in giving self the assurance that it is not the his/her fault. Many a times thoughts are not even of the victims but the voices of the abusers, bullies who continuously taunt the victims after the traumatic event has ended, which is reflected as inner critic of the sufferer. Thus, to reduce this, the brain needs to be reprogrammed and positive affirmation can be a benefit to it by tailoring their particular wounds and insecurities.

Positive affirmation releases oneself from apprehension, negativity, blame, distress and agony. To illustrate, the victim is insecure about his appearance that the abuser has presented to inculcate in the sufferer, he or she can be gently interrupted by replacing the negative ruminating thought with an affectionate one such as, *'I am Valuable; I am Worthy; I love Myself; I am beautiful'*. The caring words can be used by recording the constructive words by victims' voice and asking them to listen it in a routine daily. This would aid the victim to drive out the bully hassling inside the victim's head (Arabi, 2016).

2. Heal the mind through the body

According to trauma expert Dr. Bessel van der Kolk, the trauma survivors live their distressing experiences in their physiques as well as thoughts. To overcome this, it's important for the survivors to find one form of physical outlet for intense emotions like anguish, rage and hurt which the victim is feeling in order to combat the paralysis that accompanies trauma making the survivor feel numb. Along with listening to the positive affirmation on a daily basis, the survivor should engage in physical activity of which they are passionate like kickboxing, yoga, dance, cardio, running etc. (Van der Kolk, 2014; Arabi, 2016).

3. Breathe

The breathing exercise whether it is for five minutes or an hour helps in managing the emotions of victims and addressing the survivors' painful triggers

non-judgmentally. Mindful breathing exercises and meditation are helpful in managing individuals' responses i.e. fight, flight, freeze or responses to ruminating thoughts and flashbacks. Further, meditation factually rewires our brain so that the survivor is able to mindfully approach any maladaptive responses that may keep them locked into the traumatic event (Arabi, 2016).

4. Channel pain into creativity

Van der Kolk (1996) reported that trauma affects the Broca's area of the brain which deals with the language. It disables the survivor's brain from expressing what is occurring. Therefore, allowing oneself to express the trauma in a somatic way is important because trauma and the dissociation that comes with it can be difficult to process into words as to when we are dissociated from the trauma, our brain protects itself from the traumatic event by giving us an outsider perspective to the trauma, disconnecting us from our identity, thoughts, feelings, and memories related to the trauma. While, trauma can disconnect us from both our minds and bodies through processes of depersonalization, derealisation, and even amnesia. Since, art can help us reintegrate self from where the individual is previously disconnected. Whether it's writing, painting, drawing, making music, doing arts and crafts – it's important to release the trauma in alternative ways that engage both mind and body. Moreover, when an individual create something, he/she can also have the option of sharing our art with the world –In this way, harnessing pain into creativity can be a life-changing experience – both for victims and for caregivers (Arabi, 2016).

5. Ask for help

Seeking help does not make the sufferer restricted, reliant on someone, helpless or powerless, it is in fact a strong recognition of realizing the power within to be able to seek help and openly receive it. If victim is juggling with trauma effects, then seeking help from a validating mental health professionals and having the support of a professional throughout the process can ensure that victims are able to address their trauma triggers in a safe space. It is important to choose a validating, trauma-informed counsellor who can meet the victims' needs and gently guide with the appropriate therapy that addresses the symptoms and triggers (Arabi, 2016).

Along with the techniques, the other methods as proposed by Alameda County consumers and family members (2013) which can help the victims recover

better and improve their skills are mentioned below:

1. **Spiritual Practices:** The spirituality includes belief and trust in some high power or supernatural being or having a broad thought that things happen for a reason and that struggle can be a growth process for example connection to something higher and prayer. The healing practices help the sufferer to have comfort, safety and ease with a thought that there is something superior to suffering and the higher power is at work which is serving to guide the sufferer during struggle and cares about the health and well-being. Few examples of spiritual practices include, asking support from traditional healer, reading the religious books in form of praying and talking to God, spending time and feel in connect to nature, listening to spiritual music etc.

2. **Peer Support:** Trauma can form a state of mind of being alone, being deprived, or devastated. Peers help victims by being understanding, non-judgmental and accepting themselves as they are. Their support to survivors will help them in relating with other people with similar experiences, hearing to their stories, having shared the experiences with people who have been there and feel in common are central aspects of healing. Some of the instances of peer support include, attending the community based programs, connecting to peers or others who listen to the victims and let their story share to others, being around such people who helps and understand the victims, identifying the people who can help during the emergency, trying to help someone else who is in the same situation, staying joyful and surround oneself with encouraging people etc.

Empowerment through learning and psychoeducation: Empowerment is a process of supporting individuals and communities to reconnect with personal power and strength. People who have experienced trauma may feel disempowered with a sense of powerlessness and hopelessness. By empowering the victims and psycho-educating them would built their inner strength. Below are techniques to empower through learning and psychoeducation:

▪ *Action* refers that victims should do something or anything in the life and taking chances for transformation and development instead of sitting alone and just venting, figuring out what can be done about it.

  ▪ *Employment* states to finding the jobs will help the victims have a feeling of productivity and distract the victims from ruminating thoughts related to the traumatic events.

- ▪ ***Finding role models*** is finding suitable role models who have gone through traumatic experiences, listening to their experiences, how they dealt with situation will help the sufferers gain more strength to deal with the situation.

  - ▪ ***Psychoeducation*** is gaining the information and support to understand the illness better and cope with it. So, victims can psycho-educate themselves by examples like knowing one's rights, educating self about trauma and knowing what could be done to stay safe, get introduced to the idea of recovery being an alternate and understanding what is happening to the self and mental health, being brave enough by having the ability to share and educate the friend, family and neighbours by good knowledge and skills about what's going on, learning about trauma and its impacts to normalize the experiences and create a sense of agency (that individual can do something about it), educating self on what mental health is and what different disorders mean etc.

4. **Individual Therapy:** Individual Therapy helps the sufferers to lessen the impact of the trauma faced by them and benefit them in living life more pleasantly. Thus, individual therapy is a safe, confidential space to help people work on the issues they are facing. Examples of individual therapy healing practices include:

   - ▪ *Animal therapy (using therapeutic animals):* Animals roles in society have commonly known as having good company and a healer. As per the empirical evidence, the animal used in form of therapy help in contributing positively on human's health and well-being (Altschiller, 2011).

   - ▪ *Dance:* is the psychotherapeutic technique to support intellectual, emotional, and motor functions of the body. A variety of approaches to dance depends on the clients need. These may include codified dance forms (such as partner dances, Modern Dance, ballet, folk and circle dances etc.).

   - ▪ *Music:* Music therapy is a creative arts therapy, consisting of a process in which a music therapist uses music and all of its facets—physical, emotional, mental, social, aesthetic, and spiritual—to help clients improve their physical and mental health.

▪ *Art and Expressive art therapy:* Expressive arts therapy combines psychology and the creative process to promote emotional growth and healing. This multi-art, or intermodal, approach to psychotherapy and counseling uses our inborn desire to create—be it theater, poetry, or other artistic form such as psychodrama, sculpture, painting, and drawing—as a therapeutic tool to help initiate change. If necessary, though, therapists may choose to combine several techniques in order to provide the most effective treatment for the individual in therapy. Popular therapeutic approaches may involve the use of various drawing and art techniques, including finger painting, the squiggle drawing game (sometimes used in other therapeutic approaches, especially with children), mask making, the kinetic family drawing technique etc.

5. **Expressing Emotions:** Expression is an important part of recovering through the phase which a victim is facing. Emotions are an integral part of an individual and a natural tool that have built into managing ones' life. People generally express their feelings using different emotions. There are times when people are bottled up with emotions or let it go with the hope that it will just go away and many a times we lose control and feel overwhelmed by emotions. Thus, articulating feeling can be done alone or with others and in various ways – with words, actions, writing, art, tears or smiles. Some of the examples of expressing emotion are mentioned below:

   ▪ *Crying* helps the victim to release and let their emotion out, allowing self to be sad. Also, having someone's support to cry will make the victim feel safe.

   ▪ *Humor* therapy uses the power of smiles and laughter to aid healing. It helps you find ways to make yourself (or others) smile, being silly and laugh more.

   ▪ *Taking the time to withdraw, time to be alone:* sometimes being alone, spending time with self or withdrawing self also helps victims to know self-better and acknowledging the various aspects of life.

   ▪ *Vent:* venting out emotions is considered to be a good form of expression. It helps in release of stressors the victim is facing, this can be done in form of yelling or screaming.

- *Writing* is other form of expression and venting out the emotions, it also known as journal therapy, is exactly what it sounds like – journaling for therapeutic benefits. Writing therapy is a low-cost, easily accessible, and versatile form of therapy. It can be done individually, with just a person and his pen, or it can be guided by a mental health professional. It can be practiced in a group, with group discussions focusing on writing. It's easy to see the potential of therapeutic writing – after all, poets and storytellers throughout the ages have captured and described the cathartic experience of putting pen to paper.

Victims go through a difficult phase of having mixed feelings, expressions and emotions. If they are made aware of the techniques which they can use for themselves, it will help them have a better self-understanding and develop the skills and abilities to work on themselves.

Trauma Management in Caregivers

The health of caregivers is very important in terms of well-being of the people being cared, maintenance of healthy relationships and effective functioning in other domains of life. To achieve this goal, the secondary traumatic stress can be treated at two levels: personal and organizational. Personal recommendations focus on the actions to be taken by the individual to recognize, reduce, or prevent the effects of vicarious traumatization. On the other hand, organizational recommendations focus on the active role of institutions and agencies in minimizing vicarious traumatization (Figley&Stamm, 1996; Stamm, 2002; 2005).These recommendations are classified with an aim to help the caregiver address vicarious trauma that is unique in the context of needs, experiences, interests, resources, culture, and value system of the caregiver.

To this effect, the management of vicarious trauma involves two important aspects of coping and transformation (Pearlman & McKay, Headington Institute, n.d.). Coping with vicarious trauma refers to the process of accepting it as part of the role of caregiving and learning to manage it efficiently on a day-to-day basis. At a practical level, it means identifying strategies to prevent vicarious trauma from becoming severe and problematic. The basic coping strategies include escape, rest, and play:

- **Escape:** This strategy focuses on getting away from the sources of vicarious trauma, physically or mentally by distracting oneself with books or films, taking a day or a week off, talking to significant people

about things other than work etc.

- **Rest:** is a strategy that involves doing things that relaxes one's mind and body. These acts may be different for different people. Therefore, it is important to identify what best suits the needs of the particular person in the role of the caregiver.

- **Play:** is a strategy of engagement in activities that make a person laugh or lighten his/her spirits.

The second aspect of trauma management is transforming vicarious trauma. Transformation may be possible by reconnecting oneself with the goal and purpose of the work being done, noticing, consciously paying attention and celebratingthe 'little things' – small moments of joy and also sympathizing with people you care about through traditions, rituals, or ceremonies. Therefore, it is a way of identifying ways to nurture a sense of meaning and hope in the act of caregiving. Transformation can be achieved by taking time to reflect upon one's challenging thoughts and beliefs and undertaking activities that promote personal growth like learning, writing in a journal, being creative and artistic etc.

In addition to these aspects of management, Awareness, Balance and Connection are the ABCs ofdesigning an action plan for dealing with vicarious trauma:

• **Awareness:** It is an important element of dealing with vicarious trauma as an awareness of the physical, physiological and psychological state can help the caregiver identify and understand their own reactions to people and situations. An understanding of the way in which the caregiver responds along with the factors contributing to the same can lead the person to make a sense of what is needed to change or manage the course of vicarious trauma.

- **Balance:**It may be particularly important in terms of work-life and on the job activities. The ability to recognize the need to segregate the demands of work and personal life and execution of the same in reality would help the caregiver a long way in managing trauma.

- **Connection:** The caregiver would have to find a connection with self or others in the path of dealing with vicarious trauma. Connection with other people involves maintaining nurturing relationships and

meaningful contact with family, friends, while, connection with our spiritual selves: leads to a sense of awe, joy, wonder, purpose, meaning, and hope. It is emphasized that, developing a strong connection with the self would be convenient in terms of independent coping with the process of trauma.

Interventions for Caregivers' Management of Vicarious Trauma

'If compassion does not include you, then, the process is incomplete', quotes Lord Buddha. In this context, Blake (2008) emphasizes the need for identification of needs of caregivers followed by ways to meet the needs as the basic intervention strategies for dealing with vicarious traumatization:

- **Identifying caregiver needs:** The unmet needs of the caregivers are often related to lack of emotional support. Needs vary according to role relationships with the injured person. But, the need for identifications found to be reflected on the behavioural problems in the person being cared. Therefore, identification of caregiver needs would be important for the well-being of the person suffering from trauma as well as the caregiver.

- **Information provision:** Morris (2001) reports that providing information booklets to caregivers at initial levels of service could help to alleviate psychological distress. In addition to early information, counselling would often be required in the early stages along with a focus on the possible need for long term assistance to the victim.

- **Community care and family interventions:** Building healthier relationships at the immediate family level and the extended societal level would have a great impact on dealing with trauma. In this context, formation of a peer support group would be facilitating in shaping the positive mental state of the individual experiencing vicarious trauma**.**

- **Resources for Self-Care:** Self-care activities can include journal writing, processing the intrusions and integrating the memories, progressive relaxation and engagement in physical activities, appropriate diet and drawing upon spiritual strengths. These act as distracters along with a structured record of monitoring the health of the caregivers.

- **Self-assessment**: A number of self-administered checklists have been published and circulated which allow people to make their own

assessment of the degree to which they experience secondary traumatization (Figley & Stamm, 1996; Stamm, 2002; 2005).Some of the psychometric tools that can be used to assess the prevalence of trauma in self are: Professional Quality of Life (ProQOL), Compassion Fatigue Self-Test, Self-Care Assessment Checklist (What About You?) etc.

- Telephone-based, individualized education and mentored problem-solving intervention have also been reported to be effective in improving the outcomes for caregivers of persons suffering from trauma (Powell et al., 2015).
- Several psychological intervention models have been reported to be effective in the treatment of vicarious traumatization. These include critical incident stress debriefing (CISD; Harris, 1995; McCammon& Allison, 1995). the multiple stressor debriefing model (Armstrong, O'Callahan, &Marmar, 1991), a sensory-based therapy (Harris, 1995; Ogden & Minton, 2001), vicarious trauma treatment approach (Pearlman &Saakvitne, 1995), and Accelerated Recovery Program for Compassion Fatigue (Gentry, Baranowsky, & Dunning, 1997). However, the decision on appropriate intervention would be based on personal preference of the therapist being treated, the opportunity for an immediate intervention following a critical incident, or whether the awareness of vicarious trauma is readily embraced (Salston& Figley, 2003).

There is a great need to understand that, living with the changes caused by vicarious trauma can have adverse consequences on the whole family (Blake, 2008). The stress experienced by caregivers is likely to interfere with many aspects of their lives including their ability to carry out household or work responsibilities too. While being aware of the fact that the factors contributing to the experience of vicarious trauma for one person may not affect someone else in the same way, it is important for the caregiver to realize that meeting their own needs is very much required in order to be facilitative in the process of recovery of others.

Conclusion:
 "Understanding trauma and that we each respond to it differently will help us be supportive and non-judgmental toward each other"

Stephanie S. Covington

Trauma has a life time impact on the victim and people around them which results in a stressful event or a situation that affects one's sense of well-being making them feel vulnerable in the day to day responsibilities. The victims' situation is associated with adverse psychological effects including anxiety, depression, post-traumatic stress disorder and sometimes getting more severe disorders like schizophrenia and delusional disorders, but the ones who are helping and playing a major role in helping the trauma victims also face its side effects like compassion fatigue or vicarious trauma. Thus, the victims or caregivers who have faced trauma deal with severe issues and the caregivers who are involved in form of counselling, or mental health professionals and social workers help them overcome the issues and challenges they are facing. They listen to the tough times they have gone through, listen to the dominant culture, injustice and human cruelty which they have faced while experiencing the traumatic events. Working with the clients who have suffered traumatic events and being personally exposed to these certainties can take a toll on caregivers' emotional resources and may affect their perceptions and worldviews in fundamental ways. Personal knowledge of oppression, abuse, violence, and injustice can be a difficult and isolating aspect of work for many mental health professionals. As a result, some may become overwhelmed, cynical, and emotionally numb. Some may even leave the profession. Thus, it is evident that both require the management for their well-being.

The present chapter is an attempt to focus on the concept of trauma, its impact on the victims and caregivers and the management techniques for them. Therefore, understanding trauma and majorly focusing on the self-care techniques would help victims and caregivers to work effectively and efficiently towards self. The survivors and caregivers should ensure that throughout the journey of healing from trauma to being gentle, acknowledging that techniques being used is best with positive affirmation and compassionate towards self in any circumstances.

Being a trauma survivor and undergoing the repercussion of the events is thought-provoking one but also empowering. Trauma acts as the catalyst for the people facing the challenge and the one who is dealing with it to learn how to better engage in self-care and acquaint with boundless modalities for curing and articulating oneself enabling one to channel his catastrophe into transformation of better self and being stronger. Most importantly, it gives access to connect

with the other victims and help them to transform and connect with themselves. Making a routine of good self-care habits can be a deep empowering experience for the people who have faced trauma and good self-care techniques can help in recovering well.

To conclude it can be said that healing and recovering from any type of traumatic event requires its own time and space for different individuals. Hence, there is no time limit for learning and healing, there is only the impact of transmuting our hardship into conquest with one small step at a time and with dedication to personal and societal change, one can, flourish, create, educate, and move things forward in a positive direction when it comes to healing trauma.

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GROWING IMPACT OF TRAUMA ON MENTAL HEALTH ACROSS THE GLOBE AND THE EXISTING CHALLENGES ASSOCIATED WITH ITS MANAGEMENT

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Abstract

Mental wellbeing is an important but largely ignored aspect of our health. The highly competitive nature of the world that we are living in forces us all to face quite stressful conditions. Coping with stress is hard for people of all ages but is especially challenging for children. In situations, stress can be so debilitating for the tender brain of young ones that it leads to lifelong impairment of their mental faculties. Trauma is an extreme kind of negative influence that leads to conditions such as PTSD (post-traumatic stress disorder) which are very difficult to manage. Traumatic conditions are usually implicated in cases of suicides, drug addiction and such similar social vices. Here we take a closer look at the biology of trauma in the light of recent studies and discuss some important aspects of trauma which should be taken care of by people involved in its management.

Key words: Mental health, Trauma, PTSD, Cognitive development, Stress management

Introduction

Our brains have been built to handle acute stress which is a life saving mechanisms in dangerous situations that threaten our survival. However, an overdose of stress acting for a longer duration takes a toll on the quality of life and has severe consequences for mental health. The chronic stress may be of diverse origins involving environmental causes, social or political factors (e.g.; child labour, terrorism, unemployment etc), and personal traumatic experiences such as domestic violence or the loss of a close relative (Motzer&Hertig, 2004). The growing number of people affected with mental disorders such as anxiety, depression, schizophrenia and dementia is a worrisome thing and requires extended efforts at multiple levels by professionals, civil authorities and governments. The diagnosis of psychogenic

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conditions becomes particularly tricky because of the social taboos associated with such conditions. Not many people suffering from such conditions consult a psychiatrist because of their fear that doing so would lead to decreased social acceptance. Thus, the projected figures of incidence of psychiatric conditions are gross underestimates of the actual figures. A lack of reliable data concerning psychogenic disorders poses a constraint for devising appropriate strategies to combat them.

Susceptibility to trauma

Victims of trauma fall under all the possible categories of age, sex, and ethnicities but a number of studies point to the fact that children are comparatively more vulnerable to mental trauma (Chapman et al, 2004). The reason for this age-related bias is that the brains of children are less adept at handling stress and therefore traumatic events leave a lasting impact on their tender brains. Grown up individuals possess brains that have learnt to cope with unpleasant experiences of life. One interesting observation is that not all individuals who are exposed to traumatic experiences end up with post-traumatic stress disorder (PTSD). A study suggests that exposure to trauma in early childhood progresses to PTSD in 50 – 75% of cases whereas in adults this figure is 10-15% which highlights high vulnerability to trauma in childhood. People who develop PTSD may have to live with the nightmarish shadow of their traumatic experience for the rest of their lives and they report the incidence of having bad dreams, increased irritability, insecurity, hot flushes and complain of other behavioural symptoms as the traumatic memories keep haunting them wherever they go. A recent study (Hanson et al; 2008) has established a gender-based difference in susceptibility to trauma. Insula of brain is implicated in differential response of boys and girls to trauma. Although there are no gender-based differences in the insula of healthy subjects but the insula of traumatized males was found to have more volume and surface area compared to women. It suggests that the insula of traumatized women undergoes premature aging (Klabunde et al, 2017). Understanding the subjective differences in the degree of susceptibility is a vital aspect of trauma management.

Causes of trauma

There is a great diversity of factors that lead to trauma and knowledge of these factors is key to understand its likely effects on an individual. Socio-psychological causes such as loss of parents or close relatives, domestic

violence, divorce, rapes, molestations, unemployment, terrorist activities, and wars figure among the prominent causes of trauma. While some of these factors can be controlled or avoided there are other factors such as natural calamities (floods, tsunamis, earthquakes etc) which are beyond human control. The best one can do in such scenarios is to try to minimize the adverse effects of such untoward incidences and prevent them from taking a toll on the psyche of affected individuals. In the modern technological era when industrial development is on the rise, environmental pollution is emerging as a leading cause of psychogenic problems. Environmental pollutants that can pass through the blood brain barrier after exposure often lead to cognitive impairment and behavioural changes. Even if the pollutants do not reach the brain directly, they can still have a bearing on mental health by causing diseases elsewhere in the body. Ultimately, any disease condition invariably results in trauma and the severity of it depends on the threat perception of the ailment. Life threatening diseases such as cancer, liver or kidney failure, immunodeficiency etc severely jeopardize mental health which further complicates the prognosis of such conditions. In addition to the above causes, there are many others that may largely go unnoticed by the caretakers but lead to dire consequences at a later stage. This is exemplified by the stressful education of this highly competitive age which is responsible for anxiety and depression related to examinations and often culminates in suicidal tendencies among students. It has been observed that in all such stressful situations, the overall effect is not just objective but depends a lot on subjective experience too. This provides a rationale for personalized care and use of appropriate psychological strategies to treat trauma based on personality traits of the affected person.

Physiological mechanisms of trauma:

There is such an overwhelming amount of literature pertaining to biological effects and pathology of trauma that it is hard to present all the important findings in the limited space of this paper. The fact that some of the studies lead to contradictory results further complicates the task of presenting a thorough summary of the physiological determinants of trauma. It feels however convenient not to separate the neurological and endocrine effects involved in the progression of trauma simply owing to the fact that there is a lot of interdependence and cross talk between these two seemingly distinct but functionally related control systems of our body.

(a) **Neuroendocrine factors:** Neuroendocrine mechanisms originating from the hypothalamus are among the most important physiological regulators in the stress response of the body. Of these, hypothalamic-pituitary-adrenal (HPA) axis is the most important part coordinating the body's response to stressors. It starts with the release of corticotrophin releasing hormone (CRH) from the paraventricular nucleus (PVN) which in turn stimulates pituitary corticotrophs to release adrenocorticotropin (ACTH) thereby inducing glucocorticoid release from the adrenal cortex. Although the normal response to stressors causes hypersecretion of corticoids but this finding is not consistent with studies performed on patients suffering from PTSD who have often been reported to possess low cortisol (Yehuda, 2006). This results in decreased feedback inhibition of hypothalamus and a consequent increase in CRH. Surprisingly, the elevated CRH does not result in increased ACTH release suggesting a downregulation of CRH receptors in trauma which also explains the observed reduction in the volume of hippocampus in such patients (Bremner et al, 2008). Besides HPA axis, the involvement of hypothalamic-pituitary-thyroid axis is also implicated in pathology of trauma and an altered thyroxine profile is possibly the reason leading to stress related anxiety.

(b) **Neurochemical factors:** The experimental data pertaining to changes of neurotransmitters in cases of psychological trauma is enormous. Despite the equivocal nature of some findings, a few general conclusions can be drawn about the neurotransmitter profile in traumatic patients. Increased cardiac activity and arousal suggests an elevation of noradrenaline due to higher activity of neurons in locus ceruleus. Besides, increased dopamine levels are an indication of altered fear conditioning by mesolimbic pathways in patients coping with stress. Stress-induced analgesia which is a widely reported pathological feature of PTSD and associated conditions correlates well with possible elevation of β-endorphins in the cerebrospinal fluid. Similarly, abnormal feeding response is attributed to altered regulation of appetite in PTSD which is closely linked to decreased levels of neuropeptide Y in such conditions. Decreased activity of raphe nuclei leading to a dip in serotonin levels is also of common occurrence in trauma and this reflects in increased alacrity and modulations in

memory formation. Finally, a decrease in γ-amino butyric acid (GABA) alters the irritability of neurons and interferes with regulation of anxiety in stressed subjects.

Genetics of trauma:
Heredity has a huge bearing on a person's ability to handle stress. This makes sense because many of the molecular regulators of stress physiology happen to be proteins synthesised in the body under the influence of their corresponding genes. The examples of such molecules are hypothalamic factors, pituitary hormones, neuropeptides, hormone receptors, transcription factors, and signalling molecules. Any defect in the nucleotide sequence of such genes leads to abnormal regulation of mental states. Moreover, any change in the regulatory regions of the genes involved leads to their overexpression (gain of function) or under expression (loss of function). Any change in the transcription profile of these genes seriously impairs the normal functioning of neurotransmitters and results in neuropathological conditions.

Epigenetic causes of trauma:
Epigenetics is one of the most happening fields of biology today and the ongoing studies in this discipline are leading to truly spectacular and even unexpected results. Studies of epigenetic regulation of biological processes are unravelling the mysteries of chromatin condensation which is such a widespread mechanism that it accounts for differential expression of every single gene in our body. The most commonly studied epigenetic mechanisms involve DNA methylations, histone deacetylations, and micro RNAs. One recent finding implicates epigenetic mechanism in transferring traumatic experiences of one generation to the next generation. Transgenerational transmission of trauma has been demonstrated in holocaust survivors (Fonagy et al, 1999; Braga et al, 2012). Similar cases of transmission of trauma through generations and their possible mechanisms have extensively been reviewed in medical literature (Kellermann et al, 2001; Yahiyavi et al, 2014). Howsoever counterintuitive it may sound but it has been experimentally proved that we inherit the ill effects of trauma which our fore fathers might have faced further back in time.

Combating trauma:
Dealing with trauma is not easy for the persons affected as well as for the care takers and therapists. Given the multiplicity of causes of trauma it requires

careful diagnosis of the condition to know its origin and devise appropriate strategy against it. As mentioned above it is recommended to consider peculiar personality traits of the patient and adopt a personalized approach in treating trauma at the level of individuals. Trauma management in the society, however, calls for an integrated work plan involving neurologists, clinical psychologists, statisticians, administrators, and law enforcing agencies. What makes trauma management a priority is that it is implicated in many serious medical conditions such as immunological problems (Dube et al, 2009), cardiac diseases (Murphy et al, 2017), and even in lung cancer (Brown et al, 2010). There are situations in which stressful situations can be avoided altogether by pre-empting their occurrence. Farmers in our country, for instance, resort to committing suicides because of their inability to repay agricultural loans. This can be prevented though a government initiative by providing financial assistance to such farmers. Stress at work places can be reduced if employers are educated about the positive impact of employee satisfaction on their performance. Likewise, appropriate reforms can be introduced in educational institutions to keep students from anxiety and depression. Social vices such as drug addiction, domestic violence, and criminal activities that lead to traumatic situations can be avoided by framing appropriate laws to punish drag trafficking, dowry, and child abuse.

What lies in store?

The rate at which the incidences of trauma are growing worldwide is quite high. However, like every cloud has a silver lining, the increased incidence of stress related cases is also leading to an increased awareness about the problem and is contributing to better understanding of socio-psychological and biological mechanisms of trauma. The exponential growth in drug designing has given us a great variety of anxiolytics, antidepressants, and other such drugs which can rescue the traumatized patients by improving their mental health. Highly selective agonists and antagonists of various neurotransmitters can achieve very precise therapeutic goals paving way for better prognosis of stress. The evolution of various gene editing techniques such as RNA interference (RNAi), CRISPR-Cas9 etc kindle hope of applying gene therapy to behavioural problems. Techniques such as chromatin immunoprecipitation (ChIP) make it possible to understand and alter the patterns of gene expression and it can be of immense use in targeting genes related to neurological control of behaviour. It is true that we have come a long way in understanding trauma but still there is a

lot to explore and experiment in this important field of stress physiology.

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ROLE OF COPING STRATEGY IN PSYCHOLOGICAL TRAUMA

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Abstract

The article presents an overview of the role of Coping Strategies in Psychological Trauma. It includes a discussion about Traumatic Stress. It is proposed that Psychological Trauma can be far reaching and debilitating. The traumatic events have a negative impact on mental health, physical health, work and relationships. The role of Coping Strategy can offer a sense of renewal, hope and control over your life. In Psychological Trauma a person may feel isolated, have trouble maintaining a job, be unable to trust other people, and have difficulty controlling or expressing your emotions. The aim of this research article is to know how Coping Strategies helps a person in any type of stress or Traumatic situations in their life How a person bounce back in their life? This term paper is through light on Traumatic situation affects person's well-being. It touched various domain of a person's life. So, there is important role of Coping Strategy in Psychological Trauma and any Stressful situations.
Key Words: psychological Trauma, Coping Strategy, stress.

Introduction

Psychological well being is about lives going well. It is the combination of feeling good and functioning effectively. Sustainable well being does not require individuals to feel good all the time; the experience of painful emotions (e.g. disappointment, failure, grief) is a normal part of life, and being able to manage these negative or painful emotions is essential for long term well being. Psychological well being is, however, compromised when negative emotions are extreme or very long lasting and interfere with a person's ability to function in his or her daily life.

The concept of feeling good incorporates not only the positive emotions of happiness and contentment, but also such emotions as interest, engagement, confidence, and affection. The concept of functioning effectively (in a psychological sense) involves the development of one's potential, having some control over one's life, having a sense of purpose (e.g. working towards valued goals), and experiencing positive relationships.

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Recent years have witnessed an exhilarating shift in the research literature from an emphasis on disorder and dysfunction to a focus on wellbeing and positive mental health. This paradigm shift has been especially prominent in current psychological research (e.g. Argyle, 1987; Diener, 1984; Kahneman, 1999; Ryff& Singer, 1998a; Seligman, 1991, 2002).

But it has also captured the attention of epidemiologists, social scientists, economists, and policy makers (e.g. Huppert, 2005; Layard, 2005; Marks & Shah, 2005; Marmot, Ryff, Bumpass, Shipley, & Marks, 1997; Mulgan, 2006). This positive perspective is also enshrined in the constitution of the World Health Organization, where health is defined as "a state of complete physical, mental and social well being and not merely the absence of disease or infirmity" (WHO, 1948). More recently, the WHO has defined positive mental health as "a state of well being in which the individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community" (WHO, 2001).

This recent flowering of research on psychological well being has come about for a number of reasons, chief amongst them being:

- The recognition that, since well being is more than the absence of ill being, it needs to be studied in its own right.

- The need to distinguish between these approaches to improving psychological well being: (a) treating disorder when it is present; (b) preventing disorder from occurring; and (c) enhancing well being (i.e. increasing flourishing).

- Evidence that many of the drivers of well being are not the same as the drivers of ill being.

- The strong possibility that, by increasing flourishing in the population, we might do more to reduce common mental and behavioral problems than by focusing exclusively on the treatment and prevention of disorder.

This review summarizes what we know about the factors determining an individual's level of psychological well being, and the effects of well being on our perceptions, thoughts, and behaviors, and on our physiology and health. It also explores how this knowledge may be utilized to improve well being in individuals and in populations.

Psychological Well Being leads to Better Physical Health

An important physiological mediator underlying the relationship between positive emotions, health, and survival is likely to be the functioning of the immune system. This has been confirmed in experimental studies, such as those by Cohen and his colleagues. In one study, several hundred healthy volunteers were administered nasal drops containing a common cold virus, and monitored in quarantine. The investigators found that the more positive the participant's emotional style, the lower their risk of developing a cold. Negative emotional style, though, was not associated with developing a cold (e.g.Cohen, Doyle, Turner, Alper, &Skoner, 2003a). Another study found that sociability was linearly related to decreased probability of developing a cold—an effect not accounted for by sociability related differences in immunity (Cohen, Doyle, Turner, Alper, &Skoner, 2003b). A study by Marshland, Cohen, Rabin, and Manuck (2006) examined the relationship between emotional style and antibody response to the Hepatitis B vaccine. Participants with high scores on trait positive affect produced significantly more antibodies to the vaccine. There was no relationship between antibody response and either trait negative affect or depression.

The above studies assessed the emotional style of the participants but did not try to alter it. It is therefore difficult to be sure whether the individuals' positive characteristics were causally related to the outcome or whether there might be a common cause of both the characteristics and the outcome.

In a recent review of welldesigned prospective and experimental studies, Pressman and Cohen (2006) conclude that there is firm evidence for a beneficial effect of positive emotions on physical health and survival, and that this effect may be independent of the level of negative emotion. Indeed, some of the studies cited above suggest that, in the general population, positive affect (or the lack of it) may exert a more powerful effect on health and physiology than the presence of negative affect. This startling conclusion may have hitherto been obscured by the focus on pathology which has dominated biomedical science. Pathologyoriented research used measures which fail to differentiate between the presence of negative experiences and the absence of positive experiences.

There are a number of pathways through which positive emotions can exert their beneficial effects on health. Evidence cited above supports the view that

positive mental states can have direct effects on physiological, hormonal, and immune function which, in turn, influences health outcomes. Behavioral and social factors may also mediate the link between positive emotions and health. Happier people tend to have healthier lifestyles (Watson, 1988), more friends, and also more positive interpersonal experiences (Diener et al., 1999). Thus, the health benefits of positive emotional states may not be directly attributable to positive feelings, but to health practices or social factors that are known to have beneficial effects on health and life expectancy.

However, there's much more to good mental health than pleasant emotions. Research shows that a truly satisfying life includes purpose and direction. We need to act in accordance with deeply held values and contribute to things we care about, such as relationships with family and friends, meaningful work, a community, or other worthy causes.

Psychologists use the term *well-being* for the type of happiness that's based on meaning, purpose, and fulfilling one's potential. Research on psychological well-being has identified six important components.

1. Autonomy: Autonomy is the ability to make your own decisions about how to think and behave, rather than over-relying on others' opinions or approval. Autonomous people resist social pressures that are inconsistent with their inner standards or preferences. They pursue freely chosen goals that they genuinely value.

2. Competence: Competence means having knowledge, skills, and abilities and using them to solve problems and accomplish worthwhile tasks. Competent people can manage the responsibilities and demands of daily life and get things done. They make good use of their opportunities and arrange their living environments in ways that suit them.

3. Healthy relationships: Most people need connections with others. Some enjoy large circles of friends, family, and co-workers; others prefer more solitude and independence. The ability to develop caring, trusting, and supportive relationships is an important element of psychological health, whether you want many relationships or only a few.

4. Self-acceptance: Self-accepting people understand that, like everyone else, they have strengths and weaknesses. They recognize that life has ups and

disappointment, and other unpleasant emotions. They're understanding and non-judgmental of themselves and how their lives have gone so far.

5. Personal growth: People who value personal growth are open to learning and new experiences. They recognize that perspectives change with time and see themselves as maturing and developing. They're interested in broadening their horizons and fulfilling their potential.

6. Purpose in life: People with purpose have a sense of direction in life. They understand what they value most deeply, such as being a loving parent, supportive friend, productive professional, or contributing member of a community. They find satisfaction in setting goals and working to achieve them and feel that their lives have meaning.

Cultivating these six elements of well-being isn't always pleasant or enjoyable. Standing on our own principles can be scary, especially when others disapprove. Managing daily demands can be stressful. Even the healthiest relationships have awkward, uncomfortable moments. It's painful to face up to our failures and shortcomings, to feel clumsy and nervous while learning new skills.

Even so, research consistently shows that people who cultivate meaning and purpose, develop skills and competencies, exercise autonomy, attend to their relationships, and try to contribute to things they care about, even when it's stressful and difficult, are psychologically healthier than people who don't. They have higher self-esteem, lower risk of depression, and greater satisfaction with their lives.

Strength of Psychologically Well-Being Professionals

- It is increasingly being recognized that the mental health of employees is a crucial determinant in their overall health and that poor mental health and stressors at the workplace can be a contributory factor to a range of physical illnesses like hypertension, diabetes and cardiovascular conditions, amongst others. In addition, poor mental health can also lead to burn-out amongst employees, seriously affecting their ability to contribute meaningfully in both their personal and professional lives.
- Data from different countries around the world indicate that mental health problems are a cause of a number of employees dropping out of work. In the Netherlands, around 58% of the work-related disabilities are related to

mental health.

- In the UK, it is estimated that around 30–40% of the sickness absence is attributable to some form of mental illness.
- Mental health problems have an impact on employers and businesses directly through increased absenteeism, negative impact on productivity and profits, as well as an increase in costs to deal with the issue. In addition, they impact employee morale adversely.
- Work-related stress is a major cause of occupational ill health, poor productivity and human error. This means increased sickness absence, high staff turnover and poor performance in the organization and a possible increase in accidents due to human error. Work-related stress could also manifest as heart disease, back pain, headaches, gastrointestinal disturbances or various minor illnesses; as well as psychological effects such as anxiety and depression, loss of concentration and poor decision making.
- Stress is the adverse reaction people have to excessive pressures or other types of demands placed upon them. There is a clear distinction between pressure, which can be a motivating factor, and stress, which can occur when this pressure becomes excessive.
- Some occupations are at more risk of mental health problems than others.
- A study in the Netherlands mapped skill levels against the pace of work to have an idea about the risk for stress levels and mental ill health for different occupations. Higher stress levels correlated with a higher risk for mental ill health.

Causes behind Work-Related Stress among Working Professionals:

There are mainly causes behind work related stress are relationship problems with superiors; bureaucratic constraints; work family conflict; relationship problems with colleagues; performance pressure and poor job prospects.

- **Relationship problems with superiors:** The most common reason for office stress is dealing with difficult boss. But this may be far easier to solve by improving communication skills. Having a sincere conversation may make a difference. Sometimes, the boss may set unreal targets, where an honest discussion can bring out what deadlines can be met.Tasks that are not part of an employee role or skill set can also cause stress. Companies often make employees multitask but this could potentially affect their ability to deliver. Communicating with superiors about this matter at the

earliest is the best way to resolve this. One area that presents an opportunity for conflict for the personality-disordered individual concerns the hierarchical nature of organizations.

- **Relationship problems with colleagues:** Another reason could be difficult colleagues or co-workers. Dealing with a difficult co-worker can be a bit more difficult as their performance is often pitted against oneself. This again has to be resolved by an amicable discussion, concluded by a mutual agreement. One can explain to the colleague as how a team can have far more benefits than indulging in rivalry. But if things are getting out of hand, it should be brought to the notice of the superior concerned.

- **Work family conflict:** Families are struggling to cope with an increasingly complex world. Individuals are struggling to find the right balance between work and family responsibility. Domestic issues can affect work where balancing work and home by allotting adequate time for both can help reduce stress.

- **High demand for performance:** Unrealistic expectations, especially in the time of corporate reorganizations, which, sometimes, puts unhealthy and unreasonable pressures on the employee, can be a tremendous source of stress and suffering. Increased workload, extremely long work hours and intense pressure to perform at peak levels all the time for the same pay, can actually leave an employee physically and emotionally drained. Excessive travel and too much time away from family also contribute to an employee's stressors.

- **Job insecurity:** Organized workplaces are going through metamorphic changes under intense economic transformations and consequent pressures. Reorganizations, takeovers, mergers, rightsizing and other changes have become major stressors for employees, as companies try to live up to the competition to survive. These reformations have put demand on everyone, from a CEO to a line manager.

- **Bureaucratic constraints:** Organizational size and bureaucratic systems have certain rules and regulations, which are inherent parts of the system to serve as checks and balancing forces.

Suggestions for Controlling Work-Related Stress and Improving Psychological Well-Being at Workplace:

Here are 10 of our top tips to improving well being, morale and productivity:

1.   Know your vision and values: Your office design and fit-out brief should reflect your company's culture and brand values. Creating a collaborative culture, with philanthropy at its core, is likely to be well received by staff. Having brand values that dripped down from a lofty boardroom decades ago are less likely to be respected.

Engage with employees before writing your brief – to get an insight into current wellbeing levels and feedback on how to boost them through the roof. Greater collaboration also enables people to be masters of their destiny, and ensures less resistance to change.

2.   Work smarter: Maximize your workspace by undertaking due diligence around how it is being used now and how it might be used better in the future. Review the workspace from the perspective of the senses.

And look at work flows and patterns, sizes and locations of teams, desk ratios, use of technology and meeting rooms, facilities for mobile workers and provision of support/recreational spaces. A workspace that sounds, looks, feels and smells great, and reflects the individuality of the people in it, while meeting business needs, will be more efficient and morale-boosting.

Does your office flow or go round and round in circles?

3.   See the light: Bring the great outdoors inside. Workers who have outside views are likely to be up to 25% more productive and process calls 12% faster, according to World Green Building Council research. Exposure to natural light increases productivity by 18% and better lighting in general pushes up work rates by 23%.

4.   Breathe easy: The Council estimates that improved air quality and ventilation increase productivity by up to 11% and thermal comfort by 3% - which doesn't necessarily require fancy ventilation, air conditioning and heating systems, although these will help too. Humble indoor plants don't just look nice; they also work quietly behind the scenes to absorb carbon dioxide and release oxygen.

By having plants dotted around the place and clean air circulating in your building, you'll be contributing to the good health of your employees rather than enforcing sick building syndrome on them. No one needs to be battling

headaches, eye, nose or throat irritations, dry coughs, itchy skin and fatigue on top of a busy working day. You'll also enhance your BREEAM and SKA environmental assessment ratings.

5.   Turn down the volume: Phones ringing, conversations and a general background hum can make it hard, if not impossible, for people to concentrate. Noise is an unwanted distraction and a major cause of employee dissatisfaction. The good news is that it can be easily addressed through design and furniture solutions.

Don't put a general-use phone in the middle of an open plan office or position desks to have a constant stream of people walking past them. Do balance having open and closed spaces, have surfaces that absorb acoustics, and use furniture that reduces, rather than promotes, noise transmission.

There's no need to shout...

6.   Add a splash of color: Yellow gets the creative juices flowing, green reduces stress and promotes calmness and blue promotes focus. Introducing splashes of color, art, greenery and bringing the outdoors indoors can all contribute to wellbeing. Get creative with water features, park benches and arboretums to give your employees spaces where they can go to feel calm and access their creativity.

7.   Get fit for work: Some 45% of workers complain that they have a stressful journey to the office, according to the British Council for Offices. So why not encourage employees to get on their bike or walk to work. Not only will they avoid being stuck in rush-hour traffic, but they will also get a boost of exercise-induced happy hormones before the working day even begins.

Install cycle racks, a shower, changing room and lockers, which will also help you to increase your environmental rating. Or consider having a gym on-site or offering staff a discounted membership to a nearby gym.

8.   Get your five-a-day: Keep the doctor away by helping your employees to get their five-a-day. By providing a café with healthy meal options, a juice bar, free fruit or even just somewhere for people to prepare good food, you'll be helping them to eat well and keep their brains and bodies awake and alert. Also consider introducing break-out or relaxation areas where people can go to get away from their desks, get a change of scene, unwind or think creatively.

9. Get moving: Workers sit for an average of 8.9 hours a day, according to the Get Britain Standing campaign – for many, that's longer than they sleep. Sitting at a desk for longer than four hours a day causes stiffness, back pain and muscular problems, and it can disrupt blood sugar levels.

Consider buying furniture to encourage people to get moving and be less sedentary. Staff who use standing or adjustable desks, sit-stand stools or chairs, and balance boards report less muscular pain, more energy and a greater focus.

10. Work on the move: Working nine to five and only ever in the office, is a thing of the past for many people. Thanks to technology, people are increasingly getting their work done away from the office and at all times of the day and night. Consider offering flexible working hours and the ability to work from home, and on the move, in a bid to increase productivity.

Conclusions

On the basis of the evidence reviewed here, including experimental research, survey data, and longitudinal studies of representative population samples, the following conclusions may be drawn.

- Psychological well being is associated with flexible and creative thinking, prosocial behavior, and good physical health.

- An individual's level of mental capital and psychological wellbeing is powerfully influenced by her/his early environment, particularly maternal care.

- While an adverse early environment can produce lifelong impairments in behavior and neurobiology, compensation is possible at later stages in the life course.

- External circumstances affect our wellbeing, but our actions and attitudes may have a greater influence. Interventions which encourage positive actions and attitudes have an important role to play in enhancing wellbeing.

- Targeting interventions to those with a disorder or at high risk may alleviate misery in the short term, but a universal approach could enhance the lives of ordinary people, not just those with pathology. A universal approach may also reduce the total number of people in the long term with common mental disorders.

- The science of wellbeing which focuses on what makes people flourish, on human assets rather than deficits, is a promising new area of research. Advances in understanding the behavioral, biological, and social pathways to wellbeing will benefit individuals, organizations, and society.

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Some of this material was excerpted and adapted from *The Practicing Happiness Workbook: How Mindfulness Can Free You from the Four Psychological Traps That Keep You Stressed, Anxious, and Depressed,* with permission of the publisher, New Harbinger Publications, Inc. Copyright © 2014 Ruth Baer. Published in the United Kingdom as *Practicing Happiness:*

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FRIENDSHIP QUALITY IN RELATION TO COMPASSIONATE LOVE AMONG LATE ADOLESCENTS

Selmi Jose[1]

Abstract

All major world religions consider compassionate love, which can be defined as sympathetic concern for others and a desire to secure their happiness and welfare without expecting anything in return. This study sought to study the relationship between friendship quality and compassionate love in late adolescence. The gender differences on friendship quality and compassionate love was also explored in this study.

Data was collected from 100 adolescents (50 males and 50 females); in the age range of 16-20 years from St. Agnes' College and St. Aloysius College, Mangalore. Friendship Quality was measured by the McGill Friendship Quality Questionnaire (Aboud & Mendelson, 1999) and Compassionate Love was measured by Compassionate Love Scale developed by Sprecher & Fehr (2005). Descriptive and inferential statistics were used to obtain the results (Pearson's correlation co-efficient, and t-test for independent samples).

Results show that there is a positive and significance correlation between friendship quality and compassionate love among late adolescents, indicating that friendship quality will increase with compassionate love, and vice versa in late adolescence. Gender differences existed among late adolescents on friendship quality and compassionate love. Females have more level of compassionate love and friendship quality compared to males. The study emphasises the importance of friendship quality and compassionate love in the adjustment and well-being of adolescents.

Keywords: *Friendship quality, Compassionate love, Late Adolescence*

Introduction

Adolescence is a developmental transition between childhood and adulthood, entailing major physical, cognitive, and psychosocial changes. Adolescents spend more time with peers and less with family (Papalia et al, 2004). Adolescents rely more on friends than on parents for intimacy and support, and they share confidences more than younger friends. A stress on intimacy, loyalty,

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and sharing marks a transition to adult like friendships (Hartup and Stevens, 1999). The intensity and importance of friendships, as well as time spent with friends, are probably greater in adolescence than at any other time in the life span (Serject and Hoffnung, 1994).

There is a major role for compassionate love in friendship because the attitude of compassionate love helps an individual to understand others' feelings and emotions in a better way. Compassionate love refers to love that "centers on the good of the other" (Underwood, 2008). Compassionate loveis an attitude toward others, either close others or strangers or all of humanity; containing feelings, cognitions, and behaviours that are focused on caring, concern, tenderness, and an orientation toward supporting, helping, and understanding the others, particularly when the others are perceived to be suffering or in need (Sprecher, S. & Fehr, B. 2005).

According to Lazarus (1991), "being moved by another's suffering and wanting to help is the core relational theme underlying compassion. It helps to have more close and strong friendship for individuals who are compassionate to others. Compassionate love, as a more enduring and

encompassing state, however, may contribute to sustained prosocial behaviour, toward loved ones. Although social support has been a major area of investigation in the close relationships field (Cunningham & Barbee, 2000), the focus has been on the support recipient rather than the support provider. It is speculated that compassionate love experienced for others may be a strong motive for offering help to others, both strangers and close others. (Sprecher, S. & Fehr, B. 2005)

To be compassionate, one must be willing to free oneself of personal concerns for a time. In a materialistic world filled with empty gestures it's not that easy to adopt a true level of concern for the lives of others. To be compassionate one has to set aside their world and be open to understanding the world of each person that they meet so that their world unfolds with all of its mystery, horror, pain and beauty. (Veblen, T.2007)

Significance of the Study

In many studies it has been revealed that love is an important predictor of happiness, satisfaction, and positive emotions (Anderson, 1977; Diener& Lucas, 2000; Freeman, 1978; Myers, 1992).Compassion is not only a process that builds positive relationships with others; it is also a vital path to releasing

the human mind from the effects of harmful negative emotions (Wang 2005).Compassionate thoughts accept a person's shortcomings while always seeing what is best in them. It allows us to see the goodness in everyone, including ourselves. Thus, we can settle the conflict that had always been raging inside us, as our desires and our beliefs regarding what we deserve become one.

This study seeks to establish that there may be a relation between compassionate love and friendship quality among adolescents. Also, very less research has been done in the area of late adolescence, which is a major stepping stage into adulthood. Relations in the late adolescence have a great impact on success in adulthood, which makes friendship quality in late adolescence an important aspect to be studied. It is also evident that psychological adjustment of adolescents affects their friendship quality. In cases of harmful adolescent behaviors and adjustment problems, the study also proves useful for counselling purposes.

Less literature is available that compare the gender difference on the level of compassionate love and friendship quality. Therefore, the effect of gender is also explored in this study.

Review of Literature

In late adolescence friendships will become more mature and trustworthy. Therefore, more close relationships with few individuals will also be present in this period. Peers are functional in development of social competencies, prosocial and leadership qualities, and providing security and support (Serject and Hoffnung, 1994). Thus, the capacity for intimacy is related to psychological adjustment (in terms of self-esteem) and social competence. Adolescents, who have close, stable, supportive friendships, generally have a high opinion of them, do well in school, are sociable, and are unlikely to be hostile, anxious, or depressed (Hartup& Stevens, 1999). Good friendships foster adjustment, which in turn fosters good friendships.

An article by Brendt (2002), suggested that friendship quality affects children's success in the social world of peers. Friendship quality also directly magnifies or diminishes the influence of friends on each other's attitudes and behaviors.Buhrmester et al (1990) examined the hypothesis that intimacy of friendship is more integral to socio-emotional adjustment during. The effect or role of compassionate love to intimate relationships has been demonstrated in

Fehr (1988, 1993) has examined the features and types of love that laypeople associate with love. The result has shown that 'compassionate love,' 'unconditional love,' 'giving love,' and 'altruistic love' are generated as part of laypersons' typologies of love, and that trust, caring, helping, and sharing are among the characteristics associated with most types of love.

Recently there has been a growing interest in the scientific study of altruism and self-giving love as it appears in both religious and non-religious contexts (Post, Underwood, Schloss and Hurlbut, 2000). A conference in May of 2004 brought together 50 researchers pursuing projects involving the empirical study of compassionate love: anthropologists, psychologists, sociologists, economists, and neuroscientists (Underwood and Post, 2003).

All major world religions consider compassionate love, which can be defined as sympathetic concern for others and a desire to secure their happiness and welfare without expecting anything in return, (Habito, 2002; Post, 2002). Features or elements of compassionate love included: altruism (e.g., "compassionate love is a type of sharing that is selfless"), helpfulness ("helping, or willingness to help, someone in distress"), care and concern ("observable, meaningful behaviours that demonstrate concern and care for the welfare of the others"), empathy, sympathy, tenderness, and so on (Fehr & Sprecher 2009*)*.

De Wit describes compassion as "contemplative action" and thinks that it has a capacity to distinguish between illusion and reality, self-deception and truth. And through his study he proves that, this discriminating awareness does not function adequately, but it can be cultivated, and trained in such a way that we are able to view our own mental domain clearly and to recognize patterns in it (Han de Wit, 1987 Cited from Underwood, L. G., 2005).

Research on love styles (C. Hendrick & Hendrick, 1986; Lasswell&Lasswell, 1976; Lee, 1973 as cited from Sprecher, S. & Fehr, B. 2005)) also highlights the importance of altruistic love. One of the six love styles is Agape, defined as altruistic love directed toward others.Wei, M., et al.(2011) examined empathy toward others as a mediator in the association between attachment avoidance and subjective well-being. In this study, 136 community adults provided a cross-validation of the results. Findings suggested that emotional empathy toward others mediated the association between attachment avoidance and subjective well-being.

Several researchers have argued that individuals must recognize and understand others' feelings, needs, and desires if they are to care for others and to experience empathy and sympathy. Compassionate love demands action. The target of compassionate effort isn't just for the poverty stricken; it is directed to those in emotional need. Compassionate love requires effort and movement. It requires that you work to understand the real problems that another might have. People should be more likely to label an emotion as compassionate love when prototypical features of compassionate love are present (e.g., the person in need is someone with whom one has a relationship characterized by caring, understanding, and support) than when such features are absent. Killen and turiel (1998) found that compared to adults, adolescents were more likely to help a person with whom they had a distant relationship.

Research Design: A Quantitative research (non-experimental or co relational research) design was employed in this study, for assessing the variables, friendship quality and compassionate love.

Aim:
- To find the relation between friendship quality and compassionate love in late adolescence
- To explore the effect of gender on friendship quality and compassionate love

Objectives:
- To find the relation between friendship quality and compassionate love
- To find if there are gender-differences in the relation between friendship quality and compassionate love

Hypotheses:
- There is a relation between friendship quality and compassionate love among late adolescents.
- There are gender differences in the relation between friendship quality and compassionate love among late adolescents.

Variables:

Compassionate love: An attitude toward others, either close others or strangers or all of humanity; containing feelings, cognitions, and behaviours that are focused on caring, concern, tenderness, and an orientation toward supporting, helping, and understanding the others, particularly when the others

Friendship quality: Affection for a friend, satisfaction with the friendship, and the degree to which a friend fulfils the six friendship functions of stimulating companionship, help, intimacy, reliable alliance, self-validation, and emotional security (Aboud & Mendelson, 1999).

- *Stimulating Companionship* refers to doing things together that arouse enjoyment, amusement, and excitement.

- *Help* refers to providing guidance, assistance, information, advice, and other forms of tangible aid necessary to meet needs or goals.

- *Intimacy* refers to sensitivity to the other's needs and states, providing an accepting context in which personal thoughts and feelings can be openly and honestly expressed, and openly and honestly disclosing personal information about oneself.

- *Reliable Alliance* refers to being able to count on the continuing availability and loyalty of the friend.

- Self-Validation refers to perceiving the other as reassuring, agreeing, encouraging, listening, and otherwise helping to maintain one's self-image as a competent and worthwhile person.

- *Emotional Security* refers to the comfort and confidence provided by the friend in novel or threatening situations.

Gender: The identification of the participants as "Male" or "Female". "Male" was denoted as 1, and "Female" was denoted as 2.

Sample: Population was adolescents in the city of Mangalore, India. The target population of this study was students from St. Agnes' College and St. Aloysius College. A sample of 100 adolescents from these colleges in the age range of 16-20 years was collected by using convenient sampling technique, out of which 50 were males and 50 were females. The participants should have been able to read, write, and understand English. Physically or mentally challenged students were excluded.

Tools for data collection

Compassionate Love: It was measured by Compassionate Love Scale developed by Sprecher & Fehr, 2005. The scale comprises 21 statements in which the participant indicates how true or false each is of them on a seven-point Likert scale. This test was standardized on 354 Undergraduate students.

Cronbach's alpha of the scale is reported to be 0.95.

Friendship Quality: It was measured by the McGill Friendship Quality Questionnaire (Aboud& Mendelson, 1999). One subtest taps respondents' feelings for a friend and satisfaction with the friendship, and the other taps respondents' assessments of the degree to which a friend fulfils 6 friendship functions, stimulating companionship, help, intimacy, reliable alliance, self-validation, and emotional security. This was standardized on 227 junior-college students. The subscales showed high internal consistency scores of 0.84- 0.90.

Procedure:

The participants were approached directly, and were asked to volunteer for participation. The consent is taken from the respondents at first. Demographic details of the participants were obtained. They were administered the Compassionate love Scale. Following this, the McGill Friendship Quality Questionnaire was administered. The instructions were read out to the subjects. Once the questionnaires were completed, the data sheets were collected back and preliminary screening was undertaken to determine if the sheets are complete.

Analysis of results:

The data was scored and tabulated using SPSS 16. Descriptive and inferential statistics were calculated. The Pearson's correlation co-efficient was obtained to assess the relation between friendship quality and compassionate love. A t-test for independent samples was used to find if there were any differences due to gender in the relation between friendship quality and compassionate love.

Results and Discussion:

The aim of the study was to assess the relation between friendship quality and compassionate love in late adolescence, and to explore effect of gender on friendship quality and compassionate love in late adolescence. The stated hypotheses were that there is a relation between friendship quality and compassionate love. Compassionate love was measured by compassionate love scale, and Friendship quality was measured by the scores on two subscales, Respondent's Affection and Friendship Functions, of the McGill Friendship Quality Questionnaire.

Table 1: Descriptive statistics of the sample (N-100)

	Mean	Std. Deviation
Compassionate Love	5.62	0.79
Friendship quality; (Respondent's Affection)	7.24	0.95
Friendship quality (Friendship Functions)	6.84	1.13

The standard deviations of the variables are quite small, indicating that the data is concentrated in a narrow range. And the mean and standard deviation of friendship quality is quite higher than those of compassionate love. Therefore, it can be assumed that the sample has higher scores on friendship quality than compassionate love.

Table 2: Correlation between Compassionate Love and Friendship Quality (N-100)

	Compassionate Love	Friendship quality; (Respondent's	Friendship quality (Friendship Functions)
Compassionate Love	1.00		
Friendship quality; (Respondent's Affection)	0.30**	1.00	
Friendship quality (Friendship Functions)	0.32**	0.71**	1.00

**. Correlation is significant at the 0.01 level (2-tailed).

The results show that friendship quality and Compassionate love are positively correlated, and the correlation is significant at 0.01 levels. This implies that friendship quality increases in relation to Compassionate love, and vice versa. This also indicates that the relation between friendship quality and Compassionate love can be generalized to 99% of the population.

The effect or role of compassionate love in intimate relationships has been demonstrated in several theoretical approaches which discuss about love.

According to Lazarus (1991), "being moved by another's suffering and wanting to help" is the core relational theme underlying compassion. Therefore, individuals who may have more level of compassionate love will be able to understand and accept others as they are and they will also have a mind-set of helping their friends without any concerns.

Table 3: Correlation between Compassionate Love and each subscale of Friendship Quality (N-100)

	CL	FQ(RA)		FQ(FF)					
		PF	S	SC	H	I	RAL	SV	ES
CL	1								
PF	0.26*	1							
S	0.31**	0.76**	1						
SC	0.22*	0.58**	0.67**	1					
H	0.37**	0.52**	0.69**	0.80**	1				
I	0.30**	0.58**	0.69**	0.90**	0.81**	1			
RAL	0.32**	0.60**	0.66	0.87**	0.84**	0.85**	1		
SV	0.33**	0.53**	0.72**	0.87**	0.85**	0.87**	0.84**	1	
ES	0.26**	0.59**	0.68**	0.91**	0.84**	0.87**	0.87**	0.88**	1

*Correlation is significant at the 0.05 level (2-tailed).

**Correlation is significant at the 0.01 level (2-tailed).

Abbreviations: CL: Compassionate love, **FQ(RA):** Friendship quality (Respondent's Affection), **PF:** Positive feelings, **S**: Satisfaction, **FQ(FF):** Friendship quality (Friendship Functions), **SC**: Stimulating Companionship, **H**: Help, **I**: Intimacy, **RAL**: Reliable Alliance, **SV**: Self Validation, **ES**: Emotional Security

The results show that each subscale of friendship quality and Compassionate love are positively correlated, and the correlation is significant at 0.05 and 0.01

levels. This implies that subscales of friendship quality increases in relation to an increase in, Compassionate love. This also indicates that the relation between each subscale of friendship quality and Compassionate love can be generalized to 95 and 99% of the population under study.

In their study, Shacham-Dupont (2003) found that an individual who will have compassionate love will have the qualities like altruism, helpfulness, care and concern, empathy, sympathy, tenderness, and so on. Therefore, it is justified that there is a positive correlation between the subscales of friendship quality and Compassionate love.

Table 5: Gender-wise Descriptive statistics and t-test values of the sample

		Mean	Standard Deviation	Mean Difference	t values	P values (p<0.01)
Compassionate love	Males (N=50)	5.24	.85	-.75	-5.41	.000
	Females (N=50)	5.99	.49			
Friendship quality (Respondent's Affection)	Males(N=50)	6.96	1.08	-.55	-3.04	.003
	Females(N=50)	7.51	.69			
Friendship quality (Friendship Functions)	Males(N=50)	6.51	1.32	-.64	-2.98	.004
	Females(N=50)	7.16	.77			

Independent t test was done to find out the gender differences in compassionate love and friendship quality. The values for t-test have been taken keeping in account the Levene's Test for Equality of Variances.

The mean value on compassionate love of males (N=50, M=5.24) are lower than the mean value of females (N=50, M=5.99) and the standard deviation for males SD=.85, and for females SD=.49. The mean difference between males and females on compassionate love is -0.75.

The mean value on Friendship quality (Respondent's Affection) of males (N=50, M=6.96) is lower than the mean value of females (N=50, M=7.51) and the standard deviation for males is SD=1.08, and for females, SD=.69. The

The mean value of Friendship quality (Friendship Functions) of males (N=50, M=6.51) is lower than the mean value of females (N=50, M=7.16) and the standard deviation for males is SD=1.32, and for females, SD=.77. The mean difference between males and females on friendship quality is -.64.

Given that, the t values for the sample are significant, because for both the variables, the p values are less than 0.01. Therefore, it can be interpreted that there are gender differences in the level of compassionate love and friendship quality, and females have more level of compassionate love and friendship quality compared to males. This can be generalized to 99% of the population.

Shared confidences and emotional support seem to be more vital to female friendships than male friendships. Intimacy matters more to girls than to boys even in grade school friendships. (Blyth & Foster-Clark, 1987). This can be noticed in the period of adolescence also, there will be more intimate friendships will be present in girls circle than boys circle. This can be rationale for the result that says females have more level of compassionate love and friendship quality compared to males.

Summary and Conclusions

The aim of this study was to find the relation between friendship quality and compassionate love among late adolescence, and to explore gender differences. Friendship quality is defined as affection for a friend, satisfaction with the friendship, and the degree to which a friend fulfils the six friendship functions of stimulating companionship, help, intimacy, reliable alliance, self-validation, and emotional security (Aboud& Mendelson, 1999). Compassionate love is an attitude toward others, either close others or strangers or all of humanity; containing feelings, cognitions, and behaviours that are focused on caring, concern, tenderness, and an orientation toward supporting, helping, and understanding the others, particularly when the others are perceived to be suffering or in need (Sprecher, S. & Fehr, B. 2005) It has been found that there is a relation between friendship quality and Compassionate love, implying that Compassionate love may affect friendship quality, and vice versa.

Data from 100 adolescents (50 males and 50 females) from St. Agnes' College and St. Aloysius College, Mangalore, in the age range of 16-20 years was used in the study. Friendship Quality was measured by the McGill Friendship Quality Questionnaire (Aboud & Mendelson, 1999) and Compassionate Lovewas measured by Compassionate Love Scale developed by Sprecher &

(Pearson"s correlation co-efficient, and t-test for independent samples).

Results confirmed the stated hypotheses.

- There is a positive correlation between friendship quality and compassionate love among late adolescents, indicating that friendship quality will increase with compassionate love, and vice versa in late adolescence. These results can be generalized to 99% of the population under study.

- The results show that each subscale of friendship quality and Compassionate love are positively correlated, and the correlation is significant at 0.05 and 0.01 levels. This implies that subscales of friendship quality increases in relation to an increase in, Compassionate love and vice versa. This also indicates that the relation between each subscale of friendship quality and Compassionate love can be generalized to 95 and 99% of the population under study.

- Gender differences existed among late adolescents in the relation between friendship quality and compassionate love, and females have higher level of compassionate love and friendship quality compared to males. This can be generalized to 99% of the population.

Limitations

The sample for this study was chosen from two institutions only, posing a problem to the representativeness of sample. Both the scales The McGill Friendship Quality Questionnaire (Aboud & Mendelson, 1999) and Compassionate Love scale (Sprecher & Fehr, 2005) were not standardized on the Indian population. This study has focused on only the relation between the variables. The results do not explain any causal association between the variables.

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NOMOPHOBIA: E-RELATIONSHIP AND ITS DETERMINANTS ACROSS DIFFERENT GENERATION

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Abstract

With every passing day, technology is overtaking our daily lives. Regardless of age, gender, ethnicity, career or economic status, we're probably packing a Smartphone right now. The smart phone has become not just an object, but for many a best friend. Many suffer from anxiety if they lose their phone, even if only for a few minutes. They rely on it to do everything from saying to doing. The *'I-must-have-my-phone-with-me-at-all-times'* mindset has become such a real problem, there's now a name coined for the fear of being without smart phone: nomophobia -- as in **no-mo**(bile) phone-phobia. It is on the rise across the globe.

Objectives: To find out the prevalence of nomophobia and its determinants among people of Lucknow city across different generation. *Methodology:* This was a survey study conducted among the respondents of different age groups (young adults: 18-35 years, middle aged adults: 36-55 years, and old adults: 56 years and above) in Lucknow city. The prevalence of nomophobia was assessed using the nomophobia questionnaire (NMP-Q). *Results:* The prevalence of nomophobia was 96%. The scores of nomophobia showed statistically significant in association with generation ($P = 0.001$) with highest prevalence among young adults with age group of 18-35 years. 99.06% young adults were using smart phones for using social media (google, facebook, youtube, instagram, whatsapp, etc.), 91.84% for calling friends & family, and 88.57% for listening to music. *Conclusions:* Nomophobia is a "first world problem" that's showing no signs of slowing down, regardless of age. Anything can be abused, even the Smartphone. As on today, our culture becomes ever more tech savvy and tech hungry, mobile phone addiction has to be considered as dependence syndrome and preventive measures have to be undertaken to avoid the greater risk of psychological illness among young generations. It is a right time to initiate preventive measures against this severe problem without further delay. Everyone has to accept that relationship with mobile phones are risky for anyone, and it can steer us into "mobile phone mania" or "nomophobia," a

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psychological disorder which is equally dangerous as similar to narcotic drug addictions.

Introduction

From the times of pigeons, letters, Morse codes, telegraphs and telephones, communication has been an integral part of human social life. Building relations, expression of emotions, sharing of thoughts, knowledge of current happenings etc. have been essential forms of interaction amidst our fast-paced life. Marching along with the digitally transforming world, today we live in an era of wireless communication. As soon as the Smartphone set its foot into the garden of electronic gadgets, it exerted its spell on the conscious and intelligent part of human brain. Nowadays, the use of internet, smart phones, video games, social networks and other technological tools is very common. Their use is increasingly popular regardless of age, sex, social class and culture. India is rapidly advancing in the technological space.

With the growing population and increasing smart phone penetration, India is going mobile and digital. From 200 million internet users in 2013 to over 500 million internet users by 2017 -

including **314 million mobile internet users --** the growth story of mobile internet in India is on the upsurge. India has a mere 125 million smart phone users currently, the world's third-largest base after China and the United States. However, the growth opportunity is huge. The country is slated to overtake the United States in 2016 and become the world's second-largest market for smart phones, exceeding 200 million smart phone users says research firm e-Marketer. China, in contrast, already has over 500 million smart phone users.

As yet, just about a fourth of large Indian telcos' revenues come from data usage but that is set to change. Indian telcos will come under pressure to offer creative new pricing packages for data users. With the launch of the ambitious Reliance Jio in 2016, India has heated action in both voice tariffs and data pricing (Forbes, 2016).

In some countries, the number of cell phone connections has exceeded the total population that indicating a replicate cell phone connection to an individual. It is a surprise report that 29% of mobile phone users have stated that their cell

phone as "something they can't imagine living without." There is an increase in the nomophobic population in India because the number of mobile phone users has increased. Other research shows that about 45% of the Indian population is nomophobic.

The smart phone has changed our lives. The age of cell phone initiation is becoming increasingly younger: 30% of 14-16 years of children have a cell phone; the rate increases to nearly 70% at age 17 and 83% at age 18. Furthermore, starting at the age of 4–5 years, Indian children habitually access their parents' devices. These data imply that the cell phone enables stress, depression, sleep disturbances, aggression, and to a list of risky behaviours, particularly in 15-35 years old age group.

Mobile phones, one of the greatest inventions in the late 20th century, now have become the newest addiction in the world. Even though it has given us convenient and comfort, it doesn't mean it has no adverse effect. It is something that is going to affect everyone on day to day basis. This fact has become more and more evident in communications media, inspiring new pathologies, such as "Nomophobia" (No-Mobile- Phobia), "FOMO" (Fear Of Missing Out) – the fear of being without a cell phone, disconnected or off the Internet, "Textaphrenia" and "Ringxiety" – the false sensation of having received a text message or call that leads to constantly checking the device, and "Textiety" – the anxiety of receiving and responding immediately to text messages.

Smart phones are not just becoming a part of our daily lives - but a part of each and every one of us. The presence of this handy device that holds the world just a touch away has been greatly significant and unavoidable in our standard of living. It is surprising to note that an average person checks their phone 110 times per day, even without their knowledge or any reason. With the augmented ownership and usage of smart phones among adolescents, the young population is more at risk, partly because they can access the Internet through phones more easily, increasing the time spent on phones.

Researchers have found out that people who use mobile phones for more than three hours a day have a higher chance of getting nomophobia, warning this can pose potential dangers. It is not just perceived as a gadget, but as a digital umbilical cord connecting us to a fulfilled life. While the presence of smart phones has its mark, its absence has notable impacts too. Nomophobia (NO-

Mobile phone-PHOBIA) -The fear/anxiety of being away from mobile phone contact- is an alarmingly raising specific phobia in the recent times.

Nomophobia is considered "**a 21st century disorder resulting from new technologies**" and even has an entry in the *Urban Dictionary* which is suitably brief so as to more succinctly illustrate the horror that is nomophobia: Fear of being away from a mobile phone. Technically, nomophobia refers a fear of being unable to communicate via a mobile phone or via the internet.

It is a fact that, millions of people suffer from Nomophobia around the globe. Although Nomophobia does not appear in the current DSM-V, it has been proposed as a "specific phobia", based on definitions given in the DSM-IV.

In order to refer to people with nomophobia, two other terms were introduced and colloquially used: *nomophobe* and *nomophobic*. A nomophobe is a noun and refers to someone who is afflicted with nomophobia. The term, nomophobic, on the other hand, is an adjective and is used to describe the characteristics of nomophobes and/or behaviours related to nomophobia.

The 2008 study in the UK, conducted with over 2,100 people, demonstrated that some 53% of mobile phone users suffered from nomophobia (Mail Online, 2008). The study also revealed that men were more prone to nomophobia than were women, with 58% of male participants and 48% of female participants indicating feelings of anxiety when unable to use their phone. In terms of the relationship between age and nomophobia, the study found that young adults, aged 18-24 were most prone to nomophobia with 77% of them identified as nomophobic, followed by users aged 25-34 at 68%. Moreover, mobile phone users in the 55 and over group were found to be the third most nomophobic users.

One of the very first research studies into nomophobia is a case report by King, Valença and Nardi (2010). In their study, they consider nomophobia as a 21st century disorder resulting from new technologies. In their definition, nomophobia "denotes discomfort or anxiety when out of mobile phone or computer contact. It is the fear of becoming technologically incommunicable, distant from the mobile phone or not connected to the Web" (King et al., 2010, p. 52).

Their definition seems to encompass not only mobile phones but computers, as well. Although their definition includes the unavailability of computers, they

nomophobes fix their attention on phones. According to recent studies, up to 47% nomophobes reported accidents while messaging or talking on the phone, which includes minor road accidents, falling while going upstairs or downstairs and stumbling while walking. More than 20% also reported pain in the thumbs due to excessive texting.

One could look at this as a form of addiction to the phone. The fear is part of the addiction. The use of hand phone has some features that predispose this activity to addiction, similar to video games, naming, and easy access.

People also carry a charger all the time. Other study shows that the no-battery-situation upsets nomophobes the most. People can also prepay phone cards for emergency calls and credit balance in phones to ensure a constant and functioning network. Other solutions include supplying friends with an alternate contact number and storing important phone numbers somewhere else as backups.

e-Relationships: The Good and the Bad

As adults observe adolescents spending time 'alone together' (Turkle, 2011) — physically together but each interacting with their mobile device — the concern is that young people are missing out on opportunities to develop key social and relationship skills. Experimental research has shown that simply placing a mobile phone on the table beside a pair of strangers' decreases their closeness and the amount of personal information they disclose (Przbylski& Weinstein, 2012). If the mere presence of a mobile phone can influence the quality of conversations among adults, how are the relationships of young people who are born into the digital world affected?

Interestingly, most research has not supported the idea the time adolescents spend on their mobile devices is preventing them from developing or maintaining close relationships. While time spent online does displace time spent with friends and family, for most adolescents frequent virtual communication has been shown to strengthen the quality of existing relationships (e.g., Davis, 2012). In addition, network analyses of adolescents' online communications illustrate substantial overlap between online and offline peers (Bryant, Sanders-Jackson, & Smallwood, 2006), and fine-grained analyses of the content of their exchanges have shown that most online communication involves positive (or neutral) interactions between friends (Underwood, Ehrenreich, More, Solis, & Brinkley, 2014). Mobile devices also

allow children and adolescents separated from close friends and family to stay more closely connected, including, for example, with deployed military parents or noncustodial parents.

Admittedly, mobile technologies have not had universally positive effects on young people's social relationships. That is, most adolescents have been involved in or witnessed online victimization and bullying; this is important as involvement in cyber-bullying is associated with a wide range of negative outcomes (Kowalski, Giumetti, Schroeder, &Lattanner, 2014). While most research shows that there is substantial overlap between adolescents who are bullies/victims online and offline, mobile platforms can also exacerbate offline risks. For example, perpetrators can remain anonymous and victimization may occur at any time of day or night.

To summarize, there is significant overlap between online versus offline relationships and communications among young people. For most adolescents, mobile devices have become a tool for engaging in routine exchanges with friends and strengthening existing relationships. However, mobile technologies have also introduced new tools for bullying — although not necessarily new bullies or victims.

The current study finding out the prevalence of nomophobia helps us in assessing the severity of nomophobia also. Currently, there are no studies available in India which has employed the new NMP-Q. Hence, in this background, the present study was conducted to find out the prevalence of nomophobia and its determinants across different generation in Lucknow city. Different generations were chosen because every generation whether children or young or elders use phones more frequently.

Objectives: To find out the prevalence of nomophobia and its determinants among people of Lucknow city across different generation.

Sample: The sample of 429 people was taken for this research from three different age group. Age group of 18-35 years were named as young adults, age group of 36-55 years were named as middle-aged adults, and age group of 56 years and above were named as old adults. From each age group, 143 respondents were involved in this study. All the respondents were from Lucknow city. Convenient random sampling was used for this study.

Tools: The nomophobia questionnaire (NMP-Q) was developed and validated

by Yildirim and Correia. The questionnaire includes 20 questions using a Likert scale from 1 to 7, with 1 being "totally disagree" and 7 being "totally agree". These questions are divided into four main themes: not being able to access information (items 1±4); giving up convenience (items 5±9); not being able to communicate (items 10±15) and losing connectedness (items 16±20). The total score is found by adding up the number in each item, which allows for a range of scores from 20 to 140 points. Higher scores correspond to a higher degree of nomophobia. Chronbach's alpha reliability test was performed, which measures the internal consistency of the scale, and was found to be 0.945.

Result: Figure 1 showing the distribution of nomophobia of the total sample
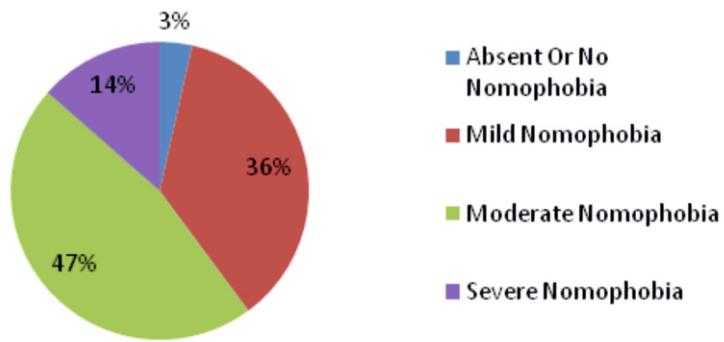
Table 1: Showing the distribution of scores of nomophobia across different age groups.

	Nomophobia Category					
	No or Absent Nomophobia	Mild Nomophobia	Moderate Nomophobia	Severe Nomophobia	Total	P
Young Adults(18-35years)	3	43	**71**	**24**	141	
Middle-Aged Adults (36-55years)	4	**74**	69	20	167	**0.001**
Old Adults(56years and above)	**8**	39	60	14	121	

Table 2: Showing reasons for mobile use:

Reasons	Percentage of young adults using
Social Media (google for academics & personal use both, facebook, youtube, instagram, whatsapp, etc.)	99.06%
Calling Friends & Family	91.84%
Listening Music	88.57%
Texting	74.36%
Playing Games	57.58%

The total numbers of respondents selected were 429, of which 143 (%) were from each group. The most common reason for the use of smart phones in this study was using internet, and calling of friends / family members which was similar to the findings of other studies. The possible reason for this could be launching of free 4G services by a private provider during this time.

The limitations of the study are that it is based on four different generations of one particular city only and hence it cannot be used to generalize the prevalence of nomophobia to the entire state, country or world. Overall, 414 (97%) of the respondents were nomophobic and 15 (3%) non-nomophobic. 156 (36%) showed mild, 200 (47%) moderate, and 58 (14%) severe nomophobic (Figure 1). The scores of nomophobia showed statistically significant association with different generation ($P = 0.001$) with no nomophobia and mild nomophobia categories more among middle-aged adults and old adults, moderate nomophobia and severe among young adults (Table 1).

About 99.06% young adults were using smart phones for using social media (google, facebook, youtube, instagram, whatsapp, etc.), 91.84% for calling friends & family, and 88.57% for listening to music which were the most common reasons for using smart phones (Table 2).

Conclusion:

The prevalence of nomophobia in our study was as per the ICD-10 diagnostic criteria for dependence syndrome. The mobile phone has been dubbed as one of the biggest non-drug addictions of the 21st century. As observed use of cell phone is increasing and unjustified use may result in problems. Prevention is better than cure, most of the subjects using mobile phone belong to younger adult age group, and therefore health education strategies should be targeted to youth adults to prevent harmful effect of this great invention. Though treating inappropriate mobile phone use may just be addressing a symptom, rather than

the underlying problem, but there is still a need to recognize these growing trends and the potential for negative consequences of inappropriate mobile phone use in young users.

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AFTERMATH OF SEXUAL ASSAULT: POST-TRAUMATIC STRESS DISORDER (PTSD)

Deeksha Chadha[1] & Abhishek Singh[2]

Introduction

Once referred as shell shock or battle fatigue was first brought to public attention by war veterans after civil war in United States.

History of Posttraumatic Stress Disorder

The psychological problems of soldiers in World war-II had a severe impact. PTSD was included in the DSM–III in 1980.

PTSD is a trauma and stress related disorder that may develop after exposure to an event or ordeal in which death, severe physical harm, violence occurred or was threatened. PTSD affects about 8 million American adults and can occur at any age any including childhood. PTSD is frequently accompanied by depression, anxiety disorders or substance abuse.

Objective

To study the after effects of sexual assault with special reference to posttraumatic stress disorder

Posttraumatic Stress Disorder 309.81 (F43.10)

A. Exposure to actual or threatened death, serious injury or sexual violence in one (or more) of the following ways:

 1. Directly experiencing the traumatic event(s).

 2. Witnessing in person the event as it occurred to others.

 3. Learning that traumatic event occurred to a close family member or friend, the event must have been violent or accidental.

 4. Experiencing repeated or extreme exposure to aversive details of the traumatic event(s)

B. Presence of one or more of the following intrusion symptoms associated with the traumatic event beginning after the traumatic event (s) occurred.

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C. Persistent avoidance of stimuli associated with the traumatic event occurred as evidenced by one or both of the following:

1. Avoidance of or efforts to avoid distressing memories, thoughts, or feelings about or closely associated with the traumatic event.

2. Avoidance or efforts to avoid external reminders that arouses distressing memories thoughts or feelings about **or closely associated with the traumatic event.**

D. Negative alterations in cognition and mood associated with the traumatic event beginning or worsening after the traumatic event occurred.

E. Marked alteration in arousal and reactivity associated with the traumatic events beginning or worsening after the traumatic event.

F. Duration of the disturbance (criteria B, C, D and E).

G. The disturbance causes clinically significant distress or impairment in social or other important areas of functioning.

H. The disturbance is not attributable to the physiological effects of a substance.

Posttraumatic Stress Disorder and Sexual Assault: Prevalence

According to the DSM-V, in the United States, projected lifetime risk of PTSD using DSM-IV criteria at the age of 75 years is 8.7%. Twelve-month prevalence among the US adults is 3.5%. Lower estimates are seen in Europe and most Asian and African and Latin American countries, clustering around 0.5%-1.0% rates of PTSD are higher among veterans and others whose vocation increases the risk of traumatic exposure.

Highest rates are found among survivors of rape and military combat and captivity and ethnically or politically motivated internment and genocide.

Sexual Assault: Nature

The term sexual violence is an all encompassing, non–legal term that refers to crimes like sexual assault, rape and sexual abuse.

United States, Department of Justice defined "sexual assault as any type of sexual contact or behavior that occurs without the explicit consent of the recipient".

Key figures

As per the data given by National Institute of Mental Health:

- 3.5 % of the US adult population experience post-traumatic stress disorder (PTSD) every year.

- 4 % of children age 13-18 experience post-traumatic stress disorder in their lifetime.

- About 8 million adults have PTSD during a given year.

Post-traumatic Stress Disorder

As per information based upon McGill journal of medicine: MJM:

- Almost one third (31%) of all rape victims developed PTSD during their lifetime and more than one in ten rape victims (11%) still has PTSD today.

- Rape victims were 6.2 times more likely to develop PTSD than women who had never been victim of crime (31% vs 5 %).

- Rape victims were 5.5 %times more likely to have current PTSD than those who had never been victims of crime (11% vs 2%).

- A dysregulation of the Hypothalamic Pituitary Adrenal axis (HPA) is observed in survivors of sexual assault and this may be a fundamental cause of the structural and functional abnormalities contributing to PTSD symptoms.

Therapeutic Approaches

1. COGNITIVE BEHAVIOR THERAPY

COGNITIVE PROCESSING THERAP - developed by *DR. PATRICIA RESICK*

- CPT is a specific type of behavior therapy that has been effective in reducing symptoms of PTSD,generally delivered over 12 sessions helps patients modify unhelpful beliefs related to the trauma

PROLONGED EXPOSURE THERAPY- developed by *EDNA FOA*

- PE is typically provided over a period of about three months with weekly individual sessions, resulting in eight to fifteen sessions overall. and gradually helps individuals to approach their trauma-related memories.

2. Eye Movement and Desensitization Reprocessing (EMDR)

EMDR is a form of psychotherapy in which the person being treated is asked to recall distressing images while generating one type of bilateral sensory input such as side-to-side eye movements or hand tapping.It is an individual therapy typically delivered one or two times per week for a total of 6-12 sessions.

8 PHASES OF EMDR:

- PHASE 1- History taking

- PHASE 2-Preparing the client

- PHASE 3-assessing the target memory

- PHASE 4 to7- Processing the memory

- PHASE 8- evaluating treatment results

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MARRIAGE: A PSYCHOLOGICAL TRAUMA FOR PERSONS WITH MENTAL ILLNESS

Divya Rai[1]

Abstract

In Indian context marriage is a social institution of extreme relevance. Marriage has an important role in mental health of any individual. It does not always have positive outcome and the correlation between marriage and mental illness seems to be complicated. Major mental illnesses are usually diagnosed at late adolescent and early adulthood. This is the age when decision of marriage is taken, and this s rise to dilemma whether to marry or not, and whether marriage will improve or deteriorate the condition. The difficulties are equally faced by the individuals and their family members. Mental disorders and problems in marriage are closely linked though there is a controversy about it. In India, it is commonly assumed that marriage would help in the management of mental illness. Marriages are assumed to reduce the problems of individuals with mental illness through its effects on social support and intimate connection. But on the other hand, it has been seen that in many cases after marriage couples are separated or divorced due to mental illness and to some extent marriage contribute in the maintenance of mental illness, or lead to trauma in the person and in the caregivers. In this paper author wants to shed light on how marriage contributes to mental-health problems; whether it has a protective role or it leads to psychological trauma in the life of person with mental illness.

Keywords: *Marriage, Trauma, Mental Illness*

Introduction

Marriage has been, since ancient times, one of the most important social institutions in all societies and it forms the basis of civilization and social structure. It is to be a contractual agreement that formalizes and stabilizes the social relationship which comprises the family (Nambi, 2005). The anthropological handbook "Notes and Queries" defined marriage as "a union between a man and a woman such that children born to the woman are the recognized legitimate offspring of both partners." (Royal Anthropological Institute 1951).

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Marriage is defined differently, and by different bodies, on the basis of various cultural, religions and other personal factors. Marriage is defined as formal union, marriage is a social, and legal contract between two individuals that unites their lives legally, economically, and emotionally. Being married also gives legitimacy to sexual relations within the marriage. In traditional perspective marriage is mostly seen as a key role for the preservation of morals of different cultures and civilization. Marriages are done due to many reasons such as legal, social, emotional, economic, spiritual, and religious. These might include arranged marriages, family obligations, legal establishment of a nuclear family unit, legal protection of children, and public declaration of commitment (Prakash & Kiran 2011).

Methodology

Free access articles were searched using key words and phrases like marriage, mental health, mental illness. Bibliographic references from the searched articles were further used to widen the sources of references. Thearticles where only abstracts and access to full paper was available were included. A total of 20 articles were identified and were reviewed.

Marriage and Mental Illness

Marriage is the greatest event in an individual's life and brings with it many responsibilities. Mental disorders can either result in marital discord or may be caused by marital disharmony. In predisposed individuals, marriage can cause mental-health problems (Nambi 2005) Divorce seeking couples have higher psychiatric morbidity than well-adjusted couples with more neurotic traits. Besides, studies consistently show greater distress among widowed/ separated/divorced men and women. Greater distress is seen in among married women compared to married men and greater distress in single women as compared to single men (Nambi 2005) Indian society has a greater bias against women with mental illness; many of them are abandoned by their husbands and in-laws and are sent back to their parents' homes (Behere, Rao and Verma 2011). This causes misery and stigma and further complicates their problems by making them more susceptible to development or exacerbation of psychiatric disorders after marriage (Behere & Tiwari, 1991).

Marriage: A Stabilizer or Stressor

Marriage may influence mental health in different ways. In India, it is popular belief that marriage is a cure for different forms of mental disorders ranging from neurosis to psychoses. Marriage may reduce mental health problems

marriage can theoretically impose some harm on the mental health of a person. Marriage is a social process requiring responsibilities for it to be successful. Studies have confirmed that there is a higher percentage of marital discord, separation, and divorce among psychiatric patients (Dominian, 1997).

Most of the mental health professionals sometimes give advice regarding the marriage of a person suffering from mental illness keeping in mind the prognostic factors and other contributing factors. But not always the result is positive the families report of separation; divorce etc as result of ill-planned marriage. This can be detrimental to the continued well-being of certain types of mentally ill like acute psychotics. However, there is no factual evidence to support one or the other view.

Marriage Directly Proportionate to Mental Health Issues

Marriage may be stressful for vulnerable people with existing mental illness, which may lead to further development of mental-health problems and may contribute in relapse of the disorder. Major mental-health disorders may be the cause or effect of marital discord. (Rao, Nambi & Chandrashekhar 2009) Several studies have shown that marital stress is associated with a range of psychiatric disorders (Mendels& DiGiacomo). Certain personality traits and disorders like dependence, passiveness, aggression, histrionic, paranoia and obsession, especially when aggression is a marked feature, have a high incidence of severe marital discord (Dominian, 1979).

When compared to well-adjusted couples, divorce seeking couples have a high psychiatric morbidity, with more neurotic traits. (Rao, Nambi& Chandrashekhar 2009) Studies in male neurotics showed that inability of wife to escape from husband's constant neurotic behavior may contribute to her marital tension. Eventually separate outlook of both spouses may lead to independent and separate activities and further increase conflicts and gradual alienation (Collins, Nelson & Troop 1973).

Specific situations related to marriage like anorgasmia, impotence, discovery of extramarital affair, problems with children, an announcement of intent to divorce can be the major trigger to psychological problems (Rao, Nambi& Chandrashekhar 2009).

Greater distress is observed among married females as compared to married men. It may be result of multiple factors like more responsibilities in taking care of the family, adjusting to a new family and environment, pregnancy, childbirth,

motherhood, etc (Rao, Nambi& Chandrashekhar 2009).

Marriage: Productive or Traumatic Agent

Married men have a statistically significant delay (1-2 years) in onset of psychotic symptoms in mental illness, when compared with single men. (Jablensky, et al. 1992) Men are found to have the lowest rate of depression, as compared to divorced/separated men in whom rates were highest. Married females with mental illness are more likely to be sent back to their parent's house, abandoned, deserted, or divorced this is a traumatic experience for the individual and the family as well.

Marital and family problems can be important stressors leading to many mental health issues, which in longer run may be a traumatic experience for the person. In case of females, separation/divorce is not a very feasible alternative to problems such as marital discord, dowry demands and ill-treatment/cruelty by in-laws etc, and the continuous exposure to these their life becomes traumatic.

Marriage, Psychopathology and its Effect on Females

For the females, marriage is a one-time event of their life, which is glorified and sanctified and is associated with much social approval. If this is endangered or broken by mental illness like psychoses, the lives of these women are shattered beyond repair. In Indian context, women suffer the most in the case of mental illness. When psychiatric disorders occur in young girls, parents are worried about marriage. Lack of awareness and the widespread belief that marriage is the solution for all evils prompt many parents get their daughters married even when they are symptomatic when facts come out, a grave situation of mutual distrust, animosity, and hostility occurs. (Pathak & Sharma 2013)

Women suffering from major mental disorders, whether developed before or after the marriage are often abandoned by their husbands and his family. As a result, lives of these women are shattered beyond repair and almost all these women now come to live with her parents, many of whom are already aged. (Sathyanarayana, Nambi& Chandrashekhar 2009) Women face immense hardships and are left to fend for themselves with few options open. They are ostracized on three counts, namely female status, having severe mental illness (Pathak & Sharma 2013) Things are not so grave for men in Indian context. The female faces social isolation and compounded stigma of mental illness. The stigma of being separated/ divorced is more acutely felt by families and patients than that of the mental illness. (Thara and Srinivasan 1997)

Burden on Care givers/Partners

Mental illness affects not only the individuals affected by it but also everyone around them, including immediate family, other relatives, and mostly both. For many people, marriage creates an important sense of identity and self-worth (Gove, Style & Hughes, 1990).

Caring a person with mental illness may affect the mental health of their partner too. Some support their mentally ill partners, but most of them do not want to live with them and ask for separation resulting in separation and divorce. This happens more with female patients. After separation the life of the patient is drastically affected and may lead to worsening of the situation of the patient. Care givers of these individuals suffer much more than the individuals themselves; feelings of disruption, loss guilt, frustration, grief, disappointment, and a fear about the future of their loved ones make them miserable.

With mental illness, if marriage is done under pressure, there is a strong possibility of deterioration of condition. Many stressors described as being responsible for relapses of illness. Uncertainty of marriage being fixed-up, dowry issues, shifting to a new home, difficulty in continuing necessary medications and regular follow-ups to the psychiatrist/psychologist, stress of sexual intercourses, pregnancy and childbirth (Behere, Rao & Verma, 2011).

Expressed emotions in the spouse's family may be high, which can worsen the illness and lead to relapses. The situation becomes worse for the woman in Indian society as she has exited her existing social supports to move to her husband's household. Higher psychiatric morbidity exists after childbirth, particularly in areas of functional psychoses and depressive illness (Kendell Wainwright, Hailey & Shannon 1976).

Mental disorders impact not just on the individuals affected but also on those around them, including immediate family, other relatives, and may be both. For many people, marriage creates an important sense of identity and self-worth. Caring of a person who is mentally ill may affect the mental health of the spouse. Some support their mentally ill partners, but most of them do not want to live with them and ask for separation. This happens more with female mentally ill patients. After separation, women live with their parents. Care givers of these women suffer much more than the patients themselves; feelings of disruption, loss guilt, frustration, grief, disappointment, and a fear about the future of their loved ones make them miserable.

Outcome of Marriage in Mental Illness

The patients with mental illness have high rates of marital discord, separation and divorce. (Dominian, 1979) The high marital rates, presence of children, shorter duration of illness at inclusion, presence of auditory hallucinations at intake are associated with a good marital outcome. Unemployment, drop in socio-economic level and the presence of psychotic symptoms and self-neglect for a long period are associated with a poor marital outcome.

The burden of caring the person with mental illness almost invariably has to be borne by the aging parents, spouse, husband and other family member leading to economical and emotional burden. In schizophrenia, it is reported that rates of fertility and reproduction reduce. (Rao, Nambi& Chandrashekhar 2009) In females, after marriage, an early relapse causes mistrust and suspicion in the family; this in return jeopardizes the success of the marriage and the outcome of the illness. An episode after childbirth or several years of marriage are however, viewed as less favorable and thus does not result in separation/divorce further. (Kamath & Kumar 2003)High rate of divorce is seen in heavy drinkers probably due to a high incidence of domestic violence to the tune of 60-80 %. (Batra & Gautam 1995)

Family problems that are likely to co-occur with alcohol problems include violence, marital conflict, infidelity, jealousy, economic insecurity, divorce and fetal alcohol effect. Numerous researchers have reported a strong association between marital problems and depression. Marital dissatisfaction was uniquely related to major depression for women and dysthymia for men, even after controlling for comorbid disorders. (Whisman 1999) Generalized anxiety disorder in women was associated with poorer marital functioning as reported by women, but not by their male partners, whereas husbands' GAD was not associated with poor marital functioning being reported by either spouse (McLeod 1994).

Conclusion & Discussion

Marriage influence mental health in many ways of every individual. In case of mental illness, it becomes even more complicated because of the roles and responsibility associated with marriage. In India, it is a very popular belief that marriage is a cure for different forms of mental disorders ranging from neurosis to psychoses. Marriage may reduce mental health problems through its effects

on social support and intimate connection. On the other hand, marriage can theoretically impose some harm on the mental health of a person. Many studies have confirmed the finding that there is a higher percentage of marital discord, separation, and divorce among psychiatric patients.

It is seen in most of the cases that marriage leads to a good prognostic factor for the individuals with mental illness, they are supported by their partner and families. But there are many cases where the patients are left after the family gets awareness about the mental disorders. The divorce and separation are often seen in the individuals with mental illness. The pressure of fulfillment of roles and responsibilities of marriage may lead to worsening of the situation of the patient.

The negative environment, the expressed emotion by the family members leads gives rise to negative self-image, decreased self-confidenceetc. in the person.In Indian context, this kind of marriages not only affects the patient but also affects the entire family including children because genetic vulnerability is one of the major issues suffer the most in the case of mental illness. The potential of marriage to reduce certain kinds of mental-health problems probably owes itself to the beneficial effects it confers in terms of increasing personal and social support. Marriage adds to social status and may decrease stigma.

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THE ROLE OF THE NEIGHBORHOOD, FAMILY AND PARTNER IN TRAUMATIC STRESS

Dr. Arshad Ali[1]

Abstract

What constitute a trauma then is not only entirely dependent on the nature of the event but also on the personal and social interpretations of the event and responses of the effected person's family, neighborhood and their partner also plays an effective and key role in traumatic stress. This traumatic stress may be triggered by feelings of neglectedness, helplessness, loss from observed and felt conflict. The Family where the person grew up and nurtured plays a key role in mental hygiene of the person. After their neighborhood which is like their growing field of the person and gave the growing platform to them. There After their life partner, which comes from different habits and environments suddenly. These are the main factors which affects the traumatic stress in the person.

Introduction:

Definitions: "Experiences or situations those are emotionally painful and distressing, and those overwhelm person's ability to cope, leaving them powerless." **(**Center for non-violence and social justice).

"Traumatic events are extraordinary, not because they occur rarely, but rather because they overwhelm the ordinary human adaptations to life."- Judith Herman, Trauma and recovery.

Stress reactions as a result of human caused disasters may persist longer than natural disasters. Manmade disasters are very harmful than natural disasters. In Indian context now a days these are very burning issues and changing the whole life of the persons and damaging to human beings complete life styles. High ambitions of the person and disappearance family values are totally affecting the life styles of the persons' which make them traumatic.

The role of the neighborhood: Today's we can see a status war in every society. Mostly peoples are showing themselves superior to others. They are showing superior to the others. In this way in every society the status war is a burning issue. It fallows the survival of the fittest model of Darwinian Theory. This behavior led to them at traumatic stress, which fall under the level of their

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neighborhood may be traumatic stressed. In India peoples belong to many species and these species battled for superior. Species also divided in sub species they also tried proved them superior then others. Like Brahman, Thakur, Vaishya, etc. This trend of society also takes to people towards traumatic stress.

The role of the family: In a family, each member will react to the traumatic event in their own way. If family members don't understand each other's experience, then misunderstandings, communication breakdowns and other problems can result. Even if you cannot understand exactly what another member is going through, being aware of common reactions and their effect on family life can help everyone cope better in the long run. Examples of common reactions to trauma are:

- Feeling as if you are in a state of 'high alert' and are 'on watch' for anything else that might happen.

- Feeling emotionally numb, as if in a state of 'shock'.

- Becoming emotional and upset

- Feeling extremely fatigued and tired

- Feeling very stressed and/or anxious

- Being very protective of others including family and friends.

- Not wanting to leave a particular place for fear of 'what might happen'.

Also, it is important to remember that despite the above traumatic reactions, many families look back and see that crises have actually helped them to become closer and stronger. However, don't hesitate to seek professional help if you are uncertain or think your family is struggling to recover.

Family life following the event: Every family is different but, generally speaking, common changes to family life soon after the event include:
- Parents may fear for each other's safety and the safety of their children away from home.
- Family members may experience nightmares or upsetting dreams about the event.
- Fear of another distressing experience happening may affect family life.
- Anger at whoever is believed to have caused the event can often flow

on to the affected loved one or the family in general.

- Family members may feel overwhelmed by insecurity or lack of control, or at the thought of having so much to do.
- Family members may not know how to talk to each other. Each person is struggling to understand what has happened and how they feel about it. If talking makes people upset, they will often avoid it.
- Impatience, misunderstandings, arguments over small things and withdrawal from each other can all impact on family life and relationships.

Disruption to family relationships: Family relationships can also be affected by a traumatic event – for example, parents may feel unsure about how to help their children after the crisis.

- Communication breaks down as each family member struggles in their own way to come to terms with what has happened.
- Children don't want to go to school.
- Parents don't want to go to work.
- Household schedules tend to lapse – for example, chores are missed, regular mealtimes are disrupted or recreation is neglected.
- The usual arrangements for household responsibilities change. Children may cook meals for a time, parents may feel unable to do tasks, or children may not want to be alone.

The role of the partner: Stress spills into our personal lives in many ways, affecting the quality of our close relationships. When people are stressed, they become more withdrawn and distracted and less affectionate. They also have less time for leisure activities, which leads to alienation between partners. Stress also brings out people's worst traits, which may lead their partners to withdraw as well, because who wants to be around? Overtime, the relationship becomes more superficial and couples become more withdrawn, experiencing more conflict, distress and alienation in the relationship.

Stress depletes people, sapping their cognitive resources. It also increases vigilance. In short, stress turns non-issues into issues and prevents your ability to deal with the issue constructively. Stress also affects our physical and mental health and places additional strain on the relationship.

Stress can particularly bad for couples who are in rocky relationships because these couples tend to be more strongly affected by daily events than couples in

more stable relationships. A couple who typically communicates well may see their communication break down over a weak that was particularly stressful and as a result of stress and sapped resources, they feel like there are real communication problems in their relationships. Likewise, a couple who is typically affectionate may little affection when stressed and as result come to believe that they have an issue with affection and time together, rather than recognizing it is just the stress. These misperceptions can create dissatisfaction with otherwise healthy relationships and lead people to try to solve the wrong problems (communication, affection) rather than identifying and solving the actual source of the issue (stress).

People react differently to trauma: It is important to remember that it is normal for people to respond in different ways to distressing events. However, sometimes people's responses can clash. One person may withdraw and need time to them, while the other needs company and wants to talk about it. Although this can seem quite confusing at times, giving a person the necessary space to work through their own reaction can be extremely helpful.
With families, common reactions may include:
Strong feelings – include anxiety, fear, sadness, guilt, anger, vulnerability, helplessness or hopelessness. These feelings will not just apply to the event, but to many other previously normal areas of life as well

Physical symptoms – include headache, nausea, stomach ache, insomnia, broken sleep, bad dreams, changed appetite, sweating and trembling, aches and pains, or a worsening of pre-existing medical conditions

Thinking is affected – include difficulties with concentrating or thinking clearly, short-term memory problems, difficulty planning or making decisions, inability to absorb information, recurring thoughts of the traumatic event, thinking about other past tragedies, pessimistic thoughts or an inability to make decisions

Behavior changes – include a drop-in work or school performance, turning to changed eating patterns, using drugs or alcohol, being unable to rest or keep still, lack of motivation to do anything, increased aggressiveness or engaging in self-destructive or self-harming activities.

Family life – weeks or months later: Family relationships may change weeks or even months after the event. Because time has passed, family members sometimes don't realize how changes are directly linked to the event. Every family is different but, generally speaking, common changes in the weeks or months after the event include:

- Family members may become short-tempered or irritable with each other, which can lead to arguments and friction.
- They may lose interest in activities or perform less well at work or school.
- Children may be clingy, grizzly, demanding or naughty.
- Teenagers may become argumentative, demanding or rebellious.
- Individuals may feel neglected and misunderstood.
- Some family members may work so hard to help loved ones; they neglect to look after themselves.
- Individual family members may feel less attached or involved with one another.
- Parents may experience emotional or sexual problems in their relationship.
- Everyone feels exhausted and wants support, but cannot give much in return.

Family life – years later: Sometimes, the response to a distressing or frightening event may take a long time to show. In some cases, it may take years for problems to surface. This can happen if the person is very busy helping others or dealing with related issues, such as insurance, rebuilding, relocation, legal processes or financial problems. When things have returned to normal, their reactions may show up. Every family is different but, generally speaking, changes to family dynamics can include:

- The experience may be relieved when faced with a new crisis.
- Problems may seem worse than they are and be more difficult to handle.
- Changes to family life that occurred in the days, weeks or months after the event may become permanent habits.
- Family members may cope differently with reminders of the event. Some may want to commemorate the anniversary or revisit the scene of the event, while others may want to forget about it.
- Conflict in coping styles can lead to arguments and misunderstandings

if the family members aren't sensitive to each other's needs.

Helpful strategies for recovery from trauma:

Some things you can do to reduce complications and support family recovery include:

- Remember that recovery takes time. Prepare the family members to go through a period of stress and cut back on unnecessary demands to conserve everyone's energy.
- Don't just focus on the problems. Make free time to be together and relax, or else the stress will not subside.
- Keep communicating. Make sure each family member lets the others know what is going on for them and how to help them.
- Plan regular time out and maintain activities you enjoyed before – even if you don't much feel like it. You probably will enjoy yourself if you make the effort. Enjoyment andrelaxation rebuild emotional energy.
- Keep track of your family's progress in recovery and what has been achieved. Don't just keep thinking about what is still to be done.
- Stay positive and encouraging, even if at times, everyone needs to talk about their fears and worries. Remind yourself that families get through the hard times and are often stronger.

Seeking help from a health professional:

Traumatic stress can cause very strong reactions in some people and may become chronic (ongoing). You should seek professional help if you:

- are unable to handle the intense feelings or physical sensations
- don't have normal feelings, but continue to feel numb and empty
- feel that you are not beginning to return to normal after three or four weeks
- continue to have physical stress symptoms
- continue to have disturbed sleep or nightmares
- deliberately try to avoid anything that reminds you of the traumatic experience
- have no one you can share your feelings with
- find that relationships with family and friends are suffering
- are becoming accident-prone and using more alcohol or drugs
- cannot return to work or manage responsibilities
- keep reliving the traumatic experience

- Feel very much on edge and can be easily startled.

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HEALING TRAUMA THROUGH SPIRITUALITY

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Abstract

Trauma is actually the residue from the past as it settles into body. There are many and varied types of trauma. The extent to which trauma influences the mental health of an individual depends on the nature of trauma, as well as on the individual's coping capabilities. It is well recognized that severe psychological trauma causes impairment of the neuroendocrine systems in the body and affect all aspects of development, including cognitive, social, emotional, physical, psychologicaland moral development. The pharmacological management of psychological disorders resulting from trauma is best supplemented with nonpharmacological healing techniques which would allow the person to regulate their internal states and response to external stress.

Spirituality is the best nonpharmacological healing techniques. The term Spirituality comes from the Latin word "spiritus" which means 'breath of life'. The unpleasant phase of life can be healed up by natural spiritual techniques. All techniques teaches 'good way of living' which promotes well-being of the individual and helpful in the healing process by bringing the body, mind, and spirit together. Healing at the spiritual level can mean gaining a sense of being an immortal part of an underlying order, against which the experience of any threat to the body is perceived as much less important. All these practices purifies: Mind: *meditation, prayer*; Body: *balanced and saatvic diet*; Spirit: *spiritual engagement (reading spiritual literature)*.

Thus, Spirituality brings humans closer to their core being and its affects mind, body, and soul. It can help bring about a positive outlook and give strength in times of adversity. Through use of mind-body-spirit techniques, an individual experience a calm, restful mind and body, and enhancement of psychological and physical well-being of the survivor.

Keywords: Trauma, Wel lbeing, Physical and Mental Health,

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The energies that are released when we heal from trauma are the wellspring of our creative, artistic, and poetic sensibilities, and they can be summoned to propel us into the wholeness of our intelligence.

- Levine

Introduction

India is passing through a major sociodemographic, epidemiological, technological and media transition. The political, economic and social changes have altered the physical and mental health scenario. According to the World Health Organization, 7.5 per cent of India's 135-crore population suffers from mental health issues due to major and minor traumatic events. In India, females experience more psychological trauma as compared to males. Every third women, since the age of 15, has faced domestic violence of various forms in the country, reported the National Family Health Survey (NHFS-4) released by the Union health ministry. We also have the highest rate of suicide in the world between the ages of 15-29. Shockingly, every 3 seconds someone attempts suicide in India. In this way, psychological trauma has been faced by majority of the population. Trauma is broadly described as a deeply distressing experience that can be emotionally, mentally, or physically overwhelming for a person. Experiencing a traumatic event can potentially affect both their current and future mental health.

"Trauma is when we have encountered an out of control, frightening experience that has disconnected us from all sense of resourcefulness or safety or coping or love".

(Tara Brach, 2011)

In general, trauma can be defined as a psychological, emotional response to an event or an experience that is deeply distressing or disturbing. When loosely applied, this trauma definition can refer to something upsetting, such as being involved in an accident, having an illness or injury, losing a loved one, or going through a divorce. However, it can also encompass the far extreme and include experiences that are severely damaging, such as rape or torture.

The literature is saturated with definitions of trauma. Spiegel (2008) describes the essence of traumatic stress as helplessness, which he defines as "a loss of control over one's body". He continues to clarify this in the following words (Spiegel, 2008): "the mental imprint of such frightening experiences

sometimes takes the form of loss of control over parts of one's mind – identity, memory, and consciousness – just as physical control is regained". Peichl (2007b:23) describes trauma as a toxic condition, a mixture of intense anxiety, absolute helplessness and a loss of control. According to Levine (1997), the factor that determines whether an event could be classified as traumatic to the person is whether its impact remains unresolved. The importance of the perception of the real nature of an event by an individual is tantamount to ascertaining whether an experience was traumatic to a person. The term 'perceived life-threatening experiences' or 'perceived overwhelming experiences' features repeatedly in the literature (Levine 2005). It is also the perception of the event that will determine the extent and nature of the impact it has on the person.

Types of Trauma

Trauma can come from many different life experiences. Listed below are some examples of different types of trauma.

Single event trauma: Single event trauma is related to a single, unexpected event, such as a physical or sexual assault, a bushfire, an accident, or a serious illness or injury. Experiences of loss can also be traumatic, for example, the death of a loved one, a miscarriage, or a suicide.

Complex trauma: Complex trauma is related to prolonged or ongoing traumatic events, usually connected to personal relationships, such as domestic violence, bullying, childhood neglect, witnessing trauma, emotional abuse, sexual abuse, or torture.

Vicarious trauma: Vicarious trauma can arise after hearing first-hand about another person's traumatic experiences. It is most common in people working with traumatized people, such as nurses or counsellors. Young people may also experience vicarious trauma through supporting a loved one who is traumatized (e.g. a parent or a friend).

Trans- or intergenerational trauma: Trans- or intergenerational trauma comes from cumulative traumatic experiences inflicted on a group of people, which remain unhealed, and affect the following generations (Hudson,et.al.,2016).

Direct and indirect trauma: Some types of trauma are called 'direct trauma', and others are called 'indirect trauma'. According to May and Wisco (2016), direct

trauma is experienced first-hand or by witnessing a trauma occurring to another person. An 'indirect trauma' comes from hearing or learning about another person's trauma second-hand.

The extent of the influence of a traumatic event on a particular individual depends on thedynamics, duration, and severity of the particular trauma, as well as the subjective experience of the individual victim. The past experience of the individual plays a role in shaping the persons'perception of the extent of the threat and the capacity to respond adequately and defend themselves. Factors that Sikorskiidentifies to be of subjective nature are the degree of intensity, the experience of the stress and helplessness, the cognitive, affective and behaviouralreactions to both recollections of and external events that may serve as reminders of the traumatic experience.

Effects of Trauma: The human response to psychological trauma is one of the most important public health problems in the world. Traumatic events such as family and social violence, rapes and assaults, disasters, wars, accidents and predatory violence confront people with such horror and threat that it may temporarily or permanently alter their capacity to cope, their biological threat perception, and their concepts of themselves. A famous psychoanalyst, Sigmund Freud observed that trauma and the reactions to trauma have a great psychical intensity, that the effects of trauma can result in an organization within the mind independent of other mental processes, and that the possibility of psychoses exists when psychical reality takes precedence over external reality. These are all possible effects of trauma that can present in cases of particularly severe trauma or in individuals with vulnerabilities.If traumatic events are not handled adequately and there is no or insufficient intervention, trauma remains unresolved**.** However, fortunately most individuals have adequate resilience, support structures and coping mechanisms protecting them from developing such devastating symptoms.

Scaer (2005) describes the effects of trauma on the brain as follows:

In the brain of the trauma victim, the synapses, neurons, and neurochemicals have been substantially and indefinitely altered by the effects of a unique life experience. Not surprisingly, the perceptual experience that constitutes the mind has been equally altered ... Trauma thus represents a time-based

corruption of learning. The brain in trauma has lost its ability to distinguish past from present, and as a result it cannot adapt to the future. This confusion of time further immobilizes the trauma victim, who still remains immobilized by a thwarted freeze discharge. Procedural memory is bombarded by environmental and an internal cue that represent old, unresolved threat.

Effects of Trauma can be categorized into-Short term effects and Long-term effects.

Short-term effects: The short-term effects of trauma are often described as normal reactions to abnormal events, and caninclude:fear, guilt, anger, isolation, helplessness, disbelief, emotional numbness, sadness, confusion and flashbacks or persistent memories and thoughts about the event.

It is really important to know that these are normal and healthy reactions to trauma. These can last for up to a month after the trauma has occurred, and can slowly reduce over time.

Long-term effects*:* Sometimes these strong emotions, thoughts, and memories can continue over time and even worsen. This can overwhelm a young person and have damaging effects on their life and its course for e.g. their wellbeing, relationships, and their ability to work and/or study. Some traumas, such as those occurring in childhood, may have effects that only become clear later in life (Felitti, 2002). Long-term, there is a strong relationship between trauma and poor mental and/or physical health outcomes; however, in many cases young people can bounce back with the right support (Lacoviello&Charney 2014). In some situations, young people can draw personal strength from their struggle with trauma and experience a feeling of positive growth (Meyerson, 2011).

Developmental issues are also arises due to trauma. Being exposed to trauma when we are very young can change how our brain grows, negatively affecting ourability to learn (Whittle et.al., 2013). High amounts of stress when we are very young can also increase risk-taking behaviours inadolescence and early adulthood, which can lead to poor physical health later in life (Felitti, 2002).

Trauma does not occur due to the external factor of a single event. Trauma is

enmeshed in an external process of an attempt to assimilate how the event has irrevocably affected the individual. These effects of loss of control can be so powerful as to rewire the brain and result in learned helplessness. But if the victim is able to make choices and act upon those during a traumatic situation, regardless of its outcome, learned helplessness would not occur in the aftermath.

Trauma Management through Spirituality:

"Spirituality lies not in the power to heal others, to perform miracles or to astound the world with our wisdom, but in the ability to endure with right attitude whatever crosses we have to face in our daily lives and thus rise above them."

– Sri Daya Mata

In India we have a very rich cultural heritage on spirituality. Several schools and philosophers have presented their views. We have *Vedic, Jain, Buddhist, Hindu, Islamic* and Christian literature on spirituality/religiosity, but the milestones of spirituality reveal that *Vedas* are world‟s oldest books of knowledge. *Vedic mantras* highlight that if we aspire human beings to be spiritually developed or self - actualized, they should be brought up since childhood in such a manner so as to develop divine qualities or attributes of potentiality, resourcefulness, pervasiveness, detachment, love, immortality, purity, sacredness and positivity (Pradhan, 2013).

The word 'adhyatma meaning Spirituality is derived from two word, adhi and atman (atmanahaadhi). Adhi means pertaining to the topic and atma means the soul. therefore spirituality (adhyadma) means pertaining to the soul (atma). spirituality thus deals with the nature of the soul and related to question such as a who am I, from where have I come, where will I go after death, etc. "Spirituality is a way of accepting the fact that there is a spiritual force in the universe larger than all of mankind." (Johnhenrick Clarke).

Spiritual values are inextricably connected to mental, emotional, social, and even physical health. When our spirit is healthy, our body is healthier, our brain is healthier, our relationships are healthier. Our entire *soul* is healthier. Religious and spiritual values are important to individuals diagnosed with a life-threatening illness. The terms spirituality and religion are regularly used

interchangeably, but for many individuals the terms have different meanings. Religion is defined as a belief or practice within an organized group, such as a place of worship. However, spirituality can be defined as an individual's sense of peace, purpose, and connection to others, and beliefs about the meaning of life (National Cancer Institute, [NCI], 2009).

Holistic healthcare understands that physical, mental, emotional, and spiritual lives cannot be taken apart. It emphasizes that there is a connection of mind, body, and spirit. People feel the need to create a healthy environment where they feel nurtured, supported, and safe as an individual discovers new truths about himself or herself and the surrounding world. Everyone wants to lead a healthy, satisfying, and meaningful life. Meditation, yoga, and spirituality are three complementary and alternative medicine (CAM) practices that help to improve a person's mind, body and spiritual well-being.

Spirituality is that which gives meaning to one's life and draws one to transcend one's material self. There are two paths to ultimate truth. One is the extrovert western path of pursuing physical and biological sciences that comprises intense analytical study of the nature around us. This path creates material comforts as by products but also generates internal and external turmoil in society and the environment. The other is the introvert and spiritual Indian path of intense self-analysis, meditation and yoga that lays little emphasis on comforts but generates internal and external peace and harmony as by products. Recently Peterson and Seligman (2004), contend that Spirituality is universal strength of transcendence and although the specific content of spiritual beliefs varies, all cultures have a concept of an ultimate, transcendent, sacred and divine force.

A growing body of evidence suggests that a spiritual outlook can be a major asset in coping with trauma. Psychologists have found that both spirituality and religion provide some of the key elements—a strong social support group, the opportunity to infer meaning, and a focus on empathy—that are invaluable in recovering from traumatic events. According to Swami Bhajananda (2011) the prominent feature of spirituality of young minds is their shifting of attention from God to man. They are not interested in theological questions about God, rather in their own inner problems, especially existential problems like meaninglessness, powerlessness, unfulfillment etc. Now spirituality has

become a question of personal quest for achieving lasting security, happiness and peace instead of conforming to customs, religious tradition and practices.

Methods to Practice Spirituality:

"Spirituality is recognizing and celebrating that we are all inextricably connected to each other by a power greater than all of us, and that our connection to that power and to one another is grounded in love and compassion. Practicing spirituality brings a sense of perspective, meaning and purpose to our lives."

–Brené Brown

The practice of spirituality of individuals is dependent on spiritual beliefs, personal experiences and practices which are followed by them. Although beliefs, faith and practices vary considerably from one religion to another, some behaviors are common in Hindu and Muslim traditions which can be used for enhancing spirituality and consequently to maintain and enhance health and well-being.

According to Dalai Lama (2000), the very purpose of life is to seek happiness. Happiness is determined more by one's state of mind them by external events. Success, material, pleasures, recognition may result in temporary feeling of elation but we return to our baseline (Lama and Cutler,1999) Although genetic factors, prior conditionings due to socialization in childhood have an important impact on this baseline, every individual is endowed with natural ability to work with the mind to enhance our feelings of happiness. Indian Spiritual heritage provides useful ways which if practiced regularly can help the person to enhance the level of happiness and well-being

Here we would focus on those methods which may be fruitful for the practice of spirituality like prayer, mindfulness, meditation, yoga, value inculcation and visualization.

These practices help the person to gain control over senses and to discipline the mind which ultimately may affect a person's subjective well-being. Following is the description of practices in Indian heritage which need to be mentioned.

Value inculcation- Values play crucial role in determining human behaviour and social relationships as well as maintaining and regulating social structure

and interactions on the one hand and giving them cohesion and stability on the other (Verma ,2004).

According to Schwartz (1992), five formal feature of values: values are concepts or beliefs; that pertain to desirable end states or behaviours; transcend specific situations; guide selection or evaluation of behaviours and events and are ordered by relative importance.

Recent study conducted by Schwartz et.al (2003) have investigated that helping others and receiving help are significant predictors of mental and physical health. Bhusan and Ahuja (1987) studied value preferences of adolescents, youth and adults and observed that honesty and equality were given top preference by the said groups while the least preferred values included imaginative and salvation. The youth value profile comprised of values like logical minded, happiness and capable and centered on the self.

Prayer - Prayer is the act of attempting to communicate with a spirit of higher power. During prayer we worship request for guidance and assistance, confess our sins or express our thoughts and emotions.

Prayer purifies the mind, cleanness the soul, fixes the wondering mind, helps to control the thoughts and the peace of mind is achieved. Love towards self and others is developed and stress and tensions are reduced. The person gain spiritual strengths is help to overcome temptation, reduce ego and increase faith.

Like Meditation, prayer has also been used as an intervention for centuries. Along with meaning in life, prayer is considered as a significant indicator of appraising spirituality. Prayer can take various forms and modes of expressions (for e.g. recitation of mantras, singing of sacred hymns). In addition, prayer can be for oneself, others and for all; to a specific deity or to the supreme power prevailing all over.

In Indian tradition, prayer is performed not only for one's own self but rather for the entire mankind.

"SarveBhavantuSukinah / SarvesantuNiramayah / SarveBhadraniPashyantu Ma Kashchiddukhabhagbhavet"

The Gayatri Mantra, another universal prayer enshrined in the Vedas and considered to be one of the Hinduism's most sacred and powerful chants –

"AumBhoorBhuvahSwaha /Tat SaviturVarenyam/ BhargoDevasya Dheemahi Dhiyo Yo Naha Prachodaayat"

Richards and Bergin (1997) cited preliminary evidence suggesting that different forms of prayer may have differential associations with effective coping with overall well-being and life-satisfaction SawniSikand et.al (2002), report that a high frequency of prayer is associated with more positive mental health/well-being.

Hughes (1997), explain the relationship of prayer with healing and holistic health. He argued that the belief of the praying person in the power of prayer itself augments healing and the relaxation response and the sense of personal efficacy gained through act of praying may enhance the immune system.

Mindfulness – Mindfulness can be considered as an enhanced attention to and awareness of current experience or present reality. The core characteristic of mindfulness is open or receptive awareness and attention which may be reflected in a more regular or sustained consciousness of ongoing events and experiences. This is to be contrasted with mindfulness in which the person ruminates is absorbed in the past or fantasies and anxieties about the future. Mindfulness is also compromised when individuals behave compulsively or automatically without awareness of or attention to one's behaviour (Deci and Ryan, 1980). Sometimes, mindfulness can be defensively motivated as when an individual refuse to acknowledge or attend to a thought, emotion, motive or object of perception.

Since mindfulness is associated with a person receptive attention to psychological states, it can be expected that it might be associated with perceptual clarity about one's emotional states. In less mindful state, emotion may occur outside of awareness or drive behaviour before the clear acknowledgement and understanding of them (Salovey et al., 1995). Empirical evidences provide support to this view that Mindfulness training was found to be related to positive psychological and physical out comes (Shapiro et al., 1998).

Mindfulness may also have an indirect influence on well-being. For e.g. Mindfulness may be important in disengaging individuals from automatic thoughts, habits and unhealthy behaviour pattern and thus could play a key role in fostering informed and self- endorsed behavioural regulation which has long

been associated with the enhancement of well-being.

Meditation

Meditation is a perfect mind exercise for developing positive thinking, giving an opportunity to relax and to be free from all worries and stress .Although it is highly cognitive and sometimes emotional activity, it emerges the whole person in a psycho physiological experience, 'active passivity'(e.g. sitting quietly while being inworldly alert and focused) and 'creative quiescence' (e.g. inworldly calm while being open to expanded awareness). Meditation appears to have the potential to facilitate self-regulation and may enhance insight and the integration of physiological, emotional, cognitive and behavioural aspects of human functioning (Kristeller and Hallet, 1999).

Meditation is an internally oriented practice. In the process of Meditation there is an intentional and non-judgment self-regulation of attention. The awareness is systematically directed, with purpose, in the present moment.

Meditation is used for three different purposes:

1. Self – regulation for stress and pain management and thus focus is therapeutic.

2. Self- exploration – a way of introspection of understand self and also to develop oneself in the process.

As a form of spiritual exercise in the context of religious disciplines and also for the spiritual liberation or enhancement. This has higher spiritual goals.

The major source of knowledge for the techniques of meditation comes from Patanjali's Yoga Sutras, Vedic traditions, Buddhist philosophy and various religious traditions. Meditation is different from other self-regulatory or relaxation strategies.

Recently Meditation has been researched as a medical intervention in the Western world and its impact on mind and body is being documented. As a primary intervention variable, the effect of Meditation on adult groups as a way of reducing their physiological and psychological stresses and related illness has been studied (Eashwaran, 1991). Stress and tensions are released and nervous system is brought into balance. From balance comes all the benefits such as enhanced ability to focus on task in hand rather than on self and this enhances.

Yoga

Yoga is a spiritual science of self-realisation. It comes from India and goes back over five thousands of years. The Indian sage Pantajali, in his Yoga sutras defines yoga as the control of the activities of the mind. Yoga methods encompass the entire field of our existence, from the physical, emotional and mental to the spiritual. Its methods include ethical disciplines, physical postures, breath control, as well as meditation.

Classical yoga as defined by Patanjali is an eight stages process of spiritual development (the eight limbs of yoga). The first two stages are ethical disciplines (Yamas and Nyamas). Then come postures (Asanas in Sanskrit) and breathing exercises (Pranayama). The last four limbs are meditative stages: control of the sense (Prathyara), concentration (Dharana), meditation (Dhyana) and enlightenment (Samadhi).

Impact of Spirituality Practices on Healing Trauma:

Each of us has one body with many different parts. These parts come together as one in a balanced harmony that integrates different facets of human life. Similarly, the self is the integration of one's mind, body and spirit. Wholeness encompasses all of these parts and more. Nurturing your whole person is more than creating balance in your life. It's about fully integrating each of these parts as a whole person. Body and mind are inseparable; a sound mind in a sound body and vice-versa; Health of these two is interlocked. For healthy and meaningful life balance between these two is not only a sufficient but also a necessary condition. Most ancient cultures pointed to a connection between body- mind and recognized that each composed a part of the whole. Now, integrative medicine and health psychology are beginning to recognize that health is influenced not only by the physical body but mental bodies, too. Building onto this concept, overall health is also influenced by a trickle-down effect: The physical body is affected by our emotions, our thoughts direct how we feel, and our energy level sways our mind and our thoughts.

The Mental Body:

On a surface level, the mental body is our thoughts. On a deeper level, it is the domain of our beliefs, desires, values, and goals. Beliefs are opinions and convictions that we hold as being true without having immediate proof. Values represent what we hold internally as most important in an area of life. Values and beliefs can come from thoughts that were formed very early in childhood.

We all have desires to achieve or acquire something in our lives, which is why we set goals and intentions to help us get where we want to go. Some surface-level thoughts, which may create goals or desires, direct our mental focus from moment to moment. This is how our logical, linear minds learn and operate, and it is one of the aspects of ourselves that is most familiar to us.

As energy comes down from the spiritual into the mental body, if an individual operating primarily from the mind, there will be a disconnection in the flow. This exists a lot in our society today—the mind being the predominant force—and this imbalance can keep stuck in a perpetual state of thinking, strategizing, plotting, and doing, doing, doing. An open spiritual connection enables to access higher levels of energy, which the mental body can effectively utilize to make balanced, wise choices that unfold more potential for us and everyone else involved.

Practices for the Mental Body includes: Mindfulness, Meditation, Set goals, Prayer. We all have desires to achieve or acquire something in our lives, which is why we set goals and intentions to help us get where we want to go. Some surface-level thoughts, which may create goals or desires, direct our mental focus from moment to moment. This is how our logical, linear minds learn and operate, and it is one of the aspects of ourselves that is most familiar to us.

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The Physical Body

Physical body is the reflection and total sum of all aspects of who you are. It is a barometer that indicates how things are going in all areas, and it also provides the musculoskeletal structure and vital tissues and organs that carry you

through this life.

Exercise and healthy eating are typically what come to mind when most people think about physical health. However, exercise of choice isn't the only thing to consider when striving for good physical health. We all know people who have clean eating habits and are physically fit, but who carry excessive mental and emotional stress, which can wear on their health. While it may not be immediately recognizable, chronic stress takes a tremendous toll on the physical body. Stress occurs when our spiritual, mental, emotional, and physical needs are not being met. Stress triggers the fight-flight response, which is a survival mechanism that is hard-wired into our DNA. It is how our physiology prepares to respond to potentially life-threatening events. When this response is triggered repeatedly it creates wear and tear on the physical body.

Our physical body is our foundation in life. It is what everything else is built upon. But it is equally important to exercise each of the other three bodies on a regular basis to maintain harmony. We need to establish our own individual health, fitness, and wellness regimens. Fortunately, integrative medicine and integrative psychology are both on board with this and many healthcare systems are beginning to incorporate options that support this.

Practices for the Physical Body: Yoga, Asanas, Pranayama, Sattvic diet, get plenty of restful sleep, Spend time in nature.

These practices help the person to gain control over senses and to discipline the mind and body which ultimately may affect a person's holistic well-being.

Conclusion

Spirituality plays an important part of life of how to many people deal with life's joy and hardship. Spiritual beliefs can provide with a sense of purpose and guidelines for living. When an individual face tough situation, including health problems, restores meaning and order to life situation, and promote regaining a sense of control for families, spirituality can be powerful and source of strength. Several studies argues that spirituality is an intra, inter and trans-personal experience that is shaped and directed by the experiences of individuals and of the communities in which they live out their lives. Thus, it's interaction with a person's mental and physical health is likely to be complex, interactive and

dynamic. Both physical and mental dimensions have to operate in harmony. Today spirituality and mental health are highly concerned area for researchers and psychologists because it is very important in every level of profession and helps to maintain harmony between cognitive, affective and behaviour domains-a balance between thinking, feeling and action. The promotion of spirituality of individuals is dependent on spiritual beliefs, personal experiences and practices which are followed by them. Although beliefs, faith and practices vary considerably from one religion to another, some behaviors are common in Hindu and Muslim traditions which can be used for enhancing spirituality and consequently to maintain and enhance health and well-being.

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IMPACT OF CHILDHOOD TRAUMA ON MENTAL HEALTH

Dr. Rashmi Saxena[1]

Abstract

Everyone struggles in life at one time or another, and life's journey has many ups and downs, twists and turns. Exposure to traumatic experiences can have a negative impact on the development of the brain especially in childhood. Trauma has a powerful capacity to shape a child's physical, emotional, and intellectual development, especially when the trauma is experienced early in life. Continual exposure to threatening situations can make a child's brain prisoner to its "fight, flight, or freeze" response. In turn, it becomes difficult for an individual to build meaningful relationships and may even make it difficult to reach out for help. **Trauma** often impacts our core parts of self and therefore by its very nature is a deep and life altering experience. Trauma can profoundly alter an individual's life course and diminish innate resilience. Exposure to **trauma** can affect many areas of one's life and can increase the risk of a range of vulnerabilities. Trauma can cause a lot of mental distress over time. It also affects a person's ability to seek support, feel safe, trust and stay connected to services. The way services respond is important for recovery. People with complex trauma can have many mental health diagnoses. Proper screening for and assessment of trauma's impact are important because children who have experienced trauma are often misunderstood and treated as oppositional or depressed. Screening and assessment are also crucial because they afford the opportunity to intervene and change the trajectory of a child's life. This opportunity is especially significant when considering that maladaptive behaviors resulting from trauma and even an outlook on life are often passed down to future generations. The present paper reviewed the important psychological disorders related to traumatic events especially during early phase of life. Because the experience of this phase determines the physical and mental well-being of the child.

Key Words: Childhood, Traumatic experiences and Mental Health

Introduction

In the context of current political instability prevalent worldwide, no age group is immune from exposure to trauma, and its consequences (Khan & Margoob,

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2006). Since children from a significant population worldwide, bad things happen in life as children grow up. Some are obvious like a natural disaster that destroys a home, physical abuse or death of a parent. Others can also rock a child's sense of safety and well-being. Something as simple as being a car accident or a child overhearing frequent, intense arguments between his or her parents can be traumatic for some children. Learning how to understand process and cope with difficulties-even tragedies- is a natural part of child's development process. But sometimes children get stuck. An experience or repeated experiences may leave a child with an overwhelming sense of fear and losses, making them feel that they have no safety or control over their lives. For some children, these feelings become so intense that they get in the way of their continued physical, emotional, social or intellectual development. This is "childhood trauma". Unaddressed trauma can have long term effects on the quality and length of person's life.

Childhood trauma broadly refers to exposures to traumatic events in childhood, such as being abused or neglected by a parent or guardian, surviving a natural disaster or an act of terrorism or witnessing the loss of loved one. Early childhood trauma generally refers to the traumatic experiences that occur to children aged 0-6 years because infants' and young children's reactions may be different from older children's, and because they may not be able to verbalize their reactions to threatening or dangerous events, many people assume that young age protects children from the impact of traumatic experiences. Approximately, 20 percent of individuals exposed to a significant traumatic event will develop psychiatric morbidity and children may be at an even higher risk (Breslau et al., 1998; Apolone, Mosconi, & La Vecchia, 2002).

Children from birth to age 5 are at a particularly high risk for exposure to potentially traumatic events due to their dependence on parents and caregivers (Liberman & Von Horn, 2009; National Child Traumatic Stress Network, 2010). Traumatic events are incidents that involve the threat of bodily injury, death or harm to the physical integrity of self or others and often lead to feelings of terror or helplessness (National Library of Medicine, 2013). The American Psychological Association (APA) Presidential Task Force on Posttraumatic Stress Disorder (PTSD) and Trauma in children and Adolescents (2008) indicted that traumatic events include suicides and other deaths or losses, domestic and sexual violence, community violence, war experiences, and natural and manmade disasters.

Though trauma can be an all-encompassing construct that includes a spectrum of different experiences, we define trauma as abuse endured during childhood in terms of physical neglect or abuse, emotional neglect or abuse, and sexual abuse. These experiences all have the potential to have profound effects on a person; however, it is important to understand the different effects that different types of trauma can have, as it is relevant both clinically and empirically. For example, child abuse reporting laws often define child abuse by the physical symptoms that a child can present, when symptoms associated to emotional trauma can be more complex and sometimes invisible, yet underreported or identified. Understanding the effects of different types of trauma can also shed light onto the intergenerational aspect of trauma when working with families who have extensive histories of trauma from one generation to another. A recent study by Bottos and Nilsen's (2014) was the first to take a close look at the relationship between distinct types of traumatic experiences and the experience of depression in adult survivors of abuse and its effect on maternal mentalization and the development of theory of mind in their offspring. Their findings highlighted the deleterious effects the experience of childhood trauma can have on survivors of CA&N and on their children. Bottos and Nilsen's (2014) study specifically highlighted the deleterious effects that emotional maltreatment had, in comparison to physical and sexual abuse. In their study, parental childhood experience of emotional maltreatment was found to be a significant predictor of children's metallization outcomes. Lastly, another important contribution by Bottos and Nilsen's (2014) study is their finding regarding the interplay between depression, CA&N, reflective functioning, and theory of mind. They found that the experience of maternal depression in conjunction with emotional maltreatment had the most significant effects on reflective functioning and on their children's development of theory of mind. In summary, this particular study expands on an area of research that also interests the authors of this study in its differentiation between different types of traumatic experiences, as the experience of trauma can be very different from one person to another, and yet is often grouped into a single construct.

Prevalence of Childhood Trauma

Prevalence and incidence of traumatic experiences among specified groups are the most basic pieces of epidemiologic information. Prevalence denotes the number of individual children experiencing a particular type of traumatic event within a certain time period, such as from birth to age 18 or within the past year.

Incidence refers to the number of incidents or cases of a trauma type that occurs within a specified time period, such as within the past year, regardless of the number of affected people. Because children and youth may experience more than 1 incident over a time period, incidence rates usually exceed prevalence rates. For example, in a victimization survey of a nationally representative sample of 4008 adult women, 339 of the women indicated they had experienced at least 1 completed rape before the age of 18 years, a childhood rape prevalence rate of 85 per 1000 women.[1] However, because many had experienced more than 1 assault, the 339 victims described 438 incidents of completed rape in childhood, a childhood rape incidence rate of 109 per 1000 women. Therefore, distinguishing whether epidemiologic reports are describing prevalence or incidence rates occurring in which time periods is important to understanding and comparing results across studies. The global burden of trauma is enormous. Over the last three decades, Asia and Africa regions have witnessed the fastest increase in the incidence of traumatic events and natural disasters. India alone reported 18 major natural disasters in 2007 excluding numerous regional disasters which escaped world attention (Ferris &Petz, 2012).

Most of the research-based evidence on child abuse and neglect comes from developed nations. Less is known regarding the prevalence of abuse and neglect in children from low- and middle-income countries, such as India. The only national survey conducted to date on child maltreat-tment in India was in 2007 by the Ministry of Women and Child Development (MWCD; Kacker, Varadan& Kumar, 2007).

According to this survey, 69 percent of children and adolescents reported physical abuse, 53 percent reported sexual abuse, and nearly 49 percent reported emotional abuse. In addition, nearly 71 percent of the girls reported facing neglect within the family environment. The survey did not assess neglect among boys. However, this survey along with other existing maltreatment studies from India does not allow comparisons of maltreatment rates across nations as no standardized measures were used. In the absence of such comparisons, the gravity of problem of child abuse and neglect in countries such as India often goes unnoticed.

India is the home to 19 percent of the world's children, that is, nearly 440 million people in India are under the age of 18 years. This is 5 times higher than the

population of children in the US, and is in fact higher than the total population of the US. Based on one report, this would put the total number of abused children in India at over 200 million. In India, in a recent study on 702 school-going adolescents from Jammu the rates of maltreatment ranged from 41 percent for physical abuse to 60 percent for emotional neglect (Charak&Koot, 2014).

More recently, a report by the Asian Centre for Human Rights (2013), citing the National crimes record bureau figures, stated that 48,338 child rape cases were recorded during 2001-2011 in India. This is an increase of 336 percent since 2001. These findings are just the tip of the iceberg, reflecting the most severe instances of sexual abuse that were prosecuted. Most other incidents of sexual abuse in children often go unreported. Additionally, the alarmingly high figures are limited not just to child sexual abuse, but also reported for incidents of physical and emotional abuse, and neglect (Zolotor et al., 2009).

Childhood Trauma and Mental Health
Early childhood trauma is strongly associated with developing mental health problems. Childhood trauma is tied to impaired social cognition in adults. Many studies show that a traumatic early social environment often leads to social cognitive problems and greater illness severity. Early childhood neglect, abuse, and/or trauma puts patients at a greater risk for developing cognitive impairments that will later affect social perception and interaction, a core aspect of disability in major psychiatric disorders.

Traumatic childhood experiences- such as emotional and physical abuse and neglect, early loss of caregivers, and insecure attachment styles-are reported in up to 85 percent of patients with various psychiatric disorders.

The first three years of life are a very sensitive period for the development of attachment relationships, and exposure to trauma during this time has irreversible effects on future cognitive, social and emotional development.

Children exposed to severe adversity early in life are increased risk of subsequently developing mental health problems, including alcohol dependence. Children with complex childhood trauma can have many mental health problems later in their life. These include Post Traumatic Stress Disorder

(PTSD), Borderline Personality Disorder, Affective Disorders, Anxiety Disorders, Psychosisincluding Schizophrenia and Bipolar Disorder, Dissociative Disorder and Somatic Disorder.

Children and adolescents vary in the nature of their responses to traumatic experiences. Nearly all children and adolescents express some kind of distress or behavioural change in the acute phase of recovery from a traumatic event. Many of the reactions displayed by children and adolescents who have been exposed to traumatic events are similar or identical to behaviours that mental health professionals see on a daily basis in their practice. These include:

1. The development of new fears
2. Separation anxiety (particularly in young children)
3. Sleep disturbance, nightmares
4. Sadness
5. Loss of interest in normal activities.

Early childhood Trauma associated with problems related to social cognitive functions which include many psychiatric disorders resulting in poor social and occupational functioning, especially with regard to emotion recognition and regulation.

Although epidemiologic studies describe a clear association between childhood trauma and mental health, neurobiological research provides critical insight into the underlying biopsychosocial pathways that lend a plausible explanation to these epidemiologic findings. The body's stress regulating pathways may be disrupted when repeatedly exposed to sustained traumatic stress, including various forms of childhood abuse or neglect. As these stress exposures coincide with brain development, these disruptions may alter various endocrine pathways that can shape brain development, including memory storage and retrieval, social cognition, emotional attachment, emotional regulation and coping skills.

The connection between early childhood abuse and mental distress or disorder later in life was clear. Time reports:

Overall, about 25% of participants had suffered major depression at some point in their lives and 7% had been diagnosed with PTSD. But among the 16% of participants who had suffered three or more types of child maltreatment — for example, physical abuse, neglect and verbal abuse — the situation was much

worse. Most of them — 53% — had suffered depression and 40% had had full or partial PTSD.

Mental health professionals are often challenged to accurately diagnose PTSD in early childhood, leading to inconclusive reports of the actual prevalence of post-traumatic stress (De Young et al., 2011). Still there is a clear relationship between PTSD diagnoses and trauma experienced in childhood. For example, higher rates of PTSD are reported among chidern residing in urban populations where neighbourhood violence is prevalent (Crusto et al., 2010; Goodman et al., 2012).

Recently, researchers have focused on how trauma during early childhood impacts mental and physical health later in life. Symptoms of mental illness can manifest immediately after a trauma, but in some cases, symptoms do not emerge until years later. PTSD, anxiety disorders, behaviour disorders and substance abuse have all been linked to traumatic events experienced during early childhood (Kanel, 2015). The types and frequencies of traumatic events and whether they were directly or indirectly experienced also can have various effects on physical and mental health later in adulthood.

Treatment of Childhood Trauma

Early intervention and treatment can minimize the social and emotional impact of a child's exposure to a traumatic event. In recent years research has emerged that provides an understanding of how trauma impacts young children. Researchers and clinicians know that infants, toddlers and preschoolers have the capacity to perceive trauma and are capable of experiencing psychopathology following a traumatic event. Therefore, it is necessary to highlight the importance of assessing childhood trauma and the positive benefits associated with the application of psychological interventions that target trauma-related symptoms.

There are several evidence-based methods available to counsellors treating trauma symptoms in young children. Evidence- based approaches are rooted in theory, evaluated for scientific rigor and tend to yield positive results. Trauma-focused cognitive behavioural therapy (TF-CBT) is a popular evidence-based treatment used with children aged 3-18. Based on cognitive behavioural therapy, TF-CBT includes many therapeutic elements for children and caretakers (Child Welfare Information Gateway, 2012). This form of therapy helps children develop different perceptions and a more adaptive

understanding of the traumatic event (APA Presidential Task Force on PTSD and Trauma in Children and Adolescents, 2008).

Cognitive- behavioural therapy (CBT) techniques have been shown to be effective in treating children and adolescents who have persistent trauma reactions. CBT has been demonstrated to reduce serious trauma reactions, such as PTSD, other anxiety and depressive symptoms, and other behavioural disorders.

Another psychotherapy which is useful in treating childhood trauma is Child-parent psychotherapy (CPP), one of the most widely used interventions for young children, was created to address exposure to domestic violence, although it can treat a variety of traumatic experiences (Lieberman & Van Horn, 2008). The primary goal of CPP is to equip parents to meet the psychological needs of their child and maintain a secure relationship after treatment has ended.

Attachment and biobehavioral catch-up (ABC) is another treatment option that is designed primarily for use with young children who have experienced neglect (Dozier, 2003). This approach was developed specifically for low-income families and later adapted for use with foster families. The goal of ABC is to foster the development of the child's optimal regulatory strategies by equipping parents with tools for effective responses (Dozier, 2003; Dozier, Peloso, Lewis, Laurenceau, & Levine, 2008).

Counsellors also can utilize parent-child interaction therapy (PCIT) when working with traumatized youth. PCIT is a structured technique for children ages 2-8 years in which the counsellors teaches the parents or caregiver how to interact with the child and set effective limits (Chaffin et al., 2004). In this form of therapy, the counsellor often assumes the role of coach, instructing the client on specific skills. The focus of PCIT is on improving the quality of the parent-child relationships as well as child behaviour management (Chaffin et al., 2004; McCabe, Yeh, Garland, Lau, & Chavez, 2005).

The treatment interventions previously mentioned are geared toward very young children, all incorporating play as a treatment modality. Since young children do not have extensive vocabularies, they often communicate information about themselves, their trauma and relationships with their

caregivers through play (Landreth, 2012). Play therapy intervention research using samples with children between birth and 5 years of age is scant; however, several case studies indicate that play therapy is effective with trauma in early childhood.

Finally, there are emerging approaches specifically for treating young children exposed to trauma. Tortora (2010) developed ways of seeing, a program combining movement and dance therapy to create a sense of regulation and homeostasis for the child exposed to a traumatic event. The Ways of Seeing program does not yet have empirical evidence of its effectiveness. However, it is rooted in attachment theory, multisensory processing, play and sensorimotor psychotherapy. Counsellor can use this program to determine how a parent and child experience each other, implement creative interventions for healthy bonding, and renew a sense of efficacy for the parent and child.

Young children are at high risk for exposure to traumatic events and are particularly vulnerable for several reasons. They are dependent upon caregivers and lack adequate coping skills. Children also experience rapid development and growth, leaving them particularly impressionable when faced with a traumatic event. Young children benefit from preventive psychoeducation aimed at teaching parenrs and caregivers about child development and parenting skills (McNeil, Herschell, Gurwitch, & Clemens-Mowrer, 2005; Valentino, Comas, Nuttall, & Thomas, 2013). Counselors who work with this population endeavour to increase protective factors and decrease risk factors while exploring preventive methods, which may reduce young children's exposure to traumatic events.

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INFLUENCE OF SPIRITUALITY IN THE HEALTH CARE SYSTEM OF TRAUMA PATIENTS

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Abstract

The World Health Organization recognition of spirituality as the fourth dimension in the definition of health and its consideration in the preparation and development of primary care program has profound influence on physical, mental and social well-being of the people. Although technology has led to phenomenological advances in medicine and has prolonged life span of an individual, but spiritual vacuum has led to wide spread psychological insecurities, with consequent dangerous effect on mental and physical health. In this context in the past few decades' physicians and doctors have attempted to balance care by integrating medicine with spiritual factors that involves serving the trauma patients physically, emotionally, socially and spiritually.

In this paper we would discuss how compassionate care helps patients find meaning in their sufferings and would address their spirituality. Furthermore, the paper would also highlight advantages of spirituality in maintenance of wellness feelings amongst people. It also addresses the question how an awareness of spirituality among professional caregivers at health care services focus positive attitude and encourage calmness and hope amongst the patients undergone any type of trauma.

Key Words: spirituality, well-being, care givers, trauma, spiritual vacuum.

Introduction

Health is a relative state in which one is able to function well physically, mentally, socially and spiritually in order to express the full range of one's unique potentialities within the environment in which one is living. Body and mind are inseparable the balance between the two is not only a sufficient but also a necessary condition for health and meaningful life. The WHO Way Back in 1958, defined health not merely the absence of illness but as physical, mental and social well-being as well. All these dimensions have to operate in harmony because life is a journey that begins with trauma and pain. Since time

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immemorial, trauma has played a constant distressing role in the human experience. Whether by war, natural disasters or man-made afflictions, trauma has been a reality that remains inescapable. It is experienced as a result of neglect, abuse (sexual, emotional, and physical) torture, criminal assaults, accidents, droughts, famine, death or terminal illness, trauma has been and continues to be an inevitable part of life.Trauma is a word whose origins come from the late 17th century Greek, meaning literally to "wound." Every trauma case is different, and varies depending on a person's personality, life perspective, culture, socio-economic status and spiritual or religious beliefs.

Therefore, there is craving for peace and freedom from agonies of the life. In spite of the glaring progress on all fronts, is it medicine, surgery, science and technology, infrastructure and economic prosperity, access to tremendous material comforts, there exist a lag. That is why the technological advances of the past century tended to change the focus of medicine from a caring, service-oriented model to a technological cure-oriented model. Technology has led to phenomenal advances in medicine and has given us the ability to prolong life. However, in the past few decades physicians have attempted to balance their care by reclaiming medicine's more spiritual roots, recognizing that until modern time's spirituality was often linked with health care. While as science depends on objectivity, spirituality delves on inner self, consciousness, intuition and subjective factors, have a direct impact on physical as well as psychological health. "Science gets us physical comforts, spirituality brings us mental calm" (Dalai Lama, 2006).

As given below Figure-1 shows "Spiritual Needs Model" in which we can clearly see how different dimensions of spirituality are important for fulfilling each need to balance the life cycle for a happy life and peaceful mind. Therefor relation between spirituality and the concept of health has become a major challenge not only for physicians but also for psychologist
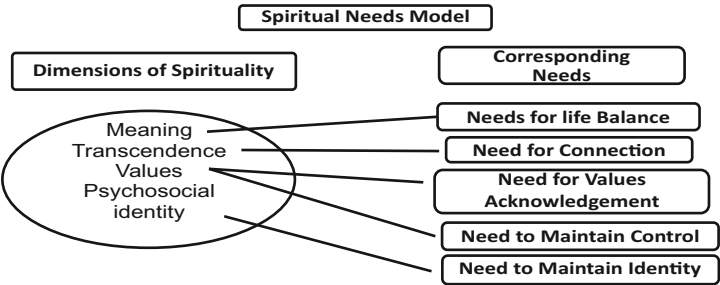
Thus, in order to highlight the significance and relevance of spirituality in the preservation of disease and promotion of health. In this paper we would discuss how compassionate care helps patients find meaning in their sufferings and would address their spirituality. Furthermore, the paper would also highlight advantages of spirituality in maintenance of wellness feelings amongst people. It also addresses the question how an awareness of spirituality among professional caregivers at health care services focus positive attitude and encourage calmness and hope amongst the patients undergone any type of trauma in the light of theoretical and empirical evidence to support the inclusion of spirituality in global health and well-being of individuals.

Spirituality and it's Influence on Health

The concept of spirituality is rooted in the Latin word "spiritus" meaning "breath of life". Where there is breath, there is movement and there is spirit. The word spirituality goes further and describes an awareness of relationships with all creation, an appreciation of presence and purpose that includes a sense of meaning. Spiritual practices tend to improve coping skills and social support, foster feelings of optimism and hope, promote healthy behavior, reduce feelings of depression and anxiety and encourage a sense of relaxation.

Many researchers believe that certain beliefs, attitudes and practices associated with being a spiritual person can positively influence immune system, cardiovascular (heart and blood vessels) hormonal and nervous systems. In a recent study of people with acquired immune deficiency syndrome (AIDS), those who had faith in God, compassion toward others, a sense of inner peace and were religious had a better chance of surviving for a long time than those who did not live with such belief systems. Koenig et al. (2001) findings shows that spiritual beliefs and practices help prevent many physical and mental illnesses, reducing both symptom severity and relapse rate, speeding up and enhancing recovery, as well as reducing distress and disability easier to endure. Furthermore, psychiatric patients have consistently identified spiritual needs as an important issue and spiritual care as contributing to symptom relief and general well-being (Culliford, 2002; Greasley at.al 2001; Nathan, 1997). Qualities like faith, hope, forgiveness and the use of social support and prayer seem to offers a number of benefits to people both emotionally and physically who engage themselves in it.

What's the Role of Spirituality in Health Care?

Research and experience show that people often become stronger emotionally, more resilient and more mature (Whiteside, 2001). Indeed, such maturity is difficult to develop without trials to undergo and obstacles to overcome. The health care system tries to foster a positive attitude even in the most heart-rending situations. By focusing on both inner and external sources of strength, spiritual awareness encourages calm in the place of anxiety and hope in place of despair. Also, through spiritual assessment the health care providers can identify a patient's spiritual needs pertaining to their mental health care. The determination of spiritual needs and resources, evaluation of the impact of beliefs on healthcare outcomes and decisions and discovery of barriers to using spiritual resources is all outcomes of a thorough spiritual assessment. There are so many resources which not only help in developing but also enhance our spiritual beliefs such as belonging to a faith tradition and community, practicing meditation, having stable family relationships and friendships are some type of regular co-operative group or team activity.

i) **How Spiritual Coping and Meaning in Life Influence Health Outcomes:**

Spirituality is instrumental for coping through its generation of hope, sense of purpose for even seemingly incomprehensible events and provision of support through connection to something larger than self (Ganje-Fling and McCarthy, 1996). Available research evidence also indicates that spirituality plays an important role in the prevention of illness of the patients. Larson and Milano (1995) found that spirituality is clinically relevant in both the prevention of physical and mental illness. Racklin (1998) indicates spirituality benefits traumatized individuals by reducing traumatic distress and reinforcing a sense of coherence. Similarly, Waldfogel and Wolpe (1993) findings shows that spiritual coping is particularly relevant for adjusting to illness. Aldridge (1991) suggests that spirituality is a potential, and in his perspective, essential coping mechanism in dealing with the specific stressors of significant illness. For example, patients with advanced cancer who found comfort from their religious and spiritual beliefs were more satisfied with their lives were happier and had less pain (Yates JW, Chalmer BJ, St James P, Follansbee M, McKegney FP, 1981).

Some studies have also looked at the role of spirituality regarding pain. One study showed that spiritual well-being was related to the ability to enjoy life

even in the midst of symptoms including pain. This suggests that spirituality may be an important clinical target (Brady MJ, Peterman AH, Fitchett G, Mo M, Cella D, 1999). Results of a pain questionnaire distributed by the American Pain Society to hospitalized patients showed that personal prayer was the most commonly used nondrug method of controlling pain: 76% of the patients made use of it (McNeill JA, Sherwood GD, Starck PL, 1998). In this study, prayer as a method of pain management was used more frequently than intravenous pain medication (66%), pain injections (62%), relaxation (33%), touch (19%) and massage (9%). Pain medication is very important and should be used, but it is worthwhile to consider other ways to deal with pain as well. Spiritual beliefs can help patients cope with disease and face death. In a study when patients were asked what helped them cope with their gynecologic cancer, 93% of 108 women cited spiritual beliefs (Roberts JA, Brown D, Elkins T, Larson DB, 1997). Among 90 HIV-positive patients, those who were spiritually active had less fear of death and less guilt (Kaldjian LC, Jekel JF, Friedland G., 1998).

Similarly, many studies of meaning in life have shown that meaning is related to higher level of psychological well-being and to some dimensions of physical health as well, including health-related quality of life (e.g. Krause, 2004; Zika S, Chamberlain K., 1992). Indeed, several studies have reported a link between meaning in life and self-actualization (Ebersole &Hermphries, 1991; Phillips, Warkins& Noll, 1974). Researches also indicates that meaning in life is inversely related to negative affect and emotions (e.g. Chamberlain & Zika, 1988), stress (Flannery, Perry, Penk& Flannery, 1994), neuroticism (Addad, 1987; Mascaro & Rosen, 2005; Pearson & Sheffield, 1989; Steger et.al; 2006), post-traumatic stress disorder (PTSD) symptoms severity (Edmonds & Hooker, 1992) and general psychological distress among breast cancer survivors (Vickbery, Bovbjery, Du Hamel, Currie, Redd, 2000). Finally meaning in life is also positively correlated with quality of life among cancer patients (Brady, Peterman, Fitchett, Mo, &Cella, 1999) leads to good psychological health outcomes.

ii)   How Spirituality Help in Recovery:

Spiritual commitment tends to enhance recovery from illness and surgery. For example, a study of heart transplant patients showed that those who participated in religious activities and said their beliefs were important complied better with follow-up treatment, had improved physical functioning at the 12-month

follow-up visit, had higher levels of self-esteem and had less anxiety and fewer health worries (Harris RC, et.al., 1995). In general, people who don't worry as much tend to have better health outcomes. Maybe spirituality enables people to worry less, to let go and live in the present moment.

Evidence showed that spirituality is a power of hope, their belief system and positive thinking, but it depends on the way people express it. Beecher H. K. (1955) study findings showed that between 16% and 60% of patientsan average of 35%benefited from receiving a placebo for pain, cough, drug-induced mood change, headaches, seasickness or the common cold when told that the placebo was a drug for their condition. This study of the "placebo effect" has led to the conclusions that our beliefs are powerful and can influence our health outcomes. It is an ability to tap into one's inner resources to heal. Benson suggests that there are three components that contribute to the placebo effect of the patient-physician relationship: First: positive beliefs and expectations on the part of the patients, second: positive beliefs and expectations on the part of the physician or health care professional and third: component is a good relationship between the patient and physician.

Again Benson (1960) research on the effect of spiritual practices on health and found that 10 to 20 minutes of meditation twice a day leads to decreased metabolism, decreased heart rate, decreased respiratory rate, and slower brain waves. Further, the practice was beneficial for the treatment of chronic pain, insomnia, anxiety, hostility, depression, premenstrual syndrome and infertility and was a useful adjunct to treatment for patients with cancer or HIV. He concluded that any disease caused or made worse by stress and meditation emerged as an effective therapy (Benson, H., 1990).

iii) Relation between Spirituality and Health Care Services:

Spiritual needs are among an individual's essential needs in all places and times. With his physical and spiritual dimensions and the mutual effect of these two dimensions, human has spiritual needs as well. These needs are an intrinsic need throughout the life. Therefore, now days it remains as a major element of holistic nursing care in health services. In a study Phelps et al., (2008) reported that negative cognitive processing significantly predicted depressive symptoms, PTSD and higher distress. On the other hand, positive cognitive processing predicts post-traumatic growth and lower symptom severity.

Sustaining the spiritual needs of hospitalized trauma patients, requires forming trust and sympathy with patients, providing desirable environment, appropriate communication of medical team with patient and respecting the patient's dignity and beliefs. These issues can receive sufficient attention from nursery team and be provided according to the patient's demand. Therefore, it is suggested that in addition to general evaluation of trauma patients, their spiritual needs in hospital would also be taken into consideration and for that training of manpower in acute care and pre-hospital services should be a priority. Proper organization and administration of trauma services along with legislative backup will go a long way in strengthening India's essential trauma care services. Node out spirituality plays an important role in enhancing the healing, recovery and developing resilience of trauma survivors. Because spiritual beliefs is the power of hope and positive thinking which not only help patients to cope with disease but also help patients to face death. So, one of the greatest challenges for nurses in health care services is to satisfy patient's spiritual needs.

iv) Aspects of Spiritual Care in Health Services:

This is an elementary question that what should be involved in serving traumatic patients and providing compassionate care? So, physicians can begin with the following:

- Practicing compassionate presence- i.e., being fully present and attentive to their patients and being supportive to them in all of their suffering includes physical, emotional and spiritual.

- Listening to patient's fears, hopes, pain and dreams.

- Obtaining a spiritual history of the patient.

- Being attentive to all dimensions of patient and their families: body, mind and spirit.

- Incorporating spiritual practices as appropriate.

- Involving government leaders as members of the interdisciplinary health care team for traumatic patients.

But throughout these activities, it is important to understand professional boundaries. And in-depth spiritual counselling should occur under the direction of Psychologist / Counsellor or spiritual leaders as they are the experts.

Conclusion:

In recent years with scientific advances in health care society, belief in the significance of human spiritual nature has increasingly become more complex especially regarding health and disease. Researchers have also recently come to the point that the real and complete health care is possible through being sensitive to traumatic patient's spiritual needs. Because psychological trauma experiences are ubiquitous in today's world and significantly impact people of all ages. This indicates a need for more efforts at research and training related to religious and spiritual interventions. Hence, besides being studied by physicians, it is also studied by psychologists and other professionals. Spirituality may also act as a protective factor against trauma experiences and thereby contribute to resilience.

Therefore, on the basis of the above discussion we can conclude that spiritual life can give people strength and enhances self-confidence, better quality of life, cooperativeness, positive health outcomes and fewer symptoms of anxiety and depression, ultimately leads to good health and well-being. Because spirituality demonstrates that persons are not merely physical bodies that require mechanical care. WHO (1998) also states that patients and physicians have begun to realize the value of elements such as faith, hope and compassion in the healing process. This may be because of the realization in people that medical science does not have answers to every question about health and wellness.

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IMPACT OF SOCIO-ECONOMIC FACTORS ON TRAUMA

Deepak Gupta[1] & Dr. Ruby Kazmi[2]

Abstract

Clinical experience and previous studies indicate that low socio-economic positions are overrepresented in the population of trauma. Mental health and well-being in India is undetermined by many social and economic factors that operate outside the mental health system. Stories described trauma experience in the process of accessing mental health services. The reason for these social changes in injuries risk is likely to be multi factorial. The article aims to examine the relationships between various socioeconomic factors in determining outcomes. The focal point of extant research is the impact of socio-economic factors on trauma. Both the individual and environmental sources of explanation are plausible to contribute. In our study we investigated the impact of socio-economic factors on trauma on the risk of becoming a trauma victim in the research which has been done in the previous studies. In this study the data has been collected from the national population register throughout the country for a given period of time. A statistical analysis software program was to apply on impact stratified injury severity score, age, race as well as social status on the outcome of clinical complication. Association between different variables and its impact of socio-economic factors on trauma were estimated by the conditional logistic regression. The trauma patients have been treated for psychiatric substance abuse and somatic diagnosis to a higher extent then control. In the conditional logistic regression analysis a low level of education and income as well as their socio cultural background were all independent risk factor for trauma. Recent treatment for substance abuse significantly increased the risk factor for the availability of trauma. Basically, low income, poor education facilities, substance abuse etc are the independent risk factors for trauma. Active substance abuse strongly influences the risk of trauma and has the time dependent pattern. The insight can facilitate the implementation injury prevention strategies tailored to the particular risk groups. This supports that socioeconomic disparity may exist within long term outcomes.

Keywords: *socio-economic factor, trauma*

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Introduction

Mental health and well-being in India is undetermined by many social and economic factors that operate outside the mental health system. Stories described trauma experience in the process of accessing mental health services. The reason for these social changes in injuries risk is likely to be multi factorial. This article aims to examine the relationships between various socioeconomic factors in determining outcomes. The focal point of extant research is the impact of socio-economic factors on trauma. Both the individual and environmental sources of explanation are plausible to contribute. In our study we investigated the impact of socio-economic factors on trauma on the risk of becoming a trauma victim in the research which has been done in the previous studies. In this study the data has been collected from the national population register throughout the country for a given period of time. Exposure to trauma is directly related to socioeconomic status (SES) in a dose response manner such that lower income is associated with increased traumatic exposure. This increased risk cuts across multiples types of trauma exposure from residential fires and motor vehicle accidents to natural disasters and firearm-related injury and death. Further, poverty is related to increased risk for exposure to multiple types of traumatic events and repeated exposure to traumatic events, leading to an overall increased cumulative burden of trauma. Poverty is associated with a disproportionate risk of living in geographic regions (e.g., flood prone) and types of residences (e.g., vulnerable home construction) that make individuals more prone to be exposed to and suffer the impact of natural disasters. This increased risk may become more exacerbated in the future. Analyses of the impact of global warming suggest that, worldwide, impoverished populations will be the most impacted by natural hazards associated with climate change by the year 2030 (Santiago et al., 2013).

Behavioral and Physical Health Impact of Trauma on Economically Disadvantaged Individuals Economic Disadvantage:

- Because economic disadvantage is associated with increased risk for experiencing trauma, repeated trauma and trauma beginning in early life, it is associated with increased risk for developing posttraumatic stress disorder (PTSD) and other trauma related psychological problems including depression and anxiety.

- Specifying the association of economic disadvantage and trauma related

psychological symptoms is particularly difficult given the interconnectedness of economic disadvantage and other social factors. However, many studies do find an association between economic disadvantage and PTSD/other trauma related psychological symptoms.

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- Specifying the association of economic disadvantage and trauma related psychological symptoms is particularly difficult given the interconnectedness of economic disadvantage and other social factors. However, many studies do find an association between economic disadvantage and PTSD/other trauma related psychological symptoms.

- Lack of access to resources not only increases risk for developing psychological problems in the wake of trauma exposure, but it may also translate to a longer or more severe course of symptoms.

New Developments in Research on the Impact of Trauma on Economically Disadvantaged Individuals:

- Children who grow up in economically disadvantaged families and communities are at increased risk for what is referred to as a "toxic stress response." This occurs when, over the course of childhood mental and physical development, a child experiences frequent, repeated, ongoing and severe adversity, in the absence of adequate family and community support to mitigate these stressors. In response to these chronic stressors there is increased risk for a maladaptive activation of the child's stress response system, which negatively disrupts developmental processes, including the development of brain architecture and hormonal response systems. The child's biological, cognitive, and psychological development is impacted such that it increases the risk for delayed development and lifelong risk for emotional and physical health problems.

- Economically disadvantaged individuals' families and communities often have limited access to such treatment. Even when treatment is available there are often social and structural barriers to engaging in treatment, which can lead to underutilization of available mental health care.
  - Research points to a bi-directional relationship between trauma exposure and economic disadvantage. In economically disadvantaged populations the relative lack of needed recovery resources and increased risk for psychological and physical health symptoms following trauma leads to increased likelihood that individuals with lower levels of income and other economic resources may experience increased levels of worsening poverty following trauma. They may become homeless, lose employment or have medical bills that they are unable to pay. This, in turn, can further risk for additional trauma exposure.

The largest limitation of the extant research is related to the interconnectedness of economic disadvantage, trauma exposure and trauma related health and mental health problems. As a result, in most research, it is difficult to examine the differential and interactive impact of multiple relevant variables.

Clinical Considerations for Practitioners Treating Traumatized Economically Disadvantaged Individuals:

- Economically disadvantaged adults, children and families may be more likely to be seen in primary care clinics, emergency rooms and community social service agencies than to seek mental health treatment. Implementing screening for traumatic experiences in these settings will increase identification of need for and referral to trauma informed care.

- Assessment and treatment for PTSD and other trauma related psychological problems should include a focus on economic circumstances of the individuals and families being treated as well as other experiences of social marginalization.

- Clinical providers, agencies and programs providing mental health treatment to economically disadvantaged populations need to assess not only for trauma but also for trauma related psychological problems. Although progress has been made, individuals with PTSD and other trauma related psychological problems are often misdiagnosed. For example, traumatized economically disadvantaged children who have problems in school are often identified as oppositional/defiant or

unwilling to learn rather than as suffering from the impacts of traumatic experiences and toxic stress.

- Because of the logistical barriers faced by economically disadvantaged individuals who seek treatment, engagement in mental health services may be improved by providing needed resources such as transportation, childcare, care outside of typical business hours and providers who speak the primary language of those needing care.

- Treatment considerations for economically disadvantaged individuals may need to include a focus on barriers to engagement in treatment (e.g., transportation, time availability, childcare needs). It is important carefully assess the sources of low engagement in treatment including missing scheduled appointments. Such assessment may reveal that a car is shared among family members with competing needs or that work schedules are frequently changed with little notice.

Information for Families and Friends of Traumatized Economically Disadvantaged Individuals:

- Listen. Allow people to talk about their experiences. Tell them that you are available to talk with them and that you want to support them but don't pressure them talk or provide specific details or information about their experiences.

- If they do want to talk about their traumas, let them direct and guide the discussion. Even when exposed to the same or similar types of traumas, people have different experiences and may want to talk about different aspects of their experiences.

- Validate. Don't try to minimize experiences or make judgments about their reaction to traumatic experiences. In economically disadvantaged populations, people feel that they should not "complain" about their traumas because they are aware of others who have had similar or "worse" experiences.

- Encourage them to engage with supportive people and communities but do not pressure them. People may not respond to initial

encouragement to seek support or engage with others. However, they may eventually be ready to engage with steady non-pressuring, non-judgmental encouragement.

- Educate yourself about trauma and its impact. This is website for the U.S. Department of Veterans Affairs' National Center for PTSD which provides educational information.

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PSYCHOLOGICAL PERSPECTIVES OF PERSONAL TRAUMA IN THE POETRY OF SYLVIA PLATH

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Abstract

Sylvia Plath has irrevocably attained the cult status in the annals of Modern American English poetry. She is an indefatigable poet who gives vent to her own feelings, emotions, life experiences, and her relationship with her father, mother, husband, children in general and society in particular through poetry in an ebullient way. Her excellent and spectacular oeuvre includes *The Colossus* (1960), *Ariel* (1963), *Crossing the Water* (1971), and *Winter Trees* (1971) et al. She left the world physically at a tender age of thirty-one by committing suicide, but her poetry still interests and intrigues readers across the globe incessantly and irresistibly. However, her poetry is out rightly subjective and is a serene stasis of her mental trauma. Plath's poetry is reflective of her personal plight, mental anguish and estranged relationship with her husband, her unsolicited conflicts with her parents, and her own gloomy vision. Most of her poems explore nature of pain and sufferings, its hues, its impact on human soul, and its inference leading to death. She wrote soaking her pen with the blood of her bruised soul, is perceptible in her works.

The present paper, however, aims at probing the psychological perspectives of trauma she underwent- depression, desperation, desertion, dejection, dementia, schizophrenia, mental anguish andits discern in her work. We witness perpetual tug of war between her wish to live and to die in the entire gamut of her poetic output.

Keywords: Depression, Desperation, Dejection, Desertion, Trauma, and Mental anguish.

Introduction

Sylvia Plath is one of the most versatile and venerable poets of 20th century. She belongs to the Modern American confessional tradition of poetry writing that assiduously analyses psychological implications underlying it resulting from the renunciation of some prevalent societal norms. The protest of the

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confessional poets culminated into nebulous neurosis. The poetry of Robert Lowell, Sylvia Plath, Anne Sexton and Roethke exhibit depression and dejection they underwent. Plath, daughter of Otto Emil Plath and Aurelia Plath, saw estranged relations between parents in childhood that created negative impact on her.Right from her childhood, she longed for love and care, but never grumbled and grudged to be uncared for. Her husband Ted Hudges's cheating on her left her shattered and shocked. A psychological probe into her personality, poetry and bouts of insanity leading to her untimely tragic death results into recognising her artistic excellence. Plath employed personal trauma and neurosis as a requisite ingredient of contemporary life. Confessional poetry is highly subjective in nature. The main characteristics of twentieth century American confessional – personal life experiences and trauma, festered mind, frustration, fear, inner turmoil, feeling of guilt and remorse, and death find finest expression in her poetry. Suman Aggarwal observes her poetry in ebullient way:

Poetic modernism in many in many respects is an American invention, even if the poets most responsible (Pound and Eliot) were expatriates living in London and the overwhelming influence of American poetry in this century has at times inhibited the appreciation and awareness of the wealth of interesting poets writing in on the other side of the Atlantic.

The modernists and post-modernists, thus, are in many ways similar to each other in terms of personal life and poetic career. The subject matter and the lives they led were identical. Though Sylvia Plath falls under the category of confessional poets and is considered to be a post-modernist but there is no doubt that the way she wrote and passed her life, is traced in the works and lives of modernists mentioned above. (Suman Aggarwal 22).

Verily, Plath has spawned some charming pieces of verse reflective of her confessional yearning, and she shows vehemently the influence of her mentor Robert Lowell and his magnum opus *Life Studies*. Her poems are bold, picturesque, pictorial, pathetic, evocative, esoteric and lustrous spectacle of her splendid poetic endeavour. These poems are woven around the themes of male-domination, inheritance of loss, sense of alienation and search for identity, desire for financial independence, mother's maternal craving and love for child, bouts of depression, and views on diverse subjects. She herself admits without any inhibition the source of her poetry:

I think my poems immediately come out of her sensuous and the emotional experiences I have, but I must say I cannot sympathize with these cries from the heart that are informed by nothing except a needle or a knife, or whatever it is. I believe that one should be able to control and manipulate experiences, even the most terrifying, like madness, being tortured, this sort of experience, and one should be able to manipulate these experiences with an informed and intelligent mind (169).

Most of her poems explore the various dimension of pain and sufferings and its resultant effect on her soul, and finally leading to her immature death. "The Colossus" is the title poem of her first poetic venture published in her lifetime. The poem is an autobiographical poem, telescopes the blurred image of her dominant dead father. In the absence of her father, as sense of aloofness and loss engrosses her, and she desperately seeks father image in her husband to attain the joy and bliss. Like a lost child, she is searching her dead father from the fragments of the bygone days. She is rendered hapless, hopeless, and has ensconced the nimbus of negativity inescapably, and needs some nostrums to nullify it. The poem efficiently externalizes her emotions and painful feelings. Mark the poignancy of her pain in the following lines of the poem:

A blue sky out of the Oresteia

Arches above us. O father, all by yourself

You are pithy and historical as the Roman Forum

I open my lunch on a hill of black cypress.

Your fluted bones and acanthine hair are littered

In their old anarchy to the horizon line

It would take more than a lightning stroke

To create such a ruin (*Collected Poems* 130).

The poem "Maenad" is a very florid poem that holds diamond prism of her illustrious childhood, is taken from her another collection "Poem of a Birthday". She becomes nostalgic, and goes down the memory lane where she was boisterously blessed with protective and pampered world of her father. After her father's untimely tragic demise, the relations between daughter and

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mother miserably severed and soured. She finds a solution to suppress the feelings of childhood by virtue of evolving and establishing a new identity of her own. The poem "Medusa" also tries tacitly to dispel the engulfing image of her mother. The name of Plath's mother, Aurelia, was synonymous to Medusa, a Jelly fish. The poem shows love-hate kind of relationship between mother and daughter discordantly. The poem shows her fascination with the interface between life and death. The poem is a probe to his pillaged psyche. Mark the following lines of the poem:

Dragging their Jesus hair.

Did I escape, I wonder?

My mind winds to you

Old barnacled umbilicus, Atlantic cable,

Keeping itself, it seems, in a state of miraculous repair.

In any case, you are always there,

Tremulous breath at the end of my line,

Curve of water up leaping

To my water rod, dazzling and grateful,
Touching and sucking (*Collected Poems* 225).

However, her preoccupation with pain turns touchtone for her to delve deep into human soul. "The Beast" is a very lucid poem of the same collection, draws an analogy between her claustrophobic childhood and mordantly mangled married life. The girl was amid the shadow of moonshine pampered with paternal love and are. She rapturously reminisces her free spirit of golden childhood but now she is starkly plunged in the whirlpool of anxieties, left lonely and lost. The poem is reflective of her personal traumatised life. Mark the following lines of the poem that unfolds her traumatic experiences:
I've married a cupboard of rubbish.

I bed in fish puddle.

Down here the sky is always falling.

Hogwallow's at the window.

The star bugs won't save me this month.

I housekeep in Time's gut-end

Among emmets and mollusks,

Duchess of nothing,

Hairtusk's bride (*Collected Poems* 134).

The poems, "Aftermath", "Two Views of a Cadaver Room", and "Suicide off Egg Rock" are highly reflective her ordeal, plight and predicament. The poem "Aftermath" depicts her susceptibility to depression and dejection that eventually leads her to the bouts of insanity so much that she even tries to take her own precious life at the very tender age of nineteen. The poem extensively ejects her painful life and trauma. See the following lines chronicling the agony and anguish of an ardent soul:

Compelled by calamity's magnet

They loiter and stare as if the house

Burnt-out were theirs, or as if they thought

Some scandal might any minute ooze

From a smoke-choked closet into light;

No deaths, no prodigious injuries

Glut these hunters after an old meat,

Blood-spoor of the austere tragedies (*Collected Poems* 113).

Sylvia Plath never looked contented in her personal life and married life either. Like Emily Dickinson, she spawned some scintillating pieces of verse spun around depression, dejection, decay, despair and death. "Fever 103^{0} "is a florid poem, flashes feverishly fecund panorama of her personal angst. She is compelled to compare herself with the strumpet who whiles away the whole night with her lover, but is rendered bereft of perfect bliss. The forces that are centripetal to bring her at door of chaos, find vibrant vent in the poem. The poem illustrates her eerie experiences at a hospital while undergoing pangs of high fever, her high fever stirs and shakes her from inside out. Mark the following

lines suggestive of immutable intensity of her pain:

Greasing the bodies of adulterers

Like Hiroshima ash and eating in.

The sin. The sin.

Darling, all night

I have been flickering, off, on, off, on.

The sheets grow heavy as a lecher's kiss (*Collected Poems* 231).

"Daddy" is an intensely poignant poem, and explicates the discordant relationship with her father as tormenter and tormented. Plath is smouldered and squirmed with shock when she sees the plight of the people at a concentration camp, appears appalled at the gruesome incident of Hiroshima. The poet is highly confessional, and invariably iterates her pain. The poem pinpoints her irreparable loss of her father, Otto Plath, who died immaturely when she was just nine; her mother, Aurelia Plath, had Jewish lineage hailing from Austria. She never comes out of the shadow of her father, and brazenly begins to see him as a Nazi, and herself as a daughter of Jew. The poem shows Freudian influence on the poet, she exhibits excessive proximity towards her father, who left her at a very important stage of life at very tender age. M. L. Rosenthal succinctly puts thus about the poem "Here is a poem spoken by a girl with an Electra complex. Her father died while she thought he was a God. Her case was complicated by the fact that her father was also a Nazi and her mother very possibly partly Jewish. In the daughter, the two strains marry any paralyze each other (M. L. Rosenthal 82). The poem is full of pathos, and brings lachrymation in our eyes. Mark the following lines of the poem when daughter misses her father inescapably:

You stand at the blackboard, daddy,

In the picture I have of you,

A cleft in your chin instead of your foot

But no less a devil for that, no not

Any less the black man who bit my pretty red heart in two (*Collected Poems* 224).

"Three Women, A Poem for Three Voices" is autobiographical poem, explicates her personal outbursts and ordeal languorously. Ted Hughes deserted her in

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1962, and life became burden for her: full of dejection, desperation and disappointment. The poem fortuitously shows her fortitude in different situations, firstly it dismantles her horrible experiences of pregnancy and motherhood: she calls labour table as torture table. She regards motherhood as blessing for a woman, but the pangs of pain borne by her are nightmarish. Her short sojourn at Cambridge, and brunt of hard and harsh life led by her is shown in the predicament of the girl in the poem. Secretary's miscarriage coincides her own ordeal. The experiences of the secretary in the hospital implicitly reverberates poet's own suffering in the hospital. The girl deliberately discards the child, and appears least weary and wary of the consequences. The poem also apprises us with her vision and spiritual experiences. The poet's mental agony is manifest in the following lines of the poem:

There is no moon in the high window, It is over.

How winter fills my soul! And that chalk light

Laying its scales on the windows, the windows of empty offices,

Empty schoolrooms, empty churches. O so much emptiness!

There is this cessation. This terrible cessation of everything.

These bodies mounded around me now, these polar sleepers-

What blue, moony ray ices their dreams?

I feel it enter me, cold, alien like an instrument (*Collected Poems* 182). "The Other" is also very effulgent dispensation of her emotions, and shows estranged and equivocal relationship between the poet and her beau. Life looked her a river of reverie before marriage, but now it appears her a desolate oasis. Ted Hughes deserts her and enthralled towards another woman, AssiaWevill. The poem unfolds her pain and mental agony emanated from her husband's brutal betrayal. She is out rightly broken, badgered and blurt with pain by the presence of a rival at home, and it paralyses her life and mental peace immeasurably. The language is very terse and transcendently reveals her deep anguish. The poem has very personal tone, and graphically depicts discordant shreds of her disturbed and dejected life.   The following lines reflects charting sufferings and angst:

Sulphurous adulteries grieve in a dream.

Cold glass, how you insert yourself

I scratch a like a cat.

The blood that runs is dark fruit-

An effect, a cosmetic.

You smile.

No, it is not fatal (*Collected Poems* 202).

"Lady Lazarus" is an autobiographical poem, adduces us her pain, plight and predicament. The poem shows her unsurmountable mental sickness and despair, plunging her in the abyss of depression and event to commit suicide. In the garb of personal painful experiences, she boldly bares her soul and explicates her views on diverse subjects. She shares her horrible experiences with us, and apprises her narrow escape in a drowning incident at tender age of ten. She also ruefully recalls her survival when she was rendered so much depressed in 1953 that she engulfed several sleep pills. The poem revolves around the two myths concomitantly. The first myth is taken from holy Bible, that how Christ resurrected his friend Lazarus from the pyre. The other myth is attributed to the bird, Pho, which is said to be re sprung from the ashes, after five centuries. Plath presents herself as a hapless and horrified Jew. The poem shows the employment of themes: death, suicide, and revival. For her, the earthly existence is a volley of vicissitudes; she contrives to move the mortal morphs of death. Consequently, she is tilted towards death acquiescently. Mark the following lines of the poem:

For the eyeing of my scars, there is a charge

For the hearing of my heart-

It really goes.

And there is a charge, a very large charge

For a word or a touch

Or a bit of blood

Or a piece of my hair or my clothes (*Collected Poems* 246)

"Miss Drake Proceeds to Supper" is a very luminous poem, wrought out of her horrible life experiences. For this, she delineates characters who can manifest and carry her experiences more mordantly. The poem subliminally shows sumptuous stride of chaotic flow of sensations through her mind. The poem

mirrors maroon manifestations of her disparaged life, and reflects her introspective and inquisitive bent of mind. Mark the following lines of the poem suggestive of her melancholy and intrinsic poetic excellence:

Of broken glass,

She edges with wary breath,

Fending off jag and tooth,

Until, turning sideways,

She lifts one webbed foot after the other

Into the still, sultry weather

Of the patients' dining room (*Collected Poems* 41).

"Tulips" is a very esoteric poem, elegantly expresses the intrinsic beauty of her poetry. It reflects the psyche of the speaker, and it also shows how mind synthesises positive and negative thoughts. The poem gives a glimpse of imaginative flight ranging from indolence to action, numbness to warmth, desire to love, and scarcity to fulfilment. The poem projects her experiences at hospital and of sickness. Tulip symbolises her fragile health, and presents panorama of her pitiable condition and plight exultantly. She compares herself to small pebbles which are taken ashore by flowing wild waves. The poem unravels her miserable condition, and stoic surrender to appalling situation at the hospital. The flowers of tulips are eyeing at her, and drawing her attention towards the tranquillity and sickness of the world, and reminding her sense of loneliness. The agony writ and wrought on her brow is discern in the coaxing of tulips. They remind her whirlwind of wild sensations, collapse of courage and conscience, and reality that her life is bereft of. Mark the following lines of the poem where her emotions are properly, piquantly, and perspicaciously presented in:

Nobody watched me before, now I am watched.

The tulips turn to me, and the window behind me.

Where once a day the light slowly widens and slowly thins,

And I see myself, flat, ridiculous, a cut-paper shadow

Between the eye of the sun and the eyes of the tulips,

And I have no face, I have wanted to efface myself.

The vivid tulips eat my oxygen (*Collected Poems* 161).

Sylvia Plath's poetry is out rightly subjective: a serene stasis of her mental anguish. She is a confessional poet, and poetry serves her as a vehicle to vent her own experiences out. She lived a very troubled, tumultuous and tormented short life of thirty years, but her prolific output is robustly resplendent. The state of mind, melancholy, and mental turmoil are the dominant themes in her poetry. Life for her is not a peaceful petalic pageant, rather it is a whirlpool of anxieties and angst, and delicately drives her towards death. Her poetry is reflective of her melancholy, grim and gloomy vision of life. She finds similes, metaphors, symbols and images to serve her as objective correlative to channelize her emotions. Her poetry is extremely emotional, personal and psychic. Her early poetry shows her inherent and inborn poetic prowess, and later poetry vigorously establishes her mastery, maturity and adroitness in respect to her poetic craftsmanship. However, in her seminal poetic collection *Ariel* (1963), most of the poems dispenses her melancholy and pain of life. Caroline Bernard's appraisal of her later poetry is quite quotable here:

The tribulation of *Ariel* may appear as the anguish of Oedipus, the torture of the victimised Jew, the agony of the ambivalent sexual attitudes, grief of rejections, or a   mother's poignant fear of her child. But whatever guise it assumes, the world of *Ariel*   is the world of nightmare in substance as well as in the surreal quality of its expression (104).

In the end, we may peremptorily add that whole gamut of Sylvia Plath's poetry is pathetic panorama of her personal pain, trauma, sufferings, experiences, realizations and mental agony, and catapults her as a consummate confessional poet. Her poetry is extensively subjective and suggestive of her peculiar consciousness. Death is most dominant theme in her poetry. The reverberation of the tongs of her personality and life resonates and reflects in her poetry in a remarkable way. Her poetry carves the image of a personality who is inalterably a despondent and demented, and uprightly upholds the negative vision of life.

She has universalized her own anguish and angst through her scintillating poetry. Deep down the vortex of chaotic flow of sensations, tumultuous and tormented life experiences, turbulent passion, and blood smearing emotions, a beacon seems glowing and glistening glaringly.

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PSYCHOSOCIAL REHABILITATION IN INDIA

Eram Naaz[1] & Kiran Srivastava[2]

Rehabilitation

Historically, the term has described a range of responses to disability, from interventions to improve body function to more comprehensive measures designed to promote inclusion. The International Classification of Functioning, Disability and Health (ICF) provides a framework that can be used for all aspects of rehabilitation. For some people with disabilities, rehabilitation is essential to being able to participate in education, the labour market, and civic life.

Rehabilitation is always voluntary, and some individuals may require support with decision-making about rehabilitation choices. In all cases rehabilitation should help to empower a person with a disability and his or her family.

Rehabilitation measures and outcomes

Rehabilitation measures target body functions and structures, activities and participation, environmental factors, and personal factors. They contribute to a person achieving and maintaining optimal functioning in interaction with their environment, using the following broad outcomes:

- Prevention of the loss of function
- Slowing the rate of loss of function
- Improvement or restoration of function
- Compensation for lost function
- Maintenance of current function

Psychosocial Rehabilitation and mental illness:

Mental illness is a term that describes a wide range of mental and emotional conditions. Mental illnesses causing disability are prolonged and chronic in nature. Now they are known as severe mental illnesses, which require psychosocial rehabilitation, include chronic schizophrenia, long standing bipolar illness, persisting depression, delusional disorder and dementia.

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Disability arising out of severe mental illness is also known as psychiatric disability. This disability is defined as a substantial limitation in a major life activity (Liberman, 1998). World Health Organisation (WHO) defines this disability as an inability to participate or perform at a socially desirable level in such activities as self-care, social relationship, work and situationally appropriate behaviour.

Psychosocial rehabilitation aims to provide the optimal level of functioning of individuals and societies, and minimization of disabilities and handicaps, stressing individual's choices on how to live successfully in the community (Rangnathan, 1999).

Psychosocial rehabilitation is a process that facilitates the opportunity for the individuals who are impaired, disabled, or handicapped by a mental disorder to reach their optimal level of independent functioning (Rangnathan, 1999).

Goals:

1. Recovery from mental illness: It is a basic prerequisite of psychosocial rehabilitation in terms of symptom management. Compliance with medication plays an important role with the support of family and treating psychiatrist. Noncompliance of medication retards the process of psychosocial rehabilitation.

2. Integration in the family and community: It is a prominent goal to be achieved with all the efforts of psychosocial rehabilitation. Integration of person with severe mental illness in the family and community is the key determinant in the success of psychosocial rehabilitation.

3. Better quality of life: It needs to be ensured at par with members of the family and community through psychosocial rehabilitation services being rendered to the person with severe mental illness.

Values:

A rehabilitation professional actively involved in psychosocial rehabilitation follows certain values which facilitate achievement of goals in integrating the person with severe mental illness in the family and in ensuring her or his better quality of life. These values are:

1. Self-determination,

2. Dignity and worth of every individual,

3. Capacity of every individual to learn and grow, and

4. Culture sensitivity.

Guiding principles: Following are the important guiding principles of psychosocial rehabilitation.

1. Individualization of services: Psychosocial rehabilitation services should be planned to suit individual needs of the person suffering from severe mental illness according to his or her demographic characteristics like age, gender, education, locale, socio-economic status and cultural background, the nature of illness and function level in day to day work. Individual programme planning of psychosocial rehabilitation services for two persons with same diagnosis may differ in their individual rehabilitation needs of psychosocial rehabilitation services**.**

2. Maximum involvement and due importance to be given to preferences and choices of person with severe mental illness: In order to ensure maximum involvement, due importance should be given to choice and preferences of person with severe mental illness. Anything cannot be imposed on her or him in the name of psychosocial services.

3. Normalized and community-based services: Scope for community based psychosocial rehabilitation services is wider, as this is known to be the door step service delivery with an intention to reach the unreached. Such services are not only in demand, rather are known to be the need of the day, especially for greater reach in the rural areas for wider coverage of severely mentally ill population.

4. Strength focus: Severity of mental illness is likely to cause many losses. What has been lost due to severe mental illness should not be the primary concern. Remaining positive potentials in terms of cognition, emotion, motor activity level and social interaction of person with severe mental illness should be the focus of overall rehabilitation process.

5. Situational assessment: Remaining positive potential has a situational dimension. Psychosocial milieu of the person like family setup, work place, person's social living conditions, etc may also need to be thoroughly understood to ensure favourable situational support.

6. Treatment, rehabilitation, and integration through holistic approach: Treatment, rehabilitation and integration into the community are linked being integral part of each other. They should not be dealt with in isolation. Psychosocial rehabilitation for the management of severe mental illness should be a holistic approach.

7. Ongoing, accessible, and coordinated services: psychosocial rehabilitation services should be coordinated in such a manner that they are not disrupted in between. They should be available with easy access as per the requirement of the persons with severe mental illness as continued care.

8. Training of skill and vocation focus: Severe mental illness undermines the individual's behaviour, performance, cognition and social interaction. Certain skill deficits are apparent in the major categories of severe mental illnesses. They are the focus of intervention in psychosocial rehabilitation. There is continuum of skill training in the process of rehabilitation. That is activities of daily living skills, social skills and lastly followed by vocational skills. Through acquisition of these skills vocational focus should be kept in mind to place the person in a remunerative job. This generates a feeling in the individual that she or he is also a productive member of the society.

9. Environmental modification support: At times modification in the environment facilitates the process of rehabilitation. Provision of support to such environmental modification should be available so that the same is flexibly used.

10. Partnership with the family: The person with severe mental illness in the family is not the only sufferer rather the whole family is greatly affected due to severity of illness. This adds to the burden of caring on regular basis. Hence the family needs to be involved as part of the process of psychosocial rehabilitation.

11. Evaluative assessment with outcome focus: Evaluation of progress to ascertain the outcome of rehabilitation is necessary. Usually progress is disrupted due to relapse, which also makes evaluative assessment of outcome essential.

Need for Psychosocial Rehabilitation

By their very nature, mental illnesses are chronic and relapsing and require a broad range of services, beyond just pharmacotherapy. No treatment of mental disorder can be considered as complete or adequate without giving due consideration to rehabilitation or aftercare services (Channabasavanna, 1987). The need for psychosocial rehabilitation arises out of the increasing percentage of mental disorders across the globe.

Severe mental disorders (SMI) figure among the 10 leading causes of disability and burden in the world (who, 2001). An estimate based on extrapolation from household surveys and which excluded homeless people and residents of institutions such as nursing homes, prisons, and long-term care facilities, stated that nearly 4.8 million people suffer worldwide from severe and persistent mental illnesses and 10 million people suffer from serious mental illnesses (IAPRS, 1997).

A worldwide estimate of the current and future impact of severe mental illnesses has increased dramatically. A new internationally used statistic called the DALY, the "disability adjusted life year," is a measure of a year of healthy life lost to a particular disease, either through premature death or disability. The most significant result from measuring disease by DALYs is the new prominence it gives to the negative impact of severe mental illnesses. For example, major depression, typically not mentioned in international health rankings, is currently the fourth leading contributor to DALYs, and is projected to be ranked as the second leading contributor by the year 2020 (Knox, 1996; Karel, 1996).

Evidence Based Psychosocial Rehabilitation

The empirical base of the psychiatric rehabilitation process draws its evidence base from several lines of research. it is the person's self-determined goals and the presence of the skills and supports necessary to reach those goals, rather than the person's diagnosis and symptomatology, that relates most strongly to rehabilitation outcomes (Anthony & Farkas, 2009).

- Psychosocial rehabilitation in general and skills training in particular, for both consumers and family members, are intended to promote a range of outcomes (IAPSRS, 1995). These interventions have

demonstrated success in symptom reduction, community adjustment, relapse prevention, medication compliance, and reduced use of the hospital and other restrictive settings (Dobson et al, 1995, Smith et al, 1996, Moller et al, 1997 &Conners et al, 1998).

- Cognitive skill remediation has shown promising results in helping patients relearn basic information processing abilities such as attention, concentration, and memory (Cassidy et al, 1996, Corrigen et al, 1996 &Medalia et al, 1998), which are critical to the acquisition of other skills and, in some approaches, are taught together with other skills in an integrated program (Brenner et al, 1994). Cognitive skill remediation has also shown success in directly reducing psychotic symptoms (Corrigan et al, 1996).

- McFarlane and associates, 1992, showed that patients who participated in an intensive case management program that had a vocational and rehabilitation orientation and provided family psycho-education, had significant improvement in community adaptation compared with patients who received intensive case management alone.

Ethical issues

The four guiding ethical principles of medical practice, also referred to psychosocial rehabilitation practice are the following:

- Respect for autonomy of the client: it involves providing the client the freedom of choice treatment and course of illness after hearing the benefits, risks and costs of all reasonable options.

- Non malfeasance: a Hippocratian code of ethic is an essential rule, preventing the risks of treatment and iatrogenic harm. This principle is often violated with the intention of "good" treatment effect outweighing the "bad" effect.

- Beneficence: providing the form of treatment to the client that would benefit him and would result in meaningful outcome.

- Justice: related to the equal distribution of health care resources, especially to those persons who are in greater need.

Other ethical issues include: It is unethical if there is a breach of confidentiality e.g. reporting patient's "diagnosis" of treatment details to a possible employer

and when therapeutic work procedures are videotaped or recorded for education or research purposes, without a previous written informed consent, by the rehabilitation service clients.

- Another important ethical issue is when the rehabilitation staffs challenge the client's system of cultural values and beliefs, when in the rehabilitation process.

- Another ethical issue arises when the client is not compliant with the programme's principles and regulations and when aggressive behaviour of a client is directed towards other members and staff, or a sexual misconduct causes problems to others in the programme. It is the staff and the other members of the programme, who will try to "treat" this problematic behaviour and prevent harmful consequences within the limits of Therapeutic Community principles.

- Ethical code violation exists when there is no service internal policy, securing human rights of clients attending the programme.

Legal issues

The following document the so-called psychosocial rehabilitation malpractice. They arise when there is:

- Incorrect psychosocial rehabilitation diagnosis of a client, leading to improper service placement.

- Improper work supervision, exposing the client to possible work risks.

- Failure of staff to monitor psychiatric care or prevent adverse psychotropic drug side effects due to lack of intercommunication between mental health care agencies involved in the treatment and rehabilitation of the client.

- Building a psychosocial rehabilitation service programme, with inadequate organization procedures, leading to misdiagnosis, activities with no clear boundaries, improper placement and supervision, are liable for malpractice claims.

- Employment of service personnel with inadequate specialized training could jeopardize the successful rehabilitation outcome and is liable for malpractice claims. However, there is no evidence of malpractice when

Psychosocial Rehabilitation versus Pharmacotherapy

The debate over psychosocial rehabilitation versus pharmacotherapy is still a controversial subject. Pharmacotherapy is important, there is no doubt about that but in addition to the medical field, rehabilitation has shown significance in treatment. Psychosocial rehabilitation is a holistic approach that places the person, not the illness, at the centre of all interventions (Baron, 2000). Psychosocial Rehabilitation is a healthy alternative or combination to pharmacotherapy. Pharmacotherapy and psychosocial rehabilitation are inseparable; they are two sides of the same coin (Kopelowicz& Liberman, 2003).

Pharmacotherapy: It focuses on the removal of disease symptoms by diagnosis and prescription of drugs. Focuses on symptom relief and stabilisation of current condition. It suggests short-term treatment by medication Does not prescribe community integration for treatment.

Psychosocial rehabilitation: It focuses on the person with the mental illness as opposed to the diagnosis of the mental illness. Focuses on recovery process. long-term treatment focusing on increasing social status, occupational roles, and independence within the community. Facilitates for potential supports within the community as an alternative to hospitalization.

Current status of psychosocial rehabilitation in India

Rehabilitation in India is still in its infancy. Although, a rehabilitation sub program aimed at treating and maintaining psychiatric patients in the community, was envisaged in the National Mental Health Program. It could not be implemented due to variety of a reason (Srinivasa Murthy, 2004). At the governmental level, policy makers have been unable to devote serious attention to the development of rehabilitation services for the chronic mentally ill primarily due to economic constraints. The current status of rehabilitation services of our country as assessed by the national Human Right Commission project report on Quality Assurance in mental health (1999) is as follows:

Structure

- Number of Psychiatrist, social workers, occupational therapists and even psychiatric nurses in developing countries can be totally unacceptable by

standards elsewhere in the developed world. For instance, India and Australia have roughly same number of qualified psychiatrists while the population of India is about more than 1000 million, while Australia has about 20 million people, Indonesia until recently had 1 occupational therapist for 190 million people.

- About 36% of government mental hospitals have a separate facility for vocational training.
- There are neglected sheltered workshops in the government hospitals.
- Occupational therapy section is present in 63.9% of hospital. However, untrained personnel in an ad hoc carried out these activities. Further in 61% of the centers it was noticed that only a selected number of patients were attending these activities. Awareness among staff in psychiatric hospitals regarding the principals of rehabilitation is poor.

Day care centres

- Such facilities have started to develop in some hospitals while 7 (19.44%) of the hospital provide day services. The centers providing day care are NIMHANS, Bengaluru, Mental Health Centre, Thiruvananthapuram, KIMH, and Chennai.
- 41.66% of centers reported regular production even though only 36.1% has separate vocational facilities.

Rehabilitation wards

- About 8.33 of government psychiatric hospitals have rehabilitation wards
- There is an interesting experiment being carried at NIMHANS where the nursing staff has been entirely withdrawn from a chronic ward and the patients are entirely in charge of the ward.

Halfway homes

- The half way homes concept has taken root in a few states like Karnatka, Tamil nadu and Kerala. Such facilities are usually managed by NGO'S. 87.8% of the mental health centers don't have these types of community care facilities in their vicinity.
- There are no separate facilities for occupational therapy and rehabilitation for children in 95% of the hospitals.

Programs

- In 53.65% of the hospitals there are no organized programs for rehabilitation. Combined programs for male and female are present in

5.55%. Separate rehabilitation programs for males and females are present in 33.33%. Programs only for males in 2.77% and only for female's in2.77%. Most hospitals cater predominantly to psychotics. 19.44% of the centres ensures employment placement outside the hospital i.e. NIMHANS. 25% of mental health centres paid incentives to the patients.

Volunteers and community participation

- Only 25 (67.6%) of mental health centres involve volunteers.
- The family's role as a partner in care is not utilized in 95% of the mental hospitals.

Major Rehabilitation centres in India

Some of the major voluntary/ non-governmental organisations/ autonomous organisations in India working in psychiatric and other disability rehabilitation fields are:

- National Institute of Mental Health and Neurosciences (NIMHANS), Bangalore, Karnataka
- Deepsikha Institute, Ranchi, Jharkhand
- Sevak, Kolkata, West Bengal
- Child in need institute (CINI), Kolkata, West Bengal
- Samarpan Care Awareness and Rehabilitation Centre, Indore, Madhya Pradesh
- Ashadeep, Guwahati, Assam (working for psychosocial rehabilitation for mentally ill)
- Antara, Centre for Rehabilitation of Mentally Ill and Substance addicted person, Kolkata, West Bengal
- CAIM, Deaddiction and Rehabilitation Centre, Bangalore.
- St. Joseph Rehabilitation Centre and Relief Services, Kolkata, West Bengal; treatment centre for chemically dependent and mentally disturbed.
- Thakur Hari Prashad Institute of Research and Rehabilitation, for Mentally Handicapped, Andhra Pradesh
- V.D. Indian Society for Mentally Retarded, Malad (W), Mumbai, Maharashtra

- Schizophrenia Research Foundation (SCARF), Chennai, Tamil Nadu.

- Nav bharatjagriti Kendra, Ranchi and Hazaribagh, Jharkhand

- The Association for the Welfare of Persons with A Mental Handicap in Maharashtra (A.W.M.H. Male)

- National Institute for Empowerment of Persons with Multiple Disabilities (NIEPMD), Chennai, Tamil Nadu

- Central Institute of Psychiatry (CIP)

- Ranchi Institute of Neuro-Psychiatry and Allied Sciences(RINPAS) and psychosocial rehabilitation.

Future Direction

- Psychosocial Rehabilitation services should be accessible, equitable and affordable.

- Government should downsize large psychiatric hospitals. More open ward treatment facilities must be created.

- Human resources for psychosocial rehabilitation must be systematically enhanced through both short-term and long-term strategies.

- There should be a national data base of services and human resources available for psychosocial rehabilitation in the country and this should be periodically updated.

- Psychosocial rehabilitation must be converged with the social, education, labour and legal sectors. Translational research must be encouraged in all areas.

- Law review and reform needs to occur periodically. They must emphasise community care, rehabilitation and aftercare.

- Limitations imposed on mentally ill receiving rehabilitation in the area of insurance should be rectified.

- The rehabilitation of vulnerable groups like children, elderly, and women who are subject to domestic violence should receive priority

- There is a need to design outcome studies regarding the effectiveness of rehabilitation program and also it is needed to recognize the interaction between drugs and environmental therapy effects especially in case of ward managements.

- Patients and family members will become more effective as advocates for needed services and partners in treatment, planning and implementation. It is necessary to encourage NGO to start half way homes. The family's participation and involvement through regular contact with the half way home staff should be encouraged to make community adjustment easier.

- There is an urgent need for more day care centers that can provide the much-needed respite for the family as well as make the individual patient feel less stigmatized and more valued.

Conclusion

Psychosocial Rehabilitation exhibits principles of hope, change and recovery for Persons with severe and persistent mental illness. Effective mental health service providers should facilitate change through the recovery-oriented theory. Recovery is individualized and person centred, placing the person at the core of all interventions with the goal of rehabilitating and re-integrating the individual to active community life. For successful rehabilitation, co-operation and collaboration of health care personnel, patients and their family members, opinion leaders, policy makers and various agencies are indispensable. Then only we can hopefully address the rehabilitation of psychiatric patients in a more meaningful manner and make them more meaningful citizens of our country.

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DISTRICT MENTAL HEALTH PROGRAMME IN UTTAR PRADESH: A REVIEW

Garima Singh[1]

Abstract

In 1982, in accordance with the WHO's recommendations, India started the National Mental Health Programme (NMHP) in order to provide mental health care services to the people under the framework of general health care system in the community. NMHP underwent major strategic revisions over its course, starting from setting a district as the unit for program planning and implementation under the District Mental Health Program (DMHP) to incorporating it with the National Rural Health Mission (NRHM) for effectively scaling up the program. The program has been successful in terms of enhancing its reach to community, improving service delivery, and getting increased budgetary allocations.

The researcher attempted to review the available literature pertaining to DMHP with special emphasis on the on-going programs and its outcomes in Uttar Pradesh.

Key words: Mental health, National Mental Health Programme, District Mental Health Program, health, well-being, community mental health and community mental health programme.

Introduction

Mental health is defined as a state of well-being in which every individual realizes his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully and is able to make a contribution to his/her community (WHO-2014). The lifetime prevalence rates of mental disorders in adults range from 12.2 to 48.6% and 12-month prevalence rates range from 8.4 to 29.1% (WHO-2016).

National Mental Health Survey, 2015-16 (India) suggests that Common mental disorders (CMDs), including depression, anxiety disorders and substance use disorders are affecting nearly 10% of the population.

The National Mental Health Survey, 2015-16 suggests that in Uttar Pradesh 6.1% prevalence rate is found.

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National Mental Health Programme

The Government of India launched the National Mental Health Programme (NMHP) in 1982, keeping in view the heavy burden of mental illness in the community and the inadequacy of mental health care infrastructure in the country to deal with it.

3 main components of NMHP:

- Treatment of Mentally ill
- Rehabilitation
- Prevention and promotion of positive mental health.

Limitations of NMHP:

Under NMHP, the unit of service delivery was Primary Health Centres and Community Health Centres. Hence, the extent of service delivery was limited.

The program had some inherent conceptual flaws in the form of:

- No budgetary estimation or provision for the programme,

- Lack of clarity regarding who should fund the programme – the central government of India or the state governments, which perpetually had inadequate funds for healthcare. (Rasheed, 2015)

Inception of District Mental Health Program:

To overcome the limitations of NMHP and to scale it up, it was perceived that the district should be the administrative and implementation unit of the program. The National Institute of Mental Health and Neurosciences (NIMHANS) undertook a **pilot project (1985–1990)** at the Bellary District of Karnataka to assess the feasibility of DMHP and demonstrated that it was feasible to deliver basic mental healthcare services at the district, taluk and at PHCs by trained PHC staffs under the supervision/support of a district mental health team.

The success of the Bellary project paved the way for DMHP, which was subsequently launched in **27 districts in 1996** with the initial budget of 280 million INR.

Objectives of DMHP:

- To provide sustainable basic mental health services to the community

and to integrate these services with other health services.

- Early detection and treatment of patients within the community itself.
- To reduce the stigma of mental illness through public awareness.
- To treat and rehabilitate mental patients within the community.

Evolution of DMHP:

10th Five Year Plan (2002 –07)	11th Five Year Plan (2007–12)
• Budget extended to 1390 million INR • Program extended to 110 districts, with upgradation of psychiatric wings of 71 medical colleges/general hospitals and modernization of 23 mental hospitals.	• Program officer (a psychiatrist) & family welfare officer in each district. • Essential drugs at PHCs and District Hospitals. • Training programs for Medical Officers. • (**Scheme-A**): Strengthening of infrastructure with the establishment of 11 Centers of Excellence & upgradation of Mental Institutions/ Hospitals. • (**Scheme-B**): Setting up/ strengthening of 30 units each of Psychiatry, Clinical Psychology, Social Work & Psychiatric Nursing.

DMHP in 12th Five Year Plan:

Mental Health Policy Group (MHPG) was appointed by the MoHFW in 2012 to prepare a draft of DMHP for 12th Five Year Plan (2012–17).

Objectives were:

- To reduce distress, disability and premature mortality related to mental illness.

- To enhance recovery from mental illness by ensuring the availability of and accessibility to mental health care for all, particularly the most vulnerable and underprivileged sections of the population.

Method:

Documents and websites of Ministry of Health and Family Welfare (MoHFW), Director General of Health Services (DGHS, U.P.) and other government agencies were visited to obtain relevant documents on NMHP/ DMHP such as the document of regional workshops for NMHP (2011–2012), policy draft document for the 12th Five Year Plan (2012), and parliamentary committee and NITI Aayog report on the ongoing program.

Results:

Status of DMHP in U.P.:

The programme has been successfully implemented in all the 75 districts of U.P.

1) Trained Mental Health Professionals including a District Programme Officer, Psychiatrist, Clinical psychologist, Psychiatric Nurse and Psychiatric Social Workers were hired in each district.

Scheme A	Scheme B
Upgradation of Psychiatric Wings of Medical Colleges: MLN Medical College, KGMU, GSVM, MLB Medical College Jhansi, LLRM Medical College Meerut, S.N. Medical College Agra, IMS BHU**.** **Modernisation of State Run Mental Hospital:** Mental Hospital Bareily, IMHH Agra, Mental Hospital Varanasi **Centre of Excellence:** **Institute of Mental Health & Hospital, Agra**	**KGMU** for strengthening the Psychiatry, Clinical Psychology, Psychiatric Social work, Psychiatric Nursing departments. For Building, Recruitment, Books and Journals, Equipments and tools etc.

Total Fund utilised: Rs 37,58,59,428

DMHP in Uttar Pradesh

- 3 rooms allotted at District Hospitals for DMHP.

Role of Mental Health Professionals (Psychiatrist and Clinical Psychologist):

- 3-day OPD at District Hospital.
- 2 Day OPD at selected CHCs and PHCs.
- 1-day Awareness Campaign/programme at school/colleges in coordination with Clinical Psychologist, Psychiatric Social Workers and other team members.

DMHP- New Components:

- School Mental Health Services: Life Skills Education in Schools,

Counseling Services.

- College Counselling Services: Through trained teachers and counsellors.

- Work Place Stress Management.

- Suicide Prevention Services- Counseling Center at District level, Sensitization Workshops, IEC, Collaboration with various departments.

- **Dua se DawaTak**

  A mixed approach with the services of faith healers an mental health professionals. Various 'mazars' and faith healing centres have been identified and they have been asked to work collaboratively with the mental health professionals inorder to provide spiritual/religious treatment along with necessary medical treatments to the psychiatric patients.

- **Mann Kaksh**

  In every district a counselling centre has been established in the district hospitals where availability of mental health professionals is assured with special focus to the needs of young adults and teenagers, school/college going students and their conflicts.

Conclusion:

DMHP has completed more than three decades, the lessons learned from the past can bring about a lot of insights about the future course of action. For example, leadership at all the levels of governance/administration, financial and human resources have been important determinants for the outcome of the program, so are community and stakeholders' participation, standardization of training for community mental health professionals, IEC activities, the involvement of NGOs and private sectors.

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TRAUMA IN SCHOOL STUDENTS: ROLE OF EDUCATORS

Mohd Ali[1] & Dr. Amit Kumar Rai[2]

Introduction

Educational Trauma was defined as "the inadvertent perpetration and perpetuation of victimization of producers and consumers of the educational system," Examples of Educational Trauma that will be explored include standardized testing, value added modeling for teacher evaluation, bullying, the diagnosis of Attention Deficit Disorder/Attention Deficit Hyperactivity Disorder (ADD/ADHD) the use of prescription medicines to control student behavior in classrooms, and finally culminating with the school-to-prison pipeline.

The spectrum of Educational Trauma begins with anxiety and pressure associated with standardized curricula and testing. The spectrum of Educational Trauma continues with the problem of using student test scores to judge teacher performance. This practice is called Value Added Modeling. Stifling the joy of learning is a form of Educational Trauma, and leads to symptoms of depression, anxiety, worthlessness, low self-esteem, insomnia, worry, weight gain/loss, and substance abuse and/or addiction.

Stifling the joy of learning is a form of Educational Trauma, and leads to symptoms of depression, anxiety, worthlessness, low self-esteem, insomnia, worry, weight gain/loss, and substance abuse and/or addiction.

Review of Literature

When trauma is experienced at an early age, is prolonged, and at the hands of a caregiver this can disrupt psychological, neurobiological, relational and cognitive development (Price, Higa-McMillan, Kim, & Frueh, 2013). Poly-traumatization, which is defined as, experiencing more than one type of trauma, is one factor in the complexity of trauma (Alvarez, Masramon, Pena, Pont, Gourdier, Roura-Poch, & Arrufat, 2015). Because of the many layers of different traumatic events, when multiple types of trauma are experienced, the effects are also layered and can become even more complex (Alvarez, Masramon, Pena, Pont, Gourdier, Roura-Poch, & Arrufat, 2015). Children, who witness domestic violence on top of experiencing abbuse first hand, show

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to be less attached to parents in adolescence, than children who only witness the violence (Sousa, Herrenkohl, Moylan, Tajima, Klika, Herrenkohl, & Russo, 2011).

Children, who are victims of sexual abuse and also have witnessed domestic violence, are the most common candidates to be diagnosed with PTSD (Sousa, Herrenkohl, Moylan, Tajima, Klika, Herrenkohl, & Russo, 2011). Children who experienced more than 4 adverse childhood experiences were 2.4 times more likely to suffer from anxiety, 2.5 times more likely to have panic reactions and 3.6 times more likely to have a depressed affect when compared to those who have not experienced an adverse childhood experience (Anda et al., 2005). When the types of trauma that are experienced, are layered and compounded with one another, it increases the risk for adverse effects (Turner, Finkelhor, & Ormrod, 2006). The source of the trauma also plays a large role in the effects of the trauma. When the source of the trauma is from a caregiver, the attachment relationship is compromised, leading to issues later with relationships and bond forming (Turner, Finkelhor, & Ormrod, 2006). This is significant to childhood development, as 80% of maltreated children, will develop insecure attachment patterns (Delima & Vimpani, 2011).

Effects of Trauma in School Students

Trauma is thought as the result of a frightening and upsetting event. But many children experience trauma through ongoing exposure, throughout their early development, to abuse, neglect, homelessness, domestic violence or violence in their communities. And it's clear that chronic trauma can cause serious problems with learning and behavior and effect student's performance at school.

Role of Educators

Trauma is particularly challenging for educators to address because students often don't express the distress they're feeling in a way that's easily recognizable — and they may mask their pain with behavior that's aggressive or off-putting. Identifying the symptoms of trauma in the children can help educators understand these confusing behaviors. And it can help avoid misdiagnosis, as these symptoms can mimic other problems, including ADHD and other behavior disorders.

In brief, the obstacles to learning experienced by these children include:

- Trouble forming relationships with teachers
- Poor self-regulation
- Negative thinking
- Hyper vigilance
- Executive function challenges

Trauma and trouble forming bonds

Children who have been neglected or abused, often have problems forming relationships with teachers, a necessary first step in a successful classroom experience. They have learned to be wary of adults, even those who appear to be reliable, since they have been ignored or betrayed by those they have depended on. The students don't have the context to ask for help, one of the challenges in giving that support is that when students misbehave, schools often use disciplinary systems that involve withdrawing attention and support, rather than addressing their problems. Schools have very little patience for students who provoke and push away adults who try to help them.

Instead of suspending children, schools need to work with them on changing their behavior. When a student is acting up in class, teachers need to recognize the powerful feelings being expressed by the students. Rather than jumping right into the behavior plan – deducting points or withdrawing privileges or suspending —the importance of acknowledging the emotion and trying to identify it. For example: "I can see that you are REALLY angry that Ram took the marker you wanted."

Acknowledging and naming an emotion helps children move towards expressing it in a more appropriate way. Communicating that you "get" him is the necessary first step to helping a child learn to express himself in ways that don't alienate and drive away people who can help him.

Poor self-regulation

Traumatized children often have trouble managing strong emotions. As babies and toddlers, children learn to calm and soothe themselves by being calmed and soothed by the adults in their lives. If they haven't had that experience, because of neglect, "that lack of a soothing, secure attachment system contributes to their chronic dysregulation."

In the classroom, teachers need to support and coach these children in ways to calm themselves and manage their emotions. "We need to be partners in managing their behavior," Co-regulation comes before self-regulations. We need to help them get the control they need to change the channel when they're upset. They need coaching and practice at de-escalating when they feel overwhelmed.

Negative thinking

Another challenge to traumatized students is that they develop the belief that they're bad, and what's happened to them is their fault. This leads to the expectation that people are not going to like them or treat them well. For example "I'm a bad kid. Why would I do well in school? Bad students don't do well in school."

Traumatized students also tend to develop a "hostile attribution bias" — the idea that everyone is out to get them. "So if a teacher says, 'Sit down in your seat," they hear it as, 'SIT DOWN IN YOUR SEAT!'. "They hear it as exaggerated and angry and unfair. So they'll act out really quickly with irritability."

As it is said: "They see negative where we see neutral." To counter this negative thinking, these students a narrative about themselves that helps them understand that they are not "bad students." And learning to recognize their negative patterns of thought, like black and white thinking, is a step towards being able to change those patterns.

It should be noted that children from abusive homes are sometimes unable to participate in classroom activities because they are paralyzed by fear of making a mistake, and that can make them appear to be oppositional. "A mistake that might seem trivial to us becomes magnified, if their experience has been that minor mistakes incurred adult anger or punishment." They need not only support to have incremental successes they can build on in the classroom, but help to see that in this setting, making a mistake is considered a necessary part of learning.

Hyper vigilance

One of the classic symptoms of trauma is hyper-vigilance, which means being overly alert to danger. It is a physiological hyper-arousal, these students are jumpy, they have an exaggerated startle response. They can have some big, out-

of-control seeming behaviors, because their fight or flight response has gone off. This can look like hyperactivity, leading students who have been traumatized to be misdiagnosed with ADHD. Being chronically agitated can lead to difficulty with sleeping and chronic irritability.

Management

Teachers can be coached on how to help students to settle down when something in the classroom triggers an emotional outburst. When a child is escalating, the key, is to "match their affect, but in a controlled way."

The goal is to connect to their big feeling. "If you can connect with what they're trying to tell you, they may settle. It can work even if you just make a guess — you don't have to be right, they can correct you."

Conclusion

Traumatic experiences can be manifested in many ways, some of them have been discussed above and others include examination fear in which a student fears of appearing and facing the exam as he might fail. In this condition it is a responsibility of educators to identify such students and work on their fears. Educators can bring slight modification in their approach while dealing with such students, for example they can be taught the importance and significance of their life, their goals and aims in life and step by step they should be taught to achieve their goals and overcome their fear of failing.

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POST-TRAUMATIC GROWTH: AN UNEXPECTED OUTCOME OF TRAUMA

Farisha ATP[1] , Sakkeel KP[2]

Introduction

It is widely speculated by common brains that a trauma will have adverse and enduring impact on our mental wellness. Challenging this very idea, there arise certain instances where these traumatic incidences can have a significant positive impact in its victims rather. This mechanism of growing after trauma is defined by psychologists as post-traumatic growth.The traumatic event can be anything like a disaster, death of loved one, accidents, divorce, life threatening disease etc. Such growth usually happens with the alterations in one's own believes, attitudes and thoughts towards living and the world brought about by the particular trauma. It was not uncommon to inspect 'what is wrong in them' rather than inspecting what is right in them.

The concept of post-traumatic growth was originated from the studies among of trauma survivors by Dr Lawrence Calhoun and Dr Richard Tedeschi in 1995 who were psychologists at the University of North Carolina in Charlotte, USA. Tedeschi and Calhoun (2004) defined post-traumatic growth (PTG) as the experience of positive change that occurs as a result of the struggle with highly challenging life crisis. With the term crisis or challenging events, they meant those stressful events in life where the individuals resources fallen short to cope with. They found that instead of developing post-traumatic stress disorder after a catastrophic event, some people tend to grow. The post traumatic experiences were found to be profoundly different among people after the exposure to the adversities. According to them post-traumatic growth is a process as well as an outcome which consequently develops as a result of the struggle with the traumatic events. Generally, this growth followed by adversity is considered as the outcome model.

The term posttraumatic growth was first described in an article published in 1996 which described a measure to assess PTG. In 1989 before the origin of the term PTG, they named it as perceived benefits positive aspects and the

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transformation of trauma. They also cited that many other researchers in the field used different terms like stren conversion, positive psychological changes, perceived benefits or construing benefits, stress related growth, flourishing, positive by-products, discovery of meaning, positive emotions, thriving and positive illusions (Tedeschi and Calhoun, 2004)

When they derived the term posttraumatic growth they stick on this term because it appears like capturing the essential of the phenomenon in real sense better than any other terms. According to them, PTG is not simply a return to the baseline where they are before, rather it is an experience of improvement that for some person is deeply profound. And moreover, a clear distinction between the concept of resilience and PTG has also been described by the authors. Usually resilience is the ability to go on with life after the adversity and hardship or to continue living a purposeful life after experiencing it. It was assumed that people who are highest on this dimension of coping capacity will be more likely to report literally little growth because people having high coping capacity are less challenged by the trauma which eventually leads to fewer struggles with trauma and less possibility for PTG (Tedeschi and Calhoun, 1995)

Tedeschi and Calhoun (2004) explained the process of post-traumatic growth by describing an extensive framework emphasizing on the role of cognitive processing. Instead of a typical negative reaction to a highly stressful events, they identified some sort of positive reactions arising in the survivors which driven them to think about a growth in the resources of individuals involved in the scene.

In their articles they remind that theses challenging life events are not precursor of growth, rather it happens as an aftermath of a difficult stage of psychological distress experienced by them, which is of course a profoundly disturbing and intolerable to any individual. These distresses vary from individuals to individual in intensity, severity, duration and frequency of response. Furthermore, the expression of distress too differs ranging from sadness, disbelief, numbness, denial, etc. Moreover, the intrusive ruminating thoughts are too quite disturbing. It consequentially results in dysfunctions in physical health. Some are even at the risk of psychiatric disturbances. In fact, PTG occurs concomitantly along with the efforts to adapt to these highly stressful and challenging events.

The positive effects of the struggle with the traumatic events were studied by Tedeschi and Calhoun (1995) by reviewing the transformative power mentioned in religious works of Buddhism, Christianity, Islam and Hinduism. They found that some religion believe that these sufferings are instrumental to the purpose of the God. Even though most of them are aware of this phenomenon, much study was not conducted in this area. It was from the writings of Calhoun and Tedeschi, it came into light. Meanwhile, they reviewed studies which have concurrent findings and found that the post-traumatic growth varies depending upon the different types of trauma like college student's experience of negative events, bereavement, rheumatoid arthritis, HIV infection, cancer, bone marrow transplantation, heart attacks, coping with medical problems of children, transportation accidents, house fires, sexual assaults and sexual abuse, combat, refugee experiences and being taken hostage. Such growth is an outcome or an ongoing process rather than a coping mechanism experienced by anyone facing a trauma. The experience of the individuals whose development in some areas has surpassed what was present before the struggle with crises happened. This is not simply a return to the base-line, rather it is an improvement in at least some areas in the victim's life.

According to Tedeschi and Calhoun (2004), growth doesn't actually occur as the direct consequence of trauma rather it develops consequently as an aftermath of traumatic event which is crucial factor which determines the intensity of the growth. They used the example of earthquake as a metaphor to describe the process of PTG. In the same way as the earthquake shakes and threatens the schematic structure in the same way the traumatic incident shakes the entire perspective about the life and the world. In such circumstances people think about the benefits controllability and predictability of the world. Consequently, they will define the world the life the relationship in new terms. Even there may be changes in the purpose and meaning of the existence in this world. Unknowingly cognitive restructuring is happening in one self. According to them these changes are not only the intellectual reflections, in addition the growth happens eventually because of the affective components as well. They will try to make meaning out of the trauma. The person will start to love the new life which helps them to adapt with the new life in a positive way. This is actually a positive change which supports them to get along with the negative circumstances in and around their life.

general, change in the priorities, increased sense of personal strengths, and richer existential and spiritual life. A model of PTG proposed by Tedeschi and Calhoun (2004) is added below.

Figure 1: A Model of Posttraumatic Growth
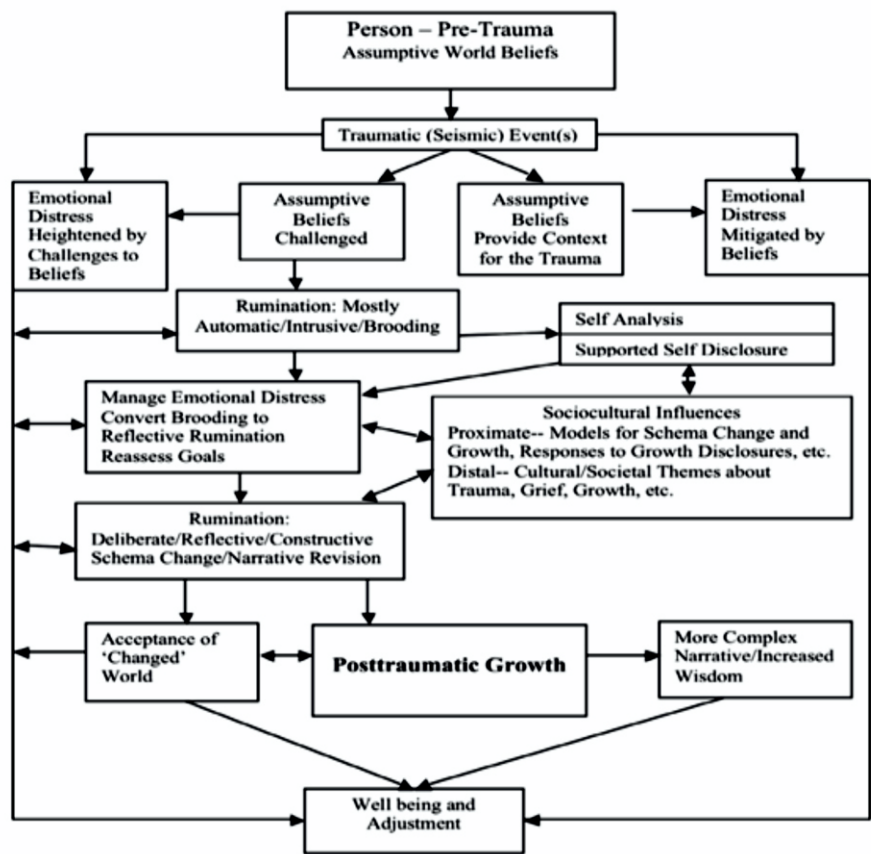
Figure 1 adapted from Tedeschi and Calhoun (2004)

From a number of studies conducted, post traumatic growth inventory has been developed by Tedeschi and Calhoun in 1996 to measure the five dimensions of PTG. The 21 items were developed out of the review conducted in response to the studies related to highly stressful events and from the interviews with person who experienced spouse loss, physical disabilities, and other major crisis in life.

After the works of Tedeschi and Calhoun, numerous studies came in line with their findings, few of the recent studies are cited here. It was found by those researchers that there is a plethora of factors like resilience, social support, wellbeing etc which correlates with PTG.

The association between the social support and PTG was the subject of investigation of Sorensen, Rzeszutek and Gasik (2019). In particular, they authenticated the mediating role of one's resources on the aforesaid relationship. A sum of 207 arthritis patients were subjected to inquiry for this cross-sectional study and the authors came up with captivating findings that provided support rather than receiving support has a positive correlation with the growth after the trauma (PTG). Moreover, the extent of spiritual resources mediated the aforementioned association.

Another similar study was conducted among breast cancer survivors in China by Li, Qiao, Luan, Li and Wang (2019). They studied on the psychological wellbeing and family resilience among the survivors and the caregivers. The direct and the indirect relationships between the aforementioned variables have been examined by the researchers. A number of 108 breast cancer survivors and caregivers attended the cross-sectional study and found that family resilience had both direct and indirect effect on their quality of life and caregiver burden. Furthermore, the survivor's level of PTG was related positively with their quality of life which in turn related negatively with the caregiver burden. The study provided comprehensive information on how the family resilience contributed to PTG and quality of life of survivors, and the burden on the caregivers.

A qualitative work on post traumatic growth was carried out by Keagy (2019) among multiple body modified adults based on their narratives. Among the five dimensions, the mostly reflected growth was in the sense of personal strength than the new paths, appreciation, spirituality and relationships. Behavioral as well as functional correlates of post traumatic growth succeeded by traumatic brain injury were the topic of investigation of Pais-Grit, Wong, Gould and Ponsford (2019). They found that the participants after traumatic brain injury shown a positive indicator in the care towards the family and friends and appreciation of life.

Predictors of posttraumatic growth in stroke survivors have been studied by Kelly, Morris and Shetty (2018). It was a longitudinal study which is done within 14 months after the stroke. In this study 43 stock survivors participated and were examined two times six months apart. The researchers found that the participants experienced post traumatic growth even four to five months after the stroke which increased significantly over the next 6 months. They also found that it is more applicable to adolescents and adults when compared to children, since they have the capacity to change with the changing situations. That is changes are on the schemas that had previously in the wake of trauma. in contrast, we can also expect that younger people are more subject to post traumatic growth when compared to old because they are more open to learning and change than the old.

The role of self in PTG among patients with serious mental illness was explored through in-depth interviews by Wang, Lee and Yates (2019). They worked on the effect of intersection trauma, serious illness and PTG and found that traumatic experienced consequentially compromised the victim's self-functioning, resulting in the issues such as emotional dysregulation, self-distortion, relationship difficulties, meaninglessness and fear of existence, which sequel in reduced mental health. Meanwhile, patients who have been diagnosed with serious mental illness were able to achieve PTG through the transformed self-developed in the course of self-exploration, self-acceptance, self-worth and self-fulfilment. The study highlighted the importance of addressing the trauma histories of mental health patients for preventing re-traumatization and to develop trauma informed programs, so that the mental health professionals can utilized the client's inner resources and strength in enhancing the PTG.

Another study which goes in line with this research was done by Kimron, Marai, Lorber and Cohen (2019). They studied on the long-term effects of early life trauma on psychological, physical and physiological health among the elderly holocaust survivors. A matched comparison group study was conducted to explore the post-traumatic stress symptoms, PTG and heart rate variability among the survivors and their mediating effect as well. When the participants with and without the holocaust experience have been compared, holocaust survivors were reported to be having higher level of post-traumatic stress symptoms, PTG and better heart variability than the non-experienced group.

It was found that PTG varies with the type of crisis they experienced. The verification to this assumption is evident in study conducted by Tian and Solomon (2019). Post traumatic growth following miscarriage was the topic of examination done among 298 women. As the authors predicted the result took the line that moderate level of grief followed by miscarriage was associated with PTG among bereaved mothers which is mediated by meaning reconstruction and partner supportive communication.

Till this point we were discussing about our own crisis affected the PTG. But there are some conditions in our life when an individual grows after the crisis experienced by the beloved ones. For example, one such circumstance is when parents experience PTG when their children are severely ill. It was a longitudinal study by Rodriguez-Rey and Alonso-Tapia (2018) where they studied the degree of parent's PTG after a child's hospitalization in Pediatric Intensive Care Unit, and the role of emotions, resilience, the perceived severity of child's condition and the stress. The parent's stress, resilience and perceived severity of the child's condition were assessed in the first 48hours after their child's discharge from PICU. Six months later after the discharge they were assessed again and reported to have a moderate PTG. They reported that PTG was effected by the resilience indirectly and hence psychological interventions capable of enhancing parental PTG after their child's critical condition should focus on boosting the positive emotions and the resilience.

Similarly, PTG of mothers with premature school aged children was studied by Cook and Wilson (2018). A qualitative study with 9 mothers whose children were born prior to 28 weeks and right now with 4-6 years were conducted. The findings of the study revealed that the parents experience a state of anxiety due to the concern regarding caring the child and the isolation they experienced because of the fear of infection. The researchers found that the women's vulnerability and the resilience are more apparent after the birth of a premature infant.

Such indirect sources of PTG experience was extensively studied by a group of researchers (Prioleau et al, 2018) after the East Japan earthquake in 2011. The authors explored the medical student's reactions to disaster and the subsequent effect on their motivation and PTG as they are the group who are involved in the post disaster emergency during that particular time. The results indicated that being exposed to stressful disaster circumstances created possibilities for

positive personal growth and reinforcement among medical students for their professional development.

As post traumatic growth was found as a self-help outcome of crisis, researchers began to focus on the psychological interventions to improve PTG. Many researchers carried out studies to identify the effectiveness of different mode of psychotherapies to facilitate PTG, and few of them are quoted here. Hamidian, Rezaee, Shakiba and Navidian (2019) conducted study to identify the effectiveness of cognitive emotional training in facilitating PTG among the women diagnosed with breast cancer in the Middle East. Around 85 cancer patients participated in the quasi experimental study where the experimental group received 5 sessions of the therapy. The study concluded with the findings that cognitive behavioral intervention had significant positive impact on PTG among breast cancer patients.

Likewise, Warmoth, et al (2019) examined the benefits of psychosocial intervention on PTG among breast cancer survivors in China. The authors inspected whether the Joy Luck Academy, a psychosocial intervention in which both information and peer support was provided is associated with positive adjustment among study participants. This study among 39 survivors found that there is an improvement in the positive affect, and there is a significant positive change in the appreciation for life. The intervention in general helped them to have a positive change after the recovery from the symptoms where they reported enhancement in psychological health.

Hyun, Bae and Ha (2018) tried a quite different approach to enhance PTG. A positive psychological intervention - forgiveness writing therapy was allowed to practice among the survivors of sexual abuse and examined its effectiveness among victims. The study emphasized on the factors like shame, depressive symptoms and PTG. Four writing sessions of forgiveness therapy was given for the experimental group during which they wrote about self-forgiveness and situational forgiveness for around thirty minutes. The comparative findings of the control group and experimental group revealed that the forgiveness therapy reduced shame and depression, where as it increased PTG among the sexual abuse victims.

These empirical evidences reveal that benefitting from the adversity is literally a boon to the mankind depending upon how we perceive the catastrophic event. Post-traumatic growth is an unexpected result and even unconscious change in

the survivors which they don't anticipate during the sufferings. Sometimes even the crisis experienced by others too develops this growth, which is somewhat like a passive smoking, sequel in a positive outcome. Hence, as some religion insists crisis or negative circumstances can be perceived as something which benefit us in some or the other ways, hoping for the best to happen in our life.

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GLYCOLYTIC ENZYME GLYCERALDEHYDE-3PHOSPHATE DEHYDROGENASE (GAPDH) AND NEUROLOGICAL DISORDERS

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Abstract

Glyceraldehyde 3-phosphate dehydrogenase (abbreviated as **GAPDH** or less commonly as GAPDH) (EC1.2.1.12) is an enzyme of ~37kDa that catalyses the sixth step of glycolysis and thus serves to break down glucose for energy and carbon molecules. GAPDH initially identified as a glycolytic enzyme and considered as a housekeeping gene, is widely used as an internal control in experiments on proteins, mRNA, and DNA. GAPDH is encoded by a single gene on human chromosome 12 that gives rise to an individual mRNA transcript with no known splice variants. GAPDH is tightly regulated at transcriptional and posttranscriptional levels, which are involved in the regulation of diverse GAPDH functions. Several factors such as insulin, hypoxia inducible factor-1 (HIF-1), p53, nitric oxide (NO), and acetylated histone, not only modulate *GAPDH* gene expression but also affect protein functions via common pathways. Oxidoreductase GAPDH has become a subject of interest as studied revealed a surfeit of diverse GAPDH functions depending on its post-translational modifications (PTMs), extending beyond traditional aerobic metabolism of glucose. As a result of multiple isoforms, cellular locales and diverse functions, GAPDH is able to come in contact with a variety of small molecules, proteins, membranes, etc., that play important roles in normal and pathologic cell function. Specially, GAPDH has been implicated in several neurodegenerative diseases and disorders, largely through interactions with other proteins specific to that disease or disorder. For example, GAPDH interactions with beta-amyloid precursor protein (beta APP) could interfere with its function regarding the cytoskeleton or membrane transport

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and can cause Alzheimer disease (AD), while interactions with Huntington could interfere with its function regarding apoptosis, nuclear tRNA transport, DNA replication and DNA repair In addition, nuclear translocation of GAPDH has been reported in Parkinson's disease (PD), and several anti-apoptotic PD drugs, such as rasagiline, function by preventing the nuclear translocation of GAPDH. In this review, recent findings related to GAPDH and Neurological disorder are summarized.

Introduction

Glyceraldehyde-3-phosphate dehydrogenase (GAPDH) is a glycolytic enzyme that is responsible for the sixth step of glycolysis. In addition to this metabolic function, GAPDH is now recognized as a multifunctional protein that exhibits other functions, including DNA repair, transcriptional and posttranscriptional gene regulation, intracellular membrane trafficking, and cell death. In GAPDH mediated cell death pathway, the involvement of GAPDH in nuclear translocation and its aggregation under oxidative stress have been proposed. The active-site cysteine (Cys-152) seems to play a crucial role in both pathways. For example, GAPDH binds to Siah (seven in absentia homolog) through oxidation/S-nitrosylation of Cys-152 and translocate into the nucleus in response to oxidative stress, such as that from nitric oxide(NO). Nuclear GAPDH activates p300/CREB (cAMP-response element-binding protein)-binding protein (CBP) and poly(ADP-ribose)polymerase-1. Additionally, oxidative stress or initiate amyloid- like GAPDH aggregation via intermolecular disulphide bond sat Cys-152.

The accumulation of unfolded proteins can cause protein aggregation in the aged brain, and these aggregates facilitate the formation of pathological amyloid deposits, which is a key cause of several neurodegenerative /neuropsychiatric disorders.

1. GAPDH and Alzheimer disease (AD)

Alzheimer disease (AD) is a progressive neurodegenerative disorder characterized by loss of neurons and formation of pathological extracellular deposits induced by amyloid-β peptide (Aβ). Numerous studies have established Aβ amyloid genesis as a hallmark of AD pathogenesis, particularly with respect to mitochondrial dysfunction. Some scientist have proven that glycolytic glyceraldehyde-3-phosphate dehydrogenase (GAPDH) forms amyloid-like aggregates upon exposure to oxidative stress, and these

aggregates contribute to neuronal cell death. Aggregated GAPDH in the brain is also amyloid genic, and GAPDH amyloidal aggregates localize with Lowy bodies in Parkinson's disease and with senile plaques and neurofibrillary tangles in Alzheimer's disease.

It has been posited that abnormal protein aggregation leads to mitochondrial dysfunction, proteasome inhibition, endoplasmic reticulum (ER) stress, and autophagy, which ultimately cause cell death. Notably, 5–20% of the total GAPDH under physiological conditions is generally bound to the mitochondria. Further, treatment of isolated mitochondria with GAPDH directly caused their dysfunction through the activation of voltage-dependent anion channels, which are known components of the mitochondrial permeability transition pore (PTP . PTP opening leads to mitochondrial depolarization and the release of cell death mediators from the intermembrane space, such as cytochromes (cytc) and apoptosis-inducing factor (AIF). From these observations, we focused on mitochondria to elucidate the neuronal cell death pathway that is mediated by GAPDH aggregation.

2. GAPDH and Huntington's disease

Huntington's disease (HD), is an autosomal, dominantly inherited, progressive neurodegenerative disease caused by CAG-trinucleotide repeat expansion (coding for a polyglutamine, polyQ, stretch) in the first exon of the gene IT15, which encodes a large (~350 kDa) protein called huntingtin and mutation in this gene leads to the production of an expanded polyglutamine stretch in the encoded protein, affecting ~5–10 per 100,000 people in the Western world. Mutant protein, huntingtin, likely affects a wide range of cellular pathways and functions by abnormally interacting with a variety of proteins and intracellular organelles, thus contributing to the pathology underlying HD. Patients affected by HD usually carry more than 35 repeats in their mutant huntingtin as compared to 16–20 repeats in the normal population.

After 10–20 years of onset of this disease, HD patients die due to complications from the disease. Although the mutation in the huntingtin gene was identified more than 20 years ago only symptomatic managementis currently available to treat the disease. Thus, it is important to identify the molecular mechanisms leading to the pathology associated with mutant huntingtin in HD and develop therapeutics targeting them. Mitochondrial dysfunction has been implicated in the pathology of HD because neurons, with high-energy demands, are

dependent on mitochondria as a source of energy production to maintain their functions.

The dynamin family of GTPases (guanosine triphosphatases) regulate the constantly repeated process of fission and fusion due to which mitochondria actively move from the neuronal soma to the axon and dendrites. The mitochondria fission and fusion collectively referred to as dynamics, are significantly disturbed and imbalanced in HD leading to accumulation of fragmented and damaged mitochondria which ultimately leads to oxidative stress in cells. The cycle of fusion and fission is very closely coordinated with mitochondrial autophagy or mitophagy, a process of selective elimination of damaged mitochondria by autophagic machinery. Abnormalities at different phases of mitophagy in HD and in other neurodegenerative diseases have been proposed to contribute to disease progression through unknown mechanisms.

A new form of micro-mitophagy in which GAPDH associates with damaged mitochondria under oxidative stress induced by ischemia–reperfusion injury in hearts and promotes direct uptake of damaged mitochondria into the lysosomal structure that is composed of hybrid organelles of lysosomes and late endosomes, has been identified by one of the groups. This process of micro-mitophagy occurs independently of the catalytic/metabolic activity of GAPDH. In their study they sought to explore whether and how this GAPDH-driven mitophagy is regulated in HD. GAPDH is identified as one such protein which interacts with/affected by mutant huntingtin. It is reported that expression of mutant huntingtin with expanded polyglutamine repeats negatively regulates GAPDH-driven mitophagy thus contributing to HD-associated pathology. HD associated pathology leading to accumulation of damaged mitochondria and inhibition of their removal by mitophagy suggests that it may also occur in other neurodegenerative diseases. Why macro-autophagy does not compensate for the impaired micro-autophagy it is still unclear. Whether GAPDH-mediated mitophagy is deployed together with a macro-autophagic pathway to remove damaged mitochondria and whether both pathways are impaired or inhibited with expression of mutant huntingtin with expanded polyglutamine repeats in HD are also unclear. GAPDH mediated mitophagy may also be incorporated into CMA, as Oxidized GAPDH is also a substrate of chaperone-mediated autophagy (CMA) but this process still remains to be elucidated. Thus, a better understanding of its mechanism

will help with the elimination of damaged mitochondria that will allow us to prevent or slow down the disease progression. Under oxidative stress caused by expression of mutant huntingtin, GAPDH translocate to damaged mitochondria, which is an initial step toward cytoprotective mitophagy. GAPDH at the outer mitochondrial membrane selectively associates with mutant huntingtin with expanded polyglutamine repeats, thereby blocking GAPDH mediated clearance of the damaged mitochondria by lysosomes. By over expressing catalytically inactive GAPDH (iGAPDH), this mutant huntingtin-induced impairment of mitophagy can be corrected; iGAPDH enhanced the blunted mitophagy and resulted in improved mitochondrial function and cell survival in cells expressing expanded polyglutamine repeats.

Micro-mitophagy provides a potential therapeutic approach to treat HD and maybe other neurodegenerative diseases as these data reflect a critical role of GAPDH-driven mitophagy in HD. But because of the complexity of the disease, a comprehensive treatment must also include a selective inhibitor of mitochondrial fission protein (Drp1) and a pharmacological activator of the macro-autophagic pathway such as mTOR-inhibiting drug rapamycin may provide the greatest therapeutic potential. Also, some of the work shows that some DNA aptamers which bound to the elongated polyglutamine stretch of huntingtin with high affinity inhibited the aggregation of the protein in vitro. These aptamers succeeded in decreasing membrane permeabilization with concomitant reduction in intracellular oxidative stress. They were also able to inhibit sequestration of an essential cellular enzyme, viz. GAPDH. Hence aptamers seem to be logical tool to slow down the progress of the disease by inhibiting the primary aggregation step.

3.   GAPDH and Parkinson's disease (PD)

Parkinson's disease (PD) is a progressive age-related neurodegenerative disorder with a prevalence of ~1% in people over 60years of age. Pathologically it is characterized by the l together with the presence of proteinaceous cytoplasmic inclusions. The majority of PD cases are apparently sporadic, while approximately 5–10% of the patients present an autosomal dominant or recessive mode of inheritance. The etiology of sporadic PD is complex and multifactorial, involving aging, genetic and environmental risk factors. Over the years, candidate gene association studies have been extensively employed to identify loci where common variants contribute to the risk of PD. Most

identified through genome-wide association studies (GWAS). It has been found that GAPDH and glycosaminoglycans (GAGs) are associated with α-SN amyloid aggregates in Parkinson disease. GAPDH has been seen to co-localize with α-SN in amyloid aggregates in post-mortem tissue of patients with sporadic Parkinson disease and promotes the formation of Lewy body-like inclusions in cell culture. Some recent data suggests that GADPH also possesses highly diverse non-glycolitic functions in the intra or extracellular space and has also been related to neurodegenerative diseases. GAPDH has a protective effect on late-onset Alzheimer disease which has been suggested by genomic analysis. If not all but GAGs are present in most types of amyloids inside and outside of the cells. Protein aggregation kinetics is affected by GAGs, which is proved in vivo. It has been reported recently that sulfated GAGs, like heparin and heparansulfates, are able to trigger GAPDH amyloid aggregation under pH and temperature physiological conditions. The GAPDH species induced by heparin formed during the early stages of the aggregation process (HI-GAPDH$_{ESS}$) are able to accelerate α-SN aggregation with a higher efficiency. The interaction among GAGs, GAPDH, and α-SN exerts a protective role on dopaminergic cell survival.

GAPDH is critically involved in many other cellular processes including neurodegeneration apart from cellular energy metabolism. GAPDH protein plays an important role in dopaminergic neuronal apoptosis. GAPDH co-aggregates with α-synuclein which is the primary component of Lewy inclusion, which is confirmed from studies done on both cell models and post mortem brain tissues from sporadic PD. Abnormal aggregation and nuclear translocation of GAPDH protein were consistently observed in several in vitro apoptotic models induced by various neurotoxins including MPP, 6-OHDA and rotenone. Furthermore, once the GAPDH were knock-downed, reduced cytotoxicity of these neurotoxins on dopaminergic cells were seen importantly, a recent in-vitro study in SHY-SY5Y showed that substitution of cysteine for serine-284 of human GAPDH led to aggregate prone GAPDH, which resulted in greater oxidative stress linked cell death than expression of wild type-GAPDH. These findings suggest consistently that alteration in GAPDH function derived from genetic variation might be implicated in the pathogenesis of PD.

GAPDH is identified as a novel autoantigen that is expressed in neuronal cells at the plasma membrane level and is recognized by serum autoantibodies from

patients affected with neurodegenerative disorder. Serum IgGimmuno-reactivity to GAPDH was found in a high percentage of patients with major depression as compared to unaffected control individuals or patients with bipolar disorder. Autoantibodies against GAPDH were also found in both the CSF and serum from patients with neuropsychiatric manifestations, suggesting that these antibodies, generated in the periphery, penetrate the CNS from the peripheral blood across the altered blood–brain barrier and bind to cell surfaces, possibly interfering with neuronal functions. GAPDH also has an important role in neurite outgrowth which suggested that anti-GAPDH antibodies, when acting to block the binding of the molecule to laminin and/or to other adhesion and synaptic molecules in the CNS, may alter neuronal plasticity. In vivo administration of anti-GAPDH antibodies in C57BL6/J mice resulted in behavioral changes associated with a detrimental cognitive and emotional profile.

Current status

It is also investigated that the neuroprotective actions of deprenyl and TCH346 reflect their preventing GAPDH Siah binding and the nuclear translocation of GAPDH. It appears that the initial action of the drugs is to bind to GAPDH, as it is directly demonstrated binding of TCH346 to GAPDH. Such binding would inhibit S-nitrosylation of GAPDH and its binding to Siah. Recently it is observed that rasagiline, a monoamine oxidase inhibitor used in the therapy of PD, is also neuroprotective in multiple animal models and prevents the nuclear translocation of GAPDH. Although the principal focus for the therapeutic actions of deprenyl has been PD, deprenyl and related drugs might be useful in other neuronal conditions as well as non-nervous system conditions, because the GAPDH Siah cascade appears fairly universal. Thus a wide range of stressors in diverse cell lines elicits nuclear translocation of GAPDH with antisense to GAPDH preventing nuclear translocation and cell death. The most investigated GAPDH systems involve apoptotic death. Whether GAPDH plays a role in necrosis or in non-apoptotic programmed cell death is unclear. In addition to the therapeutic relevance, evidences supported cytoprotective actions of drugs involve blockade of the GAPDH Siah system provides support for the concept that the GAPDHSiah signalling cascade is an important component of cell death.

GAPDH is a redox-sensitive protein whose activity is largely affected by oxidative modifications at its highly reactive cysteine residue in the enzyme's

active site (Cys149). Prolonged exposure to oxidative stress may cause, inter alia, the formation of intermolecular disulfide bonds leading to accumulation of GAPDH aggregates and ultimately to cell death.

Using the model of oxidative stress based on SK-N-SH human neuroblastoma cells treated with hydrogen peroxide it is observed that down- or up-regulation of GAPDH content caused inhibition or enhancement of the protein aggregation and respectively reduced or increased the level of cell death..The ability of the compounds to bind GAPDH molecules was proved by the drug affinity responsive target stability assay, molecular docking and differential scanning calorimetry. Results of experiments with SK-N-SH human neuroblastoma treated with hydrogen peroxide showed that two substances, RX409 and RX426, lowered the degree of GAPDH aggregation and reduced cell death by 30%. Oxidative injury was emulated in vivo by injecting of malonic acid into the rat brain, and it was showed that the treatment with RX409 or RX426 inhibited GAPDH-mediated aggregation in the brain, reduced areas of the injury as proved by magnetic resonance imaging, and augmented the behavioral status of the rats as established by the "beam walking" test. In conclusion, the data show that two GAPDH binders could be therapeutically relevant in the treatment of injuries stemming from hard oxidative stress.

Novel evidences indicate that low molecular compounds may be effective inhibitors potentially preventing the GAPDH translocation to the nucleus, and inhibiting or slowing down its aggregation and oligomerization. Naturally occurring compound, piceatannol, to interact with GAPDH and to reveal its effect on functional properties and selected parameters of the dehydrogenase structure. The obtained data revealed that piceatannol binds to GAPDH. The ITC analysis indicated that one molecule of the tetrameric enzyme may bind up to 8 molecules of polyphenol (7.3 ± 0.9). Potential binding sites of piceatannol to the GAPDH molecule were analyzed using the Ligand Fit algorithm. Conducted analysis detected 11 ligand binding positions. It is indicated that piceatannol decreases GAPDH activity. Detailed analysis presume that this effect is due to piceatannol ability to assemble a covalent binding with nucleophiliccysteine residue (Cys149) which is directly involved in the catalytic reaction. Thus it is demonstrated that by binding with GAPDH piceatannol blocks cysteine residue and counteracts its oxidative modifications that induce oligomerization and GAPDH aggregation. Recently these anomalies have been linked with the pathogenesis of Alzheimer's disease.

Future Directions

GAPDH has become a subject of interest as studied revealed a surfeit of diverse GAPDH functions. As a result of multiple isoforms, cellular locales and diverse functions, GAPDH is able to come in contact with a variety of small molecules, proteins, membranes, etc., that play important roles in normal and pathologic cell function. Specially, GAPDH has been implicated in several neurodegenerative diseases and disorders, largely through interactions with other proteins specific to that disease or disorder. Various cell culture models have conclusively demonstrated that initiation of apoptosis by a variety of ways involves an increase in the nuclear expression of GAPDH. This increased nuclear expression is dependent on the synthesis of new GAPDH protein. Whereas some GAPDH translocation from the cytosol may occur, this appears to be on a small scale and results in the activation of GAPDH transcription. This new GAPDH protein appears to have novel characteristics and is nuclear targeted. This nuclear-targeted GAPDH then regulates transcription to initiate PCD cascades. There is now accumulating evidence that these observations may have relevance to human neurodegenerative conditions. As such, recent reports have shown increased nuclear GAPDH associated with susceptible neurons in post-mortem samples from patients with a variety of neurodegenerative conditions. Small-molecule compounds with demonstrated anti-apoptotic activity that selectively interact with GAPDH have been identified. These compounds have also been shown to prevent the increase in nuclear GAPDH associated with the cell culture models in which they show anti-apoptotic activity. It is proposed that this effect is the result of binding to GAPDH, preventing the subsequent increase in GAPDH synthesis and nuclear accumulation. One of these compounds, CGP 3466, is currently undergoing Phase II clinical trials as a disease-modifying agent for Parkinson's disease, while others are in development. Thus, GAPDH may be used as an important therapeutic target in many neurological disorders like Parkinson disease, Alzheimer disease and Huntington's disease etc.

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hours, coping strategies and occupational stress among IT professionals and to determine if these factors would predict occupational stress.

Hypotheses

H1 – There will be no significant relationship between occupational stress of IT professionals and their age, monthly income, work experience, distance travelled to work, working hours, problem focused coping strategy, emotion focused coping strategy and avoidant focused coping strategy.

H2 –Age, monthly income, work experience, distance travelled to work, working hours, problem focused coping, emotion focused coping and avoidant focused coping will not significantly contribute to occupational stress of IT professionals.

Method

The study was ex post-facto in nature, and cross-sectional design was used. Purposive sampling technique was adopted to draw the sample for the study.

Participants

The sample comprised of 385 IT professionals from Chennai City, 215 men (62%) and 170 women (38%). The IT professionals were between 21 to 35 years of age.

Assessment Tools Used

Occupational stress was measured using the Occupational Stress Index developed by Srivastava and Singh (1984). The scale consists of 46 items, categorized into 12 dimensions. However, for the purpose of this study, the overall occupational stress score has been considered. The first 28 items of the scale are 'true-keyed' and the last 18 are 'false-keyed'. The items are measured with a 5-point Likert scale, ranging from 'strongly disagree' to 'strongly agree' for true-keyed items and from 'strongly agree' to 'strongly disagree' for false-keyed items. The total occupational stress score was computed by summing across the items. High scores were indicative of high levels of occupational stress. The occupational stress index has a coefficient alpha reliability of 0.94, as calculated by the author to determine the reliability of the scale. The scale also possessed good validity.

Coping was measured using the Brief COPE Inventory, developed by Carver

(1997). It contains 28 'true-keyed' items and is rated by the four-point likert scale, ranging from "I haven't been doing this at all" (score one) to "I have been doing this a lot" (score four). The higher score represents greater coping strategies. For the purpose of this study, the items have been categorized into three dimensions viz. problem focused coping, emotion focused coping and avoidant focused coping. Yusoff, Low & Yip (2010) established the reliability and validity of the scale. The scale reported internal consistency, achieving Cronbach's alpha ranging from 0.25 to 1.00.

Procedure

Data was collected after seeking consent with the concerned authorities of the organizations, and the availability of the IT professionals. A particular time was set aside for all the IT professionals to respond to the questionnaires. Strict confidentiality of responses was assured after the purpose of the study was revealed. The IT professionals were instructed not to discuss the items or to collaborate.

Data analysis

Pearson's Co-efficient Correlation was conducted to assess the significance of the relationships among the variables of the study. Regression analysis was conducted to determine the predictors of occupational stress. Percentage analysis was used to determine the level of stress and the level of coping strategies adopted by the sample.

Findings and Discussion

Relationship between the selected independent variables and occupational stress in IT professionals

Table 1: Correlation between the independent variables and occupational stress

Sl. No.	Independent Variables	Occupational stress(r value)
1	Age	0.53 **
2	Monthly income	-0.34 **
3	Work experience	-0.38 **
4	Distance travelled to work	0.62 **
5	Working hours	0.35 **
6	Problem focused coping strategy	-0.41 **
7	Emotion focused coping strategy	-0.44 **
8	Avoidant focused coping strategy	0.39 **

** $p < 0.01$

The above table reveals that there is a significant relationship between all the chosen independent variables with occupational stress in the IT professionals. It is observed that age, distance travelled to work, working hours and avoidant focused coping strategy are positively related to occupational stress. This implies that an increase in the levels of these factors increases the occupational stress levels in the IT professionals. It is also observed that monthly income, work experience, problem focused coping strategy and emotion focused coping strategy are negatively related to occupational stress. This implies that an increase in the levels of these factors reduces occupational stress in the IT professionals. Thus, the hypothesis that states that there will not be any significant relationship between the chosen independent variables of the study with occupational stress has been rejected.

Factors contributing to occupational stress in IT professionals
Table 2: Multiple regression analysis – Predictors of occupational stress in IT professionals

Sl. No.	Independent Variables	Regression Coefficients	t-value
1	Age	0.31	5.03 **
2	Monthly income	0.45	8.31 **
3	Work experience	0.23	3.06 **
4	Distance travelled to work	0.14	2.54 **
5	Working hours	0.41	7.29 **
6	Problem focused coping	0.39	6.23 **
7	Emotion focused coping	0.28	3.47 **
8	Avoidant focused coping	0.19	3.01 **
	R value	0.83	
	R² value	0.79	
	F value	41.03 **	

** $p < 0.01$

The above table shows the ANOVA for multiple regression analysis. The model was significant and the F ratio indicates that, all the variables together contributed significantly to occupational stress in IT professionals. The Rvalue of 0.83 indicates that the overall relationship between the predictors and

occupational stress was strong. Further, the R^2 value revealed that the chosen variables were significant predictors of occupational stress, as the goodness of fit was high, where $R^2 = 0.79$ indicated that the model accounted for 79 percent of all the variance in occupational stress. Hence, the hypothesis that states that the chosen independent variables of the study will not contribute to the occupational stress of IT professionals has been rejected.

The results have been consistent with the findings by Janani (2016) wherein age, monthly income, experience, distance travelled and working hours predicted occupational stress among IT professionals. A study by Sumangala (2009) and Ravicandran& Yadav (2016) showed that age influenced occupational stress. Darshan, Raman, Rao &Anniqeri (2013) and Bolhariet. al. (2012) reported an influence of age and work experience on occupational stress. Results of studies showed that coping strategies had an influence on occupational stress (Zhou & Gong, 2013 and Lu et.al., 2015). Income, work experience and working hours had an influence on occupational stress, as per results of study by Babu& Balakrishna (2017).

The stress level of the IT professionals was measured based on their responses to the occupational stress scale. The level of stress was classified as low, medium and high, based on the mean and standard deviation scores.
Low Stress   : Mean – SD (3.045 – 0.254 = 2.791)
Medium Stress   : Between 2.791 & 3.299
High Stress   : Mean + SD (3.045 + 0.254 = 3.299)

Table 3: Level of stress among the IT professionals

Sl. No.	Category	Range	No. of respondents	Percentage	Mean Score
1	Low	≤ 2.791	115	0.30	3.19
2	Medium	Between 2.791 & 3.299	129	0.34	3.55
3	High	≥ 3.299	141	0.37	4.03

Table 3 indicates that 30% of the respondents experienced low stress, while 34% of them experienced medium levels of stress and 37% of the respondents experienced high stress levels. The highest mean score of 4.03 indicates an alarming number of respondents experiencing high levels of stress.

The results have been consistent with the findings by Dhar & Dhar (2010), Rao &Chandriah (2012), Babu, Mahapatra &Detels(2013), Darshan, Raman, Rao &Anniqeri (2013) and Thirumaleswari (2013) wherein their study showed that IT professionals are facing a huge amount of work stress. However, the study by Sumangala (2009) reported moderate stress levels experienced by IT professionals.

Table 4: Level of coping strategies adopted by the IT professionals

Sl. No.	Coping Strategy	Men	Women
1	Problem focused coping	32%	34%
2	Emotion focused coping	30%	36%
3	Avoidant focused coping	38%	30%

The above table shows that the IT professionals used all the coping strategies. However, men used avoidant strategies (denial, self-blame, and alcohol or substance use) more than problem focused (active coping, planning, use of instrumental support) or emotion focused (emotional support, venting, positive reframing, humour and acceptance) strategies. Women used emotion focusedstrategies more than problem focused or avoidant focused strategies. This falls in line with the study by Al-Dubai (2011) where men used more avoidant coping than women, however, among a sample of medical students. Study by Sumangala (2009) reported high usage of avoidant coping strategies by the IT professionals, however, the result was for the overall sample and not gender categorized.

Conclusion

The effects of occupational stress could be a serious threat for the IT industry. If the causes of stress are not dealt with, it may lead to high absenteeism and high attrition, as these professionals experience many negative psychological consequences. Employees were found to use all the coping strategies; they had their own ways to cope with their stress. However, men used more avoidant strategies than problem focused and emotion focused strategies. Women on the other hand, used more of emotion focused strategies than problem focused or avoidant strategies. Incorporating time management in their daily routines, yoga practice, adequate diet and relaxation could help employees in coping with the stressors. Organizations could providepreventive strategies like stress

management trainings, frequent screening to identify professional stress, flexible work timings, counseling or recreational activities and conduct employee recognition programs to help their employees cope with the demands of the organization, maintain a balance between work and home life by supporting their physical and mental well-being.

Implications of the study

The number of people working in IT sector is increasing drastically year by year, in comparison to other fields. The aim of the study is to identify the predictors causing the stress in IT professionals, as identifying the root cause of problems could help in eradicating or managing the problems. This in turn could be helpful in developing solutions like relaxation techniques, stress management programs, emotional intelligence training programs and work life balance trainings to manage the stressors and balance work and life in better ways. In a developing country like India and in this globalized economy, this kind of study plays a vital role.

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CHILDHOOD TRAUMA: SCARS THAT WON'T HEAL

Madeeha Zaidi[1]

Introduction

According to the National Institute of Mental Health, childhood trauma is defined as: "The experience of an event by a child that is emotionally painful or distressful, which often results in lasting mental and physical effects."

Trauma that results in lasting emotional damage is categorised as Post-Traumatic Stress Disorder (PTSD). The Diagnostic and Statistical Manual of Mental Disorders, fourth edition (DSM-4) defines PTSD as the development of characteristics symptoms following a traumatic event. These responses must involve intense fear, helplessness, or horror, and in children, the response must involve agitated or disorganized behaviour.

Some Leading Causes:

Trauma is defined by the way a person reacts to events. So, a trauma to one person may not be a trauma to another. Any time a child does not feel safe and protected, the event could be seen as a trauma.

The most common causes of Childhood Trauma listed by Illinois Department of Human Services are:

- Accidents

- Bullying/Cyberbullying

- Chaos or dysfunction in the house

- Death of a loved one

- Emotional abuse or neglect

- Physical abuse or neglect

- Separation from a parent or caregiver

- Sexual abuse

- Stress caused by poverty

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- Sudden and/or serious medical condition

- Violence (at home, at school or in the surrounding community)

- War/terrorist

How Childhood Trauma Affects the Brain : According to data provided by the Children's Bureau of the United States Department of Health and Human Services, there was a 3.8 percent increase in reported child abuse cases in the country between 2011 and 2015. This amounts to 683,000 cases of child abuse in 2015 alone in the U.S.

Research suggests that this type of trauma in childhood leaves deep marks, giving rise to issues including post-traumatic stress disorder, depression, anxiety, and substance abuse.

Dr. Pierre-Eric Lutz and colleagues noted that in adults who went through severe abuse as children, the neural connections in an area of the brain associated with the regulation of emotion, attention, and various other cognitive processes are critically impaired. The researchers' findings were published recently in *The American Journal of Psychiatry*.

White matter affected after childhood abuse
Previous research has pointed out those individuals who experienced neglect and abuse as children have decreased volumes of white matter in various areas of the brain. White matter consists in myelinated axons, which are the projections of nerve cells allowing electric impulses to "travel" around and carry information, while myelin is the isolating "coating" in which these tracts are sheathed. Myelin helps these electrical impulses to travel faster, allowing information the volume and structure of white matter correlate with an individual's capacity for learning, and this component of the brain keeps on developing throughout early adulthood - unlike gray matter. Although these changes - regarding the volume of white matter in people who have undergone abuse as children - have been noted before, other studies used MRI to scan the brains of the participants. Dr. Lutz and team instead decided to study brain samples collected post-mortem, in order to better understand what happens at a molecular level.

Myelination of axons was disrupted

The researchers analysed samples collected from the brains of 78 individuals who had died due to suicide. All the brain samples were obtained using the Douglas Bell Canada Brain Bank. Of these people, 27 had been diagnosed with depression and had undergone severe abuse in their childhood, 25 had been diagnosed with depression but had no history of childhood abuse, and 26 had not been diagnosed with any mental disorder and had no history of child abuse. The brain tissue from the three groups of people were studied and compared. Alongside these, the researchers also looked at brain samples from 24 mouse models illustrating the impact of environment on the early developmental stages of the nervous system. People who had undergone abuse as children exhibited thinner myelin coating in a large percentage of nerve fibres. This was not true for the other two brain sample types studied. Also, the researchers noted that abnormal development at a molecular level specifically impacted the cells involved in the production and maintenance of myelin, which are called oligodendrocytes.

Connectivity of key brain areas impacted

The team also found that some of the largest axons affected were unusually thickened. They say that these peculiar alterations may all act together to negatively impact the connectivity between the anterior cingulate cortex, which is a region of the brain implicated in processing emotions and cognitive functioning, and associated areas of the brain. These affiliated areas include the amygdala, which plays a key role in regulating emotions, and the nucleus accumbens, which is involved in the brain's reward system, "telling" us when to anticipate pleasure. This could explain why people who underwent abuse in childhood process emotions differently and are more exposed to negative mental health outcomes, as well as substance abuse. The researchers' conclusion is that experiencing abuse in early life "may lastingly disrupt" the connectivity between the areas of the brain that are key in cognitive and emotional processes.

However, they admit that the full mechanism involved is not yet clear, and they hope that further research could shed additional light on the impact of childhood trauma on the brain.

Learning and Memory:

Traumatized children tend to become hypervigilant. They become preoccupied with impending danger and tend to lash out in the face of ambiguous stimuli. This affects how they organise their perceptions of the world and often is associated with the development of generalized problems in learning and academic achievement. Many traumatized children narrow their attention to sources of threat and feeling uninterested or numb in response to things other children may find challenging.

Dealing with the Damage

I hope that new understanding of childhood abuse's impact on the brain will lead to new ideas for treatment. The most immediate conclusion from work of DANA Foundation, however, is the crucial need for prevention. If childhood maltreatment exerts enduring negative effects on the developing brain, fundamentally altering one's mental capacity and personality, it may be possible to compensate for these abnormalities—to succeed in spite of them—but it is doubtful that they can actually be reversed in adulthood. The costs to society are enormous. Psychiatric patients who have suffered from childhood abuse or neglect are far more difficult and costly to treat than patients with a healthy childhood. Furthermore, childhood maltreatment can be an essential ingredient in the makeup of violent individuals, predisposing them to bouts of irritable aggression.

Their Choice or Ours?

Society reaps what it sows in nurturing its children. Whether abuse of a child is physical, psychological, or sexual, it sets off a ripple of hormonal changes that wire the child's brain to cope with a malevolent world. It predisposes the child to have a biological basis for fear, though he may act and pretend otherwise. Early abuse moulds the brain to be more irritable, impulsive, suspicious, and prone to be swamped by fight-or-flight reactions that the rational mind may be unable to control. The brain is programmed to a state of defensive adaptation, enhancing survival in a world of constant danger, but at a terrible price.

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PERCEIVED SOCIAL SUPPORT IN RELATION TO ANXIOUS PREOCCUPATION AMONG CANCER PATIENTS

Muzafar Hussain Kawa[1]

Abstract

Objectives: The aim of the present study was to explore the relationship of Perceived Social Support (support from family, support from friends and support from significant others) with anxious preoccupation among cancer patients.

Method: The sample of the study consisted of 200 cancer patients who were selected on purposive basis from Shri Maharaja Hari Singh Hospital, Srinagar, J&K and Jawahar Lal Nehru Medical College, Aligarh, Uttar Pradesh. The tools used for the present study were Meaning in Life Scale, Multidimensional Scale of Perceived Social Support scale (MSPSS) developed by Zimet (1988), and The Mental Adjustment to Cancer Scale developed by (Watson et al., 1988). The data collected was analyzed by using appropriate statistical techniques like Pearson's product moment correlation and linear regression analysis.

Results: The results showed significant negative correlation between support from family and anxious preoccupation (r=-.122, p<.001); support from friends and anxious preoccupation (-.299 p<.001); support from significant others and anxious preoccupation (r=-.237, p<.001); and between overall Perceived Social Support and anxious preoccupation (r=-.293, p<.001). Hierarchical regression analyses indicated that support from friends and support from significant others explained 10.9% variance in anxious preoccupation of cancer patients. However, support from friends alone explained 8.9% variance and support from significant others explained 2.0% variance in anxious preoccupation.

Conclusion: The findings of the study revealed that Perceived Social Support and its dimensions have a significant negative correlation with anxious preoccupation. Support from friends and support from significant others acted as significant predictors of anxious preoccupation.

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Introduction

Perceived Social Support

Perceived Social Support has actually been explained and operationalized in different ways (Monat& Lazarus, 1991) and is repeatedly recommended to be essential in maintaining mental health and is said to play a significant role in the adjustment to cancer (Holland &Holahan, 2003; Helgeson et al., 2004). According to Holland and Hohan (2003) "Perceived Social Support includes interpersonal interactions aimed at helping an individual to achieve positive outcomes".

Hobfoll and Stokes (1988) described Perceived Social Support as social interactions or relationships that provide individuals with the actual assistance or with a feeling of attachment to a person or a group that is perceived as loving or caring. Dumont and Provost (1999) refers Perceived Social Support to the support received (e.g. informative, emotional, or instrumental) or the sources of support (e.g. family or friends) that enhance recipient's self-esteem or provide stress-related interpersonal aid.

It is certainly a multidimensional concept that is often conceptualized typically from a quantitative-structural viewpoint of social networks, for instance, quantities of people and recognized connections with them, and from a qualitative–functional viewpoint of Perceived Social Support, for example, the perceived content and accessibility of associations with significant others (Helgeson, 2003,Nausheen, Gidron, Peveler, & Moss-Morris,2009). The qualitative-functional viewpoint of Perceived Social Support implies the availability of emotional, instrumental and informational support and is the outcome of service offered by the structural support components (Helgeson 2003; Finfgeld-Connett, 2005). Perceived Social Support is generally considered as a resource offered by other people with a purpose to help individuals in challenging circumstances (Sęk&Cieslak, 2004). It plays an essential part in managing thechronic diseases. It facilitates the expression of pessimistic thoughts, improves thoughts of intimacy, preserves relations, boosts psychological well-being, as well as supports the selection of proficient

coping techniques. Overall, the function of Perceived Social Support is essentially serving the troubled personnel to organize all resources in order to manage their circumstances in a competent way (Sęk & Cieslak, 2004).

Perceived Social Support is considered as a stress buffer as it protects an individual against the possibly demanding happenings. Cohen and Willis (1985) recommended that Perceived Social Support might mediate between demanding incident and the stress response by the prevention of a stress appraisal reaction.

Anxious Preoccupation

There is always an uncertainty over the management of the disease. The illness is viewed as a serious threat. Searching compulsively for self-esteem and confidence is regarded as behavioral coping responses. The patient responds towards the diagnosis of cancer with anxiety and depression. He/she searches for important information but can certainly interpret that pessimistically. Any kind of pain or aches are interpreted as outbreaks of cancer. He/she attempts to search for different 'cures' such as alternative treatments. The Examples are: "I keep worrying about it coming back; I get this pain in the shoulder here, what do you think it is doctor?; I know it's cancer, I can't stop thinking about it; I've gone to this man who does acupuncture and someone told me about meditation, do you think it helps?

Review of Literature

Earlier researchers illustrated that Perceived Social Support consists of both structural as well as functional components. The structural component of Perceived Social Support includes formal as well as informal support (for example, the strength of a particular person's social network, the regularity of communication with network personnel, the availability and quality of reciprocal support). On the other hand, the functional component comprises of the perceived degree of support attained (e.g., tangible and psychological support) (Goebert, 2009). Both of these components can precisely be identified as "received Perceived Social Support" (i.e., objective) and "Perceived Social Support" (i.e., subjective) support, and certainly they are both necessary for the individual's well-being (Aranda, Castaneda, Lee, &Sobel, 2001). Perceived Social Support is known for having a persistent beneficial effect on health (Uchino, 2004; Wills & Shinar, 2000) while as the consequences of received support are significantly more uneven and sometimes involved with negative effects on health outcomes (Forster &Stoller, 1992).

Zimet, Dahlem, and Farley (1988) described Perceived Social Support as an individual's perception of how resources can work as a buffer in between the demanding incidents and symptoms. As stated by Zimet, Dahlem, Zimet, and Farley (1988) Perceived Social Support is comprised of three dimensions, namely, friends, family and significant others. Friends and family are self-explanatory, whereas significant others might be a leader, co-worker, peer or some other individual, not normally described, but with whom the person has to get in touch with on daily basis.

A majority of people clinically recognized as having cancer encounter some degree distress during the course of their illness (Hulbert-Williams, Neal, Morrison, Hood, & Wilkinson, 2012). Prior research suggests that diagnosis of cancer associated with feelings of threat and hesitations and anxiety might be a consequence of fear of suffering and death (Gil, Costa, Hilker, & Benito, 2012). Adjustment responses say for example fighting spirit is likely to be beneficial; conversely, the consequences of hopelessness/helplessness on quality of life are negative (Ferrero, Barreto, & Toledo, 1994). There is a seemingly endless discussion on the practical consequences of responses that include avoidance, fatalism and anxious-preoccupation on quality of life and mental health (Nordin&Glimelius, 1998).

Research Objectives: The present research aimed at:

1. To examine the relationship of Perceived Social Support with anxious preoccupation among cancer patients.

2. To examine the relationship of dimensions of Perceived Social Support (support from family, support from friends and support from significant others) with anxious-preoccupation among cancer patients.

3. To examine the dimensions of Perceived Social Support (support from family, support from friends and support from significant others) as predictors of anxious-preoccupation among cancer patients.

Hypotheses: On the basis of the understanding gained through the review of relevant research, the following hypotheses have been framed for the current study:

HA1: There will be positive relationship of Perceived Social Support with Anxious Preoccupation among cancer patients.

HA2: There will be positive relationship of dimensions of Perceived Social Support (support from family, support from friends and support from significant others) with and anxious-preoccupationamong cancer patients.

HA3: Dimensions of Perceived Social Support (support from family, support from friends and support from significant others) will predict anxious-preoccupation among cancer patients.

Research Methodology

Research Design: Research design is a set of advance decisions that make up the master plan specifying the methods and procedures for collecting and analyzing the needed information. According to De Vaus and De Vaus (2001), "The research design refers to the overall strategy that you choose to integrate the different components of the study in a coherent and logical way, thereby, ensuring you will effectively address the research problem; it constitutes the blueprint for the collection, measurement, and analysis of data." The quantitative approach was used in present study for the investigation of research hypotheses. The present study is correlational in nature, because this method allows assessment of relationships of Perceived Social Support with Anxious Preoccupation.

Participants: Two hundred cancer patients served as participants in the present study. The sample of the present study was recruited from Dept. of Radiotherapy, Jawahar Lal Nehru Medical College & Hospital, Aligarh Muslim University, Aligarh, Uttar Pradesh and Dept. of Radiation Oncology, Shri Maharaja Hari Singh Hospital, Srinagar, Jammu & Kashmir (India). Purposive sampling technique was employed for the selection of the participants.

Inclusion criteria were:
(a) Patients were both male and female.
(b) Patients were from rural and urban areas.
(c) Patients were from nuclear and joint families.
(d) Patients were of stage I, stage II, stage III and stage IV.

Exclusion criteria were:
(a) Patients suffering from any psychiatric disorder such as severe depression and Schizophrenia.

(b) Patients suffering from any other chronic physiological disease like Hepatitis B, diabetes etc.

(c) Patients who did not cooperate.

(d) Patients who were transgender were not considered.

(e) Patients whose stage was not yet ascertained.

Tools Used

1. **Multidimensional Scale of Perceived Social Support:** The Multidimensional Scale of Perceived Social Support (MSPSS) was developed by Zimet, Dahlme, Zimet, and Farley (1988). It consists of 12 items and each item of the scale is rated on a 7-pointlikert scale (1, very strongly disagree to 7, very strongly agree). The scale evaluates the adequacy of Perceived Social Support from three different sources namely family, friends and significant others. The items numbers3, 4, 8, & 11 measure support from family; 6, 7, 9, & 12 measure support from friends and 1, 2, 5, & 10 measure support from significant others. The sum of 4 items under each sub-scale gives the sub-scale score, while the sum of all sub-scale scores gives the overall scale score. Total scores range from 12 to 84. High scores indicate high Perceived Social Support. The internal consistencies of the total scale and the sub-scales are high, ranging from 0.79 to 0.98 in various samples (Zimet et al., 1988).

2. **The Mini-Mental Adjustment to Cancer Scale (Mini-Mac):** The Mini-Mental Adjustment to Cancer Scale (Mini-MAC) was extracted from the MAC and it also measures five types of adjustment and is now often used in preference to MAC in clinical settings due to conciseness. The Mini-MAC is a 29-item self-rating questionnaire developed in response to the limitation of the original MAC Scale (Watson et al., 1994). This questionnaire included the same five sub-scales of adjustment but fewer items for 'fatalism' (5 questions), 'fighting spirit' (4 questions), 'cognitive avoidance' (4 questions), 'hopelessness/helplessness' (8 questions), and 'anxious-preoccupation' (8 questions). The Mini-MAC items are rated on a four-point Likert scale ranging from "Definitely does not apply to me" (1) to "Definitely applies to me" (4) and measures patients experiences at present. It takes less time to complete and is more suitable for distressed cancer patients (Kang et al., 2007). The MiniMAC has been translated into several other languages. Previous studies report that the Cronbach's alphas for the

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subscales range from.58 to .86. (Hulbert-Williams et al., 2012).

Analysis

The responses collected from the respondents were subjected to various statistical measures by using Statistical Product and Service Solutions version (SPSS **20.0**). The main statistical techniques used for analyzing data were: Descriptive statistics (mean and standard deviation) and inferential statistics (correlation and regression analysis). Descriptive were calculated for describing Perceived Social Support, and Anxious Preoccupation. Correlation was used to study relationship of perceived Social Support with Anxious Preoccupation. Regression analysis was used to study dimensions of Perceived Social Support as predictors of Anxious Preoccupation.

Results & Interpretation

Table1: Descriptive Statistics of the Perceived Social Supportand Anxious Preoccupation among cancer patients (N=200)

Variable		N	Mean	SD	Minimum	Maximum
Perceived Social Support	Perceived Social Support	200	42.18	6.87	18.00	78.00
	Support from Family	200	15.95	6.51	5.00	28.00
	Support from Friends	200	14.24	5.56	4.00	27.00
	Support from Significant Other	200	11.98	5.57	4.00	28.00
	Anxious preoccupation	200	24.66	4.97	12.00	32.00

From the table 1 it can be observed that the mean score for the multidimensional scale of Perceived Social Support is 42.18 with a standard deviation of 6.87. For the dimension of support from family mean score is 15.95 and standard deviation is 6.51, for support from friends the mean score is 14.29 and standard

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deviation is 5.56 and for the support from significant others mean score is 11.98 and standard deviation is 5.57.

Furthermore, table 1 reveals that the mean scores and standard deviations for the anxious-preoccupation (M=24.66 and S. D=4.97).

Table 2: Showing the correlation matrix of the predictor variables, namely, Perceived Social Support (support from significant others, support from friends and support from family) with the criterion variable namelyanxious-preoccupation among cancer patients (N=200)

Variables	Y_5	Y_6	X_1	X_2	X_3	X^4
Y_5	1					
X_1	-.237[**]	.085	1			
X_2	-.122	.131	.441[**]	1		
X_3	-.299[**]	.055	.345[**]	.104	1	
X^4	-.293[**]	-.127	.806[**]	.743[**]	.635[**]	1

Y_1=Anxious-preoccupation, X_1= Support from Significant Others, X_2= Support from Family, X_3= Support from Friends, X_4=Total Perceived Social Support

The results of table 2 revealed there exists a significant negative correlation between *support from significant others* (X1) (dimension of Perceived Social Support)and anxious-preoccupation (Y5) (r=-.237, p<.01) among cancer patients.

However, *support from family* (X2) (dimension of Perceived Social Support) showed insignificant correlation with anxious-preoccupation (Y5) (r=-.122, p>.01) among cancer patients.

The *support from friends* (X3) (dimension of Perceived Social Support) hasSignificant negative correlations with anxious-preoccupation (Y5) (r=-.299, p<.01) among cancer patients.

Table 2 further shows significant negative relationship between Perceived Social Support (X4) and Anxious Preoccupation(Y5) (r=-.293**, p<.01), among cancer patients.

There are few studies which are in support of our findings. For example, Cicero et al. (2009) examined the role of attachment dimensions and Perceived Social Support in predicting adjustment to cancer. The sample of the study consisted of 96 cancer patients who were administered a demographic questionnaire, the Relationship Scale Questionnaire (RSQ), the Multidimensional Scale of Perceived Social Support (MSPSS), and the Mental Adjustment to Cancer (MAC). The results of the present study revealed that anxious attachment predicted psychological adjustment, i.e., patients with high levels of anxious attachment showed high levels of helplessness/hopelessness and anxious preoccupation. The patient's perception of Perceived Social Support from friends was predictive of both fighting spirit and stoic acceptance. Conversely, the patient's perception of support from family members was not predictive of adjustment to cancer. Moreover, the patients in the advanced stages of the illness showed higher levels of helplessness/hopelessness.

Similarly, Ozpolat, Ayaz, Konag, and Ozkan (2014) examined the role of attachment dimensions on social and psychological adjustment to cancer and to explore the social and psychological adjustments, and medical adherence, among 68 cancer patients, between 18 and 74 years of age. The measures taken were the Demographic Information Form, Multidimensional Scale of Perceived Social Support (MSPSS), Experiences in Close Relationships-Revised (ECR-R), and Psychosocial Adjustment to Illness Scale (PAIS-SR). The researchers found that avoidant attachment style was related to difficulties in social relationships and an increase in psychological distress following cancer diagnosis. People who perceive more Perceived Social Support orient to health care more easily than people who perceive less social availability. Moreover, they also found a higher level of Perceived Social Support has a positive impact in adjustment to family relationships and leads to experiencing less psychological distress than in people who perceived less Perceived Social Support.

Table 3: Showing the results of stepwise multiple linear regression analysis by considering dimensions of Perceived Social Support (support from significant others, support from family and support from friends) as predictors of 'anxious-preoccupation' among cancer patients.

Predictor Variables	Standardized Beta coefficient	Multiple R	R^2	R^2 Change	f^2	F	P
		Model Y5= ß0+ ß3X3+ ß1X1					
X3	-.246	.299	.089	.089	0.097	19.371**	.001
X3, X1	-.152	.331	.109	.020	0.122	12.100*	.035
Constant 29.424							

Predictor Variables: X_3= Support from friends, X_1= Support from Significant Others

Criterion Variable: Y_1= Anxious-preoccupation

**p <0.01 (1-tailed); *p< 0.05 (1-tailed)

From table 3 it can be seen that among three dimensions of Perceived Social Support, support from friends (X_3) emerged as the most potential predictor of anxious-preoccupation (Y_1) (sub-scale of mental adjustment) among cancer patients. The square of multiple correlations (R^2) shows that 8.9% of the variance in anxious-preoccupation (Y_1) was explained by support from friends (X_3) and support from significant others (X_1) emerged as the second potential predictor of anxious-preoccupation (Y_1) (R^2change= 2.0% variance). Support from friends (X_3) and support from significant others (X_1) jointly explained 10.9% of variance in anxious-preoccupation (Y_1).

By considering F value of support from friends (X_3) (F= 19.371, p< 0.01), and support from significant others (X_1) (F= 12.100, p< 0.05), it can be concluded that support from friends (X_3) and support from significant others (X_1) contributed significantly in predicting anxious-preoccupation (Y_1). Further, Cohen's effect size value (f^2 = 0.122) suggested a medium strength of association of support from friends and support from significant others with anxious-preoccupation.

The beta values of support from friends (X_3) (ß= -.246), and support from significant others (X_1) (ß= -.152) suggest that both these predictors have significant impact on anxious-preoccupation. Further, it can be seen that

support from friends (X_3) has the strongest coefficient (ß= -.246) followed by support significant others (X_1) (ß= -.152). The negative beta values of support from friends and support from significant others indicate that high presence of support from significant others and friends will result in low levels of anxious-preoccupation among cancer patients.

After the proper interpretation of tables 3, it can be concluded that H_A2 stating that the dimensions of Perceived Social Support (support from family, support from friends and support from significant others) will predict anxious-preoccupation among cancer patients is partially supported.

There are few studies which are in agreement with our findings. For example, Yagmur and Duman (2016) examined the relationship between the level of the Perceived Social Support perceived by patients with gynecologic cancer and their mental adjustment to cancer. The sample of the study consisted of 190 women with gynecologic cancer who were receiving care in the Diyarbakir province of Turkey between November 2013 and October 2014.

Multidimensional Scale of Perceived Social Support questionnaire and the scale of Mental Adjustment to Cancer were used at tools for data collection. The results revealed that all subscales of Perceived Social Support, i.e., support from family, support from friends and support from friends had significant positive correlation with the subscales fighting spirit and a negative correlation with the subscales of helplessness/hopelessness and fatalism in the Mental Adjustment to Cancer scale.

Similarly, Somasundaram and Devamani (2016) investigated the association between resilience, Perceived Social Support, and hopelessness among cancer patients treated with curative and palliative care. The sample of the study consisted of 60 cancer patients who were divided into two groups that is to say, curative care (*n* = 30) and palliative care (*n* = 30). Bharathiar University Resilience Scale, Multidimensional Scale of Perceived Social Support and Beck Hopelessness Scale were taken as tools for the collection of data for this research work. They found significant positive correlation between resilience and Perceived Social Support while as resilience and Perceived Social Support was found significantly negatively correlated with hopelessness.

Limitations

Research is a continuous process and is never completely perfect due to certain

unavoidable circumstances researchers face during the process and especially when we talk about social science research. Limitations outline the parameters of the study and include some potential areas where the thesis may fall short. The major limitation of the study is that the target population was sensitive that had effect on objectivity of study.

a)   The selected sample group was heterogeneous with respect to their educational status which may have resulted in variation of responses.

b)   Minimal demographic data were collected for the sample in this study. Information regarding the financial status, marital status, stage of disease, duration of disease, age of the patients, type of cancer, and educational qualification would also have been important variables to include in the analysis. For instance, not knowing whether cancer patient was a married or unmarried concealed any possible influence marriage would have on patient's life.

c)   Keeping in view the nature of the target population, combination of qualitative and quantitative research would have been more appropriate and much informative as compared to quantitative study alone

Suggestions for Future Research

Research is an unending process because every study leaves behind its shortcomings and makes room for future researchers to dwell in diverse ways and contexts. Thus, taking the limitations of this study into consideration, there are several recommendations for future research which are given below:

a)   There is much scope to conduct further research on perceived social support and anxious preoccupation among cancer patientsin order to recognize the pathways in which these variables are related in this population. This study provides the groundwork for further exploration. Further research should include a qualitative component, which would provide the opportunity to learn more about the lived experience of cancer patients.

b)   Future studies should involve a larger and more diverse group of cancer patients, including a more ethnically and racially diverse sample. This would allow further study of the ways that culture and ethnicity play a role in perceived social support, meaning in life and mental adjustment

among cancer patients.

c) Alternative research techniques should be used by future researchers to authenticate the results. Moreover, Short versions of scales and questionnaires and adequate sample size should be preferred by future researchers.

d) More research is needed to explore the role of positive intervention variables such as perceived social support, meaning in life, hope, resilience, psychological capital, hardiness in adjusting with the disease like cancer. These positive variables should be taken into consideration while dealing with the problems of mental adjustment of cancer patients.

e) The impact of certain socio-demographic and clinical variables such as financial status, marital status, stage of cancer, type of cancer, duration of illness, age of the subjects, and educational qualification should be given due weightage in future research endeavors.

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RELATIONSHIP BETWEEN STRESS, ANXIETY AND DEPRESSION AMONG LGBT COMMUNITY

Nandini Sharma[1]

Abstract

The study demonstrates the relationship between stress, anxiety and depression within LGBT community. It also explores the psychosocial experiences of lesbian, gay, bisexual and transgender individuals that lead to psychological trauma. During the present time, though the general social climate in various countries has become more accepting and tolerant of sexual minorities, still a significant amount of discrimination, prejudice and violence continues to affect LGBT individuals, families and communities. Whether through society, governments, schools or workplace, discrimination and prejudice continue to cause distress and various mental health issues to LGBT persons.This study aims to contribute in creating awareness about mental health issues faced by LGBT community.

Methodology: The study involved individual interviews with 35 adult, self-identified participants. Along with the interview, questionnaire DASS (Depression, anxiety and stress scale) was administered on each participant to measure the presence of depression, anxiety and stress. The stress, anxiety and depression were correlated to each other.

Conclusion and Result: Results from the study indicate that stress, anxiety and depression were highly correlated to each other. It was further explored in the study that a LGBT individual's psychosocial experiences play a key role in causing psychological trauma. The explored psychosocial factors were stigmatization by the society, rejection by family, lack of financial support, violence and sexual abuse by family members, acquaintances and police.

Keywords: Stress, Anxiety, Depression, psychological trauma, LGBT

Introduction

Late nineteenth century onwards and through the mid-twentieth century, a lot of attention and focus has been given to the interests and rights of the sexual minorities. Earlier it was believed that same-sex attraction and sexual behavior are deviant and harmful to both the individual and to the society.

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Luckno Until the nineteenth century, homosexuality was considered to be a mental disorder or pathology and was thought to be the outcome of various factors like troubled family dynamics or faulty psychological development, etc. Later, all major professional mental health organizations went on record to affirm that homosexuality is not a mental disorder. In 1973 the American Psychiatric Association's Board of Trustees removed homosexuality from its official diagnostic manual, The Diagnostic and Statistical Manual of Mental Disorders, Second Edition (DSM II). The action was taken following a review of the scientific literature and consultation with experts in the field. The experts found that homosexuality does not meet the criteria to be considered a mental illness. Later, in 1993 the World Health Organisation removed homosexuality from its official list of mental illnesses. LGB people have acute prevalence of mental disorders than heterosexual people with the historical antigay stance and the stigmatization of LGB persons (Bailey, 1999).

During the present time, the general social climate in various countries throughout the world has become more accepting and tolerant of sexual minorities, but still a significant amount of discrimination, prejudice and violence continues to affect lesbian, gay, bisexual, and transgender individuals, families and communities. In a national study comparing GLB and heterosexual groups, researchers found that gay and bisexual men were more likely to report major depression and panic disorder in the previous twelve-month period. The risks of depression and anxiety disorders were at least one and a half times higher, as was alcohol and other substance abuse (Chakraborty et al, 2011)

LGBT composition is referred to the people who select those sexual or gender identity labels as personally meaningful for them, and sexual and gender identities are complex and historically situated (Diamond 2003, Rosario et al. 1996, Russell et al. 2009). LGBT is commonly used as shorthand for the lesbian, gay, bisexual and transgender community in this study. It is important to note that while these groups may share some similarities, they are by no means identical in terms of their mental health issues, concerns, or needs. While the terms lesbian, gay, and bisexual (and heterosexual) refer to someone's sexual orientation, transgender is a term related to gender identity, or someone's sense of being a man or woman, boy or girl. Transgender people are

A study conducted at University of California, examined possible root causes of mental disorders in lesbian, gay and bisexual people. It was explored whether ongoing discrimination fuels anxiety, depression and other stress-related mental health problems among LGB people. The authors found strong evidence of a relationship between the two. The team compared how 74 LGB and 2,844 heterosexual respondents rated lifetime and daily experiences with discrimination such as not being hired for a job or being denied a bank loan, as well as feelings of perceived discrimination. LGB respondents reported higher rates of perceived discrimination than heterosexuals in every category related to discrimination (Cochran and May, 2001).

Major terms of the study:

Sexual Orientation

Sexual Orientation refers to an enduring pattern of emotional, romantic, and/or sexual attractions to men, women, or both sexes. It also refers to a person's sense of identity based on those attractions, related behaviours, and membership in a community of others who share those attractions. Three sexual orientations are commonly recognised-heterosexual, homosexual (gay and lesbian) and bisexual.

Lesbian

A lesbian woman is one who is romantically, sexually and/or emotionally attracted to women. Many lesbians prefer to be called lesbian rather than gay.

Gay

A gay man is one who is romantically, sexually and/or emotionally attracted to men. The word gay can be used to refer generally to lesbian, gay and bisexual people but many women prefer to be called lesbian.

Bisexual

A bisexual person is someone who is romantically, sexually and/or emotionally attracted to people of both sexes. Being bisexual does not necessarily mean someone is involved in multiple relationships at once. Some men and women may engage in same-sex behavior yet still identify as heterosexual, and some lesbian or gay people may have sexual relationships with people of the other sex.

Transgender or Trans

Is an umbrella term used to describe people whose gender identity (internal feeling of being male, female or transgender) and/or gender expression, differs from that usually associated with their birth sex. Not everyone whose appearance or behaviour is gender-atypical will identify as a transgender person. Many transgender people live partially or completely as another gender. Transgender people can identify as transsexual, transvestite or another gender identity.

One's gender identity refers to whether one feels male, female or transgender (regardless of one's biological sex). Gender expression refers to outwardly expressing one's gender identity.

Transsexual people live or wish to live full time as members of the gender other than that assigned at birth. Transsexual people can seek medical interventions, such as hormones and surgery, to make their bodies fit as much as possible with their preferred gender. The process of transitioning from one gender to another is called gender reassignment. Biological females who wish to live and be recognised as men are called female-to-male (FTM) transsexuals or trans men. Biological males who wish to live and be recognised as women are called male-to-female (MTF) transsexuals or trans women.

Transvestite or cross-dressing individuals are thought to comprise the largest transgender sub-group. Cross-dressers sometimes wear clothes considered appropriate to a different gender. They vary in how completely they dress (from one article of clothing to fully cross-dressing) as well as in their motives for doing so. A small number can go on to identify as transsexual.

Homophobia

Homophobia refers to fear of or prejudice and discrimination against lesbian, gay and bisexual people. It is also the dislike of same-sex attraction and love or the hatred of people who have those feelings. The term was first used in the 1970s and is more associated with ignorance, prejudice and stereotyping than with the physiological reactions usually attributed to a 'phobia'. While homophobic comments or attitudes are often unintentional, they can cause hurt and offence to lesbian, gay and bisexual people.

Transphobia

Transphobia refers to fear of or prejudice and discrimination against people who are transgender or who are perceived to transgress norms of gender, gender identity or gender expression. While transphobic comments or attitudes are often unintentional, they can cause offence and trauma to transgender people.

Homosexuality in India

Homosexuality in India has a historical significance dating back to the time of pre-colonial Indian society when same-sex relationships were not criminalized, nor were they viewed as immoral or sinful. Hinduism, India's largest religion, has traditionally portrayed homosexuality as natural and joyful, though some Hindu texts do contain injunctions against homosexuality namely among priests. Hinduism also acknowledges a third gender known as *hijra.* The Kama Sutra, a Sanskrit text on human sexual behaviour, uses the term *tritiya-prakriti* to define men with homosexual desires and describes their practices in great detail. It also describes lesbians (*svairini*, who engage in aggressive lovemaking with other women), bisexuals (referred to as *kami* or *paksha*), transgender and intersex people. The temple sculptors of Konark and Khajuraho depicting depicting homosexual relationships in stone, are living examples of homosexuality being accepted and practiced as a mode of sexual gratification during those era.

Modern societal homophobia was introduced to India by the European colonisers and the subsequent enactment of Section 377 by the British, which stood for more than 70 years after Indian independence

Homosexuality is mostly a taboo subject in Indian civil society and for the government. Up till now, Section 377 of the Indian Penal Code made sex with persons of the same gender punishable by law. But lately on 6 September 2018, the Supreme Court unanimously ruled that Section 377 is unconstitutional as it infringed on the fundamental rights of autonomy, intimacy and identity, thus legalising homosexuality in India.

Homophobia is prevalent in India and the attitude of the law and the heterosexual majority towards homosexuality creates a stressful situation prevents normal integration of homosexuals into the community. Public discussion of homosexuality in India has been inhibited by the fact that sexuality in any form is rarely discussed openly. However, the social climate of

the country towards homosexuality has shifted slightly. In recent years, there have been more depictions and discussions of homosexuality in the Indian news media and in movies and television. Several governmental and non-governmental organizations expressed support for the rights and integration of homosexuality in India, and pushed for tolerance and social equality for lesbian, gay, bisexual, and transgender people. India is among one of the countries with a social element of a third gender.

METHODOLOGY

The primary objective of the study was to find out the relationship between stress, anxiety and depression of different groups of sexual minorities which included gay, bisexual and transgender.

The secondary objective of the study was to find out the psychosocial factors that lead to stress, anxiety and depression in the gay, bisexual and transgender individuals.

The following hypothesis was formulated for the purpose of the study:

1. There will be a positive correlation among stress, anxiety and depression scores of the three groups of sexual minority.

During the study we conducted in-depth interviews with the participants to determine stress and the major causes of stress in their lives. The process used was semi structured and included open ended questions about stressors related to being GBT. The interview was constructed in Hindi and consisted of 20 open ended questions. The questions explored experiences of different areas of life of a sexual minority individual from childhood to adulthood. The data collected through the interview was analyzed qualitatively.

Questionnaire DASS– Depression Anxiety and Stress Scale, was administered along with the interview for screening of stress, anxiety and depression of the subjects. DASS is a 42-item questionnaire which includes three self-report scales designed to measure the negative emotional states of depression, anxiety and stress. Each of the three scales contains 14 items, divided into subscales of 2-5 items with similar content. The data gathered through the questionnaire DASS was analyzed using descriptive statistics and

<div style="text-align: center;">correlational analysis.</div>

Respondent driven purposive sampling technique was used to identify the study participants for in-depth interview and to administer the questionnaire.

SAMPLE

The sample for the data was collected in a social setting, from few NGOs that work for the welfare of LGBT community. The sample consisted of 35 people that included Gays, Bisexuals and Transgender persons. Each participant was interviewed separately. The interview and the questionnaire were administered together. Confidentiality was maintained and the participants were assured that information provided by them will only be used for research purpose and would not be revealed in any other way.

RESULT

The present study was carried out to find out the relationship between stress, anxiety and depression among Gay, Bisexual and Transgender.

The scores of the participants on DASS 42 were correlated with each other to establish the relation between stress, anxiety and depression. The following tables (Tables 2, 3 and 4) correlate the stress, anxiety and depression score:

<div style="text-align: center;">

Table 1. Demographic details of the participants (N = 35**)**

</div>

Sl no.	Sexual orientation	Frequency
1	Lesbian	0
2	Gay	10
3	Bisexual	6
4	Transgender	19

Table 2. Shows the significant correlation between stress and anxiety of the participants

The results suggest that Gay, Bisexual and Transgender individuals with high levels of stress also have a high level of anxiety and vice versa.

Correlations

		S	A
S	Pearson Correlation	1	.703**
	Sig. (2-tailed)		.000
	N	35	35
A	Pearson Correlation	.703**	1
	Sig. (2-tailed)	.000	
	N	35	35
**. Correlation is significant at the 0.01 level (2-tailed).			

Table 3. Correlates the anxiety and depression scores of the participants

The table shows that there is a significant correlation between stress and anxiety of the participants.

The results suggest that Gay, Bisexual and Transgender individuals with high levels of stress also have a high level of anxiety and vice versa.

Correlations

		A	D
A	Pearson Correlation	1	.774**
	Sig. (2-tailed)		.000
	N	35	35
D	Pearson Correlation	.774**	1
	Sig. (2-tailed)	.000	
	N	35	35
**. Correlation is significant at the 0.01 level (2-tailed).			

Table 4. Correlates the stress and depression scores of the participants

Correlations		S	D
S	Pearson Correlation	1	.745[**]
	Sig. (2-tailed)		.000
	N	35	35
D	Pearson Correlation	.745[**]	1
	Sig. (2-tailed)	.000	
	N	35	35
** Correlation is significant at the 0.01 level (2-tailed).			

The table shows that there is a significant correlation between stress and anxiety of the participants.

The results suggest that Gay, Bisexual and Transgender individuals with high levels of stress may also exhibit high level of depression and vice versa.

The hypothesis taken in the study stated that the stress, depression and anxiety will be positively correlated to each other. The hypothesis was accepted as a high level of significance was found when stress and anxiety, stress and depression, anxiety and depression were correlated with each other (Table 2, 3, 4).

Further aim of the study was to explore the psychosocial factors that lead to psychological trauma in LGBT persons. This was established by conducting an interview schedule.

Qualitative Analysis of the interview is as follows:

72% participants reported that they realized their experience of gender was different from most individuals by the age 10 and before, and 28 % participants reported it between the ages 10 to 15.

51.4% participants reported that their social relations were majorly affected because of their sexual identity, 16% reported that family relations were affected the most, followed by education and work.

83% participants reported that since childhood they felt attracted towards males

while 17% reported they felt attracted towards both males and females.

56% participants reported that their parents and family members do not accept their sexual identity, 30% reported that their family members do not know about their identity while 14% reported that their family accepted their sexual identity.

66% participants reported that their peers and acquaintances do not accept their sexual identity. They also reported that it was only their community (LGBT) friends that approved of their identity. 34% reported that their peers accepted them as they are.

94% participants reported that their sexual identity lead to stress in their everyday lives.

The common coping strategies for handling stress, as reported by the participants were staying alone and crying, spending time with community friends, indulging in sex work, taking counselling at NGOs or by theirs Guru.

27% participants reported of consuming alcohol and tobacco (cigarette) to cope up with the stress.

56% participants reported of facing violence and 28% participants reported of sexual abuse by family members, acquaintances and/or police people.

72% participants reported of attempting to commit suicide at least once in their lives.

Discussion

The present study established that a positive correlation exists between stress, depression and anxiety. The hypothesis was accepted as a high level of significance was found when stress and anxiety, stress and depression, anxiety and depression were correlated with each other.

Along with this, the scores of DASS indicated that the levels of stress anxiety and depression are high in the participants of sexual minority.

In the gay population, 80% participants were found to have stress level high, 100% participants had high level of anxiety and 80% had high depression level, all ranging from categories mild, moderate, severe to extremely severe (Table 2).

In the bisexual population, 83.3% participants were found to have stress level high, 100% participants had high level of anxiety and 66.6% had high depression level, all ranging from categories mild, moderate, severe to extremely severe (Table 3).

Similarly, in the transgender population, 68.4% participants were found to have stress level high, 79.5% participants had high level of anxiety and 79.5% had high depression level, all ranging from categories mild, moderate, severe to extremely severe (Table 4).

Additionally, the psychosocial factors that lead to psychological trauma were explored qualitatively through interview method and the main factors found out as a result were stigmatization by the society, rejection by family members, lack of financial support, and violence and sexual abuse by family members, acquaintances and police.

Stigmatization by the society

In the past, social stigma has been one of the strongest factors leading to stress, anxiety and depression in GBT individuals.

Social stigma is the extreme disapproval of a person or group on socially characteristic grounds that are perceived, and serve to distinguish them, from other members of a society.

The sexual minority individuals have been facing non acceptance and disapproval towards their sexual identity from acquaintances and other members of the society like religious groups, educational institutes, government bodies and peers.

In the interview conducted as a part of the study, all participants reported that the perception of the society towards them was not good and often people make fun of them and pass rude and tormenting comments. 51.4% participants reported that their social relationships were affected because of their sexual orientation.

Rejection by family members

Literature in the field indicates that families and caregivers have a major impact on their LGBT children's life and well-being. LGBT teens that are rejected or highly criticized, by their parents and caregivers, are at very high risk for health and mental health problems when they become young adults. They have poorer

health than LGBT young people who are not rejected by their families, have more problems with drug use, feel more hopeless and are much less likely to protect themselves from HIV or sexually transmitted diseases (STDs).

Thus, rejection by family members, especially parents, is major factor contributing to stress, anxiety and depression in the sexual minority individuals. As a result of this often LGBT individuals choose to hide their sexual identity from their family members.

Lack of financial support

Often individuals of sexual minority face lack of financial support due to reasons like incomplete education, lack of job opportunities,

In the interview conducted in this study, more than 60% participants reported that they could not complete their education and dropped out school due to discrimination faced by them in the educational institute. They were often made fun of by peers and teachers because of their sexual orientation and behaviours associated with it. Also, they were often physically and verbally, and sometimes sexually abused by their teachers. Such traumatizing experiences forced them to quit their studies.

In workplace environment sexual minority individuals often face discrimination and rejection in getting employment, due to their sexual orientation. Due to lack of financial support, sexual minority individuals live in adverse living conditions which further add on to their levels of stress.

Violence and sexual abuse by family members, acquaintances and police

Violence and sexual abuse are major issues faced by sexual minority individuals. In the study, gay, bisexual and transgender participants reported of facing domestic violence, physical abuse by teachers in school during their childhood and by police officials. 30.6% of the participants reported they were beaten harshly by a family member (father, mother or siblings) because of their sexual orientation. 45% participants reported of being sexually abused by a close relative (male) or a teacher (male) during their childhood.

3 participants reported that that they had a fear of being beaten and molested by police as they have often faced such experiences in their lives in the near past.

Limitations
The findings of the study cannot be applied for lesbian community as there

was a paucity of sample.

The study cannot be generalized for a larger population as the study was conducted on a small sample of 35 participants.

The study cannot be referred to correlate heterosexual and homosexual data.

The results and conclusion may vary if the data is collected from different cities due to cultural differences.

Conclusion

Homosexuality and Bisexuality is a stigmatized and a highly sensitive subject in India as well as other countries. The perception and general attitude of major part of the society have been negative and non-accepting towards sexual minority groups. The lesbian, gay, bisexual, and transgender people have been having traumatizing experiences in their lives owing to their sexual oriented. Though on one side a major section of the society does not support homosexuality, on the other side homosexuality and bisexuality has become prevalent in today's society and continuous efforts are being made to bring awareness about various issues and adversities faced by LGBT individuals because of the attitude of the society.

The present study also aims to contribute to creating awareness about mental health issues faced by LGBT community and help in the betterment of lives of LGBT individuals.

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IMPACT OF LIFE CHANGE UNIT ON PSYCHIATRIC PATIENTS AND NON- PSYCHIATRIC INDIVIDUALS

Nivedita Sharma[1]

Abstract

Using the concept of Life Change Unit, the study is undertaken with the sample of psychiatric patients and non-psychiatric individuals. Hypotheses set for the study (i) the scores of Life Change Unit are higher for psychiatric patients as compared to non-psychiatric individuals. The sample size consists of 30 psychiatric patients and 30 non-psychiatric individuals selected through purposive sampling method on matching criteria. Tools used for the study are Life Change Unit Scale formulated by DR. B.R. Shejwal. Two groups were compared with 't' test. Result shows that sample of psychiatric patients is significantly higher on life change units (t= 5.365, p< .05).

Introduction

Life change unit can be defined as any sudden change in life circumstance which affects the body, or the reordering of important routines that the body become used to, and which cause eustress as well as distress affecting physical, social, psychological well-being of a person. Mental or psychiatric illnesses are a major public health concern. They adversely affect functioning, economic productivity, the capacity for healthy relationships and families, physical health, and the overall quality of life. Impairment of mental health generally causes loss of human resource. There are many factors which may result in such impairment of mental health. One of the important factors, as identified by the psychologists is social stress. The association of social stress and mental health impairment has been a topic of interest to researchers for many years. Holmes and Rahe in 1967 developed a simple and easily administered scale which quantified change in the lives of individuals and therefore operationalized the measurement of social stress (Schedule of Recent Events). Many researchers have looked at the relationship between life events and mental health functioning. Most of these studies have shown an increased risk for developing mental health impairment when cumulative life events are above a critical value. Stressful events are changes that occur suddenly in someone's life.

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Particularly stressful life events include death of a spouse, divorce and marital separation (Holmesand Rahe, 1967). Other life events can be like daily hassles which include to feel alone, fear of rejection, worry about the meaning of life, not enough money for basic maintenance or clothing, worry about owing money, too little time for all obligations, not having slept enough, dissatisfaction with work, not liking your colleagues, traffic, problems with your child, side effects of medication, shifting of home or job (stresspages.com). Life change events are regularly linked to the mental health to the adults. Those who have experienced more life changing situations are consistently more likely to report worse mental health than those who have experienced few or no life changing events.

The present study deals with Life Change Unit in Psychiatric Patients and the non- psychiatric patients.

Though research literature shows that stressful life predicts psychiatric illness. Whether such relationship exists across cultures is the focus of this study. As no study has been conducted in Indian set up, this study will help to understand universality of the precious findings.

The objective set for the present study is:

(I) Impact of Life Change Unit on non-psychiatric individuals and psychiatric patients.

Method:

Participants: In the present study psychiatric patients are defined as patients who have undergone psychiatric treatment for minimum six months period so far.
Non-psychiatric individuals are defined as the people who have not undergone any kind of psychiatric treatment so far.The samples selected were 30 psychiatric patients and 30 non- psychiatric individuals who fulfilled the criteria of the study. Incidental method was adopted to select the sample and the sample was collected from Pune city. The above sample was matched on following criteria, age, and gender and socio-economic status. The age range for the present study is 20 to 60 years of age considering male (30) and female (30).

Measures: Following tools have been used for the data collection purpose of the selected variables:

- **Life Change Unit Scale** for assessing the life change measure. The test was formulated by **Dr. B. R. Shejwal**. The test is self-administered. The test retest reliability of stress measurement in terms of LUC was found to be 0.73.

Procedure:

To collect data from the selected sample, (psychiatric sample) were referred by Dr.V.G. Watvethe test wasconducted in calm and comfortable environment. The test was administered on one individual at a time. For each individual a secret code was given which was helpful to get honest responses. First personal data like age, educational qualification; family size etc. was asked to establish good rapport. Standard instructions were given to the samples. They were asked for any clarification if needed. No time limit was imposed for the completion of the questionnaires, but an individual was expected to solve it within 60 minutes.

Results: To compare the significance of difference between Psychiatric patients and non- psychiatricindividuals on the variable Life Change Unit.

Difference between the mean of Life Change Unit scores of Psychiatric Patients and Non-Psychiatric Individuals

Life Change Unit	Mean	Std deviation	t value	table value of t (at 5% level of significance)
Psychiatric patient	527.27	304.341	5.365	0.000*
Non-Psychiatric individuals	204.07	127.523		

Since calculated value of "t" (t= 5.365, p< .05).is significant, we may conclude that life change unit scores are higher for psychiatric patients than non- psychiatric individuals.

Discussion: The present research focuses on the impact of Life Change Unit of the psychiatric patients and the non- psychiatric individuals.

 The significance of the study lies on the fact that it will be able to throw some light on the relationship of 'life change situations and irrational beliefs' with psychiatric illness. Result shows that psychiatric patients report greater number

of life changes, as compared to non- psychiatric patients. This suggests that life stressors play important role in developing psychiatric illness. These results are consistent with previous literature (Rahe, 1967). But this is not a complete story. Along with encounter with life stressors individual's perception about it also mediates development in psychiatric illness (Ellis 1962). This study has its implication in the understanding and treatment of the psychiatric illness. These findings again confirm the rational emotive behaviour theory model and suggests that intervention with rational beliefs can alter irrationality associated with activating events, self, other, and world conditions and thus can improve mental health.

Limitations:

1. The sample size is small and sampling method is non probability.

2. Sample is not homogenous in nature. There is variability in relation to symptomatology, socio economic status, nature of life stressors which could not be controlled.

Conclusions: Psychiatric patients reported greater life changes as well as greater irrationality than non-psychiatric individuals.

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GENDER DIFFERENCE IN CHILDHOOD MALTREATMENT AMONG GOVERNMENT AND PRIVATE SCHOOL STUDENTS

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Abstract

Child abuse has many forms and especially childhood abuse plays a vital role in later life development of mental health. Social environment is major determinant of child development and school environment plays a vital role for that. The present study examines gender difference in the association of childhood abuse and trauma among government and private school students. Sample of 60 adolescents aged between 13-15 years (30 students from private school and 30 students from government school) were randomly selected for the study. Also, they were equally distributed in terms of gender. One tool had been used for data collections of the present study, i.e. Child Abuse Checklist by Shushma Pandey. Descriptive and inferential statistics were calculated for this study. The obtained results cleared that government school students scored higher than private school students on all five areas of childhood maltreatment except sexual abuse. On the basis of this study following conclusion was made that, there is a significant statistical difference inchildhood maltreatment among government and private school students. In terms of overall gender difference, boys suffer more physical abuse and emotional neglect than girls while girls suffer more emotional abuse, sexual abuse, physical and educational neglect than boys. It should be major concern.It is necessary to use appropriate intervention for the aforesaid problems. Because, today's preparation will make a better tomorrow.

Key words: Adolescents, Abuse and neglect, Childhood maltreatment, Gender difference, Government school, Private school, Students.

Introduction

Hurlock defined Childhood as the age when relative dependency of babyhood is over and extends to the time when the child becomes sexually mature. Subdivisions of childhood are early childhood (2-6 years) and late childhood (6-13 years). According to Robert Havighurst, developmental tasks of early

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childhood are learning to- walk, taking solid foods, talk, controlling elimination of body wastes, sex differences and sexual modesty, forming concepts, language to describe social and physical reality, getting ready to read. Developmental tasks for middle or late childhood are learning physical skills, building wholesome attitudes toward oneself, getting along with age-mates, appropriate social role, developing fundamental skills in reading, writing, and calculating, developing concepts necessary for everyday living, developing conscience, morality, and a scale of values, achieving personal independence, developing attitudes toward social groups and institutions.

The term adolescence came from a Latin word **adolescere**, meaning 'to grow to maturity' including mental, emotional and social maturity with physical maturity. 13-17 years of age is adolescence age. Piaget said that, "psychologically, adolescence is the age when the individual become integrated into the society of adults, when the child no longer feels that he is below the levels of his elders but equal, at least in right…"

Childhood maltreatment has a vital role in later life development of mental health. **WHO (2016)** defines child maltreatment as 'the abuse and neglect that occurs to children under 18 years of age.' It includes all types of physical, emotional and sexual abuse, neglect, negligence and commercial or other exploitation, which results in actual or potential harm to the child's health, survival, development or dignity in the context of a relationship of responsibility, trust or power. Exposure to intimate partner violence is also sometimes included as a form of child maltreatment. Critical factors that influence the way of child maltreatment affects includes the frequency and duration of maltreatment and the co-occurrence of multiple forms of maltreatment. Child maltreatment has enormous immediate and long-term repercussions. Beyond death, physical injury and disability, violence can lead to stress that impairs brain development and damages the nervous and immune systems. This in turn is associated with delayed cognitive development, poor school performance and dropout, mental health problems, suicide attempts, increased health-risk behaviors, re-victimization and the perpetration of violence.

When we talk about only child neglect, we can notice neglected children at schools. Many studies showed that, neglected children may be malnourished, always sick, or never at school. Neglect comes in different forms and more girls suffer than boys, with younger children neglected most. Signs of neglect

can also be seen during later life development like- frequently absent from school, lacks sufficient cloths for the weather, alcohol/drug abuse, states at there is no one at home/school to provide care, is consistently dirty and has sever body odor.

These all types of maltreatment had linked with psychological disorders in previous studies. Cathy Widom (2007) have found that, childhood physical abuse or multiple types of abuse increased the lifetime risk for depression. Sexual abuse did not appear to increase risk of full-blown depression, but person with a history of childhood sexual abuse reported more depression symptoms than people who did not experience such trauma. Laura C. Bruce (2013) found that emotional maltreatment was most strongly linked to dysfunction in Social Anxiety Disorder and Social Phobia. Charak and Koot (2014) found that childhood abuse and neglect increases the risk for psychiatric disorders, including mood and anxiety disorders. And also, there is a high risk of sexual abuse among females in India. These all above studies are on school going adolescents.

According to WHO, **1 in 4** child is physically abused.**12%** of children were sexually abused in 2017, whereas, reports by Ministry of Women and Child Development (India) (2007) says that, "Two out of every three children were physically abused, and most of them were boys. 53.22% children reported having faced one or more forms of sexual abuse. 21.90% child reported facing severe forms of sexual. Every second child reported facing emotional abuse."

Objectives:

1) To examine gender difference in childhood maltreatment among adolescents.

2) To examine difference in childhood maltreatment among private and government schools' students.

Hypotheses:
1) Girls would score higher in overall childhood maltreatment.
2) Government school students would score higher in overall childhood maltreatment.

Method

Sample -A group of 60 adolescents, 30 males and 30 females (13-15 years of age) were randomly selected from different government and private schools of

Madhupur (Jharkhand), India. All of them were students of class 8th and live in rural areas. They were equally divided in terms of gender. It means, among 30 government school students, 15 were males and 15 were females. Similar division of sample was present in case of private school students.

Tool:

Child Abuse Checklist: Developed by Dr. Sushma Pandey in 2012. Its coefficient α is .89 and test-retest reliability is r = .79. It has total 110 items including items for sexual abuse, emotional abuse, physical abuse, emotional neglect, educational neglect and physical neglect. Scoring of each item is done by 4-point Likert scale (from very rarely to respectively).

Procedure: At first I randomly selected 60 adolescent participants from different schools of Madhupur (Jharkhand). After rapport establishment by general conversation with participants, informed consent had taken and data collection was done in groups with the help of tool. Tool was self-reported scale. So, when they filled it, thanked them and analyzed the result.

Statistical analysis: Mean, Standard Deviation and independent sample t-test were calculated.

Result and Discussion

Table 1.1- Mean scores of girls and boys on different types of maltreatment.

On the basis of findings from data, the following result is interpreted.

Groups	Mean scores on different types of maltreatment						
	Physical abuse	Emotional abuse	Sexual abuse	Emotional neglect	Physical neglect	Educational neglect	Total
Boys	44.17	29.63	26.07	31.07	18.6	18.87	168.4
Girls	26.97	51.83	58.73	19.03	28.6	38.33	223.5

Table 1.2: Mean, SD and t-ratio of boys and girls for maltreatment

Groups	Maltreatment					
	N	Mean	SD	df	t-test value	significance
Boys	30	168.4	35.88			
Girls	30	223.5	26.05	58	6.8	.001**

Table 2.1- Mean scores of both groups on different types of maltreatment.

Groups	Mean scores on different types of maltreatment						
	Physical abuse	Emotional abuse	Sexual abuse	Emotional neglect	Physical neglect	Educational neglect	Total
Government school students	39.47	41.67	40.2	26.5	24.77	30.63	203.23
Private school students	31.67	39.8	44.6	23.6	22.43	26.57	184.27

Table 2.2: Mean, SD and t-ratio of government and private school students for maltreatment.

Groups	Maltreatment					
	N	Mean	SD	Df	t-test value	Significance
Government school students	30	203.23	35.2	5	2024	.05*
Private school students	30	184.27	44.85			

From tables 1.1 and 1.2, the result of the present study shows that, overall mean scores in Child Abuse Checklist is 168.4 (moderate level) for boys and 223.5 (high level) for girls. Also, t-test for childhood maltreatment shows significant difference between girls and boys at 0.01 and 0.05 level. The results indicate that boys suffer more physical abuse and emotional neglect; while girls suffer more sexual abuse, emotional abuse, physical neglect and educational neglect. So, our first hypothesis was proved and null hypothesis is rejected.

From tables 2.1 and 2.2, the results indicate that government school students suffer more physical abuse and emotional abuse; while private school students suffer more sexual abuse. In case of neglect, government school students suffer more from that than private school students. It includes emotional neglect, physical neglect and educational neglect. Overall mean scores in Child Abuse Checklist is 203.23 (high level) for government school students and 184.27 (high level) for private school students. Also, t-test for childhood maltreatment

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shows significant difference between government and private school at 0.05 level. So, our second hypothesis was proved and null hypothesis is rejected.

In India, researches were done to find gender difference in terms of childhood maltreatment among children and adolescents. But there is a lack of those studies which find differences among government and private school students. As we know that, social environment is a determinant of development. Our psychological, social and cultural developments are based upon the society where we live. But, now a days, even rural society changes rapidly. Therefore, we can also find these differences in school environment. As we can see in this study, difference on overall maltreatment is statistically significant at 0.05.

India has the dubious distinction of having the world's largest number of sexually abused children; with a child below 16 years raped every 155th minute, a child below 10 every 13th hour and one in every 10 children sexually abused at any point of time. A study by the Union Ministry of Women and Child Development (MWCD) also showed that 53 per cent of the interviewed children reported having faced some form of abuse and boys were as vulnerable to abuse as girls.

Daral et al. (2016) studied on adolescent females from Delhi and found that 70% were subjected to at least one form of maltreatment and 27% of females reported sexual abuse. My findings in childhood maltreatment is supported by Banerjee (2001); Hasnain& Kumar (2006). Kumar, Singh and Kar (2017) that boys suffer more from physical abuse than girls and physical abuse is more severe among government school students. Daral et al. (2016) found that physical abuse is more common in rural areas and among government school student.

Now a days, government and organizations like UNICEF, Save the Children, ISPCAN, etc. collect data for childhood maltreatment and try to prevent it by making laws. India, have several laws and policies for protection and care of children like POCSO (2012), child rights in the five-year plans, etc. but, very less intervention programs for the treatment of abused children and adolescents. It should be major concern.

Conclusion

The present study examines gender difference in the association of childhood abuse and trauma among government and private school students. It is based upon care and concern towards adolescents of rural and urban areas both. We can conclude from the overall results that, boys suffer more physical abuse and emotional neglect while girls suffer more emotional abuse, sexual abuse, physical neglect and educational neglect. Overall, girls suffer more from maltreatment. In case of school environment, government school students suffer more childhood maltreatment than private school students. In the rural areas of government schools, neglect is more focused than abuse. In case of maltreatment, government school students suffer more from physical abuse, emotional abuse, emotional neglect, educational neglect and physical neglect than private school students. But sexual abuse is more focused among private school environment. Significant difference was found in overall maltreatment between government and private school students in terms of gender. Sexual abuse is higher in girls in both types of school environment. Mostly girls from government schools reported about sexual abuse from known persons, while mostly girls from private schools reported it from bystanders. It is not only a comparison, but is a matter of rapid social change. If we want to build a glorious and healthy upcoming future, then we have to teach them self-protection, parents and teachers both have to help them to fight from maltreatment. Because, it is an increasing problem for us and it is necessary to use appropriate intervention for the aforesaid problems. It's a matter of care and concern towards adolescent's health and behavior.

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PSYCHOSOCIAL BEHAVIOR OF TRAUMA

Priyanka Shukla[1]

Introduction

Psycho Social Behavior is behavior directed towards Society, or taking place between members of some species. Behavior such as predation which involves members of different species- is not social. It is a Combination of psychology and social behavior. It is also known as psychological development in society.

Trauma as direct personal experience of an event that involves actual of threatened death of serious injury, threat to one's physical integrity. And psychologically traumatic experiences often involve physical trauma that threatens one's survival and sense of security.

Social Psychology studies the experience and Behavior of Individuals

Social Psychology studies both the observable and emotions and thoughts which cannot be observed directly for these behaviors the stimulus situation can be individual two-person situation (dyadic).

Treatment of trauma related disorders

Refugee families in need, especially those with one or more members suffering from a trauma related disorder would benefit from immediate access to health care service and other targeted support services that can provide relief to the family system as a wale.

For example, after a suicide attempt is highly recommended that the entire family receive psychological support and be involved in the treatment.

Causes of Social Behavior and thought

The following factors that affect social interaction have been most studied-

    I.   Basic Cognitive processes: memory, reasoning belief, ideas, judgments about others.

    II. The Cultural Context: cultural norms, membership in various groups.

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III.   Biological aspects of human behavior and genetic inheritance relevant to social behavior.

IV. Social Psychology focuses on understanding the causes of social behavior and on identifying factors that shape our feelings, behavior and thought in social situations.

Trauma from Freud to Martin–Baro:
I.   Freud and psychic trauma

In the first approach to the subject, Freud establishers that psychic trauma is the consequence of a major trauma event or of a temporal sequence of smaller traumas that have impacted the psyche of the subject overrunning its protective barrier. The trauma is established as a psychic event only when the protective barrier has been over ran by the energy intensity of the event and the perseverance principle has been broken only under these internal conditions of the psyche do the trauma manifestations themselves begin to appear.

I.   Masud Khan and Cumulative trauma

Khan dwells deeper on the initial stages of the subjects is life analyzing the mother- child relationship. In his Conception, this relationship Concentrates the largest amount of emotionally significant event for the child, and some of them as sub-traumatic. The mother acts as auxiliary I for an individual that establishes a link of dependency for the satisfaction or his needs, link on psychological or psycho- emotional in nature under these Conditions of intense emotional exchange these sub-traumatic experiences can be expected to accumulate as a silent over imposition of unsolved relational Conflicts that surpass the adaptation mechanisms of the child and at a given moment of the vital cycle – end of becoming the psychic trauma.

II.   Ignacio Martin – Boro and Psycho social trauma

With Martin-Boro the analysis of psychic trauma moves physically to Latin America and chronologically to the last decades of the millennium. Analyzing the psychosocial consequences of the prolonged armed Conflict in the EI Salvador, Martin – Boro theoretically drew up a proposal for conceptual integration as from a new socio-political and psychosocial reference frame work.

These are not social individuals who live the drama of violence in a sort of

outside loneliness of their intra-psychic field, but groups or human collections where it is possible to existence of interconnecting bridges between their experiences. Every subject elaborates in a peculiar fashion. But always socially the traumatic experience within their socializing Contexts family, community, social organization, political parties, etc.

III. Trauma our Institutional approach

CINTRAS has developed its theoretical perspective of traumas from its own clinical and psychological practice, attaching great importance to the exchange for many years with other terms that have also been working in the field of mental health and human right. Our vision begins with the application of a historical – social focus and with the unique Contribution of social medicine to the field of psychiatry and social psychiatry with the theoretical and methodological frame work we approach a specific perception of the human person, society, political violence and psycho social trauma.

Psycho social adaption and support

Psychosocial adaption is a process of fitness in person – environment congruence known as adjustment, a state of wisdom-oriented activities and psychosocial equilibrium psychosocial support is the provision of psychosocial and social resources to a person by a supporter intended for the benefit of the receiver's ability to cope with problems faced.

Psychosocial assessment and intervention

Psychosocial assessment considers several key areas related to psychological and social functioning and the availability of supports. It is a systematic inquiry that arises from the introduction of dynamic interaction it is an ongoing process that continues throughout a treatment and is characterized by the circulating of cause – effect/ effect cause.

Psychological trauma

Psychological trauma is a type of damage to the mind that occurs as a result of a distressing event Trauma is often the result of an overwhelming amount of stress that exceeds involves with that experience.

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TRAUMA MANAGEMENT TACTICS

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Abstract

Trauma management training of health-workers plays a pivotal role in controlling the ever-growing trauma burden. Delivering trauma training at the grass root level is required to determine its desirable effect in improving clinical competence and retention of knowledge and skills in the long term. Trauma Tactics is a solution that focuses on high-fidelity of patient was created to meet this educational need. Trauma Tactics is a high-quality programme that provides a valuable and impactful educational experience. Further research is needed to evaluate the long-term effects of Trauma Tactics and its impacts on quality of care and patient outcomes. Traumatic injuries are a neglected epidemic in developing countries. More than five million deaths/per year are related to injury, and 90% of this burden is borne by low and middle-income countries (LMICs). This burden is expected to grow and current projections estimate that it will overtake HIV/AIDS and TB as a cause of world mortality by 2020.

The research paper deals with the causes of trauma and the ways to manage it. Management of trauma deals with the tactics which are used by the professionals like doctors, Psychiatrist helping the trauma suffering persons to overcome the situation. As trauma is a problem dealing with the physical as well as mental disorder so the paper also focuses on the role of academician and educationist who play a support role for the patients in overcoming this disorder. The study of the paper is based on the secondary data and the data is collected from various research papers, articles and journals etc. The main theme of the paper is the trauma management at the grass root level.

Keywords: Trauma Management, Tactics, Psychiatrist, Academician, Educationist, programme.

Introduction

Trauma management tactics are the techniques which are used to manage and curb down the inquiries both physical and mental caused due to accidents like road, railways etc which causes adverse impact on the Indian economy.

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The frequency of traffic collisions in New Delhi is 40 times higher than the rate in London.

The total registered motor vehicles in India were 21 crores as on March 31st, 2015. Seven states were having more than 1 crore motor vehicles which were registered and the states were Maharashtra, Tamil Nadu, Uttar Pradesh, Gujarat, Karnataka, Rajasthan and Madhya Pradesh as on March 31st, 2015.

Maharashtra counts to more than 2.5 crore registered motor vehicles and had a share of 12.17% in the total registered motor vehicles in India as on March 31st, 2015. Tamil Nadu counts to 2.25 crore and it had a share of 10.72% in the total number of registered motor vehicles in India as on March 31st, 2015. Uttar Pradesh counts to 2.26 crore and it had a share of 10.3% in the total number of registered motor vehicles in India as on March 31st, 2015. Gujarat counts to 1.87 crore and it had a share of 8.91% in the total number of registered motor vehicles in India as on March 31st, 2015. Karnataka had 1.47 crore and it had a share of 7.04% in the total number of registered motor vehicles in India as on March 31st, 2015. Rajasthan had 1.5 crore and it had a share of 5.89% in the total number of registered motor vehicles in India as on March 31st, 2015. Madhya Pradesh had 1.11 crore and it had a share of 5.3% in the total number of registered motor vehicles in India as on March 31st, 2015. Among the Union Territories, Delhi had the maximum registered motor vehicles and it was 89 lakh and it had a share of 4.21% in the total number of registered motor vehicles in India as on March 31st, 2015.

Death related to Traffic collision increased from 13/hour in 2008 to 14/hour in 2009. **Motorcycles and trucks collision accounts to about 40 percent of these causalities** The most accident-prone time on Indian roads is during the peak hour at afternoon and evening. According to road traffic safety (RTS) experts, as many traffic accidents go unreported, the actual number of casualties may be higher than what is documented. Moreover, there are some victims who die after some time after the accident, i.e. a span of time which may vary from hours to several days, are not counted.

According to NGO, 'Indians for Road Safety' one person dies every 4 minutes in roads accidents in India in 2015. India stands out miserably in the "Global Road Safety Report-2016" published by World Health Organisation's (WHO) with an estimated 2.07 lakh deaths on roads.

Methodology

The study in the paper is based on the secondary data which is collected through Research papers, articles, journals etc.

Objectives: The main objective of the paper is:

- Trauma injuries caused by automobiles and the mental trauma cases.
- Effect of education and awareness in reducing trauma injuries.
- Role of professionals in trauma management.

Data Review

In India, a serious road accident occurs every minute and every hour 16 people die on Indian roads. And about 1214 road crashes occur every day in India. And the death caused by two wheelers for 25% of total road crash deaths. Under the age group of 14, 20 children die every day due to road crashes in the India. About 377 people die every day, which is equal to a jumbo jet crashing every day. State with maximum number of road crash deaths is Uttar Pradesh where two people die every hour. And Tamil Nadu is the state with the maximum number of road crash injuries. There is the list of 10 Cities with the highest number of Road Crash Deaths (Rank –Wise):

RANK	CITIES
1	Delhi (City)
2	Chennai
3	Jaipur
4	Bengaluru
5	Mumbai
6	Kanpur
7	Lucknow
8	Agra
9	Hyderabad
10	Pune

Source of Information: National Crime Records Bureau, Ministry of Road Transport & Highway, Law commission of India, Global status report on road safety 2015

In India the figures for those who were died on the roads came down by 4,560 i.e. 3% in 2017 from 1.51 lakh the previous year(2016) to 1.46 lakh, this was stated by the Supreme Court Committee on Road Safety said in a report to the apex court on Wednesday. West Bengal, Punjab and Gujarat had shown a decline but on the other hand Bihar, Odisha, UP and MP has reported more deaths.

The Planning Commission estimated that there is a huge monetary loss due to traffic collision and it was stated in its 2001–2003 research and estimated annual monetary loss of $10 billion (Rs. 550 billion) during the years 1999–2000. And it was stated in 2012 by the International Road Federation(IRF) that traffic collision results in an annual monetary loss of $20 billion (Rs.1 trillion) in India. The above figure includes expenses linked with the accident victim, property damage and administration expenses.

Source: National Data Sharing and Accessibility Policy (NDSAP)

Years	Number of persons injured
2011	554324
2012	500324
2013	494893
2014	493474
2015	493001
2016	492245
2017	489546

Literacy rate (%)

Census year	Male (%)	Female (%)	Total (%)
1951	27.16	8.86	18.33
1961	40.4	15.35	28.3
1971	45.96	21.97	34.45
1981	56.38	29.76	43.57
1991	64.13	39.29	52.21
2001	75.26	53.67	64.83
2011	82.14	65.46	74.04

Major Role of Professionals In Trauma Management

In this research paper literacy (including the awareness programmes, counselling and training programmes) is linked with the trauma injuries to show the impact of professional in reducing the trauma cases. Spreading literacy and awareness is the best tactic in managing the trauma injuries. There are some measure and role which have focused on the reduction in the trauma calamites.

Campaign against Drunken Driving (CADD) is an organization founded by Prince Singhal which is campaigning against driving under the influence. But this campaign has been ineffective. The IRF asserts that people in India's political sphere do not have the will to curb traffic accidents. Harman Singh Siddhu of Arrive Safe, an organization which is working for the improvement in road traffic safety, asserted that due to the high ignorance level and general lack of respect for traffic rules in India had contributed as a main factor for road accidents. He also pointed out that although the 2010s was declared as "Decade of Action for Road Safety" by the United Nations, though no celebration was held in India. An online portal was developed byCSIR - Central Road Research Institute. The main purpose of the portal is to encourage people to report about the accidents as they witness. A low-cost device was developed by a group of Indian Researchers which prevents automobile drivers from taking or making cell phone calls when at wheel, but allows calls to other passengers in the vehicle.

Road safety is emerging as a main social concern in the country and the Indian government has been attempting to tackle this crucial issue for several years. In 2014, the Road Transport and Safety Bill were to provide a structure and a framework for faster, safer, cost-effective and inclusive movement of passengers and freight in India. In July 2015, the Indian Prime Minister Narendra Modi said that his government will introduce laws as soon as possible to enhance road safety as traffic fatalities and injuries mount and a new Road Transport and Safety Bill is under consideration and prepared by a group of experts underlined the "urgent" need of comprehensive/detailed national road safety legislation.

An initiative from World Resources Institute (WRI) named as Embark India, developed a most significant expertise in conducting road safety audits on a number of bus rapid transit systems in India. ARRIVE SAFE is a NGO who works as a pressure group to give a wake-up call to authorities concerned and shake the bad driving habits of Indian people. Indian driving schools focus on youth and youngster to develop and enhance the art and skill of efficient driving.

Many multinational companies fund NGOs had played as part of their own road safety initiatives:

- The MNC Maruti Suzuki has been working closely with Ministry of Tribal Development (MTD) in Gujarat with the main motive to train young people in driving.

- Michelin, co-founder of the Global Road Safety Initiatives (GRSI) established in India had signed an innovative partnership with PVR Cinemas. PVR Nest as part of its CineArt with "Steer to Safety" program to educate and make aware of children about road safety. Through this platform, children will learn how to prevent and to manage in emergency situations on Indian roads.

- Henkel has initiated a road safety initiative is an effort to address the topical issue of safety standards on the road in India

The World Health Organization (WHO) published a report named "Globe Status Report on Road Safety" which identifies the major causes of traffic collisions. The major causes highlighted were:

1.   Driving over the speed limit.
2.   Driving under the influence and not using helmets and belts.
3.   Failure to maintain lane or yield to oncoming traffic when turning are prime causes of accidents on four lanes.
4.   Non-access controlled National Highways.

The report included the users of motorcycles and motor-powered three wheelers constitute the second largest group of traffic collision deaths.

Academy of Traumatology (India) for the first time in India is dealing in, offering and promoting education and training in acute trauma management. The flagship programme i.e. National Trauma Management Course (NTMC™) is the programme which is held periodically across the country.

The activity of the programme is supported by various national and international organisations involved in acute trauma care around the world.

This organisation "Academy of Traumatology (India)" is dedicated to improvement in Trauma and Emergency Care and trauma management measures in India through creating awareness and promoting Trauma and Emergency Medicine as medical specialties. To accomplish the motives of the organisation, through National Trauma Management Course (NTMC™), Cardiac Life Support, Disaster Preparedness Course., other educational programmes, Consultation, Research and Training for doctors and health care professionals in India with national and global perspective

A short-term course named as **EMTC (Early Management of Trauma Course)** is a 3-day program which is currently held at Pushpagiri Medical College at Tiruvalla, Kerala twice a year was previously conducted at Christian Medical College at Vellore, Tamil Nadu. The course is basically open to doctors, interns, emergency medical technicians and nurses for their enhancement/ improvement in their trauma management tactics.

Findings

In the data review, if we compare the trauma injuries on one hand and the literacy (including the awareness programmes, counselling and training programmes) on the other we find that there is direct relationship between the two. The following data states that in the following years as the literacy rate of

the population had gone up the number of road accidents had decreased at decreasing rate. As the literacy rate had increased around 10%. This significant change is quit considerable and on the other hand the decline in the accidents.

Conclusion

It can be concluded that literacy is one of the major factors which can reduce the trauma (physical as well as mental) injuries. If we increase the literacy among the people, we can reduce the amount of trauma injuries in the country. Among the 160 countries India ranked 112 positions in the world safest countries.

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THE ROLE OF YOGA IN HEALING TRAUMA AMONG ELDERLY PEOPLE: AN ASSESSMENT

Smita Roy[1]

Abstract

Yoga can improve the lives of people of all ages in a variety of means, including reducing trauma, stress, anxiety and depression, refining performance at work and in sport, decreasing risk of heart disorder, obesity, diabetes and cancer and fast-moving recovery from physical activity. Yoga makes us feel good exceptional, enlightening our sense of well-being and making us feel brighter, more linked to ourselves and thankful of the significant relationships in our lives. Many of these benefits are no different for elderly people. As we grow older, muscles incline to stiffen, our joints lose their variety of gesture and we become more vulnerable to chronic complications such as osteoporosis, arthritis and heart disease. Yoga aids to delay the effects of the ageing procedure by preserving muscle smoothness and elasticity, keeping the mind attentive and wakeful, cheering relaxation and firming up muscles and joints. Its multi-pronged approach can inspire the body, mind and spirit to remain healthy and strong while reducing the effects of many age-related issues. This paper will try to explore the benefits of yoga for elderly people and will also try to know how yoga has changed the lives of seniors.

Introduction

Yoga can transform the lives of people of all ages in a variety of ways- including reducing stress, anxiety and depression, improving performance at work and in sport, reducing risk of heart condition, obesity, diabetes and cancer and speeding up recovery from training. Yoga makes us feel good all-around, improving our sense of well-being and making us feel lighter, more associated to ourselves and grateful to the important relationships in our lives.

Practice of Yoga benefits people of all ages, younger or older. Yoga is advantageous for older people, unfit people and unhealthy people too. Yoga aids all. Yoga aids and assists in healthy retirement. Yoga is not only for the young, but also for fit and healthy people.

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Yoga was envisioned for spiritual advancement, but increasingly nowadays it is used for its supplementary benefits such as stress reduction and managing lifestyle related disorders. Despite its Indian origin, the number of yoga practitioners in Western society is growing, for example, in the United States, a national study showed that 6.1% of the adults were practicing yoga in 2007. Apart from the benefits of Yoga practice in preventing and managing disease, yoga has numerous applications in rehabilitation (*rehabilitare*= to restore, in Latin). There are various types of rehabilitation such as -

- Physical,
- Psychological, and
- Social.

Yoga, as a way of life, has facilitated persons with physical disorders to homecoming to health, an example being coronary artery disease. Other conditions which have benefitted from yoga practice include stroke after cerebrovascular accidents and patients with heart failure, in whom exercise capacity, oxygen saturation, and parasympathetic activity were restored. Yoga breathing or *pranayama* was especially beneficial for elderly people. Practicing yoga has also been used with good results in degenerative disorders such as idiopathic Parkinson's syndrome and muscular dystrophy in old age.

Yoga practice has helped restore the psychological function and mental equilibrium in persons with posttraumatic stress disorder and even certain psychotic conditions with regard to psychological rehabilitation. Lastly, yoga rehearsal can aid people who are at a disadvantage because of their societal surroundings. This comprises of persons in jail, those from the *"inner city"*, children in remand homes, and older people living in community centres. Dimensions of physical and psychological rehabilitation comes under Social rehabilitation.

Yoga and Mental Health

Yoga contains the integration of physical movement with breath consciousness and focused attention. Yoga facilitates neural communication between the brain and body, and the integration of both top-down and bottom-up cognitive processing, unlike most other disciplines. Top-down processing refers to conceptually driven mental events that are inclined by thoughts, expectations,

values, and beliefs. When engaging in top down processing you use existing knowledge and seek out information and experiences that *"fill in the blanks".* Rather than figuring out each situation from scratch, this permits you to use amassed knowledge as a frame of reference, it also means that you are better able to regulate emotions such as fear and anxiety. In bottom-up processing, information from the external environment is cleaned through the brain's emotional circuitry prior to being projected to higher order "*thinking"* centers for understanding. For instance, when a pedestrian step in the path of your car, you slam on the brakes to avert an accident. It is not until after an accident has been prevented that you interpret the details of the event. Top-down processing allows you to maintain composure while handling complex problems.

Bottom-up processing supports in your immediate survival. To maintain a healthy emotional balance, both systems are necessary. Yoga is planned to engage both the top-down and bottom-up systems. By coordinating breath with movement, one becomes increasingly more aware of the physical and mental events that shape your experience, and are better able to concentrate and endure attention. Try standing on one foot while solving a complex problem, and one will notice that it is very difficult to do both well. Yoga enables you to train and enhance one's mental energy and harness it in appropriate ways.

Ten Good reasons for practising Yoga in later life

- Yoga postures (asanas) develop strength and flexibility in joints and muscles and increases the range of movement. This lessens the probability of developing deteriorating diseases such as arthritis and chronic pain as we age.

- Yoga advances our wisdom of balance, body consciousness and attentiveness, thus reducing the risk of falls and fractures in seniors.

- Yoga asanas upsurge bone density and strengthen bones, decreasing the risk of bone deteriorating diseases like osteoporosis, (the reduction in bone density and weakening of bones as we age) another common reason of fractures in elderly people.

- Yoga asanas correct bad posture. Good posture improves spinal health, reducing the risk of back pain, sciatica and herniated disc (slipped disc), it also allows the lungs space to function fully.

- Yoga asanas (postures) and pranayamas (breathing exercises) work in tandem to increase lung capacity. By emerging better lung function regular Yoga practise directs more oxygen in the blood, which leads to enhanced functioning of all the systems of the body.

  - Yoga trainings improve the circulation of blood and the lymphatic system, helping to remove toxins and fortify the immune system.

  - Yoga asanas and pranayamas effort together to encourage the nervous system and the brain, thus improving the memory and powers of concentration, improving the temperament and relieving apprehension.

  - Yoga asanas effort on the digestive organs and endocrine glands to advance the digestion and bowel function. Improving the quality of the food we eat, and increasing the competence of the digestive system can reduce the wish to overeat unhealthy foods.

  - Yoga asanas, pranayamas and meditation have been shown to reduce levels of stress, lower blood pressure, regulate blood sugar and cholesterol, therefore reducing the risk of stroke, heart disease and diabetes.

  - Yoga leads to a constructive and satisfied state of mind through the regular practise of asanas, pranayamas and relaxation. A relaxed mind and pain free body improves the quality of sleep and sleep behaviours.

Yoga benefits for Elderly People

Aging is unavoidably a natural process however its deterioration and related health hazards can at best be suspended to an extent through implementation of yoga. Yogic rehearsal can delay the age-related properties of aging motor systems as well as pathological conditions. Scientific surveys on Yoga have authenticated some of the claims that this system of natural therapy can control geriatric problems.

Various benefits of yoga are no different for elderly people. As we get older, muscles incline to stiffen, our joints lose their range of motion and we become more prone to chronic problems such as osteoporosis, arthritis and heart disease. Yoga can help slow down the effects of the ageing process by

maintaining muscle softness and flexibility, keeping the mind alert and awake, encouraging relaxation and strengthening muscles and joints. Its multi-pronged methodology can encourage the body, mind and spirit to remain healthy and strong while reducing the effects of many age-related concerns.

If you are a senior or elderly, regular yoga practice (2-3 times/week) can play an important part in keeping you healthy, because yoga helps:

- Decrease swelling in joints
- Increase joint mobility and strength
- Improve balance and stability
- Reduce chances of having a fall Improve cardiovascular health
- Help digestion and elimination
- Improve sleep
- Lower blood pressure and cholesterol
- Increase blood flow
- Improve mood and well-being
- Recovery from surgery
- Aid in the grieving process
- With depression and anxiety.

How Elderly People should do Yoga?

The old age people should perform yoga carefully. There are some recommended procedures for practicing Yoga with active elderly people:

- They should perform Yoga under the supervision of a yoga expert or a yoga instructor.
- The instructor should be aware of their health anxieties and capacity level.
- Payable care should be taken for body alignment and posture.
- Reduce the length of time for which yoga pose is maintained.
- Elderly members may not have the strength required to hold the pose for a longer period of time but will gain strength from practicing the pose even for ten or fifteen seconds.

- Whenever there is a stretch in a particular asana, care should be taken to relax the tension.

  - Motivate them and praise their efforts.
  - Attention on poses, which stretch and strengthen areas, which are typically tight or weak in seniors. Ankles, hips, hamstrings, low back, and pectorals need special attention.
  - Do not perform a lot of difficult poses.

Why Yoga for Elderly People?

- Yoga helps to diminish positive pressure *(atmospheric)* and increase negative pressure *(anti-atmospheric)* thus good for prostate glands.
- Some researches disclose that yoga reduces urinary acidity and uropepsin.
- Practicing yoga has noteworthy contribution for reduction of high blood pressure, heart rate and coronary problems.
- Yoga lessens the activity of Reactive Oxygen Species (ROS) i.e., oxygen free radicals thereby decreases neuro-generative disorders, oncogene activation and probabilities of diabetes and so many health disorders.
- Yoga literature suggests filling 50% of the stomach with solid food (rice, chapatti, vegetables etc.), 25% with water and remaining 25% should be kept empty for healthy living.

Best Yoga Asanas for Elderly
- *Shavasana*
- *Uttanapadasana*
- *Naukasana*
- *Pawanmuktasana*
- *ArdhaShalbhasana*
- *Shalbhasana*
- *Bhujanasana*
- *Makrasana*
- *AnulomVilom Pranayama*
- *Bhramri Pranayama*

Retirement and Yoga

By the time we reach middle age, our bodies and our minds have been shaped by the way we have lived - the type of work, the sport and exercise (*or lack of exercise*) we have done, the food and drink we have taken in, and. Young people take their bodies and the thought patterns we have developed minds for granted, paying them little attention. We are never taught to breathe, it is just something we do naturally, isn't it? Studies have revealed that many people breathe incorrectly, or in reverse, that is drawing in the abdomen as they inhale, instead of permitting the abdomen to expand and fill with air. We learn to walk at one or two years old, then just keep putting one foot in front of the other without thinking about it. During the busy period of working and raising a family there is little time to be troubled with such things.

Elderly People Can Make Retirement the Best Time of Life

Retirement from paid work offers a golden opportunity to re-assess the way in which our body and mind is functioning. Self-study and self-assessment forma essential part of Yoga. Without developing a sense of self-awareness there can be no starting point from which to begin a programme of self-improvement. Once we become conscious of our strengths, and our weaknesses, we can begin to train our body and our mind to follow a new track. Retirement offers a chance to apply time with ourselves, and to take care of ourselves. Elderly people can practice yoga and also can embark on the positive and exiting road towards better health. The supplementary spare time which retirement gives, if used thoughtlessly can easily lead to deteriorating health. Longer make the excuse that we don't have time to look after our own health and wellbeing, because we are too busy doing things for others. Retirement is a crossroads in our lives, when we have the chance to take a new path - or to continue along the old one. It is a time when we can choose whether to head downhill towards deteriorating health and for problems, if we take an example, someone who is habitually anxious, given more time alone, without work to do may become obsessed by small habit is not checked. An office worker already suffering from back ache and rounded shoulders after years working on a computer, who continues to sit for most of the day and does not take the chance to stretch the spine in diverse ways, will soon develop serious back problems. Even the person who, with the intention of keeping fit, continues the same repetitive sporting actions, with age, can do permanent damage to joints and muscles unless the actions are countered by different movements and stretches.

Yoga offers the best form of exercise for ignored, overworked or damaged bodies, and relieves the stress of disorderly minds. Yoga is about "optimizing the function of every system in your body from the muscles to digestion, circulation and immunity". It is about emotional well being, spiritual flexibility and resilience, even enjoyment. Yoga imparts that only when these elements are associated, you can maximize your chance for health and healing.

Conclusion

One of the most unbelievable benefits of yoga is its low-impact, lifelong practice properties. Yoga can be practiced from age three to ninety-three. Recently yoga has really caught on with the baby boomer generation and those now entering their golden years.

Yoga is incredible for an elderly population to help them preserve their balance, keep their joints flexible, maintain bone health and muscle mass, as well as learn how to handle with their mental state as they witness their bodies ageing. Yoga is great for focus, concentration, and emotional well being. Seniors can benefit tremendously from the practice and it gives them a place to tranquil their mind and start to slow down in life. Group classes are also wonderful for an elderly population because it gives them a wisdom of determination and community.

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DYSFUNCTIONAL ATTITUDE, SPIRITUALIY AND HEALTH LOCUS OF CONTROL IN WOMEN WITH INFERTILITY

Shruti Sharma[1]

Introduction

Throughout the history, infertility has been a culturally sensitive issue and has traditionally been a concern of the individual rather than society at large. It is regarded throughout that, in patrilineal societies the wife often has no status until she produces a child for the husband's family line. In India, high value is placed on children as a great source of social security for old age (c.f. Shivaraya, 2011).

The World Health Organization (WHO) estimates that 60 to 80 million couples worldwide currently suffer from infertility and overall prevalence of primary infertility in India to be between 3.9 and 16.8 per cent (c.f. Adamson et al., 2011).

Infertility is a complex life crisis that may last for many years; women with fertility problems may suffer from impaired cognitive status, multiple losses, grief and role failure. It can be accompanied by huge personal, marital, social, cultural, emotional, and medical consequences. Infertility is debilitating and is ranked as one of the greatest sources of stress in a woman's life comparable to cancer its stress is ranked as second to that involving the death of a family member, or divorce by couples (c.f. Roudsari, 2007).

As it has been identified, infertility can lead to chronic stress which in turn can lead to depression and anxiety. Research indicates that anxiety disorders frequently co-occur with depressive disorders (c.f. Thompson, 2013).

Infertility is, by definition, a loss of control over one's reproductive ability. Infertile individuals are poignantly aware of their inability to control reproduction, and this perceived lack of control might increase the psychological distress of infertility. Studies have found that infertile individuals experience a loss of control. Loss of control was viewed as aversive and likely to lead to depression and other negative effects (c.f. Campbell et al., 1991).

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Infertility: An Overview

In India, women are symbolized as the image of procreation. Motherhood is considered a source of power for a woman, one that determines the strength of her marital bonds. Infertility is viewed as deviance from the cultural norms rendering the woman helpless; it also provides grounds for divorce (c.f. Shivarya, 2011).

The problem of infertility has its roots in the fundamental need and desire for parenthood. Every human being has a desire to become a parent and look after the offspring. Parenthood, as a stage of life is characterized by the need to look after, to take care, to give both materially and in terms of affection. For a woman it is also an expression of creativity and has both biological and psychological roots (c.f. Shivaraya, 2011).

Parenthood is a fundamental human need and within a specified period, if the person does not become a parent, it leads to anxiety and loss of self-esteem. A number of psychological problems arise due to this lacuna as the person feels some sort of deficiency within himself. It holds true for both men and women though due to ignorance most of the time, the woman is blamed. Nevertheless, the psychological feelings of inadequacy can arise in either partner (c.f. Shivaraya, 2011).

Infertility is a life crisis with invisible losses, and its consequences are manifold. Childless women experience stigma and isolation. Infertility leads to a psychological imbalance, especially when a possible and quick solution is not found for it. The psychological reactions of the individual are in the form of despair, sadness, denial sense of guilt, depression, anxiety, disappointment and hopelessness, grief reaction, reduction of self-esteem, changing in the individual's mental picture and feeling a change in the self-identity comparing with healthy persons, losing life control, changing in sexual identity, marriage maladjustment sense of disqualification, life dissatisfaction, suicide, suspicion (c.f. Hassani, 2010).

Cultural Significance of Motherhood in India

In Indian cultures, the role of motherhood is inscribed in the personality of a girl child from childhood itself, either by encouraging the child to play motherly roles of caring for younger siblings or by only allowing her to play with dolls around the house. The reproductive role of women is highly recognized in these settings and the onset of puberty is joyously marked,

accompanied by celebrations that declare the girl's fertility and announce her capability for future motherhood (c.f. Shivarya, 2011).

A woman's status is determined by whether or not she fulfils her responsibilities towards the family and society, through her significant role of procreation. She is recognized as fully adult and complete in the true sense on attaining motherhood (c.f. Shivarya, 2011). Motherhood confirms a woman's status as a perpetuator of the race granting her respect that is not extended to her as a wife (Vaithilingam&Murugean, 2002). Infertility is deeply feared by women, their identity, status and security are affected and they experience stigmatization, isolation and a loss of bargaining power and empowerment in the family and society. It is a major source of anxiety, leading to lowered self-esteem and a sense of powerlessness (c.f. Widge & Cleland, 2009)

Infertility

The World Health Organization (WHO) defines health as "a state of complete physical, mental and social well-being, and not merely the absence of disease or infirmity." Infertility, accordingly, is a source of diminished health and social well-being.

WHO defines infertility as failure to conceive despite two years of cohabitation and exposure to pregnancy for a period of two years. A couple may be considered infertile if, after two years of regular sexual intercourse, without contraception, the woman has not become pregnant.

Infertility is of two types: primary and secondary.

Primary infertility: WHO defines primary infertility as the "Inability to conceive within two years of exposure to pregnancy (*i.e.* sexually active, non-contracepting, and non-lactating) among women 15 to 49 yr. old.

Secondary infertility: The woman has previously conceived, but is subsequently unable to conceive despite cohabitation and exposure to pregnancy for a period of two years. If the woman has breastfed a previous infant, then exposure to pregnancy is calculated from the end of the period of lactationalamenorrheoea.

Demographic and Clinical Picture of Infertility in India

According to Poongothai et al. (2009) it is estimated that globally, 60-80 million couples suffer from infertility every year, of which probably 15-20 million are in India alone.

The WHO estimates the overall prevalence of primary infertility in India to be between 3.9 and 16.8 percent. Estimates of infertility vary widely among Indian states from 3.7 percent in Uttar Pradesh, Himachal Pradesh and Maharashtra, to 5 percent in Andhra Pradesh, and 15 percent in Kashmir. Moreover, the prevalence of primary infertility has also been shown to vary across tribes and castes within the same region in India (c.f. Adamson et al., 2011).

PSYCHOSOCIAL CORRELATES OF INFERTILITY

Infertility is a psychologically and physically challenging stressful life event. Infertility is debilitating and is ranked as one of the greatest sources of stress in a woman's life comparable to cancer. Its stress is ranked as second to that involving the death of a family member, or divorce by couples (Domar, 2004). Infertility, according to many authors, has been viewed as a crisis (c.f. Roudsari et al., 2007).

Infertility and Quality of Life

Quality of life has become a critically important concept in health care in recent years (c.f. Lengyel et al., 2003). WHO (1997) defines Quality of Life as individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns. It is a broad ranging concept affected in a complex way by the person's physical health, psychological state, level of independence, social relationships, personal beliefs and their relationship to salient features of their environment.

Infertility affects a variety of aspects of women's and men's well-being and this is reflected in its strong relationship to global life quality. Quality of life is a construct that encompasses physical function, psychological function, somatic sensation, social interaction, occupational and financial (c.f. Fatt, 2012).

Aarts (2011) examined the relationship between emotional distress and the fertility quality of life in patients undergoing an assisted reproductive technology (ART). Significant negative correlation was found between quality

of life and anxiety and depression.

According to Stewart et al. (1989) quality of life is a good indicator of functional status and well-being of a person who has undergone treatment for medical conditions (c.f. Fatt, 2012). According to Wagner et al. (2000) quality of life is becoming important in the evaluation of treatment and assessment of medical conditions (c.f. Fatt, 2012).

Depression, Anxiety in Relation to Infertility

Psychological distress is largely defined as a state of emotional suffering characterized by symptoms of depression (e.g., lost interest; sadness; hopelessness) and anxiety (e.g., restlessness; feeling tense) (c.f. Saini, 2012).

The defining features of psychological distress are the exposure to a stressful event that threatens the physical or mental health, the inability to cope effectively with this stressor and the emotional turmoil that results from this ineffective coping. They argue that psychological distress vanishes when the stressor disappears or when an individual comes to cope effectively with it (c.f. Saini, 2012).

Depression can lead to feelings of fatigue, worthlessness, suicidal thoughts, agitation, weight loss or weight gain. It can be caused by grief, family and social isolation, physical, genetics, biological, psychological factors. All these contribute to the deterioration of quality of life. The person may not sleep well and/or eating well and may resort to smoking, alcohol or drugs to overcome the depression (c.f. Fatt, 2012).

Dysfunctional Attitude

Dysfunctional attitudes are negatively biased assumptions and beliefs regarding oneself, the word and the future. According to diathesis stress model & Beck's cognitive theory of depression, it has been proposed that two levels of cognition that is, dysfunctional attitude and automatic thoughts contribute to the development and maintenance of depression.

Dysfunctional attitudes may reflect negative maladaptive cognitive biases in which, compared to positively valenced information, the importance of negatively valenced information is exaggerated (c.f. Kallay, 2013).

Health Locus of Control

The term "Locus of control" originated from Rotter (1966). He distinguished between an external and internal locus of control. The dominant type of locus of control present in a person's life often determines his or her reactions and behaviour. The dominant type of locus of control in an individual, whether external or internal, can also be used to explain the perceptions and motivation of a person's action (c.f. Breet et al., 2010).

Researchers have found that people who are elderly and perceive their health to be largely controlled by powerful others are those who regard aspects of their quality of life as low (Brampton &Tomasevic, 2001).

Spirituality

Definitions: "Spirituality is that aspect of human existence that gives it its 'humanness'. It concerns the structures of significance that give meaning and direction to a person's life and helps them deal with the vicissitudes of existence. As such it includes such vital dimensions as the quest for meaning, purpose, self- transcending knowledge, meaningful relationships, love and commitment.

Sandelowski& Pollock, (1986) were the first authors who referred to the spiritual dimension of infertility. In their phenomenological study entitled,"Women's Experience of Infertility," they indicated that infertility has temporal and spiritual dimensions. For this reason, women with fertility problems on the one hand struggle with the body and earthly issues, and on the other hand have continuing confrontation with God, faith and other sacred concerns (c.f. Roudsari, 2007).

Methods

Aim: The aim was to study the relationship of dysfunctional attitude, spirituality and health locus of control with anxiety, depression and quality of life in women with infertility.

Hypothesis: A null hypothesis was examined with respect to each of the variables.

Design: Single-group design with a cross-sectional assessment of the study variables was employed.

Sample: Non-probability convenience sampling technique was employed to recruit patients. Sample consisted of women undergoing evaluation/treatment for primary infertility.

Inclusion criteria
- Married for at least 2 years and diagnosed as having primary infertility
- Age range of 20 to 40 year.
- Currently undergoing evaluation/treatment for infertility
- Minimum 10th standard education
- Women willing to give consent to participate in the study

Exclusion criteria
- Women with the history of current or past psychiatric illness
- Women with medical co-morbidities other than hypertension and diabetes
- Intellectual impairment

Tools

Socio-demographic Data Sheet

Socio-demographic data sheet was used to record the relevant information of the participants. The details such as name, age, education status, religion, duration of infertility, cause of infertility and duration of marriage were recorded systematically in the data.

Hospital Anxiety Depression Scale (HADS)

Zigmond and Snaith developed this scale in 1983 to assess the presence and severity of anxiety and depression in patients in non-psychiatric hospital settings. Anxiety and depression are assessed as separate components, each with 7 items that are rated from 0 (no problem) to 3 (severe); scores are added to get the total for each component.

Dysfunctional Attitude Scale - Short Form-2 (DAS)

To assess the dysfunctional attitudes, Dysfunctional Attitude Scale Short Form developed by Beevers et al., (2009) was used. It has 9 items; it is a 4-point scale, with response categories totally agree, agree, disagree, and totally disagree which is scored from 1 to 4. Reverse scoring is applied to all the items by subtracting individual item scores from a score of 5.

WHO Quality of Life Scale -BREF (WHOQOL-BREF, 1996)

WHOQOL-BREF was developed to assess the individual's perception in context of their culture and value system, and their personal goals, standards and concerns. It is a 26-item questionnaire which is assessed on 4 domains, namely, physical, psychological health, social relationships and environment. It is a self-administered questionnaire. Questions 1 & 2 indicate the overall perception of quality of life and health respectively. For each item respondent is asked to score on 5-point Likert Scale ranging from 1 to 5. The four subscales are calculated by summing up the scores of the corresponding items in each sub scales. The overall score is summation of all sub scale scores. The higher the score obtained the higher the quality of life perceived by the respondent. (WHOQOL-BREF, 1996).

Multi-dimensional Health Locus of Control (MHLC)

The Multidimensional Health Locus of Control was developed by Ken Wallston et al., (1994) at Vanderbilt University and consists of three forms (A, B & C). Form A & B are the "general" health locus of control scales that have been in use since the mid- late 1970's (and were first described in Wallstonet al., 1978, Health Education Monographs, 6,160-170). Form C is designed to be used for "condition specific" and can be used in place of Form A/B when studying people with an existing health/ medical condition. In the present study Form C was employed. It contains 18 items divided into 4 subscales: internal, chance, doctors and other people. Higher score reflects stronger endorsement of particular locus of control scale.

Spirituality Scale (SS)

The Spirituality Scale was developed by Colleen Delaney in 2003. The Spirituality Scale (SS) is a holistic assessment instrument that focuses on the beliefs, intuitions, lifestyle choices, practices, and rituals that represent the human spiritual dimension. The SS is designed to assess the essence of spirituality in a format that can be used to guide spiritual interventions. It is a 23 items scale; 6-point Likert-type scale. 3 subscales: self-discovery, relationships, Eco Awareness. The statements have to be encircled to the appropriate number that corresponds with the answer key. Key: Strongly Disagree: 1, Disagree: 2, Mostly disagree: 3 Mostly agree: 4, Agree: 5 Strongly Agree: 6.

Procedure

Patients diagnosed with primary infertility were recruited based on the inclusion and exclusion criteria from the private outpatient clinics of infertility (Oasis Centre for reproductive medicine & Narmada fertility clinic) inSecunderabad/ Hyderabad, A.P. The order of administration of the questionnaires was constant for all subjects. Each session lasted approximately 30 minutes. At the end of the data collection subjects were thanked for their cooperation. The data were coded and entered in the software-based data sheet and subjected to analysis.

Statistical Analyses

Statistical package for social sciences (SPSS) – version 16 was used to carry out the analysis. Descriptive statistics was employed to understand the demographic data. Student's t-test was used to determine the significance level between variables. Pearson's correlation method was employed to determine the association between variables.

Results : Table 1: Characteristics of the study population (N = 63)

Variables	Mean (SD)	Percentage
Age (Yr.)	31.28 (3.59)	
Duration of marriage (Yr.)	6.26 (3.53)	
Education		
Up to Intermediate		4.80
Above Intermediate		95.20
Religion		
Hindu		90.50
Muslim		6.30
Christian		3.20
Occupation		
Housewife		54.0
Working		46.0

In the above table, the demographic characteristics indicated mean age of the women was 31.28 years (SD = 3.59). Almost all subjects had above intermediate education (95.2%) and were Hindu (90.5%). More than half of the subjects were house wife (54.0%). Mean duration of marriage was 6.26 years (SD = 3.53) and mean duration of infertility was 4.33 years (SD = 2.54). In the sample 27% of women had polycystic ovaries, 12.7% had endometriosis as the cause of infertility and 60% of them had other conditions and unknown cause of infertility.

Correlation analysis between DAS with duration of infertility was carried out. The results showed no significant correlation between DAS and duration of infertility (r = -.20).

Table 2: Mean (SD) scores on HADS subscales in High (n = 30) and Low (n = 33) Spirituality groups.

HADS	Low	High	"t" (df = 61)	p
Anxiety	8.27 (2.88)	7.96 (3.1)	.40	.69
Depression	5.72(3.4)	4.10 (2.9)	2.01	.04

As shown in the above table, a significant difference between groups on Depression subscale was observed.

Table 3: Mean (SD) score on WHO-QOL scale in High (n = 30) and Low (n = 33) Spirituality groups

WHO-QOL	Low	High	"t" (df = 61)	p
Quality of life	4.00 (.61)	4.16 (.53)	-.1.14	.25
General Health	3.57 (.79)	3.66 (.71)	-.47	.63
Physical Health	71.60 (11.84)	72.40 (9.80)	-.28	.77
Psychology	64.18 (11.32)	67.00 (10.77)	-1.00	.31
Social Relationship	75.39 (14.21)	76.30 (9.19)	-.29	.76
Environment	70.00 (13.83)	74.56 (11.29)	-1.42	.15

As shown in the above table, there was no significant difference between WHO-QOL subscales in groups of those who scored high and low on measures of Spirituality.

In the present study correlation analysis was carried out between spirituality and subscales of MHLC. There was a positive correlation between spirituality and chance ($r = .32$, $p < 0.01$) subscale of MHLC.

In the present study correlation analysis was carried out between Spirituality and subscales of WHO-QOL. There was no significant correlation between Spirituality and WHO-QOL subscales.

Table 4: Mean (SD) score on HADS subscales with High (n = 25) and Low (n = 38) DAS groups.

HADS	Low	High	"t" (df=61)	p
Anxiety	7.73 (3.22)	8.72 (2.60)	-1.27	.20
Depression	4.39 (3.5)	5.8 (2.6)	-1.68	.09

As shown in the above table, there was no significant difference between Anxiety and Depression subscales of HADS with high and low scores on DAS groups.

Table 5: Mean (SD) scores on WHO-QOL scale in groups of those scored High (n = 25) or Low (n = 38) on DAS

WHO-QOL	Low	High	"t" (df = 61)	p
Quality of life	4.21 (.52)	3.88 (.60)	2.30	.02
General Health	3.76 (.58)	3.40 (.91)	1.92	.06
Physical Health	71.55 (11.51)	72.64 (9.91)	-.38	.70
Psychology	65.26 (12.89)	65.92 (7.73)	-.22	.82
Social Relationship	74.86 (13.53)	77.28 (9.25)	-.77	.44
Environment	74.13 (13.82)	69.20 (10.64)	1.51	.13

As shown in the above table there was a significant difference (t = 2.30; p = .02) between high and low scores on DAS with Quality of life subscale of WHO-QOL.

In the present study correlation analysis was done between dysfunctional attitude and subscales of MHLC. There was positive correlation found between Dysfunctional attitude and, chance (r = .33; p < 0.01) and other people r = .40; p < 0.01) subscale of MHLC.

Correlation analysis was done between dysfunctional attitude and, anxiety and depression (not shown in the table). There was a positive correlation between dysfunctional attitude and anxiety (r = .25; p < 0.05). There was a positive correlation between dysfunctional attitude and depression (r = .26; p < 0.05).

Table 6: Correlation of DAS and HADS subscales Anxiety and Depression with WHO-QOL subscales

Variables	Quality of life	General Health	Physical Health	Psychology	Social Relationship	Environment
DAS	-.23	-.15	-.14	-.11	-.05	-.32**
Anxiety	-.34**	-.09	-.21	-.43**	-.45**	-.34**
Depression	-.31*	-.16	-.26*	-.48**	-.44**	-.40**

*p < 0.05
**p < 0.01
In the above table there was significant negative correlation between DAS with Environment subscale of WHO-QOL.
There was significant negative correlation between Anxiety subscale of HADS with Quality of life and Environment subscale of WHO-QOL.
There was negative correlation found between Anxiety subscale of HADS with Social Relationship and psychology subscale of WHO-QOL.
There was negative correlation between Depression subscale of HADS with Quality of life and Physical health subscale of WHO-QOL.
There was negative correlation between Depression subscale of HADS with Psychology, Social relationship and Environment subscale of WHO-QOL.

Table 7: The correlation between MHLC subscales with WHO-QOL subscales

Variables	Quality of life	General Health	Physical Health	Psychology	Social Relationship	Environment
MHLC Internal	-.08	.12	-.25*	-.06	.92	-.27*
MHLC Chance	-.00	-.32*	.21	-.05	.11	.12
MHLCDoctors	-.03	.04	-.16	.06	-.14	-.12
MHLCOther people	-.13	-.01	-.31*	-.16	-.23	-.41**

$**p < 0.01$
$*p < 0.05$

As shown in the above table there was significant negative correlation between internal subscale of MHLC with Environmental subscale of WHO-QOL.

There was significant negative correlation between internal subscale of MHLC with physical health subscale of WHO-QOL.

There was significant negative correlation between chance subscale of MHLC with general health subscale of WHO-QOL.

There was significant negative correlation between other people subscale of MHLC with environment subscale of WHO-QOL.

There was significant negative correlation between other people subscale of MHLC with physical health subscale of WHO-QOL.

Correlation analysis was carried out between Anxiety and Depression subscales of HADS and MHLC subscale (not shown in the table). There was no significant correlation between anxiety and depression with MHLC subscales.

Implications of the Study

A major goal of the management for women with fertility problems is to facilitate a positive resolution of the crisis, regardless of whether a pregnancy is achieved or not. In the present study it was found that women who had less spirituality had higher depressive symptoms. In order to better understand the persons concerns about infertility, however it may be helpful to address spiritual beliefs. Spirituality appears to play an important role in the psychological health of infertile women. Future studies are needed to expand these findings.

Psychologist can help by discussing the problems of infertility with the patients so that they can handle the situation in a better way such as the opportunities that exist in case of treatment failure.

Other reports show that cognitive therapy throughout the process of diagnosis and treatment, particularly previous to IVF therapy and pregnancy testing, can result in higher rates of pregnancy and the use of psychological intervention can enhance the chance of pregnancy even after six months follow-up (c.f. Nik &Basavarajappa 2012). According to the present study results Psychological intervention and psychotherapy will be helpful in altering the dysfunctional beliefs and reducing symptoms of depression and anxiety; thereby improving their overall quality of life of infertile women.

Summary and Conclusion

The present study was aimed at studying the relationship of dysfunctional attitude, spirituality and health locus of control with anxiety, depression and quality of life in women with infertility. For this purpose, 63 women with primary infertility were measured on the following measures: a) WHO-QOL-BREF b) Dysfunctional Attitude scale Short Form 2 (DAS) c) Hospital Anxiety and Depression Scale (HADS) d) Spirituality Scale e) Multidimensional Health Locus of Control Scale (MHLC).

The findings are as follows:

- The analysis of the results indicated that in the present study there was no significant difference between quality of life and spirituality in women with infertility and also there was no significant correlation found between spirituality and quality of life.

- There exists significant negative correlation between anxiety and quality of life, social relationship, psychological health, subscale of WHO-QOL. It was also found that there is significant negative correlation between depression and quality of life, physical health psychological health, environment subscales of WHO-QOL. This indicates that women who have symptoms of anxiety and depression tend to have poor quality of life.

- There was a significant negative correlation found between health locus of control other people and physical health suggesting that women who have an external locus of control have poor physical

health.

- There was significant negative correlation between internal health locus of control and physical health suggesting that those who have an internal locus of control have poor physical health.

- The depression and anxiety scores were positively correlated with dysfunctional attitude scales among women with infertility.

- There was a significant difference between dysfunctional attitudes in patients with high and low scores on spirituality scale.

- There was a significant difference between high and low scores on dysfunctional attitude scale with quality of life.

- Dysfunctional attitude scores were positively correlated with health locus of control by chance and other people.

- There was no significant difference between quality of life and high and low scores on spirituality scale and also there was no significant correlation found between spirituality and quality of life.

- The anxiety scores were negatively correlated with quality of life, social relationship, psychological health, subscale of WHO-QOL.

- The depression scores were negatively correlated with quality of life, physical health psychological health, environment subscales of WHO-QOL.

- The internal and other people subscale scores on MHLC were negatively correlated with physical heath.

Limitations
- Sample size was small
- The subjects belonged entirely to urban sector
- Maximum sample was collected from one clinic

Future Directions
- Research in the future can be carried out on a larger sample.
- Rural population can also be included.
- A longitudinal study design may be more effective and meaningful

in exploring relationship among the variables employed in the present study.

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THE IMPACT OF SPIRITUALITY IN COPING WITH TRAUMA

Raksha Singh[1]

"Spirituality isn't some quaint stepchild of an intelligent worldview, or the only option for those of us not smart enough to understand the facts of the real world. Spirituality reflects the most sophisticated mindset, and the most powerful force available for the transformation of human suffering."

— Marianne Williamson

Introduction

Life is a journey that begins with trauma and pain. Since time immemorial, trauma has played a constant, distressing role in the human experience. Whether by war, natural disasters, or man-made afflictions, trauma has been a reality that remains inescapable. Experienced as a result of neglect, abuse (sexual, emotional, physical), torture, criminal assaults, accidents, droughts, famine, death, or terminal illness, trauma has been and continues to be an inevitable part of life. Of the wide range of trauma causes, the most challenging, most enduring, and most complicated to overcome is the intentional harm caused by others. However, regardless of the originating cause, whether predictable or unexpected, trauma brings in its wake stress, suffering, pain, and too often death.

Despite the human capacity to adapt to its environment, trauma is more than a state of crisis, it is a response to any event that shatters one's conceived ideas of life; it is a normal response to abnormal events that overwhelm a person's ability to adapt to life (Wright, 2011). Trauma is a word whose origins come from the late 17th century Greek, meaning literally to "wound." Every trauma case is different, and varies depending on a person's personality, life perspective, culture, socio-economic status, and spiritual or religious beliefs. According to Wright (2011) about 25% of individuals exposed to traumatic events, are unable to cope with the effects of trauma, and will go on to develop the anxiety disorder known as post-traumatic stress disorder (PTSD).

Trauma can be defined as a psychological, emotional response to an event or an experience that is deeply distressing or disturbing. Because events are viewed

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subjectively, this broad trauma definition is more of a guideline. Everyone processes a traumatic event differently because we all face them through the lens of prior experiences in our lives.

The Diagnostic and Statistical Manual of Mental Disorders (DSM-IVTR) defines trauma as direct personal experience of an event that involves actual or threatened death or serious injury; threat to one's physical integrity, witnessing an event that involves the above experience, learning about unexpected or violent death, serious harm, or threat of death, or injury experienced by a family member or close associate. Memories associated with trauma are implicit, pre-verbal and cannot be recalled, but can be triggered by stimuli from the environment. The person's response to aversive details of traumatic event involve intense fear, helplessness or horror. In children it is manifested as disorganized or agitative behaviors.

Trauma can be caused by a wide variety of events. This is seen when institutions depended upon for survival violate, humiliate, betray, or cause major losses or separations instead of evoking aspects like positive self-worth, safe boundaries and personal freedom. The **American Psychiatric Association** defined trauma in 1994 which states that, **a person must have experienced or witnessed an event or events that involved actual or threatened death or serious injury, or a threat to the physical integrity of self or others, and which involved fear, helplessness, or horror.** From the above-mentioneddefinitions, it is viewed that trauma results from a stressor that is overwhelming that no matter what the person's resources they will develop Stress. It also indicates that any traumatic experience makes individual feel vulnerable in some way.

Post-traumatic stress disorder (PTSD) results from an often seriously life altering event(s) that is overwhelmingly stressful; it is a normal response, by normal people, to an abnormal situation. Events that cause PTSD, are usually unexpected and unpreventable, and are perceived as dangerous to oneself or others. PTSD affects the cognitive, emotional, behavioral, and spiritual realities of an individual, their families, friends, and ultimately society. PTSD deeply wounds the souls of men, women, and children. It damages relationships, creates confusion, fear, anxiety, and pain, often impairing one's ability to respond adequately to people, places, circumstances and events; in some cases, it takes the lives of its victims.

Effects of Trauma (PTSD)

Effects of trauma (PTSD) are far-reaching. Symptoms can vary across multiple domains: physiological, neurological, cognitive, behavioral, emotional, social, psychological and spiritual (Foa, 2000). To understand the far-reaching effects, and the extent to which PTSD disrupts a life, imagine experiencing constant distress, and helplessness, with no hope of ever living a normal life again. According to Schiraldi (1947) symptoms may include: intrusive memories, fear, anxiety, guilt, self-condemnation, pain, feelings of vulnerability, suicidal tendencies, having difficulty concentrating, hyper vigilance , insomnia, uncontrolled anger, an over-sensitized nervous system, elevated heart rate and blood pressure, hyperventilation, headaches, nausea, hallucinations, substance abuse, restricted range of affect, emotional numbing, apathy, and feeling disconnected from those you love. Essentially PTSD shatters the soul, destroying innocence, and in its place constructs a loss of faith; in place of trust, PTSD constructs doubt; shame replaces self-esteem, and disillusionment replaces achievement. PTSD takes on a life of its own continuing to haunt and torment its victim, shattering their sense of safety, power, and control; upending their emotional, psychological, spiritual and personality processes. People with PTSD live with these symptoms constantly, struggling to cope with their fractured lives; they perceive the world as dangerous and view themselves to be incompetent against the relentless demons of PTSD. PTSD severely and completely compromises the physical, emotional, mental, and spiritual integrity of those at risk.

The Impact of Spirituality in Coping with Trauma

The word "spirit" in English comes from the Latin word "spiritus" which means breath. Although we often think of spirituality as something special and apart from our ordinary daily life, it is really as close to us as our next breath.

A traumatic event can "take our breath away" and leave us feeling numb, distressed and disconnected. An important part of healing is to repair this sense of separateness within ourselves and from others.

All genuine spiritual practices, including humanistic ones, have some variation of the "golden rule", to create for others the kind of world we would want for ourselves. This attitude may be extended not only to other people but all of life.

An individual's resiliency and capacities to cope are important issues in the

study of PTSD. Resiliency is the ability to quickly recover from difficulties; it explains the absence or mitigation of posttraumatic stress symptoms where such symptoms would normally be expected to appear (Racklin, 1998). Perhaps it is the capacity to find meaning in the seemingly meaningless that differentiates the victim from the victor, and the hopeless from the hopeful. Many studies indicate that people cope with traumatic stress in diverse ways, depending upon their religious or spiritual beliefs. After 9/11, and 26/ 11 a nationwide survey of stress reactions found that in 90% of individuals, the second most common coping strategy was prayer, religion, or spiritual practice; the foremost coping strategy (98% of individuals) was talking to someone (Schuster et al., 2001). While many victims of trauma seek religious or spiritual support from family, friends, professionals, or literature, others emphasize isolation, silence, and collapse intensifying the effects of victimization (Bonanno, 2004; Spouse, 1999).   Of great significance is the fact that 90% of individuals who experience trauma are resilient, and do not develop PTSD (Peres, Moreira-Almeida, Nasello& Koenig, 2007). Epidemiologic studies of PTSD suggest that more than half of the general population has experienced at least one traumatic event, and would satisfy the criteria for PTSD as found in the Diagnostic and Statistical Manual (DSM-IV; APA, 1994). Yet, the majority does not develop PTSD, despite the fact that a considerable number of these individuals fall into the "high-risk" group (Racklin, 1998). However, this group only represents 10% of the estimated traumatized population (Brom, Kleber, & Hoffman, 1993). Those who exhibit resilience rather than pathology are frequently not included in the empirical studies and theoretical discussions. Nonetheless, despite the limited representation of trauma survivors, clinical, epidemiological investigation and neuroscience research still has much to contribute in gaining insights into the resiliency of trauma survivors – and more specifically the potential role of spirituality.

For millennia, the role of spirituality has been linked to prosocial development and identity formation (Fryling, 2012). Spirituality has prevailed throughout history as a type of social and cultural experience for people of all tribes, tongues, and nations. Spiritual and religious beliefs and practices have long been considered by the majority of general populations as foundational to mental and emotional well-being. Since 1993, the American Psychological Association (APA) has included spirituality as the psychological factor and

physical well-being (Lukoff, Lu, & Turner, 1995).   Fryling (2012) examined the relationship between trauma and spirituality among adults, and found that trauma can in fact have a negative affect on spirituality depending on a person's pre-existing beliefs. While, some findings suggest that spiritual orientation fosters a greater sense of coherence, and mitigates the adverse effects of traumatic exposure. Racklin (1998) performed statistical analyses that identified a positive correlation between sense coherence and spiritual orientation. Findings indicated, "if distressed by traumatic symptoms, turning toward spirituality reduces traumatic distress by reinforcing sense of coherence levels".Racklin (1998) suggests that his analysis provides strong evidence for the inclusion of spirituality in prevention strategies and treatment interventions for PTSD. Obviously, there is a relationship between spirituality and PTSD, as clearly indicated by the cited studies. Spiritual practices like meditation, Vipassana, Yoga and other spiritual practices plays important role in coping with trauma.

Jung (1933) stated that the recovery of the soul was essential for the individual. Jung maintained the importance of spirituality as a primary instinct, equal in significance to food or sex. A spiritually derived perception appears to be the underlying factor that provides a sense of meaning, coherence, and resilience, enhancing one's coping abilities in the face of trauma.

Finding Meaning and Purpose

 Spirituality is the foundation upon which the quest for meaning and the value of life rests, influencing perception and perspective. Jaffe (1985) and Lee (1988) have documented how a positive spiritual perspective can enhance trauma survivor's potential to use their traumatic experience to improve the depth, quality, and meaning of their lives. Trauma researches stress the importance of coherence, perception, and spirituality in fostering resilience. Resilience protects the individual in the face of trauma, and facilitates recovery if one is impaired. Spirituality enables one to find meaning in trauma, and facilitates the will Your every breath is proof that you are already woven into the web of life.

Conclusion
The prolonged disturbance of a traumatic event, and perceptual patterns of victimization, self-pity, and isolation intensify the negative emotions of a traumatic memory and exacerbate suffering (Peres et al., 2007). Whereas people who develop interpretative patterns of coping, and reframe the

experience with a positive, realistic, spiritual perspective are resilient, have effective and efficient coping skills, and are able to prevail against the psychological trauma. This positive association and relationship between PTSD (the wounded soul) and elevated spiritual significance certainly is much more than just a means of integrating coping skills, improving attitudes and fostering a sense of belonging and support – it is the difference between a life of meaning and purpose and a life of living hell that too often ends in suicide. With the help of spiritual practices, people who go through traumatic experiences, can transform positively from their sufferings and can also become competent enough to overcome any troubled situations in life.

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BIOPSYCHOSOCIAL PERSPECTIVES OF TRAUMA: PTSD

Dr. Baby Shafia[1]

Introduction

Psychological trauma can play an important role in the aetiology of several mental illnesses. The most characteristic clinical picture resulting from a psychological trauma is described by both International and American Diagnostic Systems as Post Traumatic Stress Disorder (PTSD). PTSD represents a serious medical and social problem.

The PTSD diagnosis requires fulfilling the criteria: the patient must have been exposed to a stressful event or situation of an exceptionally threatening or catastrophic nature which is likely to cause pervasive distress in almost anyone. There must be persistent remembering or reliving of the stressor in intrusive flashbacks, vivid memories or in experiencing distress when exposed to circumstances resembling the stressor. The patient must exhibit an actual avoidance of activities. The DSM-IV TR and ICD-10 criteria are similar for the diagnosis of PTSD. The DSM-IV defines a traumatic event "as exposure to witnessing or learning about an event or threatened death or serious injury or the threat to physical integrity of another person".

The person's response to the event must involve intense fear, helplessness, horror, illusions, hallucination etc. The symptoms should last more than one month. In DSM-IV, the disturbance causes clinically significant distress or impairment in social, occupational or other important areas of functioning.

Types of Trauma:

In clinical practice, there are 2 types of Trauma, i.e. Type-I and Type-II. Type I refers to a single traumatic event of brief duration. Type II describes long lasting or repeated traumatisation. One possible reaction to Type II Trauma is the 'complex PTSD' or so called disorder of extreme stress. This disorder has not been included in diagnostic manuals.

Therapy of PTSD:

It includes both psychotherapy and pharmacotherapy.

In pharmacological studies of PTSD treatment, a 30% reduction of symptomatology is considered an improvement. Sertraline and Paroxetine

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have been found to have positive effects. The recommended duration of pharmacological treatment is 1-2 years. Some findings suggest that Olanzapine and Quetiapine have an additional positive effect on sleep. In case of aggression, Valproate may be used.

Various Psychotherapies can be used to treat PTSD. Therapies such as:

Cognitive Behaviour Therapy

Relaxation Therapy

Dialectical Behaviour Therapy

Hypnosis

Brief psychotherapy

Interpersonal psychotherapy etc., have been found to be beneficial in treating patients with trauma and PTSD.

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HUMIDITY SENSOR USING POLYANILINE-METAL OXIDE COMPOSITES

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Abstract

This paper presents sensing characteristics of pure Polyaniline as well as Polyaniline-metal oxide nanocomposites. Polyaniline is an excellent polymer for making sensors as it can be easily synthesized and has long stability. Here Polyaniline is formed by oxidative polymerization of its monomer. Polyaniline is then mixed with different proportions of Al_2O_3 and Fe_2O_3. Pellets of organic-inorganic nanocomposites thus formed are found to detect change in humidity as they show variation in their electrical resistance with variation in relative humidity of the ambient-atmosphere. The results are presented here for a wide range of humidity variation. The resistance falls from $G\Omega$ to $M\Omega$ as %RH increases from 25 to 90%. The morphological and FTIR study of the composites has also been done. The FTIR spectra have been recorded in the region 4000-400 cm^{-1} showing characteristic polyaniline bands between 750–1800 cm^{-1}. The FTIR spectra show a shift in the bands as the metal oxide percentage is decreased in the composites (from 50 to 10%). The peaks for polyaniline with 50% Al_2O_3 were recorded in 400 cm^{-1} to 3400 cm^{-1} range whereas for composites with 10% Al_2O_3 were in 400 cm^{-1} to 2400 cm^{-1} range. SEM shows crystal like structure over a spongy base thereby increasing the surface area of the pellets. The increased surface area is useful for adsorption of gases and vapours for their detection.

Keywords: Polyaniline, FTIR, SEM, Humidity sensor

Introduction

Technological developments in the recent decades have brought along with it several environmental problems and human safety issues to the fore. Humidity, the concentration of water molecules in air, affects various materials used in daily life and industrial processing of drugs, beverages, food, electronic goods etc. High and low humidity affects human beings adversely. Excessively high humidity causes corrosion in metallic components. Therefore, humidity is an important measure in the control of electronic goods production. Recently,

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there have been increased demands for humidity sensing elements for use in automatic humidity control systems. Conductivity of polyaniline can be varied over a broad range and hence, it has a wide use in making sensors. It can be synthesized easily and has long stability.

Experimental

There are two major polymerization approaches to synthesize polyaniline: electro-polymerization and chemical polymerization. In the present work, the chemical polymerization technique has been employed. The synthesis of polyaniline was done by oxidative polymerization with ammonium peroxysulphate. Aniline hydrochloride and ammonium peroxysulphate solutions are first kept for 1 hour separately, then mixed and briefly stirred and left for polymerization for 24 hours. As a result, green colored precipitate of polyaniline is formed which is then washed and dried. Fe_2O_3 and Al_2O_3 are added in the polyaniline during the polymerization stage in two different proportions i.e. 10% and 50% by weight. Thus, four samples have been prepared for study. The pellets were prepared with the help of a Hydraulic Press Machine. The thickness and weight of each pellet was measured, which was found to be 0.62mm and 0.127gm respectively.

Morphology of pellet was investigated by scanning electron microscope. The FTIR spectra of the composites were recorded on Perkin-Elmer spectrometer in KBr medium.

The resistance of the sensor was measured by controlling the humidity in a closed chamber. The humidity was first lowered by keeping $CaCl_2$ in the chamber. Then water vapours were introduced in the chamber with the help of air compressor which was already attached with a flask containing water for increasing humidity inside the chamber from 25 to 90% relative humidity.

Results and discussions

Characterization: The study of surface morphology of Polyaniline/Fe_2O_3 and Polyaniline/Al_2O_3 pellets has been carried out using SEM (Model No. 430, LEO Cambridge, England).

Scanning electron micrograph of Polyaniline/Fe_2O_3 composites (Figure1) shows homogeneous surface with powdery clusters evenly scattered, thereby, increasing the surface area of the pellet.
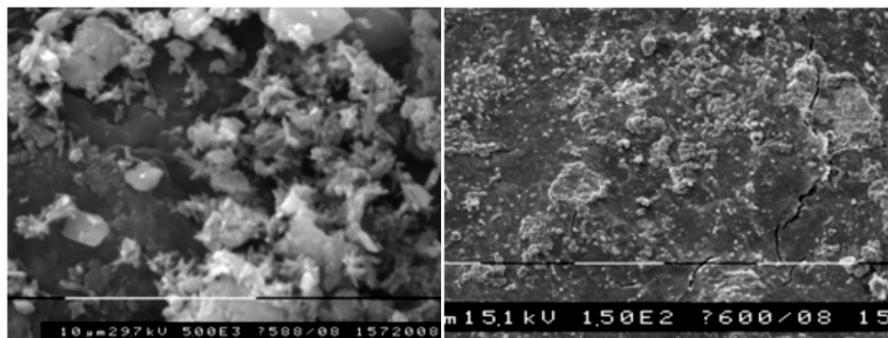
SEM of PANI+50%Fe₂O₃   **SEM of PANI+10%Fe₂O₃**

Figure 1

The scanning electron micrograph shows presence of small powdery clusters which is more significant in case of 50% Fe_2O_3 in comparison to 10% Fe_2O_3.

The Scanning electron micrograph of Polyaniline/Al_2O_3, Figure2 shows rod like structure over a spongy base thereby increasing the surface area of the pellet. The increased surface area may be useful for adsorption of gases and vapours for their detection.
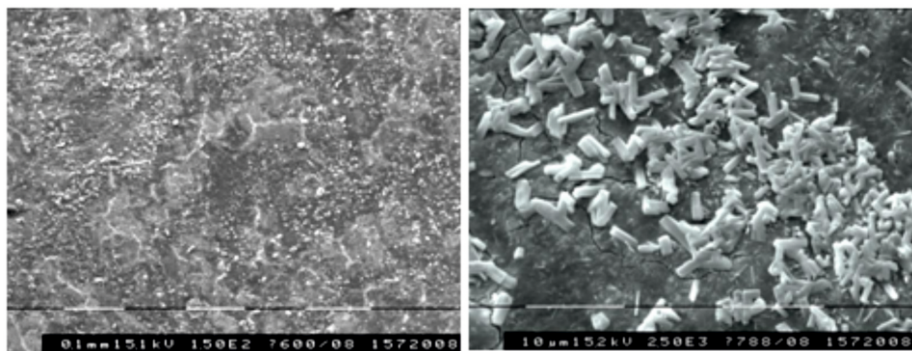
(a)   **(b)**

Figure 2 SEM of polyaniline/Al2O3 (50% by wt.) at low magnification (a), at high magnification (b)

The FTIR Transmission spectrum was recorded in KBr medium in the range 450-4000cm-1. The sample showed strong bands in the region 750-1800 cm-1 which is characteristic of polyaniline.
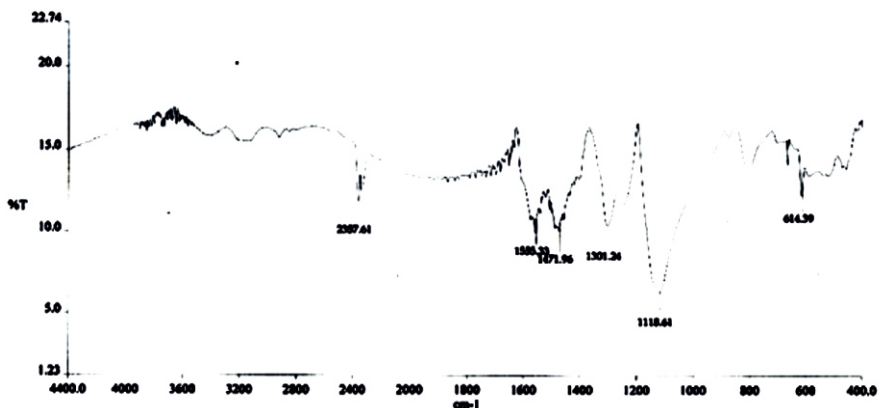
Figure 3 FTIR of PANI/Fe2O3 (50% by wt.)

The FT-IR spectra of the composite exhibited absorption peaks for polyaniline at 1555 cm^{-1}and 1483 cm^{-1}that corresponded to the stretching modes of the quinonoid and benzenoid rings respectively, as well as C-N stretch of aromatic amine at 1301 cm^{-1}. The peaks observed between 400 to 700cm^{-1}correspond to Fe-O bonding in iron oxide. This peak does not appear in the sample with 10% Fe2O3 whereas it appears in case of composite with 50% Fe2O3. Thus, the metal oxygen peak appears with the increase in the percentage of metal oxide.

Humidity sensing

The change in the resistance with relative humidity for these composites was monitored using a laboratory set-up. The resistance of the composite was seen to decrease as the level of relative humidity (%) was increased. Resistance for both the composites of alumina doping decreases as humidity increases from 25 to 90%. In case of 10% doping of Al_2O_3, the resistance of the composite falls from 81.391 to 10.485 Mega ohms almost linearly as relative humidity varies from 25 to 70%, then falling to 0.8741 Mega ohms as relative humidity approaches 90%. In the case of 50% doping of Al_2O_3, the sample exhibits almost linear response in the range of 25 to 66% relative humidity with resistance falling from 3996 to 15.229 Mega ohms and then dropping to 0.2418 Mega ohm at 90% relative humidity.

Comparison of PAni+10% Al₂O₃ & PAni+ 50% Al₂O₃
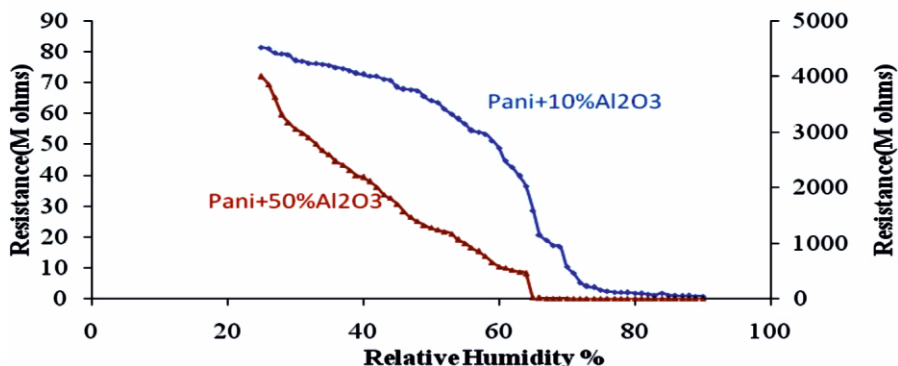
Resistance for both the composites of iron oxide doping, decreases as humidity increases from 33 to 90%. In case of 10% doping of Fe_2O_3, the resistance of the composite falls from 4.45 to 1.97 Giga ohms almost linearly as relative humidity varies from 33 to 49%, 1056 to 221 Mega ohms as relative humidity varies from 50 to 80 % and then falls to 79.5 Kilo ohms as relative humidity approaches 90%. In the case of 50% doping of Fe_2O_3, the resistance falls from 7.66 Mega ohms to 5.45 mega ohms as relative humidity varies from 33 to 65% and then falls to 89.8 Kilo ohms as relative humidity approaches 90%.

Comparison of PAni+ 10% Fe₂O₃ & PAni+ 50% Fe₂O₃
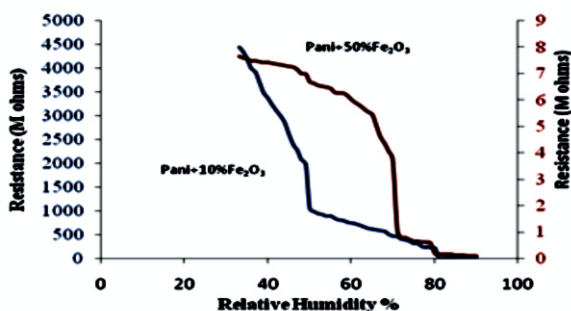
The decrease in resistance with increase in relative humidity is because of adsorption of water molecules by the pellet surface. The reaction of water and polyaniline can be attributed to the fact that there is an exchange of protons between water vapor and polyaniline which helps in conduction by creating pathways for charge transfer.

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BI METALLIC MICRO CANTILEVER UN COOLED IR SENSORS

Dr. Abdul Quayoum[1]

Abstract

Infrared imaging plays a critical role in many applications ranging from night vision, environmental monitoring, astronomy, biomedical diagnostic and thermal probing of active microelectronic devices. The development of un cooled detectors arrays started in the early 1980s. By the end of the last century, large focal plane arrays of resistive bolometer and ferroelectric devices.

Keywords: Infrared imaging, Night vision, detectors, IR video camera

Introduction

Electromagnetic radiations play an important role in our everyday life. Out of these radiations, IR and MMW are most important. Do we know that a page of paper at room temperature emits 13.5 wattsof infrared energy and human body having area of say 2sq.m emits more than 90watts continuously. The sun emits 10^5 times more than human being. Out of this more than 50% of sun's energy lies in the infrared. After its discovery by Sir William Herschel in 1800, these radiations have found niche in our daily life like IR oven for cooking meals, drying paints, IR video cameras permit us to see in the dark, plot weather conditions from satellites, detect breast cancer and more than anything else has proved to be the lifeline of our armed forces since Second World War. Infrared imaging sensors that operate without cryogenic cooling have the potential to provide commercial and military users with exceptional night vision capabilities packaged in a device of extremely small size, weight and power. Infrared imaging plays a critical role in many applications ranging from night vision, environmental monitoring, astronomy, biomedical diagnostic and thermal probing of active microelectronic devices.

IR detectors could be divided in to two categories:

a) Photon/quantum detectors due to photon-electron interactions,

b) Thermal/square law detectors due to photon-phonon interactions.

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The deflection of the micro cantilever tip when sensor temperature increases from T_0 to T due to the absorption of the IR radiation is given by following equation in Fig3.

$$\Delta Z = (3L_p^{2}/8t_{bi})(\alpha_{bi} - \alpha_{subs})(T - T_o)K_o$$

Where

ΔZ = The deflection of the microcantilever tip

Lp = Length of the bimaterial section of the sensor

t_{bi} = Thickness of the bimaterial layer

α_{bi} = Thermal Coeff. of exp of the bimetal

α_{subs} = Thermal Coeff. of exp of the Substrate

T-T$_o$ =Differential absolute temperature

K$_o$ = Constant

Fig 3- deflection delta Z of the tip of micro cantilever.

Micro-cantilever bridge circuit, damping resistor and signal gain amplifier
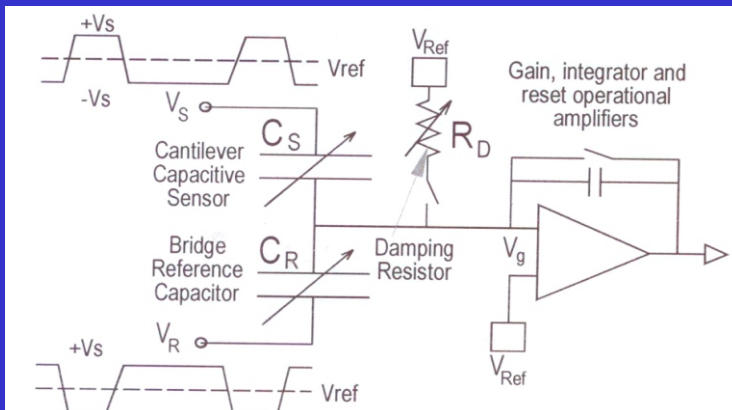
Fig.4. Micro cantilever bridge measuring circuit

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IR radiation sensing technique: As can be seen in Fig4.the micro cantilever sensor operation forms part of the two-capacitor bridge circuit. The sensor is energized by applying symmetric, oppositely phased voltage pulses+- Vs to the cantilever & bridge reference capacitors Cs and Cg respectively around a reference voltage. If the cantilever and bridge capacitances are the same size and Vs & Vg are of opposite sign then the voltage appearing at the common node between the capacitors are zero. The damping resistor circuit is used to dampen any mechanical motion in the sensor. During operation when the micro cantilever sensor is exposed to the IR radiation, the paddle moves up, increasing the capacitor gap, thereby decreasing the sensor capacitance and generating an offset voltage Vg at the common node and at the input to the gain and integrator circuit.

Performance Parameters: An ideal un cooled IR imager should usually perform at a frame rate of 30, thermal time constant 10ms, IR spectral band1-100um, fill factor 100% F/no 1, pixel area say 2500um^2, having absorber top side emissivity1 and bottom side emissivity 0. However, the ultimate performance will be dictated by actual fill factor, emissivity and their spectral band sensitivity, on the level of thermal isolation, and sensitivity of the thermal sensing mechanism. Thus, the most important parameter NETD can be improved in two ways: 1) reduce optical thermal transfer coefficient by increasing thermal isolation and IR absorption and 2) increase sensitivity dV/dT.

The predominant noise source is the thermal and trapping noise associated with the pixel source follower transistor in the thermal circuit. The thermal noise generated in the transistor switches is negligible. The kTC noise generated by resetting the sense node capacitance as well as the 1/f noise in the pixel source follower can be suppressed by correlated double sampling.

Thermal sensors are inherently slow in responding to rapidly changing scene temperatures and image conditions when compared with quantum based optical sensors for video imaging applications with frame rates 30/60, the thermal response time of the detector should be less than 15msec and preferably 10msec.In fact there is usually a trade-off between the sensor sensitivity and thermal response time- the faster the response time, the lower the sensitivity of the sensor.

Conclusion

Thermal imaging technology for the defense and commercial applications are impinging on the development of capacitive sensed micro cantilever-based IR detectors that promises to outperform the current generation of micro bolometer devices on the market today. Details about a few of the complete MEMS micro cantilever sensor structures have been described. Performance of such sensor parameters are briefly discussed.

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INTELLIGENT FLOOD ALERT SYSTEM USING MICROCONTROLLER BASED

Abdul Quayoum [1]

Abstract

This paper is mainly intended to design an Automatic Flood Alert System to minimize the loss of life and property during flash floods (floods).Earlier flood alert systems were generally based on either bulk short message sending, or alert warnings based on weather forecasting, which accounts for the drawbacks such as illiteracy among the rural population and delay in flood warnings respectively. These serious life threatening drawbacks led to development of our microcontroller based Flood Alert System, which is built on INTEL 8051 microcontroller and prototype being simulated and implemented using KEIL micro vision.

Keywords: Microcontroller, disaster, weather forecasting, IR sensors.

Introduction

When a flashflood disaster occurs, those affected will want to do what they can to prevent it from happening again. But, unlike the transportation problem being a continual nuisance causing intense lasting emotions, flash floods do not generally happen repetitively to the same area and are considered by many to be *"acts of God"* beyond human ability to prevent. Consequently, more urgent matters soon take priority and the flood problem can wait, especially since it *probably won't happen for another 100 years."* When flood control solutions are proclaimed cost prohibitive, a local flood warning program may be a reasonable and affordable option to consider [1] to prevent disasters seen in Bihar (August 2008) and Punjab (August 2010) floods recently.

Globally the flood that occurred in Baltinglass (Ireland), on January 2010 demonstrated that the town was missing two key pieces of infrastructure. The first one is obvious, and is that the Town is lacking a flood prevention scheme of any description. The second piece of infrastructure is an "Automated flood Alert System" (AFAS) [2]. Flood alert systems like KSNDMS [Karnataka State Natural Disaster Management System], deploys telemetric rain gauges which sends out instant messages based on the intensity of the downpour, but this

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system is again centered only for the urban population and if installed in rural areas, will fall short of the adaptability criteria among the rural population. An operational European Flood Alert system (EFAS) serves two objectives. The first is to Complement Member States activities on flood preparedness and provide National hydrological services with early flood information in addition to their own local and mostly short-range forecasting information [3]. Each data acquisition remote station is defined to consist of sensors to measure rainfall and water pressure, which would then be converted into water level. The measured data would be collected in a data processing unit (DPU) within the remote station and then transferred to a central station [4]. Such systems generally lack in the time constraint as in Situations like flash floods the delay produced in warning transmissions is fatal enough to risk a million lives.

In this paper we propose a microcontroller-based flood alert system which is fully centered in quick warning message display and a rapid alarm system which will alert the population as early as possible to ease the evacuation process. The proposed model is totally designed around INTEL 8051 microcontroller which is interfaced with LCD displays, IR sensors and Alarm systems, in addition to which, we are including the installation of emergency lights in the flood prone areas which will again ease the evacuation process during night time.

Our aim is to first develop a prototype built for detecting the water level in a cylindrical tank having a mechanical float. The tank is pre-calibrated with an **Infra-Redsensor** at the upper surface. Whenever the level of water in the tank rises it will push the mechanical float upwards, on reaching a threshold mark the IR sensor would detect the float and it turns on the alarm interfaced with the microcontroller, consecutively an alert message would be displayed on the LCD. The emergency lights would be connected to a main supply and the microcontroller will set/reset the supply in accordance with the chain of events taking place immediately after the float crosses the threshold mark. The proposed design is believed to overcome all the drawbacks of prevalent flood alert systems mentioned above and will comply with the cost-effective factor also.

Block Diagram of the Proposed System
The proposed prototype is described in block diagram representation in figure

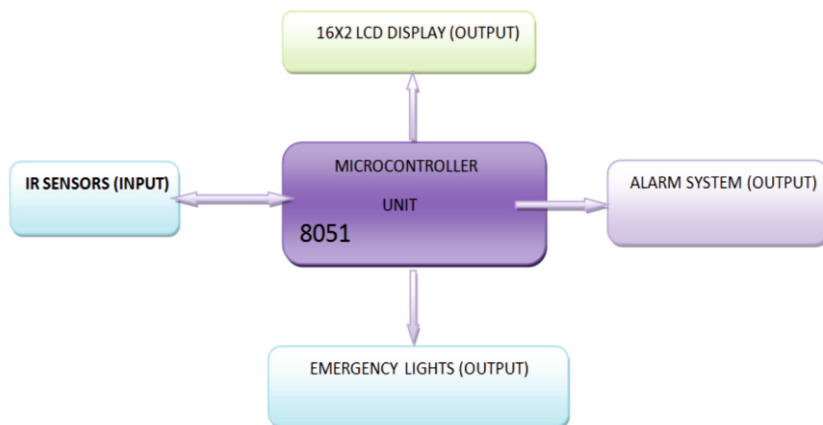using a buzzer system) for the alarm system and 16X2 LCD display unit for the warning message display.

Figure 1: Block Diagram

System Description and Technical Details

The proposed prototype is a cylindrical tank pre-calibrated with IR sensors on the top lid and an inlet for the water supply at the bottom. With addition to this, a mechanical float (insulated wooden float) having the circumference equal to the inner circumference of the cross section of the cylindrical tank such that it moves in to and fro motion inside the tank.

The core unit is INTEL 8051, a single chip microcontroller (μC). It has 8 bit ALU, accumulator, and 8 bit registers. It also has on chip ROM of 4 Kbytes (Program memory) and RAM of 128 bytes (Data memory).The software would be developed using the software KEIL Micro vision in C programming language and the hex file will be generated. The developed and debugged software in hex format would be henceforth transferred to the microcontroller using a software burner, Flash magic. The software's perquisite to be installed in the system used for the software development and uploading data to microcontroller is KEIL, Java Runtime Environment and Flash magic.

Further the microcontroller is interfaced with IR sensors using (LM358-IC), Alarm system using (IC-555) and a 16 X 2 LCD display. The simple

operation of the prototype is, whenever the water level in the tank rises above the threshold mark; it is detected by the IR sensors/detector, which will trigger the alarm, LCD warning display and finally the emergency lights will go ON. Hence an efficient and automated flood alert system is designed.

The IR sensor Description
The block diagram of IR sensor (LM358/LM358A) is shown in figure 2 The LM358/LM358A, consist of two independent, high gain, internally frequency compensated operational amplifiers which were designed specifically to operate from a single power supply over a wide range of voltage. Operation from split power supplies is also possible and the low power supply current drain is independent of the magnitude of the power supply voltage. Application areas include transducer amplifier, DC gain blocks and all the conventional OP-AMP circuits which now can be easily implemented in single power supply systems.
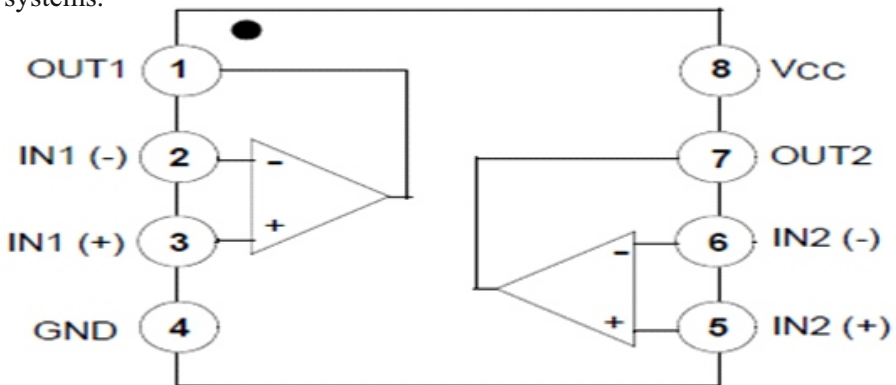
Figure 2: Internal Block Diagram of IR sensor (LM358/LM358A)

Working: An LED connected to pin 8 (Vcc) and ground, would act as an IR emitter and one leg of the photo detector would be connected to pin 3 (-ve), (reverse biased) and the other leg to pin 4 (+ve). The output (active high) would be taken from pin 1 that is in turn routed to the microcontroller and eventually further actions would be taken as programmed.

Application: Apart from the efficient use of this model in flood alert system in rural areas, the AFAS can be also deployed at railway bridges plying closely to flood prone areas, in which the water level rising above the threshold mark would not only generate alarm but also automatically display red signal for the upcoming train before crossing the bridge.

Conclusion

A microcontroller-based flood alert system prototype is developed which is efficient enough in easing the evacuation process. The developed prototype shows the functioning in a smaller scale where simple water level detection is used in raising alarms and warning message display. The designed model is successful in eliminating the drawbacks faced in prevalent flood alert systems. It is the author's hope that the discussions, thoughts and opinions shared in this paper will prove useful to many other communities threatened by flash floods, and provides a foundation to further improve the District's local flood warning and early notification program.

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C-PHYCOCYANIN: A POTENT BIOACTIVE COMPOUND

Arbab Husain[1] & Afreen Khanam[2]

Abstract

Cyanobacteria (blue-green algae) are photosynthetic prokaryotes which are also used as food by humans for a long time. They are rich in a variety of bioactive compounds, proteins, vitamins, antioxidants, antimicrobials and anti-carcinogenic biomolecules. The bioactive potential of C-phycocyanin isolated from cyanobacteria has been well established as antiviral, anti-tumour, antibacterial, anti-diabetic, anti-HIV and a food additive. This review basically presents a thorough approach about the various key applications of cyanobacteria derived bioactive compound C-phycocyanin together with highlights of future thrust areas in its research related to its production and potential medical applications.

Keywords: Cyanobacteria, microalgae, bioactive compounds, toxins, C-phycocyanin.

Introduction

Cyanobacteria are oxygenic photosynthetic prokaryotes and are broadly distributed in the natural ecosystems like freshwater and seawater. Natural water contains numerous organisms like blue-green algae, phytoplankton, zooplankton, and fish. Natural and synthetic chemical compounds called pesticides hold an essential place in agriculture and economics. Pests like various algae, weeds, fish, nematodes, fungi, bacteria and insects can have a devastating effect on crop yield either by direct destruction of the crop or by competing for nutrients in the soil. Pesticides are used globally and extensively for the control of such pests. Satisfactory crop yield is impossible without the use of pesticides despite the public awareness that now exists about the harmful effects of pesticide use. Besides agriculture, pesticides are widely used in industrial, domestic and marine environments. Pollution of natural waters particularly fresh and sea water implies that it contains a lot of inorganic and organic substances introduced by human activities which change its quality and are harmful to many living organisms, including man (Anand *et al*., 1980). Cyanobacteria belong to the kingdom Monera and division Cyanophyta and the most primitive forms of life on earth. The cellular structure of cyanobacteria is

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simple prokaryote and performs photosynthesis. Phycocyanin is a biologically active nutrient compound which is isolated and purified from a variety of cyanobacterial species (De Jesus Raposo*et al*., 2013). Phycocyanin can be obtained from different species, such as *Spirulina* sp., *Synechocystis* sp., *Aphanizomenon* sp., *Phormidium* sp., *Lyngbya* sp., and *Synechococcus* sp. (Shen *et al*., 2008), has been separated and studied.

Phycocyanin belongs to the phycobiliprotein (PBP) family(Stadnichuk*et al*., 2015); it is characterized by a deep and intense blue colour. According to the coloured molecules, phycobiliproteins can be divided into three categories: phycoerythrin (PE, PE is red), phycocyanin (PC, PC is blue) and allophycocyanin (AP, AP is bluish green) (Grossman *et al*., 1993). Phycocyanin is a type of photosynthetic assistant protein which can efficiently capture light energy. Phycobiliprotein is one of the components of phycobilisome, which is a supramolecular protein complex that auxiliarily collects light energy. Phycobilisome plays an important role in photosynthesis energy absorption and transmission (Kirst *et al*., 2014). Phycobiliprotein acts as an antenna molecule in algae photosynthesis, which can absorb light energy and can be capable of efficiently delivering light energy to a reaction centre containing chlorophyll by a non-radioactive process (Watanabe *et al*., 2014).

1. Bioactive compounds found in cyanobacteria

Cyanobacteria contain up to 50-70% protein, 30% lipids, over 40% glycerol, up to 8-14% carotene and high concentration of vitamins B1, B2, B3, B6, B12, E, K, D, etc., compared with other plants or animals. The potential of microalgae biomass for big pharma practical uses is definitely great (Kuddus*et al*., 2013). Cyanobacteria contain abundant bioactive compounds that can be harnessed for commercial use. Initially considered as nuisances agents or laboratory curiosities in water bodies, but at the present cyanobacteria form an important component of integrated nutrient management in agriculture and are exploited in commercial biotechnological schemes (Priyadarshani *et al*., 2012) as a source of pigments, phycocolloids, vitamins, immuno-diagnostic agents and therapeutics and for biofuel production (Shen *et al*., 2008).

2.1 Cyanovirin-N

Cyanovirin-N (CV-N) (fig.1) is a unique, 101 amino acid long and 11 KDa protein. It was discovered as a constituent of a cultured cyanobacterium,

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Nostocellipsosporum. It was recognized in a screening effort as a highly potent inhibitor of diverse laboratory-adapted strains and clinical isolates of HIV-1, HIV-2, and SIV. Afterwards, the structure of CV-N was solved, first by NMR spectroscopy and later by X-ray crystallography at a resolution of 1.5 Å. The two structures are similar. The CN-V monomer consists of two similar domains with 32% sequence identity to each other. In the crystal structure, the domains are connected by a flexible linker region, forming a dimer by intermolecular domain swapping. It has a potentvirucidal activity that possesses the ability to inactivate all strains of human immunodeficiency virus (HIV) and simian immunodeficiency virus (SIV) as well as other viruses such as those of influenza and Ebola. The mechanism(s) underlying the HIV-1-inhibitory activity of CV-N remain unclear. CV-N binds with high affinity to gp120, the external subunit of the HIV envelope glycoprotein (Env); evidence suggests the anti-HIV-1 effects of CV-N are mediated through this interaction (Boyd *et al.*, 1997).

Fig.1. Cyanovirin N amino acid sequence (Burja*et al.*, 2001).

Fig.2 Borophycin

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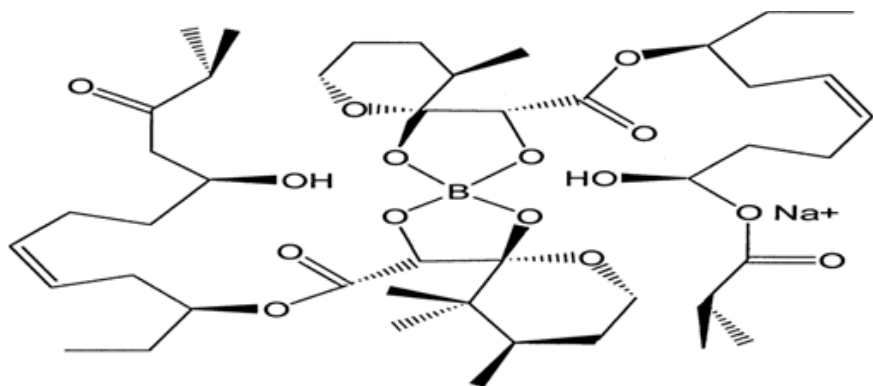
2.2 Borophycin

Borophycin (fig.2) is a boron-containing metabolite isolated from marine strains of cyanobacteria *Nostoclinckia* and *Nostocspongiaeforme var. tenue.* The gross structure of this boron-containing compound was determined by spectral methods and it's relative stereochemistry established by X-ray crystallography. Borophycin is made up of two identical halves with an overall structure reminiscent of the ionophoric antibiotics boromycin (2) and aplasmomycin (3). The biosynthesis of 1 differs from the biosynthesis of 2 and 3. All three compounds are acetate-derived polyketides that utilize a C3 precursor for the starter unit and methionine for the methyl branches on the polyketide chain. Whereas phosphoglycerate or phosphoenolpyruvate has been suggested to be the C3 starter unit in the biosynthesis of 2 and 3, the C3 starter unit for the biosynthesis of 1 is derived from acetate and methionine, but not propionate (Boyd *et al*., 1997).

2.3 Cryptophycin
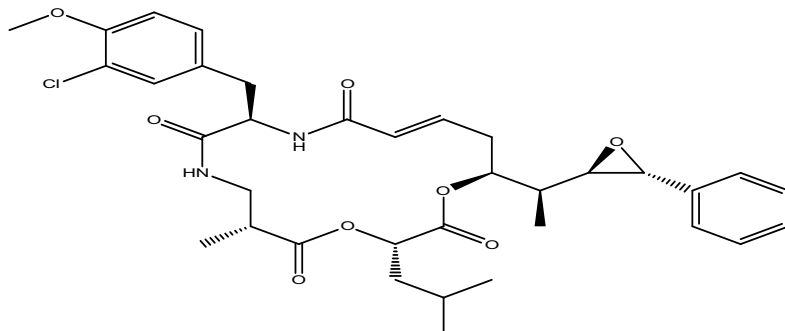
Fig.3 Cryptophycin

Cryptophycin (fig.3) first isolated from *Nostoc sp.* ATCC 53789 is a potent fungicide and lipopeptides. Cryptophycinsare a class of dioxadiazacyclohexadecenetetrone cytotoxins with a potent ability to induce tubulin depolymerization. Similar to the maytansinoids, cryptophycinsbind microtubules at the vinca-binding site eventually leading to a mitotic arrest. Initial preclinical data with synthetic versions of cryptophycinssuch as LY355703 revealed promising antitumor effects in mammary and prostate xenograft models, which facilitated the transition of LY355703 into human clinical trials. However, as was the demise of several other tubulin inhibitors in

clinical trials, the doses required for LY355703 to achieve therapeutic efficacy elicited significant toxicities, thus precluding its use as a stand-alone therapeutic agent (Jiang *et al*., 2017). Before cryptophycincould be converted into a warhead for an ADC, it first had to be modified with a suitable handle for linker attachment. Bouchard et al. synthesized a variant of cryptophycin, cryptophycinanalog 1, which included an amine handle while retaining potency similar to that of the parental cryptophycin (Murugan *et al*., 2012, Gonzalez *et al*., 1999).

2.4 Lipopeptides

Approximately 68% of the natural products derived from cyanobacteria contain nitrogen. Analysis of 424 marine cyanobacterial natural products show that 40.2% are lipopeptides (cyclic or linear), 5.6% are of pure amino acid, 4.2% are fatty acids, 4.2% macrolides and 9.4% are amides (Chen *et al*., 2015). For example, several molecular forms of 'hassilidins' have been isolated from *Hassallia sp*., 'puwainaphycins' have been characterised from *Cylindrospermumalatosporum* and 'anabaenolysins' from *Anabaena sp*. They are often distinctive in that the fatty acid component (C_{12} to C_{18}) contains a hydroxyl group in position 2 and an amine group in position 3; usually the fatty acid chain is saturated, but at least one C_{18} fatty acid has six double bonds (two groups of three in conjugation), while others contain methyl branches and methoxyl groups. Dragomide E from *Lyngbya majuscule* (a marine cyanobacterial species) has five amino acids in a linear peptide linked to an acetylenic C_8 fatty acid. Although the biological properties of these lipopeptides have barely been explored, some are known to have anti-fungal actions or cytolytic activities against mammalian cell lines.Hapalosin (fig. 4), a cyclic desipeptide isolated from the cyanobacteria, *Hapalosiphonwelwitschii,* has a reversing activity against MDR (multidrug resistance) derived from P-glycoprotein (Kashihara*et al*., 2000).
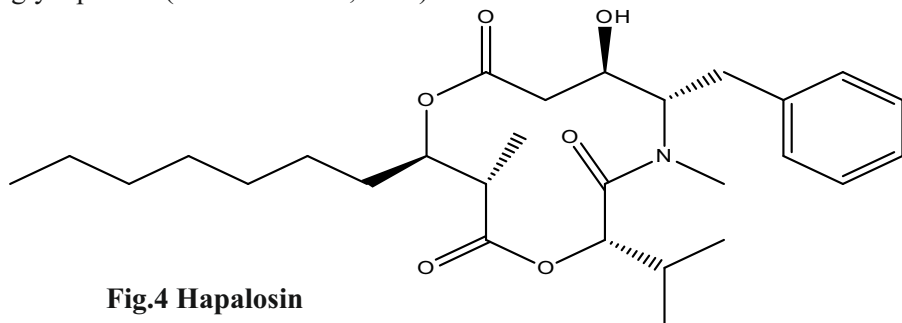

Fig.4 Hapalosin

2.5 Protease Inhibitors

Five classes of protease inhibitors have been reported from the toxic genera of cyanobacteria: they are micropeptins, aerugenosins, microginins, anabaenopeptins and microverdins. More recently, Rohrlack*et al.* have suspected microviridin J, a newly discovered protease inhibitor produced by *Microcystis* strain UWOCC MRC, of causing the lethal moulting disruption observed by Kaebernick *et al*., 2001. Protease inhibitors have been isolated from a variety of freshwater cyanobacterial blooms and mats, i.e., *Microcystis*, *Lyngbya*, *Nostoc* sp. and *Oscillatoria* . Further, a wide range of proteases has been shown to be inhibited by crude extract or purified compounds from cyanobacteria including *Oscillatoria.* Alike other cyanobacteria, compounds from *Oscillatoria* have also shown to inhibit major serine protease family member enzymes, i.e., trypsin, chymotrypsin, elastase and plasmin (Shin *et al*., 1995).
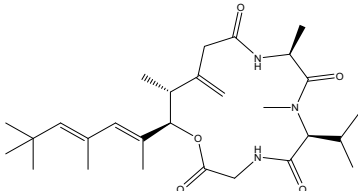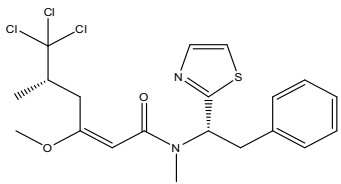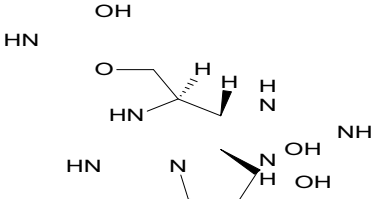
2.6 Phycobiliprotein
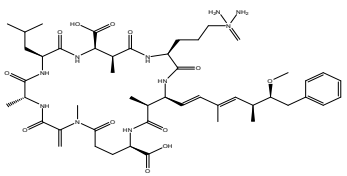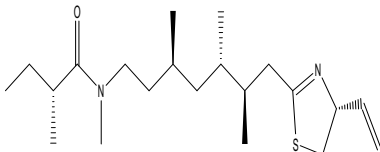
Phycobiliproteins are a group of coloured proteins present commonly not only in cyanobacteria (blue-green algae) but also in red algae, cryptomonads, etc. They are broadly commercially used in foods, cosmetics, biotechnology, pharmacology and medicine. Commercially, Phycobiliproteins are high-value natural products with actual and/or potential biotechnological applications in nutraceuticals and pharmaceuticals, food and cosmetic industries as well as in biomedical research and clinical diagnostics. The use of phycobiliproteins as non-toxic and non-carcinogenic natural food colourants is gaining importance worldwide in the view of the potential toxicity and carcinogenicity of the synthetic food colourants, moreover, their therapeutic value has also been demonstrated (Moraes *et al*., 2011, Pandey *et al*., 2013). Generally, they are categorized into three main types namely phycoerythrin (PE), phycocyanin (PC), and allophycocyanin (APC) which differ in their spectral properties (Sun. *et al*., 2003, Chu *et al*., 2012). Phycobiliproteins also are the 6 main light-harvesting chromoproteins in a certain type of marine algae (Silveira*et al*., 2007). These compounds are classified according to different criteria (such as structure, spectra of absorption, colour, etc.). Moreover, based on absorbance wavelength, the phycobiliproteins existing in cyanobacteria and red algae are commonly categorized into four groups known as, phycoerythrin (PE; λmax= 490-570 nm), phycoerythrocyanin (PEC; λmax= 560-600 nm), (3) phycocyanin (PC; λmax= 610-625 nm) and allophycocyanin (AP; λmax= 650-660 nm) while in the cryptomonads, exist two classes of phycobiliproteins:

phycoerythrin (PE; λmax= 540 - 570 nm) and phycocyanin (PC; λmax= 610-650 nm). Also based on their colours, phycobiliproteins are classified into two large groups namely: phycoerythrin (red) and phycocyanin (blue); furthermore, phycocyanins are subdivided into C-phycocyanin (C-PC), R-phycocyanin (R-PC) and allophycocyanin (APC) (Kuddus *et al*., 2013).

2.7   Phycocyanin.

Phycocyanin is a biologically active nutrient compound which is isolated and purified from a variety of seaweeds (De Jesus Raposo *et al*., 2013). Phycocyanin obtained from different species, such as *Aphanizomenon* sp., *Spirulina* sp., *Phormidium* sp., *Lyngbya* sp., *Synechocystis* sp. and *Synechococcus* sp., has been separated and studied. Phycocyanin belongs to the phycobiliprotein (PBP) family (Madamwar *et al*., 2015), which is characterized by a deep and intense blue colour. According to the coloured molecules, phycobiliproteins can be divided into three categories: phycoerythrin (PE, PE is red), phycocyanin (PC, PC is blue), and allophycocyanin (AP, AP is bluish green) (Chen *et al*., 2013). Phycocyanin is a kind of photosynthetic assistant protein which can efficiently capture light energy. Phycobiliprotein is one of the components of phycobilisome, which is a supramolecular protein complex that auxiliarily collects light energy. Phycocyanin has a deep and intense blue colour and consists of α and β subunits. In general, the α and β subunits of the phycocyanin form a stable heterodimeric monomer (αβ) and then polymerize it into a multimer (αβ) n (n=1~6) (Watanabe*et al*., 2014). Most phycocyanins are present as a trimer (αβ) 3. The α and β subunits of C-phycocyanin have similar 3D structures; however, their sequences are different (Adir *et al*., 2003). The α and β subunits contain about 160 to 180 amino acid residues, respectively. The molecular weight of α and β subunits ranges 10~19kD and14~21kD. It has been reported that phycocyanin has anti-oxidative function, anti-inflammatory activity, anti-cancer function, anti-bacterial, immune enhancement function, liver and kidney protection pharmacological effects (Storf *et al*., 2001).

TOXINS FROM CYANOBACTERIA

Toxins	Isolated from	Application	Structure
Hepatotoxins	Anabaena, Hapalasiphon, Microcystis, Nostoc and Oscillatoria	Destructive to liver cells.	Microcystin
Kalkitoxin	Lyngbyamajuscula	Neurotoxin	
Antillatoxin	*L. majuscula*	Activation of voltage-gated sodium channels	
Barbamide	Curacao strain of *L. majuscula*		
Saxitoxin	*Alexandriumcatenella, A.minutum, A.ostenfeldi, A. tamarense, Gymnodiniumcatenatum*	Neurotoxic alkaloids	

2. Bioactive potential of C-phycocyanin

4.1 Antibacterial activity

Various organic and aqueous extracts of *S.platensis* were screened for antibacterial activities by agar diffusion method against human pathogens (Mala *et al*., 2009). Water extract showed maximum activity against*K.pneumoniae*. This result could be due to the water-soluble pigment C-phycocyanin from *Westiellopsis*sps. (fresh water Cyanobacterium) tested for their antibacterial activity against *B.subtilis*, *Pseudomonas* species and *Xanthomonas*sps. and all were inhibited by C-phycocyanin. Four Bacterial species were used which were isolated from clinical samples and are pathogenic to human. Out of four bacterial isolates,*Pseudomonas aeruginosa* does not respond to all the concentration of C-phycocyanin. The maximum zone of inhibition obtained with *S.aureus*and the zone of inhibition to *K.pneumoniae* was lower than the result of Mala et al., 2009. They used standard strain, but here the isolates were from a clinical sample which may have previous exposure to drugs that may attribute to the lower zone of inhibition (Shahzad *et al*., 2010).

4.2 Anti-inflammatory activity

Effects of C-phycocyanin and 5-ASA on Determination of myelo peroxidase (MPO) activity and on damage scores in colitis induced by acetic acid in rats Colitis induced by acetic acid in rats resulted in significant increases in colonic MPO content with respect to normal control rats. Though, the former effect was reversed in the group of rats with colitis which was previously treated with C-phycocyanin. The greater inhibitory effect on MPO activity was achieved by C-phycocyanin which indicates a reduction of neutrophil infiltration in colonic tissue, also substantially decreased MPO activity in rats with colitis. With these findings, histological evaluation of colonic tissues revealed essentially normal mucosa in the non-treated control group, in contrast with mucosal haemorrhage, severe inflammatory cell infiltration, submucosal oedema and focal ulceration in acetic acid-treated rats. Rats pre-treated with phycocyanin, there was only slight submucosal oedema, minimal subepithelial haemorrhage and mild inflammatory cell infiltration. Thus, the colonic damage score was reduced in the group pretreated with the greatest dose of phycocyanin (Gonzalez *et al*., 1999).

4.3 Antioxidant Activity

The DPPH inhibition by C-phycocyanin extract, reveal that applied concentration of C-phycocyanin showed inhibition of more than 15% at the highest concentration. Ferric Reducing Antioxidant Potential (FRAP) Assay Ferric reducing the potential result of ferric reducing capacities of selected concentrations of C-phycocyanin. The trend for the ferric ion reducing activities of C-phycocyanin tested was similar to the DPPH scavenging activities. C-phycocyanin possesses dose-dependent ferric reducing capacities. A dose-dependent increase was noticed in the case of C-phycocyanin (Mahfooz *et al*., 2017).

4.4 Antidiabetic potential:

The effect of C-phycocyanin was seen on KKAy mice. The blood glucose level in the mice of the control group remained high, while those in both the PC group and the pioglitazone group were significantly lower. PC was more effective in lowering the blood glucose level than pioglitazone. Compares 24 h random blood glucose levels measured on day 20. Again, the random glucose levels of both the PC and pioglitazone treatment groups were significantly lower than that of the control group. Treatment with PC and pioglitazone increased significantly the content of glycogen in liver and muscle as compared to untreated KKAy mice (Ou *et al*., 2013).

4.5 Anticancer potential

When C-PC treated tumour cells HT-29 and A549, it was reported that cell cycle was blocked in the cell cycle G0 / G1 phase, DNA synthesis was blocked, and thus, tumour cell proliferation was inhibited. Similarly, when C-PC treated human breast tumour cell MDA-MB-231 and human squamous carcinoma cell 686LN-M4C1, these tumour cells were found to have different degrees of cell cycle arrest in G0 / G1 phase. Phycocyanin could increase the expression of p21, meanwhile, Phycocyanin could down-regulate the expression of Cyclin E and CDK2 in the MDA-MB-231 cell. Moreover, phycocyanin could prevent K562 cells into S phase and the cells were arrested in G1 phase. Additionally, it was found that phycocyanin blocked G2 / M cell cycle progression and induced apoptosis of PANC-1 cells. Chunyan Wang also confirmed that phycocyanin caused cell cycle G2 / M arrest and induced apoptosis in human hepatoma cell line HepG2. It was interesting to note that several groups reported the mechanism of PC-mediated cell cycle arrest (Jiang *et al*., 2017).

It was found that ATRA and C-phycocyanin combination treatment of HeLa cells could significantly reduce the dose and side effects of ATRA. The combination therapy can significantly down-regulate anti-apoptotic protein Bcl-2, up-regulate the expression of pro-apoptotic Caspase-3 protein, inhibit cell cycle-related CDK-4 and Cyclin D1 protein expression, inhibit complement regulatory protein CD59 expression and induce the HeLa cell apoptosis (Yang *et al*., 2014).

3. Conclusion

Cyanobacteria produce a wide range of toxins and other biomedical interesting bioactive compounds. One of its potent bioactive compounds is C-phycocyanin. Extensive research studies revealed that C-phycocyanin has a rich potential to act as a drug. C-phycocyanin might be a promising bioactive compound and can be used as a remedy for various diseases comprising cancer, diabetes, inflammation. It also acts as anti-oxidant, anti-bacterial, antiviral, anti-fungal agents which further suggest its involvement in combating a large aura medical infestation including ageing. This review summarizes some recent developments in applications of C-phycocyanin. Although significant initial studies havealready be done and but deep-rooted extensive research still be needed in coming future to extract hidden information about C-phycocyanin and efforts should have to be made in order to attain economical excess production of C-phycocyanin by rDNA technology through increasing its nutritional and pharmacological value by protein engineering and other techniques.

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EMPLOYEE EMPOWERMENT AND ITS ROLE ON ORGANIZATIONAL PERFORMANCE

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Abstract

The Present study seeks to investigate the relationship between employee empowerment and organizational performance. Employee empowerment is a motivational technique that is designed to improve performance if managed properly through increased levels of employee's participation and self – determination. Employee empowerment is concerned with trust, motivation, decision making, and breaking inner boundaries between management and employee as "them" verses us. Empowerment is concerned with psychological empowerment and structural empowerment. The four important dimensions of psychological empowerment, e.g. meaning, competence, self-determination and impact and eight important dimensions of structural empowerment, e.g. locus of control, self-esteem, role clarity, autonomy, information and communication, training, culture and reward system were identified as independent variables with organizational effectiveness. Empowering employees enables organizations to be more flexible and responsive and can lead to improvement in both individual and organizational performance.

The purpose of this paper is to review the recent literature on the role of employee empowerment, as TQM practices, on organizations performance. A total of 12 recent and most related papers were reviewed. The review revealed that employee empowerment has a positive and multi-dimensional role in organizational performance. Some observation and finding have been identified and discussed.

Keywords- *Employee Empowerment, Psychological Empowerment, Structural Empowerment, Organizational Performance.*

Introduction

The biggest challenge in today's complex and competitive business world any organization irrespective of its size, nature of ownership and control faces is in regard to procurement, development, and retention of the single largest resource at its disposal i.e. human resource. It is the most important asset of an

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organization which acts as the base for competitive advantage. It is the only resource of an organization which appreciates with the passage of time while other resources depreciate. Professional workforce with sufficient knowledge and experience is the need of hour for organizations to use their resources efficiently and effectively. The concept of empowerment has gained a lot of attention in today's globalized world because of its perceived benefits in the larger form of industrial democracy. Employee empowerment has widely been recognized as an essential contributor to organizational success with many authors observing a direct relationship between the level of employee empowerment and employee performance, employee job satisfaction and employee commitment. Empowering employees enables organizations to be more flexible and responsive and can lead to improvements in both individual and organizational performance. Similarly, it is maintained that employee empowerment is critical to organizational innovativeness and effectiveness. Employee empowerment is more relevant in today's competitive environment where knowledge workers are more prevalent and organizations are moving towards decentralized, organic type organizational structures. In this era of globalization there is need for employees' empowerment in organizations so that employees will be in a position to make quick decisions and respond quickly to any changes in the environment. Organizations that are committed to employee empowerment are in a position to motivate and retain their employees, although it's a complex management tool which needs to be nurtured and handled with a lot of care. Employee empowerment is a motivational technique that is designed to improve performance if managed properly through increased levels of employee's participation and self-determination. Employee empowerment is concerned with trust, motivation, decision-making, and breaking the inner boundaries between management and employees as "them" verses us. In order to achieve their organizational aims and increase customer's satisfaction, Banking Companies have taken an action for implementation of empowerment dimensions of employees.

In today's competitive environment the effectiveness of organizations is the important issue in management that it can ensure continuity of organizational life and survival. Empowerment of people is a major contributor to the development of subordinates by allowing them to do extremely well by investing in themselves, even at the risk of making mistakes (Page and Wong,

2004). Empowering others to act, will lead followers to do a better job, and will aware them about their full potential (Kouzes and Posner, 2002). Enabling others to act as Kouzsand Posner (2002) described, is to develop the collaboration and empowerment of others, and these are the attributes of transformational leadership. In fact, one of the important duties of transformational leaders is empowering followers to meet the organizational goals and performance aims.

(Avolio et al., 2004). Leaders have to treat their followers as individuals instead of a group, and moreover they have to understand subordinates' developmental needs. To improve the potentials of the followers and empower them, leaders' coach and mentor subordinates (Avolio and Bass, 2004). Using a method to develop the feeling of self-efficacy in employees can result in their empowering (Pelit et al. (2011). Page and Wong (2000) stated that the important parameters to develop empowerment in others are: getting satisfaction by helping others to succeed, investing great time and energy to help others to conquer their weaknesses and improve their potential, appreciating and encouraging the work of others, appreciating and validating others for their contribution, encouraging others to take initiatives, and focusing on searching for better ways of serving other people.Kouzes(2003) brought other ways to improve empowerment as developing cooperative relationship, listening to diverse point of views, treating customers with dignity and respect, supporting people's choices, letting employees choose their job's method. One of the significant building blocks of any organization is its employee performance. It is evident that the development of organizations will be done with the effort of all employees and not by only one or two people.

Meaning of employee empowerment

Employee empowerment means giving employee a certain level of authority & responsibility to make decision on their own. Empowered employees are self –directed and self –controlled and have a mutual trust between the superior and subordinates.

Definitions

According to Nancy Foy, "Empowerment is simply gaining the power to make your choice heard, to contribute to plans and decisions that affect you, to use your expertise at work to improve your performance and with it the performance of your whole organization."

According to John New storm and Keith Davis, "Empowerment is any process that provides greater authority through the sharing of relevant information and the provision of control over factors affecting job performance."

Goals and objectives of empowerment

The main purpose of employee empowerment to develop a sense of control and power, Empowerment in the recent years has become a significant topic in the organization. The organization is encouraging their employees to give enough freedom in their work to apply the full potential and ability to carry out the over aims o organization.

1. Optimum utilization of available human resources.

2. Providing employees the authority and responsibility to take decisions themself.

3. To encourage mutual trust between the superior and subordinates.

4. Enabling people to achieve a creative sense of power through enhanced self - respect, confidence knowledge and skills.

5. Encouragement for setting up systems and environment that promotes effective participation.

Organization:

It is "A social entity that is goal directed and deliberately structured". Generally, all organization combines land, labour, capital and entrepreneurs to produces goods and services.

According to L.H Honey, "A business organisation may be defined as more or less independent complex of land, labour and capital, organised and directed for productive purpose by entrepreneur".

Types of organization

Formal: "A system of well-defined jobs with a definite measure authority, responsibility and accountability, the whole consciously designed."

Informal: "It is what people do in terms of needs, emotions and attitudes, not in terms of procedures and regulations."

Basic elements of organization

According to Scott there are four basic factors on which classical organizational theory is built.

- Division of labour.
- Scalar chain of command
- Span of control/ Span of management.
- Organizational structure.

Division of labour: "The degree to which organization tasks are subdivided into individual jobs; also called work specialization"

Scalar chain of command: "Scalar chain is a chain of all supervisors from the top management to the person working in the lowest rank."

Span of control: It means the number of employees who reports to a supervisor.

Organizational structure: Organizational structure is the result of organization chart and organization design. It comes into existence when activities are grouped.

Organizational effectiveness: Organizational effectiveness is the concept, of how effective an organization is in achieving the outcomes, the organization is intends to produce. Organizational effectiveness can be defined as the efficiency with which an Organization is able to meet its objectives. It means an organization that produces a desired effect or an organization that is producing without waste. Organizational effectiveness is each individual doing everything they know how to do and doing it well. Organizational efficiency is the capacity of an organization to produced desired results with a minimum expenditure of energy, time, and money, human and material resources. Organizational effectiveness can be measured with the help of following parameter but the present study will be focused to examine the following-

➢ Employee Effectiveness

➢ Quality of work performance

➢ High productivity

➢ Work Motivation

➢ Job satisfaction

Review of Literature

Kaur (2013) studied the impact of employee empowerment on organizational effectiveness and she found that socio structural characteristics like self-esteem, reward system, organizational climate etc. constitute a positive factor in influencing employee empowerment in organizations.

Rastegar et al (2013) studied the factors affecting employee empowerment in banking sector. They found that the open channels of information and information sharing are the two important factors that could increase trust among employees in the organisation.

Patnaik and Sahoo (2013) studied the relationship between training and employee empowerment and found that there is a positive relationship between the two.They also found that employee empowerment creates a sense of motivation, belongingness and ownership towards the organization.

Fernandez and Moldogaziov (2013) studied the effects of empowerment practices on job satisfaction and found that empowerment practices provide a platform for improvement in employees' self-determination.

Kassim et al (2012) studied the factors that affect the employees' job performance and found that employees with autonomy generate high performance than those without autonomy.

Manzoor (2012) studied the factors affecting employee motivation and examined the relationship between organizational effectiveness and employee motivation and found that recognition of employees by organizations increase the morale of employees and also creates a sense of belongingness among employees towards the organization.

Rawat (2011) studied the relationship of empowerment with the commitment of employees and found that psychological empowerment has a too much influence on the commitment of employees.

Jung, Wang, & Wu (2009) examined the relationship between TQM and continuous improvement. One of their finding indicated the important mediation role of TQM practice, including empowerment, between competitive strategy and continuous improvement in the international project management. But the important finding is that empowerment has a significant positive impact on continuous improvement which has direct influence on

strengthening competitive advantage. Jung et all's study involved managers working in different four countries and multi nationality backgrounds.

Jung and Hong (2008) conducted a study to explore the link between organizational performances, TQM practices that significantly influence job involvement. Like Travellers and Santouridis Singh (2011) also conducted a study in the field of SMEs in order to find out how factors interact to success TQM Implementation. In other words, Singh's study aimed to identify the critical success factor in TQM implementation in SMEs. Through applying interpretive structural modelling (ISM) technique, he found that employee empowerment is the one of four major factors that is critical to success the implementation of TQM in SMEs. He observed and identified the initial factors group through reviewing the related literature.

Boon, Arumugam, Safa, and Bakar (2007) argue that employee empowerment is the most important TQM practices that significantly influence job involvement. According to their analysis results, empowerment is the most crucial practice that increases level of job involvement which raises the level of performance. This study investigated empowerment not just as a TQM practice but also as a human resource management HRM practice. In other words, Boon et all's study investigated empowerment from three perspectives (i) empowerment as TQM practices, (ii) empowerment as HRM practices, and (iii) empowerment from perspective of the relationship between HRM and TQM practices. Thus, and with regard to the important role of HRM and TQM systems in the whole management system, it can be said empowerment is a crucial practice that influence the overall organization performance.

Samat, Ramayah and Saad (2006) explored the relationship between employee empowerment and service quality as well as the relationship between employee empowerment and market orientation. The authors concluded that employee empowerment has significant effect on service quality and market orientation comparing with other practices of TQM examined in the study. Their results obtained from an analysis applied on data collected from service organizations. The service organizations were from different service business activities such as banking, education, private and public utility service and consulting service. All those organizations practiced TQM in their operations and located in northern Malaysian states (Perak, Kedah, Penang and Perlis).

Summary of the studies on employee empowerment

Study	Source of data	Analysis technique	Findings
Kaur(2013)	Structured-Questionnaire from employees of non-executive of public, private and foreign banks in some north Indian states.	Weighted average, Correlation coefficient analysis and independent t-test.	Socio structural characteristics constitute a positive factor in influencing employee empowerment in organization.
Fernandez and Moldogaziov (2013)	Federal Human Capital survey/ Federal Employee survey	Empirical analysis	Empowerment practices provide a platform for improvement in employees' self-determination.
Kassim et al(2012)	225 respondents from banking employee	Correlation and regression analysis	Employee with autonomy generates high performance than those without autonomy.

Rawat(2011)	133 working professional from service industry	Regression analysis	Psychological empowerment has a too much influence on the commitment of employees.
Singh(2011)	Literature review	Interpretive structural modelling (ISM)	Employee empowerment is one of the important factors that have critical role in success of TQM implementation.
Ueno(2010)	Literature review	Review	Employee Empowerment has significant role in achieving and enhancing service quality.
Jung, Wang, & Wu (2009)	268 Managers of international projects working in US, Mexico, Korea, and China.	Structural equation modelling	Empowered employee has significant impact on continuous improvement in international project management

Trivellas and Santouridis (2009)	90 ISO 9001 certified Manufacturing and service firms in Greece	Correlation	Employee empowerment has a direct positive impact on job satisfaction and innovation performance in SMEs.
Jung and Hong(2008)	230 maquiladora companies in boarder of Texas and Mexico	Structural equation modelling	Empowered employees plays significant role on organizational performance
Boon et al.	377 employees working in		Employee empowerment is the most crucial TQM practices that

Discussion and conclusion

Based on the literature review, there are many observations and shortcomings can be noted: first, all the results support the positive role of empowerment in organization performance and outcomes. This substantiates the crucial function of employee empowerment in the context of TQM system as well as the HRM systems. Furthermore, the positive impact of empowerment on organization operation implies the domination of soft side of TQM in the success of the implementation of TQM system which asserted by (Ahire, Golhar, & Waller, 1996; Dow, Samson, & Ford, 1999; Powell, 1995).

Second, the literature revealed how the role of empowerment is diversified. For instance, and as in Trivellas and Santouridis' study, empowerment has a direct positive role on job satisfaction which implies the indirect role of empowerment on innovation performance. Concurrently, it has a direct positive influence on innovation performance without the mediation role of job satisfaction. The diversified positive role of empowerment also appears in its influence on other TQM practices. For instance, empowerment has positive impact on continuous improvement (Jung, et al., 2009); and on employee involvement (Boon, et al., 2007).

Third, the focus of investigation is more likely to be on manufacturing industry organizations. Excluding Samat et al study, all reviewed studies conducted in manufacturing or in both manufacturing and service industries. According to Organization for Economic Co-operation and Development OECD (2008), service industry serves more than %50 of global economics activities. In some countries service sector shares more than 70 percent of GDP (e.g. Luxembourg 82%, Greece 78%, and USA 77%). Therefore, studying empowerment as well as the other TQM practices in service organizations need be given more consideration from researchers, scholars and academicians.

Purpose of this paper was to review the influence of employee empowerment, from perspective of TQM practices framework, on organizations' function and performance. The review involved 12 recent papers covering the period time from 2006 to 2013. The general view of employee empowerment is showed to be having a positive role on whole organizations performance and functions. The review also showed that empowerment has a diversified role on

organizations function and on the other TQM practices.

The findings of review shows positive role of employee empowerment on organizational performance.

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IMPORTANCE OF WORKING CAPITAL MANAGEMENT ON PROFITABILITY OF ORGANIZATIONAL TRAUMA AND THEIR PERFORMANCE

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Abstract

Increased financial pressures on trauma centre have evaluated the importance of working capital management, that is, the management of current assets and current liabilities. Efficient working capital management allows trauma centre to reduce their holdings of current assets, such as inventory and account receivable, which earn no interest income and require financing with short - term debt. The resulting cash inflows can be reinvested in interest-bearing financial instruments or can be used to reduce short-term borrowings, thus improving the profitability of the trauma centre. Working capital management in important because of its effects on the trauma's profitability and risk, consequently its value.

The study examines the importance of working capital management on organizational trauma and their performance at managing two components of working capital: account receivables, measured in terms of trauma's average collection periods, and account payables, measured in terms of trauma's average payment periods. The importance of working capital management on profitability of organizational trauma and their performance was tested using the panel data methodology. This methodology presents important benefits.

The results show a negative relationship between trauma's average collection period and profitability. That is, hospitals that collected on their patient revenue faster reported high profit margins than did trauma's that have larger balances of accounts receivable outstanding. We also found a negative relationship between trauma's average payment period and their profitability. The results, which are strong enough to the presence of endogeneity, demonstrate that managers can create value by reducing their inventories and the number of days for which their accounts are outstanding.

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The findings of this study suggest that working capital management indeed matters for trauma's profitability and their performance. Efforts aimed at reducing large balances in both accounts receivable and accounts payable may frequently be worthwhile investments that have the potential to reduce the costs associated with working capital management and thus it improves the profitability of organizational trauma and their performance.

Keywords: Working capital, Profitability, Organizational trauma

Introduction

Working Capital Management (WCM) is a very significant yet highly abandon function performed by financial managers for making the companies competitive in the market. At present, management of working capital is the most pertinent thing in the business world that differentiates one company from another. Cash, the most essential components of current assets, is considered as the life blood of business. But, most of the companies prove to be inefficient in managing cash properly. Working Capital Management deals with the management of current assets (CA) and current liabilities (CL) along with the measures to finance them efficiently. Usually, a company owns half of its total asset as current assets. Both too much and too less current assets are detrimental for the profitability of the firms. Again, the firms face Basing on these concepts, there are two types of working capital i.e. gross working capital (GWC) and net working capital (NWC). Gross working capital is the total amount of current assets whereas net working capital is the surplus current assets that is the net of current liabilities. Moreover, working capital can also be segregated into another two categories i.e. fixed (permanent) and temporary working capital. Permanent working capital is needed to carry out the regular business operations and temporary working capital is needed to shore up the changes in production and sales activities. Temporary working capital has two variants i.e. seasonal and special working capital. Efficient working capital refers to maintaining the optimum level of current assets and current liabilities to obtain maximum profit for the organizations in a given period of time.

Injury has become a major cause of death and disability worldwide. Organized approaches to its prevention and treatment are needed. In terms of treatment, there are many low-cost improvements that could be made to enhance the care of injured persons. The goal of the Guidelines for essential trauma care is to promote such low-cost improvements. These guidelines seek to set achievable

standards for trauma treatment services which could realistically be made available to almost every injured person in the world.They then seek to define the resources that would be necessary to assure such care. These include human resources (staffing and training) and physical resources (infrastructure, equipment and supplies). By more clearly defining such services and resources, we hope these guidelines will facilitate the strengthening of trauma treatment services worldwide. The basic premise of these guidelines is that improvements in organization and planning can result in improvements in trauma treatment services and hence in the outcome of injured persons, with minimal increases in expenditures.Organizational trauma is a collective experience that overwhelms the organisation's defensive and protective structures and leaves the entity temporarily vulnerable and helpless or permanently damaged. Organizational traumatization may also result from repeated damaging actions or the deleterious effect of the nature of an organization's work.

Lastly in the field of managerial firms WCM has a vital role with both positive and negative impacts on the business as it has significant effect on the Profitability of the firms. The current research is being done to have better understanding between WCM and Profitability. The mission of the WCM is to make balance in every component of Working Capital.

According to Fildeck and Kruegar (2005), Profitability of firms is associated with capabilities of the manager; if the managers are capable, he can properly manage Inventory, Receivables and payables. Firms will have availability of finance for the expansion projects if it reduces its financing cost and minimize the amount of investment which is being blocked in current assets. In the study of non-optimal levels of current assets and liabilities and rising up to the balance level managers should contribute a lot of their time and efforts. (Lamberson 1995) a balance level of Working Capital is the one in which equilibrium is achieved between efficiency and risk. It requires a continuous monitoring the balance level of the Working Capital.

The remaining study is basically based on the analysis of previous literature review which is relevant to the topic which provides information for this topic, research methodology which provides the information about all the variables included in the study and sample size.

Review of Literature

J P Singh and Shishir Pandey (2008) have studied on topic impact of working capital management on profitability of Hindalco Industries Limited. This study is based on secondary data and data are collected from annual reports of company for 17 years period i.e.1 990-2007. The research methodology used in this paper is ratio analysis, percentage method, correlation coefficients and multiple regression analysis. Regression results of study show that current ratio, liquid ratio, receivables turnover ratio and working capital sto total assets ratio have statistically significant impact on the profitability of Hindalco Industries Limited.

Shishir Pandey and Vikash Kumar Jaiswal (2011) analyzed the effect of working capital management on profitability of manufacturing firms. The study period of the paper was five years i.e. 2005-2010. The research methodology by the author is correlation and regression analysis (two different method fixed effects model and ordinary least squares model). The result of correlation analysis show there is negative relationship between profitability and debtor's days, inventory days, and creditor's days. The results of regression analysis shows cash velocity, size of the firm, and net working capital leverage are significant both working capital method.

Dr. Ashok Kumar Panigrahi (2012) analyses the impact of working capital management on profitability of ACC Cement company. The study is based on secondary data, data are collected from websites money control as well as company websites and study period are for 10 years i.e. 1999-2000 to 2009-2010. The research methodology used in this paper is correlations coefficient, multiple correlation analysis and multiple regression analysis. In this paper few variables show a strong and positive correlation with the profit whereas some others do not have. The result shows that there is moderate relationship between the efficiency of working capital and the profitability.

Arun kumar O.N. and T.Radharamanan (2012) examined the effect of working capital Management on profitability of Indian Manufacturing Firms. The study period was of 2005 -06 to 2009-10 i.e. for 5 years and methodology used on this study was correlation and regression analysis. The result of research shows that in correlation analysis profitability has negative relationship between profitability and Debtor day, inventory day and creditor day. And a result of regression analysis shows that there is positive relationship between number

days of inventory and number of days of account payables.

Ganesamoorthy L. and Rajavathana R. (2013) in their study on, effects of working capital management on profitability of select automobile companies in India; they found insignificant relationship between working capital management and profitability of Tata Motors and Mahindra and Mahindra.

KrutiA.Patel (2015) studied on impact of working capital management on profitability of Indian Oil Corporation. The study was based on secondary data and study period was 2009-10 to 2013-14. Pearson correlation, descriptive statistic and INM SPSS were applied as research methodology. The result shows that there is significant negative correlation between working capital management and net profit and it also indicates that there is negative relationship between liquidity and profitability.

Poonam Gautam Sharma and preetkaur (2015) examine the impact of working capital management on profitability of Bharti Airtel Telecome Company. The study period was from 2007-08 to 2014-15 and statistical and econometric tools were used for study. The results reveal that there is significant negative relationship between liquidity and profitability of the company and it also reveals that quick ratio, inventory turnover ratio, debtor's turnover ratio of company shows satisfactory performance and current ratio of company was not satisfactory.

Objectives:

The objective of this study is to find out the importance of working capital management and profitability of organizational trauma and their performance.

To develop a frame work for measuring the importance of working capital management and profitability of organizational trauma and their performance. It is hypothetical that there is a significant relationship between efficient working capital management and profitability of organizational trauma and their performance.

To get insight into the concept of working capital management in organizational trauma. To investigate the impact of working capital management on profitability. To find out association between working capital management and profitability of organizational trauma and its performance.

Methodology

This study is based on secondary data. In this research we will see the different working capital management practices and its impact on profitability of organizational trauma and its performance. In this study, the choice of explanatory variables is based on alternative theories related to working capital management and profitability and additional variables that were used in previous studies. The variables used in this study are based on the line as applied in previous research. Data of account receivable, account payable, inventories, sales turnover, total assets, and cost of goods sold were extracted from the annual financial statements of the sampled company. Raw data were analysed then transformed into meaningful information as the way of easing their understandability. This is a quantitative and descriptive design. Data provided by the respondents in their own words are the qualitative methods. By contrast, quantitative method is a type of method where the researcher is interested in quantities and numbers. The researcher analysed secondary data by computing regression analysis where Gross Operating Profit is the dependent variable. To find out the difference between the effects of the working capital management on performance of organizational trauma and its performance, a one-way ANOVA was carried for each variable. Various statistical tools will be applied to test the above hypothesis. The statistical tool used for above type of hypothesis correlation; multiple linear regression statistics will be used to check the dependence of financial performance on working capital.

Findings and Conclusion:

The results show a negative relationship between trauma's average collection period and profitability. That is, hospitals that collected on their patient revenue faster reported high profit margins than did trauma's that have larger balances of accounts receivable outstanding. We also found a negative relationship between trauma's average payment period and their profitability. The results, which are strong enough to the presence of endogeneity, demonstrate that managers can create value by reducing their inventories and the number of days for which their accounts are outstanding. The findings of this study suggest that working capital management indeed matters for trauma's profitability and their performance. Understanding the work-culture connection is the first step an organization can take to free itself from dysfunctionaldynamics and heal from trauma. The organization can then be more open to change while affirming and

its mission. Efforts aimed at reducing large balances in both accounts receivable and accounts payable may frequently be worthwhile investments that have the potential to reduce the costs associated with working capital management and thus it improve the profitability of organizational trauma and their performance.

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LASER APPLIED IN MEDICAL DIAGNOSIS AND THERAPY

Dr K. C. Dubey[1]

Introduction

Laser radiation: In order to know the laser radiation interface with the specific kind of tissue, it is necessary to know about the main laser output radiation characteristics, such as the wavelength, pulse interval or probable interaction time period, emission energy, power, fluency, intensity and deviation. Hundreds of lasers generating radiation at wavelengths ranging from X-ray up to far IR currently exist. From the point of view of pulse duration, radiation can affect the tissue for time intervals from multiple seconds up to several femto-seconds. Emission energy can range in level from nano-joules up to tens of joules. Depending on the interaction time, the radiation peak power can range from microwatts to giga-watts. The radiation can be focused to a small spot with a diameter of several micrometres, resulting in a high level of fluency or intensity ($10^6 J/cm^2 – 10^{12} W/cm^2$).

Laser medicine is the use of Lasers in medical diagnosis, treatment or therapy, such as laser photo-dynamic therapy, photo-rejuvenation and laser surgery.

Medical diagnosis is that the method of deciding that unwellness or condition explains somebody's symptoms and signs. It is most frequently stated as designation with the medical context being implicit.

The information needed for designation is often collected from a history and physical examination of the person seeking medical aid. Often, one or additional diagnostic procedures, like diagnostic tests, are done throughout the method. Sometimes late designation is taken into account a form of diagnosis.

Benefits of lasers

Dental lasers are not short of their aids, however, as the use of a laser can reduction illness after surgery, and reduces the need for anesthetics. Because of the cauterization of tissue there will be little bleeding following soft tissue procedures, and some of the risks of alternative electro-surgery procedures are avoided.

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Lasers applied in medicine contain in opinion any type of laser, but particularly:

- CO_2 Lasers, used to cut, vaporize, ablates and photo-coagulate soft tissue.
- Diode lasers
- Dyelasers
- Excimer lasers
- Fiber lasers
- Gas lasers
- Free electron lasers
- Semiconductor diode lasers

Applications in medicine

Examples where lasers are utilized include:
- Angioplasty
- Cancer diagnosis
- Cancer treatment
- Dentistry
- Cosmetic dermatology such as mark amendment, skin float up, laser hair removal, tattoo removal
- Dermatology to treat melanoma
- Frenectomy
- Lithotripsy
- Laser mammography
- Medical imaging
- Microscopy
- Ophthalmology (includes lasik and laser photocoagulation)
- Optogenetics
- Prostatectomy
- Plastic surgery, in laser liposuction
- Surgery, to cut, ablate and cauterize tissue

A dental laser is a kind of laser considered specifically for practice in oral surgery or dentistry. In the United States, the practice of lasers on the resins was first accepted by the Food and Drug Administration in the early 1990s, and use on stiff tissue like teeth or the bone of the mandible expanded approval in 1996. Numerous alternatives of dental lasers are in practice with changed wavelengths and these mean they are improved suited for different uses.

Gum depigmentation, also recognized as gum blanching, is a process used in beautifying dentistry to reduce or eliminate black spots or areas on the gums produced by melanin. Discolouration may also be caused by long-term usage of sure medications. The process itself can include surgical, or laser ablation methods

Tooth whitening (termed **tooth lightening** when utilizing lighten), is either the renovation of a normal tooth shade or whitening outside the usual shadow.

Repair of the basic natural tooth shade is likely by simply eradicating surface colors caused by extrinsic factors, stainers such as tea, coffee, red wine and tobacco. The build-up of calculus and plaque can also effect the discoloration of teeth. This renovation of the natural tooth darkness is attained by taking the teeth prepared by a dental professional or at home based by numerous oral hygiene approaches. Calculus and plaque are problematic to eliminate without a expert clean.

To whiten the normal tooth darkness, lightening is recommended. It is a mutual process in beautifying dentistry, and a numeral of dissimilar procedures are used by dental experts. There is an excess of goods advertised for home usage to do this also. Methodscompriselightening strips, bleaching pens, bleaching gels and laser tooth whitening. Bleaching methods normally use either hydrogen peroxide or carbamide peroxide which disruptions down into hydrogen peroxide.

Lasers in ophthalmology

Aimed at cornea and lens, UV light produced by the excimer laser is powerfully absorbed by water and proteins, so their dynamism can be captivated by clear cornea and lens, authorizing laser surgery on these zones. Cascades: a milky rupture in the lens of the eye. Photo-vaporization by means of UV laser to eliminate the opaque regions. Correction of myopia: over directing of the lens.

Laser removal of tattoo: Tattoo can be detached with diversity of laser reliant on the occurrence of liquid ink in the tattoo.

Laser hair removal: Choosy preoccupation: fascinating constituent being melanin dye in hair and sac, it is finest functioned through a red-light ruby laser. White hair cannot be dried with in the least laser due to the deficiency of absorbing constituent.

Laser skin transformation: IR lasers are rummage-sale to eliminate tremendously thin layer of skin (<0.1 mm). In the non appearance of stain in over-all, they yield gain of the occurrence of water in the skin to deliver and capability to eradicate skin and body tissue.

scalpel to cut tissue. Samples contain the usage of a laser stiletto in then conservative surgery, and soft-tissue laser surgery, in which the laser grin vaporizes soft tissue with high water contented.

Laser surgery is usually used on the eye. Methods used contain LASIK, which is used to correct close and foresight in vision, and photo refractive keratectomy, a process which forever reforms the cornea using an excimer laser to remove a minor quantity of the human tissue.

Soft tissue: Soft-tissue laser surgery is hand-me-down in a diversity of requests in human general surgery, neurosurgery, ENT, dentistry, orthodontics, and oral and maxillofacial surgery as well as veterinary surgical fields. The main usages of lasers in soft tissue surgery are to cut, ablate, vaporize, and clot. There are numerous changed laser wavelengths used in soft tissue surgery. Changed laser wavelengths and expedient settings (such as pulse duration and power) yield different effects on the tissue. Some commonly used lasers types in soft tissue surgery include erbium, diode, and CO_2. Erbium lasers are outstanding secateurs butdeliver minimal haemostasis. Diode lasers (hot tip) provide excellent haemostasis but are slow cutters. CO_2 lasers are both competent at cutting and coagulating.

Dermatology and plastic surgery

A variety of lasers such as erbium, dye, Q switch lasers and CO_2 are applied to treat numerous skin circumstances with marks, vascular and pigmented cuts, and for photo transformation. The laser surgery for dermatology frequently avoids the skin superficial. The opinion of laser surgery for dermatologic problematic is based on SPTL (selective photothermolysis). The laser beam enters the skin till it meetings chromophore which engrosses the laser grin. After absorption of the laser beam, heat is produced to bring coagulation, necrosis of the beleaguered tissue, and these outcomes in elimination of undesirable tissue by laser surgery.

Laser resurfacing is a practice in which covalent bonds of a material are liquified by a laser, a method developed by aesthetic plastic surgeon Thomas L. Roberts ,III using CO2 Lasers in the 1990s. Lasers are also applied for laser-assisted lipectomy.

Eye surgery

Numerous kinds of laser surgery are applicable to delicacy refractive mistake LASIK, in which a knife is applied to cut a flap in the cornea, and a laser is

applied to reform the filmsunder, is used to delicacy refractive mistake. IntraLASIK is a different in which the flap is likewise cut with a laser. In photorefractive keratectomy (PRK, LASEK), the cornea is reformed short of first cutting a flap. In laser thermal keratoplasty, a ring of concentric burns is complete in the cornea, which reason its surface to steepen, permitting improved near vision.

Lasers are also applied to indulgence non-refractive circumstances, such as phototherapeutic keratectomy (PTK) in which opaqueness and surface indiscretions are detached from the cornea and laser coagulation in which a laser is applied to cauterize blood containers in the eye, to treat numerouscircumstances. Lasers can be used to overhaul tears in the retina.

Endovascular surgery

Laser endarterectomy is a method in which an whole atheromatous sign in the artery is removed. Other applications contain laser helped angioplasties and laser helped vascular anastomosis.

Foot and ankle surgery

Lasers are applied to treat some complaints in foot and ankle surgery. They are applied to eliminate kind and malignant tumurs, treat bunions, debride ulcers and burns, excise epidermal nevi, blue rubber bleb nevi, and keloids, and the elimination of hypertrophic marks and tattoos.

A carbon dioxide laser (CO_2) is applied in surgery to treat onychocryptosis (ingrown nails), onychauxis (club nails), onychogryposis (rams horn nail), and onychomycosis (fungus nail).

Gastro-intestinal tract

1. Peritoneum-Laser is applied for adhesiolysis
2. Peptic ulcer disease. and oesophageal varices- Laser photoablation is complete.
3. Coagulation of vascular malformations of stomach,duodenum and colon.
4. Lasers can be successfully applied to treat initial gastric cancers provided they are less than 4 cm and without lymph node participation. Lasers are also uses in giving oral submucous fibrosis.
5. Palliative laser therapy is prearranged in progressive oesophageal cancers with obstruction of lumen. Recanalisation of the lumen is done

which permits the patient to recommence soft diet and keep hydration.

6. Ablative laser therapy is used in advanced colorectal cancers to dismiss obstruction and to controller bleeding.
7. Laser surgery used in hemorrhoidectomy, and is a comparatively general and non-invasive technique of haemorrhoid elimination.
8. Laser-assisted liver resections have been done using carbon dioxide and Nd:YAG lasers.
9. Ablation of liver tumors can be attained by discerning photovaporization of the tumor.
10. Endoscopic laser lithotripsy is a harmless modality related to electrohydraulic lithotripsy.

Oral and dental surgery

The CO_2 laser is applied in oral and dental surgery for almost all soft-tissue events, such as gingivectomies, vestibuloplasties, frenectomies and operculectomies. The CO_2 10,600 nm wavelength is harmless everywhere implants as it is reflected by titanium, and therefore has been ahead admiration in the arena of periodontology. The laser may also be operative in treating peri-implantitis.

Spine surgery:

Laser spine surgery first started seeing medicalusage in the 1980s and was chiefly used inside discectomy to treat lumbar disc disease below the idea that heating a bulging disc vaporized sufficient tissue to dismiss pressure on the nerves and assistance alleviate pain.

Meanwhile that time, laser spine surgery has develop one of the greatest marketed procedures of slightly invasive spine surgery, not withstanding the detail that it has never been studied in a controlled clinical trial to determine its efficiency separately from disc decompression. Evidence-based data nearby the usage of lasers in spine surgery is restricted and its care and effectiveness were unwell understood as of 2017.

Other surgery:

The CO_2 laser is also applied in gynaecology, genitourinary, over-all and

thoracic surgery, otorhinolaryngology, orthopaedic and neurosurgery.

Hard tissues: Lasers are applied to cut or ablate bones and teeth in dentistry.

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OPTICAL FIBER SENSORS FOR MEDICAL APPLICATIONS

R. K. Shukla[1]

Introduction

The inherent physical quality of optical fiber joint with its flexibility in distant sensing makes it smart equipment for biomedical uses. With worldwide residents that are both budding and breathing longer, the global healthcare provider are progressively more looking to highly developed biomedical instrumentation to facilitate more competent patient analysis, monitoring, and cure. In this situation, biomedical sensing uses of optical fiber are of budding significance. The same time, current advances in modestly invasive surgery require smaller throwaway sensing catheters.

Endoscopic imaging application of optical fibers are well recognized, but the inherent physical feature of optical fibers also makes them enormously gorgeous for biomedical sensing. Fibers without jacket can be inserted straight into nozzle and catheters; so that their employ can be both simply enveloping and extremely limited to a small area-and fiber-optic sensors completed with them can carry out distant multipoint and multi-parameter sensing.

Optical fibers are resistant to electromagnetic interference, chemically inert, nontoxic, and fundamentally safe. Their make use of will not reason interference with the conservative electronics establish in medical theaters. And, most significantly, the resistance of fibers to electromagnetic and radio frequency signals makes them perfect for real-time use throughout diagnostic with Magnetic Resonance Imaging, computed tomography, A positron emission tomography, or Single-photon emission computed tomography systems, as well as throughout thermal ablative treatments relating RF or microwave radiation. Creating high-accuracy telecentric lenses for machine vision systems:

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A key component of a machine vision system is its telecentric lens, which offers the best possible "vision" for the machine. Learn what telecentric lenses are and how to create high accuracy telecentric lenses for machine vision systems.
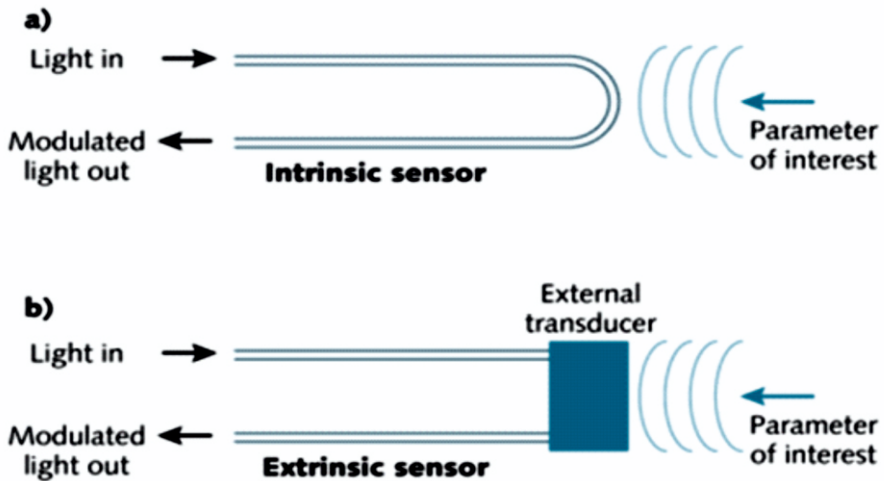

FIGURE: Two fundamental types of optical fiber sensors. Extrinsic sensors (a) relay on a transducer, whereas intrinsic sensors (b) do not.

Fiber-optic biomedical sensors

Optical fiber sensors consist of a light source, optical fiber, exterior transducer, and light detector. They detect the modulation of one or more of the properties of light that is guided inside the optical fiber such as intensity, wavelength, or polarization. The modulation is created in a straight and repeatable style by an exterior perturbation caused by the physical factor to be considered. The measured of notice is inferred from changes detected in the optical characteristics.

Optic fiber sensors can be intrinsic or extrinsic. In an intrinsic sensor, the light resides in the fiber and the parameter of attention affect a property of the light propagating during the fiber by acting directly on the fiber itself. In an extrinsic optical fiber sensor, the perturbation acts on a transducer and the optical fiber just transmit light from the sensing position.

A lot of diverse optical fiber sensing mechanisms have been used previously for industrial applications1, 2, and a number of biomedical applications3-5 amid which are fiber Bragg gratings, Fabry-Perot cavities or external fiber Fabry-Perot interferometer sensors, evanescent wave, Sagnac interferometer, Mach-Zehnder interferometer, micro-bending, photo-elastic etc. The most common are based on external fiber Fabry-Perot interferometer sensors and fiber Bragg gratings sensors. Spectroscopic sensors which are based on light absorption and fluorescence are also used. Biomedical optical fiber sensors can be considered into four chief types: physical, imaging, chemical, and biological.

Physical sensors measure a range of physiological parameters, such as human body temperature, blood pressure (BP) and muscle dislocation. Imaging sensors cover both endoscopic tools for internal study and imaging, as such as modern techniques such as optical coherence tomography and photo-acoustic imaging, where internal scans and visualization can be made non-intrusively. Chemical sensors rely on spectroscopic, fluorescence and indicator technique to recognize and compute the being there of specific chemical compounds and metabolic variables such as pH, blood oxygen, or glucose level. They sense exact chemical species for diagnostic purposes, and observe the body's chemical reactions and action. Biological sensors to be inclined more composite and rely on biologic detection reactions, such as enzyme-substrate, antigen-antibody, or ligand-receptor -to recognize and measure specific biochemical molecules of notice.

Table 1: Classification of biomedical sensors by type showing various biomedical parameters of interest

Physical	Chemical	Biological	Imaging
Body temperature	pH	Antigens	Endoscopy
Blood pressure	pO_2	Antibodies	Optical coherence tomography (OCT)
Blood flow	PCO_2	Electrolytes	Photodynamic therapy (PDT)
Heart rate	Oximetry (SaO_2, SvO_2)	Enzymes	
Force	Glucose	Inhibitors	
Position	Bile	Metabolites	
Respiration	Lipids	Proteins	
Shape sensing			

In optical fiber sensor development, the basic imaging sensors are the most developed. Fiber-optic sensors for dimension of physical parameters are the after that for the most part prevalent, and the slightest developed area in terms of doing well products is sensors for biochemical sensing, although many optical fiber sensors concepts have been established.

Requirements and applications

Biomedical sensors here sole design challenges and exacting trouble connected to their interface with a biological living being. Sensors should be secure, dependable, extremely stable, biocompatible, agreeable to sterilization and autoclaving, not prone to biologic negative response, and not need calibration. Sensor covering is a particularly crucial aspect since the tool should be tiny - mainly those for implanting or indwelling purposes as shown in Fig. 2. The tools also should be as uncomplicated as possible.
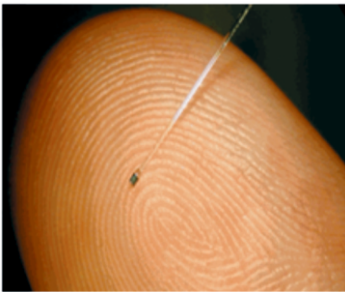
Uses for biomedical optical sensors could be divided into two types as *in vivo* or *in vitro*. *In vivo* gives to application on a full, living organism - such as a human patient; *in vitro* gives to measuring exterior of the body - like as laboratory blood tests. From the perception of how optical sensors are applied to a patient, they can be classified as non-invasive, contacting, minimally invasive, or invasive. Biomedical optical sensors can be used in humans, in animals, or other living organisms and depending on the intended use, can be for diagnostic, therapeutic, or rigorous care in clinical uses; research and preclinical growth; or laboratory testing (see Table 1).

Figure: Sensors intended for implanting or indwelling applications must be very small such as this micro-miniature fiber-optic pressure sensor shown on a fingertip.

Latest product developments:

One of the near the beginning fiber-optical biomedical sensors, Camino Labs (San Diego, CA), in 1984 come into the medical market an intracranial pressure

sensor that has since develop into one of the most usually used intracranial pressure monitoring systems in the world. The tools are based on a potency modulating optical fiber system relying on a tiny bellows as the transducer.

Earlier sensor pioneers are Luxtron (Santa Clara) with its fluor-optic temperature sensor and FISO (Quebec City, QC, Canada) which has situated itself as a mainly significant supplier of medical fiber-optic pressure and temperature sensors. FISO's sensors are based on EFPI tools interrogated with white-light interferometry. Among a new generation of companies are Opsens, Neoptix (both in Quebec City, QC, Canada), and Samba Sensors (VästraFrölunda, Sweden). By far,

Table 2: Examples of commercial fiber-optic biomedical sensors by type

Parameter	Company
Temperature	Fiso, LumaSense, Neoptix, OpSens, RJC
Pressure	Fiso, Maquet, OpSens, Samba Sensors, RJC
Coronary imaging	InfraRedx
Oxygenation	ISS
Pulse oximeter	Nonin
Blood flowmeter	ADInstruments
Shape/position	Hansen Medical, Intuitive Surgical, Luna, Measurand, Technobis
Force	EndoSense
EKG/EEG	Srico

the most familiar medical optical fiber sensor on the market is temperature and pressure monitor, but a handful of other diverse sensors and instruments does be present as given in Table 2. As low costs and modern sensing techniques are developed, it's likely that the number and diversity of biomedical optical fibersensos will increase.

The latest expansion efforts are shape-sensing systems that use arrays of Fiber Bragg Gratings disposed along multimode and single mode fibers. The Fiber Bragg Gratings will transfer peak wavelengths in response to the strain and curvature stress formed during bending. The fiber arrays help to determine the accurate position and shape of medical tools and robotic arms used during MIS. Pursuing by Companies such type development are Hansen Medical (Mountain View, CA), Intuitive Surgical (Sunnyvale, CA), Luna Innovations (Roanoke, VA), Measurand (Fredericton, NB, Canada), and Technobis (Uitgeest, the Netherlands).

New optical fiber sensors product in precertification trials is the Endo-Sense (Geneva, Switzerland) TactiCath force-sensing catheter. Fiber Bragg grating sensors are mount on the tip of an intra-aortic catheter that also serve as a laser-ablation delivery probe for the treatment of atrial fibrillation. The Fiber Bragg grating sensors examine the force exerted against the heart wall by the stress

induced on them as shown in Fig. 3. Force control is necessary for deliver suitable laser ablation pulses required to create lesions that are induce in the heart walls to decrease irregular electric activity.
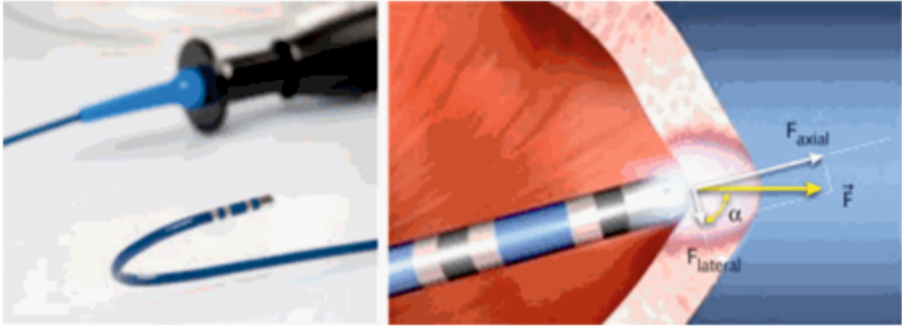

FIGURE. A fiber-optic intra-aortic force sensing catheter probe enables real-time monitoring of the force exerted against the heart wall by the catheter.

Outlook:

The market represents a biomedical sensing is a lucrative and growing opportunity for optical fiber sensors, mainly for huge volumes of throwaway probes. The requirement for large number of patient monitoring tools combine with a fashion toward modestly invasive surgery, which itself require a range of minimally invasive medical tools as well as one-time use, disposable sensors of tiny size that can be included into catheters and endoscopes - an perfect fit for optical fiber sensors. There is an indisputable opportunity for optical fiber sensors as electromagnetic interference - compatible sensors to monitor vital signs during use of MRI, as well as RF treatments.

BCC Research (Wellesley, MA) estimate the US market for patient monitoring tools to be cost \$3.6 billion in 2007 and to reach \$5.1 billion in 2013. In a recently report, growth rate of 11.6% from 2017 through 2022 to reach \$35.0 billion by 2022.The throwaway sensors and other consumables, portion of the market were approximate to be \$2.6 billion in 2007 and to reach ~\$3.4 billion in 2013. The optical fiber sensors share of this global market is small and approximate to be at around \$100 million. The potential is marvellous and optical fiber biomedical sensors offer capability and description that cannot be or else obtained. The higher cost remains a barrier, however, as does the lengthy development cycles and required regulatory process. Optical Fiber Sensor

design and growth is not unimportant, and proper material selection, design, biocompatibility, patient safety and other points must be taken into account.[6] However, there are already a number of successful products in the market and more to come.

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# SYNTHESIS AND CHARACTERIZATION OF CONDUCTING POLYMER AND THEIR APPLICATION

R.K. Shukla[1]

Conducting Polymer

The word "polymer" is derived from ancient Greek word (poly means "many" and mer means "parts"). Polymers are huge molecules, or macromolecules, composed of many recurring subunits.

Materials are generally classified into three types as insulators, semiconductors and conductors based on their electrical properties. A material with conductivity a reduced amount of than 10^{-7} S/cm is regarded as an insulator. Metals have conductivity bigger than 10^{3} S/cm but the conductivity of a semiconductor vary from 10^{-4} to 10 S/cm depending upon the degree of doping. It is generally believed that plastics (polymers) and electronic conductivity are mutually exclusive and the inability of polymers to carry electricity notable them from metals and semiconductors. Polymers are traditionally used as inert, insulating and structural materials in many applications such as packaging, electrical insulations and textiles.

Intrinsically conducting polymers (CPs) are different from other conducting polymers in which a conducting material including metal/carbon powder is dispersed in a non-conductive polymer. These polymers are referred as conjugated polymers belong to a totally different class of polymeric materials with alternate single-double or single-triple bonds in their main chain and are capable of conducting electricity when it is doped. Intrinsically CPs, similar to other organic polymers, usually described by sigma (σ) and pi (π) bonds.
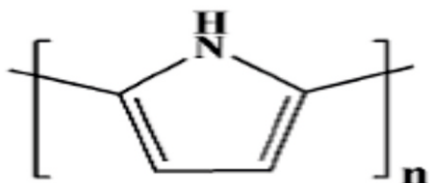
Polypyrrole (PPy)

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Fig. shows the molecular structures of popular intrinsic conducting polymers such as Polypyrrole (PPy) and Polyaniline (PANI) that have been used as a host material in the present chapter.
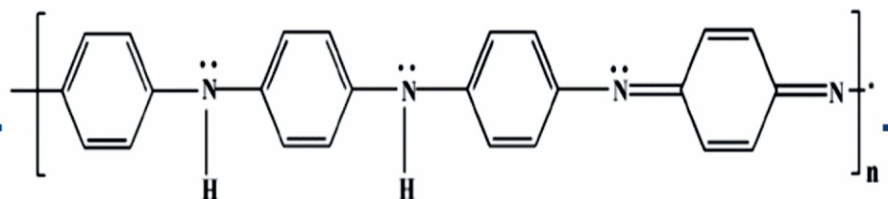
Polyaniline (PANI)

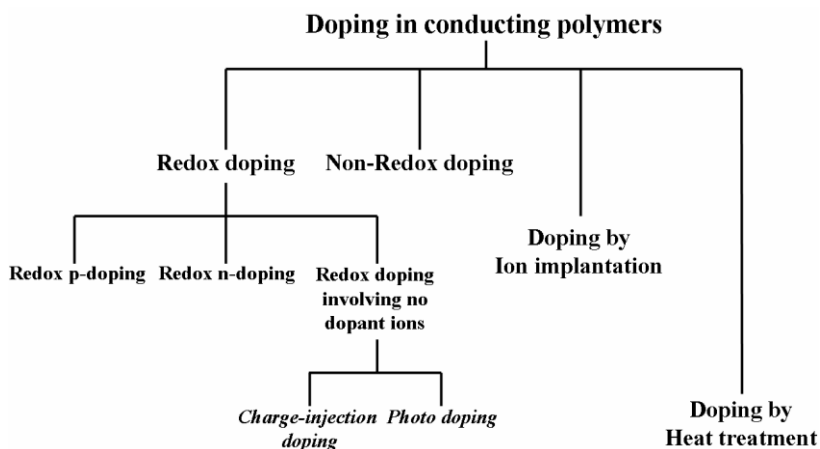**Fig. Molecular structures of conjugated polymers such as Polypyrrole (PPy) and Polyaniline (PANI).**

Fig. Different methods for doping in conducting polymers.

Doping of conjugated polymers either by oxidation or by reduction in which the number of electrons in the polymeric backbone gets changed is generally referred to as redox doping. The charge neutrality of the conducting polymer is maintained by the incorporation of the counter ions.

Ionization process in Conducting Polymers

Ionization in conducting polymer is due to doping. The introduction of charge

during the doping process leads to a structural distortion of a polymeric structure in the region of the charge, giving an energetically favorable conformation. These structural distortions are intrinsic to the development of ionization states called polarons and bipolarons.

Bulk and Nanopolymer

Nano-composites Polymer consists of a polymer or copolymer having nano-particles or fillers dispersed in the polymer matrix. These may be of different shape (e.g. platelets, fibres, spheroids), however a minimum of one dimension should be within the range of 1–50 nm. These polymer nano - composites belong to the class of multi-phase systems viz. blends, composites, and foams, that consume nearly ninety fifth of plastics production. These systems require controlled mixing, stabilization of the achieved dispersion, direction of the dispersed phase, and the compounding strategy for all multi - phase system, including polymer nano-composites, are similar. Polymer nano-science is that the study and application of nano-science to polymer-nano-particle matrices, where nano-particles are those with at least one dimension of less than 100 nm. The transition from micro to nano-particles is lead to change in its physical as well as chemical properties. Two of the chief factor in this are the raise in the ratio of the surface area to volume, and the size of the particle .The increase in surface area-to-volume quantitative relation, which increases as the particles get smaller, leads to an increasing dominance of the behavior of atoms on the surface area of particle over that of those interior of the particle. This affects the properties of the particles once they reacting with other particles. Because of the higher surface area of the nanoparticles, the interaction with the other particles within the mixture is more and this increases the strength, heat resistance, etc. and many factors do change for the mixture. An example of a nano-polymer is atomic number 14 nano-spheres that show quite completely different characteristics; their size is 40–100 nm and that they are more durable than atomic number 14, their hardness being between that of sapphire and diamond.

Synthesis of Polymers and their Polymer Composites

Electrochemical polymerization is perform in a one-compartment cell containing electrochemical bath which include a monomer and a supporting electrolyte dissolve in suitable solvent. It also includes three different electrode such as working electrode (cathode), reference electrode and counter electrode

(anode). Film deposited on the counter electrode (anode). Usually Electrochemical polymerization is carried out either Potentio-statically (i.e. constant voltage condition) or Galvano-statically (i.e. constant current condition).

In Potentio-static conditions we get thin films whereas galvano-static conditions we get thick films. Chemical polymerization is that the process during which comparatively tiny molecules, referred to as monomers, mix with chemicals to formed big molecules. The chemical compound molecules could also be all alike, or they'll represent two, three, or more different compounds.

Usually a minimum of a hundred chemical compound molecules should be combined to form a product that has bound distinctive physical properties like elasticity, high tensile strength, or the flexibility to form fibers that differentiate polymers from substances composed of smaller and easier molecules; usually, many thousands of monomer units are incorporated in a single molecule of a polymer. The formation of stable covalent chemical bonds between the monomers sets chemical action aside from alternative processes, like crystallization, during which massive numbers of molecules mixture underneath the influence of weak intermolecular forces.

Thin films deposition

Obtaining a thin film of any material on a substrate surface with proper adherence is thin film deposition. Deposition techniques can be broadly classified as physical deposition methods and chemical deposition methods. The deposition process of a film can be divided into three basic phases:

1. Preparation of the film by forming particles (atoms, molecules, cluster).

2. Transport of the particles from the source to the substrate.

3. Adsorption of the particles on the substrate and film growth.

Physical deposition methods

Chemical deposition methods

Sol- gel spins coating

Dip-coating

Spray Pyrolysis

Characterization Techniques

The standard methods of measurement and characterizations are constantly employed for the investigation of nanostructures. Structural/morphological and optical properties determination and understanding are an important and integral part of nonmaterial's research. There are a number of powerful experimental techniques that can be used to characterize structural/morphological, surface and optical properties of nonmaterial's either directly or indirectly, e.g.

X-Ray diffraction

X-ray diffraction is a non-destructive method to address all issues related to crystal structure of bulk solids and thin films including lattice constant and geometry, orientation of polycrystalline films, identification of unknown materials, stress, defect, study of phase equilibrium, determination of particle size etc.

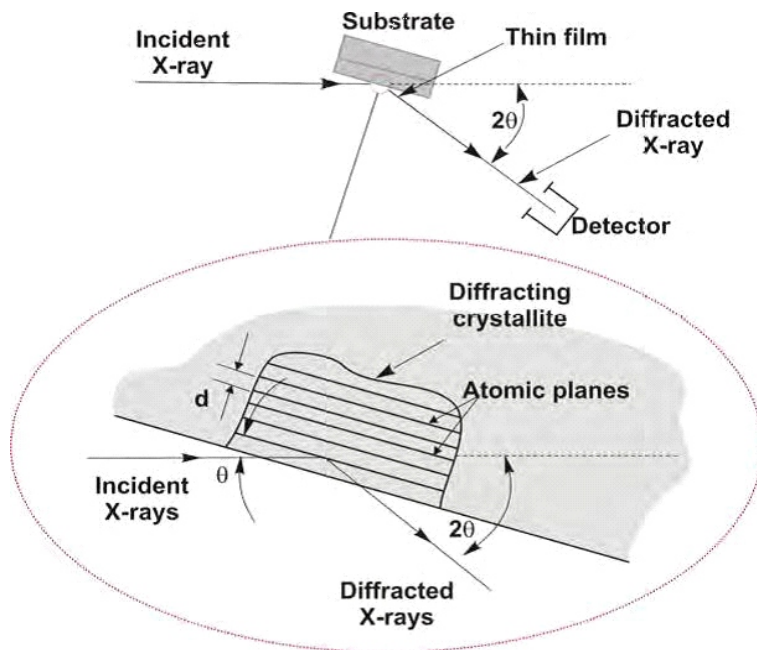The Schematic diagram of the operation of XRD is shown in Fig.

Fig. Schematic diagram of the operation of XRD.

Scanning electron microscopy

The scanning electron microscope (SEM) images the sample surface by viewing it with a high energy of electrons beam. The schematic diagram of the image formation system of the SEM is shown in Fig.
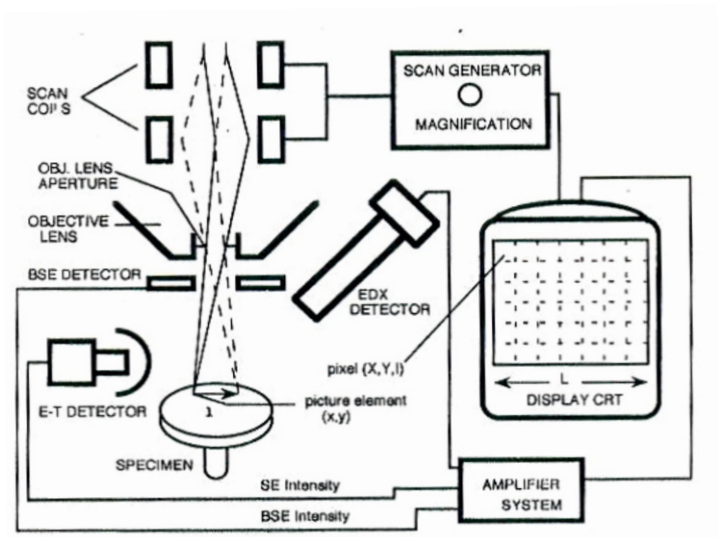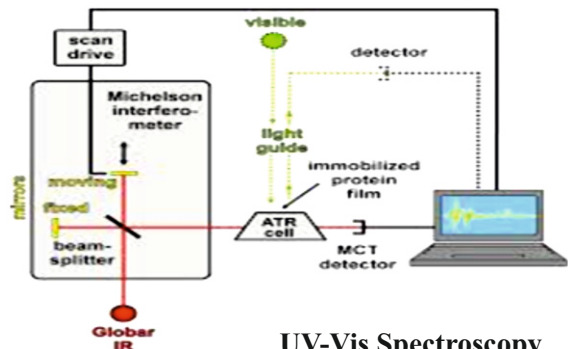

Fig. Schematic diagram of the operation of an SEM.

Fourier Transform Infrared Spectroscopy (FT-IR)

The Fourier Transform Infrared (FTIR) spectroscopy is a powerful modern technique which allows us to detect infrared (IR) absorption and reflection properties over a broad spectral region. As shown in schematic diagram of FTIR

UV-Vis Spectroscopy

The Schematic diagram of the operation of UV-vis-NIR Spectrophotometer is shown in Fig.1.7.
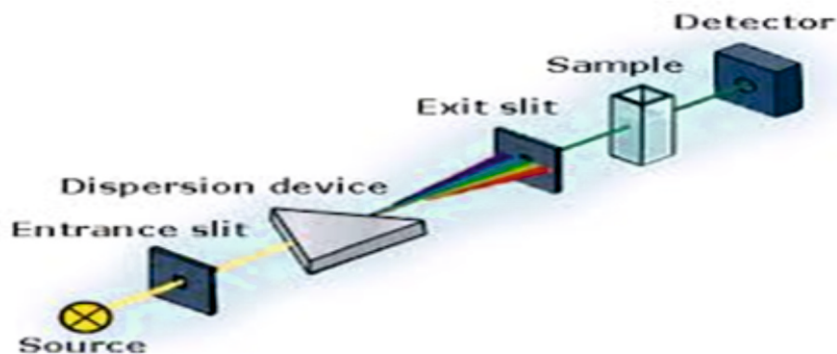

Fig. Schematic diagram of an UV-Vis-NIR Spectrophotometer

Photoluminescence spectroscopy

In Fig.1.8 shows the Schematic diagram of a Photoluminescence spectroscopy. It is a powerful technique for extracting information about the electronic structure of the material from the spectrum of light emitted.

Fig. Schematic diagram of a Photoluminescence spectroscopy Spectrophotometer.
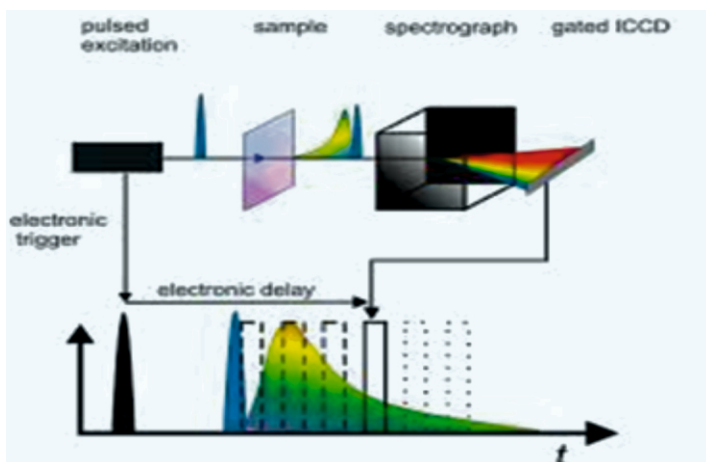
Applications of Conducting Polymers

The conducting polymers (CP) have a wide range of applications in electronic and opto - electronic devices such as sensors, plastic batteries, solar cells, field effect transistors, and optical data storage, organic electro-luminescent tools, as a switching device, frequency doubles etc. Some of these applications of CP are discussed here:

a. Light Weight and Rechargeable Batteries

b. Solid State Batteries

c. Electroluminescent Devices

d. Polymer LED structures

e. Transistors

f. Electromagnetic shielding

g. Printed circuit boards

i. Artificial nerves

j. Sensor: Some of the important characteristics of gas sensors are:**(1) Sensitivity, (2)Selectivity, (3)Reproducibility, (4)Cost effective, (5)Low operating temperature, (6)Low response time, (7)Size of the sensors.**

Classification of Sensors

The sensors are broadly classified into three categories:

(1) Physical sensors (2) Chemical sensors and (3) Biosensors

Advantages of Conducting Polymers as sensors

Conducting polymers display a wide variety of properties, ensuring a vast number of potential applications in a large number of technologies. Polymer based sensors have the following advantages:

1. The conducting polymer sensors have fast adsorption and desorption kinetics at room temperature.

2. The sensor elements feature low power consumption (of the order of microwatts) because no heater element is required.

3. The polymer structure can be correlated to specificity toward particular classes of chemical compounds.

4. The conducting polymer sensors are resilient to poison by compound that would normally inactivate some inorganic semiconductor type sensors

Applications of gas sensor.

S. No	Used places	Types of used
1	**Automobiles**	Car ventilation control
		Filter control
		Gasoline vapor detection
		Alcohol breath tests
2	**Safety**	Fire detection
		Leak detection
		Toxic gas detectors
		Boiler control
		Personal gas monitor
3	**Indoor air quality**	Air purifiers
		Ventilation control
		Cooking control
4	**Environment control**	Weather stations
		Pollution monitoring
5	**Food**	Food quality control
		Process control
		Packaging quality control
6	**Industrial production**	Fermentation control
		Process control

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JOURNALISM AND STRESS: A STUDY OF WORKING CONDITION OF JOURNALIST

Sagar Saxena[1] & Soumen Bhattacharya[2]

Abstract:

Journalism is a dynamic profession. Journalists are the watch dogs of Government. The proliferation and convergence of media lead to diminishing the status of journalists in different countries. The working conditions of journalists influencing the content. In most of the countries journalists were not given full freedom and face job security and low payment with high workloads. The most of the journalists were dissatisfied with the prevailing working conditions. This article purpose is to focus on the working conditions of journalists in India and abroad.

Keywords: Working conditions, Journalists, media, Journalism, Journalistic studies

Introduction:

Journalists played a significant role in the forging of the modern state and discursive norms, practices and organisational mechanisms enfolding successive sections of the population into democratic society (Torben et.al 2004). It is clear that journalists' and news organisations' dominance in terms of information provision and breaking news has been challenged by the rise of the internet and social media, that news organisations are operating across more platforms, and that journalists are being required to engage with audiences in more ways than the past (Gade and Raviola, 2009). These developments alter the conditions of the legacy journalism profession (Russo, 1998; Aldridge and Evetts, 2003; Deuze, 2005) and raise many questions. These include assessing the positive potential of new developments for journal ism and news, but also concerns over the work pressures and emotional demands on journalists and worklife balance, whether healthy workplaces can be maintained that provide professional growth and development, recognition, social interaction, and supportive management, the viability of long- -term employment, job satisfaction, the extent to which journalists are forced or willingly enter journalistic entrepreneurship, who will provide compensation and benefits required in the future, who is a journalist, and whether one can maintain a profession when such change and uncertainty exists (Rottwilm, 2014).

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Understanding how journalists make sense of the changes and its implications for their careers is crucial (Robert G. Picard 2015).

Review of Literature:

Initially, research on journalists were under taken during the 20th century in Germany and the US and it was become widely accepted among scholars in the year 1970. According o Johnstone et al, the first studies on journalists concentrated on sociological aspects of journalists and focused on three main issues of media, like transmission of information to society, impact of the diffusion of information on society and business of media. Weaver and Wilhoit (1986 & 2012) surveys examined the changing nature of the role of journalists, their attitudes, beliefs and the effects of new technology on journalists work Hanitzsch observes similarities among every journalist in different countries in aspects of professional routine, editorial procedures and socialization process, professional views and practices of journalists in different countries that were influenced by the national media system of which they were a part it(Bashir 2011). A Study of Occupational stress and job satisfaction in media personnel assigned to the Iraq war (Neil Greenberg et al 2003) revealed that journalists living conditions deteriorated during the assignment and the pressure to be the first to a story led to unsafe conditions and unnecessary risk taking. While studying working conditions of Taiwan journalists, Ven-hwei Lo (2004) found salary, perceived job autonomy were the most important indicator of working conditions. Status of Women Journalists in the Print Media was initiated by the National Commission for Women to look into matters disturbing the role of women working in the print media, it was executed by the Press Institute of India (PII), through empirical data that was collected from almost all the States and Union Territories of the country. The questionnaires were distributed in three languages to journalists across the country, from Punjab and Shillong in North and North East India to Kanyakumari in the South and from Calcutta in the East to Kotah in the West. The study reveals that women in the regional, vernacular press are lagging far behind their colleagues in the English language press. There is a vast difference in the wages earned by those in English national newspapers and those in the regional media. The survey also revealed that several newspapers are reluctant to employ women because they would take maternity leave or have to be provided transport after night duty. Sexual harassment at work is a reality (PII report 2005). Media Studies Group (2006)

study showed that there were only 17% women in key positions in media organizations. English electronic media was found in a better position with having a greater participation of women with the figure of 32%.The study reveals a token representation of female journalists as low as 2.70%. There were six states and two union territories which have zero percent of women at the district level while Andhra Pradesh tops the list with 107 women journalists at districts (Avaneesh et.al 2006) Only half percent German journalists satisfied with the daily workload, job security and with their income. (Siegf Ried Weischenberg 2005). A sociological study on journalists revealed that most of the journalists satisfied with their present job, median salary was found be Rs. 7500 and 60 percent of journalists would continue in journalism. Around 20 percent of journalist felt job insecurity and 60 percent justified using microphone and camera for professional purpose while disposing their duties (V.Sathi Reddy, 2005) Hong Kong journalists felt low salary was the reason behind to leave journalism, and satisfied with intrinsic, relational aspects of their jobs (Joseph M. Chan, et al.,2006). As far as working conditions, especially non daily newspapers journalists satisfied with personal and professional life. Out of 18 work satisfaction factors, Hungarian journalists gave the worst ratings to opportunity for professional travel abroad.(Maria Vasarhelyi 2006). Arab journalists expressed desire to change the policies of those governments and in some cases, the governments themselves, as evident in the news media's role in the Arab Spring, journalists were trying to re-discover that passion, re-engaging with their own pan-Arab identity.(Lawrence Pintak and Jeremy Ginges,2006). A conducive environment at the workplace encourages employees to work effectively and promotes a harmonious understanding among peers. Most Indian studies have pointed out that women journalists are given soft beats such as education, entertainment and fashion. This study exposed that male

not able to garner any support from journalists unions.(Manjunath 2007). The New Zealand sub editors working in journalism for the longest period and fairly happy with media freedom where as television journalist earning the most. (Geoff Lealand and James Hollings 2007).The Japanese journalist expressed that system of long life employment breaking down & workforce mobility rising.(Shinji Oi et all2007). Ram Prasad (2007) found that journalist in Tanzania and Nepal considered their profession important and joined it because they believed in their goals of informing the public and building society. The US journalists were strongly committed to public service journalism and continue to learn new skills and techniques to do more work even as newsroom staff 's were being downsized, affecting job satisfaction and career commitment.(Bonnie J. Brownlee and Randal A. Beam,2007). A study on Israeli journalists revealed that journalists facing problematic working conditions: low pay, ,limited job security, and frequent encounters with pressures, threats and harassment.(Yariv Tsfati and Oren Meyers 2008). The most of the UAE media practitioners were foreigners ,obtained high level of job satisfaction and three quarters of the journalists said that their job conditions were either good or very good.(Mohamed Kirat 2008). The Canadian journalists expressed uncomfortable with media convergence and concentration of ownership (Marc-François Bernier and Marsha Barber -2008). The study of Thomas et al (2008) revealed that pay and job security aspects were more important than other aspects. In Russia, journalists' privileged group, many hold a second job where as broadcast journalists were not had a choice to hold second job (Svetlana Pasti, (2008). The majority of Columbian journalists dissatisfied with their salaries, social security and looking for other options in order to survive because of precarious working conditions.(Jesus Arroyave and Marta Milena Barrios,2008). The Belgian salaried journalists were more worried about

Malaysian journalists. The Slovian journalists rank " job autonomy " as the most important aspect their job, followed by income, pay and job security (Peter Lah and Suzana Žilič-Fišer,2009).The Spanish journalist expressed job insecurity was a deep seated problem for them and agreed on the reason for poor working conditions in their profession (Pedro Farias,2009).The Swedish majority journalist s agreed that profits were more important to their news organisation than good journalism and newsroom resources have been shrinking & two factors that were responsible for their low level of satisfaction were the increased workload for low pay, and job insecurity(Jesper Strömbäck,2009). The Brazilian journalists need to possess journalism degree and a professional license registered at the Ministry of Labour as required by Brazilian law since 1969.The elimination of the college diploma in journalism as a requirement to enter the profession remains a major source of tension for journalists. (Heloiza Golbspan Herscovitz, 2009). The Chilean journalists were relatively satisfied with job, biggest complaints was associated with their salary and with the possibility of reconciling their work and family life (Claudia Mellado 2009). Zhang and Su's (2010) study on Chinese journalists found that those working under the contract system had higher rate of job mobility than those who were working in government agencies & institutions. Majority of the journalists had not given any answer to the question if given the second chance will they opt their job again. The china journalists felt that media career as a brief & shifting job. Television journalists considered criticism from authority department as a significantly more stressful influence. The Australian journalists considered themselves first & foremost watchdog on government and most of the journalists satisfied with the working conditions (freedom & Pay, Beate Josephi et al 2010). A survey on British journalists revealed that the introduction of new media technology had brought increased workloads,

conditions of most Spanish journalists had worsened substantially since the beginning of the crisis in 2008 and the problems increased in 2012 (X Soengas Pére et.al 2012). A study on US News broadcaster workers revealed that broadcast journalists afforded by their newsroom organizations, the freedom and resources to routinely conduct their work had managed to found a great deal of job satisfaction.(Scott Reinardy 2012). The Swat district journalists of Pakistan expressed that majority (86%) of reporters do not felt any stress in their work environment. An over whelming majority (92%) of respondents felt proud of being journalist (Yasir Waseem et.al 2012). The Kenyan Journalists were highly satisfied with profession but at the same time highly dissatisfied with their income level. The major predictors of job satisfaction found to be income, job autonomy and job security.(Kioko Ireri-2013). The Czech Republic journalists do not consider integrated newsrooms as something that would influence their work. They pay more attention to the length of their section or the position of their section in the newspapers or a TV/radio program. (Lucie Macku 2013) The Socio economic conditions of Kannada print Journalists (V Y Chintamini 2013) were found to be deteriorated over the period. Most of the kannada print journalists were paid low salaries. A study on working women journalists conducted by Akhileshwari (2013) reveal that English media persons were well paid off, when compare to vernacular press. Women journalists were allotted soft beat news only. A study conducted by Devender Bhardwarj (2014) on women journalists revealed that women's family and social responsibilities were major a hindrance for the working women journalist to continue their job. A study on Bangladesh electronic media journalists found that presence of professional stress and identifies six variables (Insecure job climate, income &family pressures, deadline, workload, unclear objectives, and Inadequate support) influencing determinants causing stress (Kazi Nazmul et.al 2015). A

earning member do not liberate her socially or economically notwithstanding the fact that a working daughter-in-law was socially much celebrated personality. This study revealed a constant struggle of women journalists with multiple patriarchal structures in marriage and motherhood.

Working Conditions:

After reviewing different studies on journalists working conditions, noticed that job satisfaction , autonomy, job security and pay were the key indicator of working conditions (Bonnie J-2007, Heinz Bonfadelli, Guido Keel-2008, Pedro Fariaset all-2009, Peter Lah and Suzana-2009, Agnieszka Stepinska2009, Karen Sanders and Mark Hanna2010, Aralynn Abare McMane 2008, Karin Raeymaeckers-2008, Xiaoming Hao and Cherian George 2009, Siegf ried W eischenberg-2005, Agnieszka Stepinska-2009, Svetlana Pasti, Mikhail Chernysh-2008, Pedro Farias et al-2009, Bonnie J. Brownlee and Randal A. Beam2007, Claudia Mellado-2009, Jesus Arroyave and Marta Milena Barrios-2008, Kioko Ireri-2013),income, pressure, problems (Yariv Tsfati et,al 2008), job satisfaction, autonomy, perception of work quality, organizational support and work overload (Scott Reinardy 2012), workload, freedom, personal safety (Martin W. Bauer et al-2012), working hours, outside pressures(Lucie Macku-2013), Job satisfaction: intrinsic &extrinsic factors (Mohammed el-Nawawy), Labour conditions (Ellen Grobhans and Harald Rau, Romina Surugiua-2012), Autonomy, job satisfaction, salary, job security, promotion, work load, and organizational compensation in case of loss(Yasir Waseem Lqbal1 and Qazi Farman Ullah) The variable such as pay, promotion, work relationships with supervisors and co-workers, communication within organizations, use of skills and abilities were found in Ofili A.N, et al., study. And in other study , income, work, operational conditions, supervision, communication, co-workers, promotion, fringe benefits, contingent rewards, logistic service was considered as considered as job satisfaction measuring variables (Hiwot bezabh) In any field for the disciplinary evaluation, theoretical development is probably the main concern. Latin American journalists, the use of theories was not very common (Claudia Mellado-2009). Conclusion: One of the most important indicators of the working conditions of journalists is their level of job satisfaction, which in some cases is linked to their perceived autonomy or freedom. Job satisfaction of journalists in many countries is linked

also important, especially journalists' perceptions of how well their news organizations are doing in informing the public and their relationships with their supervisors and peers on the job. Intention to stay in journalism seems more dependent on the attractiveness of alternative jobs.

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Expert's View About The Book

Trauma is one of the commonly used terms and subject of concern for professionals, public and planners. To be more scientific, trauma or a traumatic event can be defined as any event(s), which overwhelms our core capacity to cope up with the situation. It may result in an experience of personal threat to our safety and/or the integrity of our identity. Children and people of marginalize group are more vulnerable and the effects of chronic trauma are often cumulative, as each event serves to remind the child of prior trauma and reinforce its negative impact. The incidence of trauma and prevalence of traumatized persons are increasing across the globe.

Prof. S. Z. H. ZAIDI
Professor of Clinical Psychology & Director
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Management of trauma victims varies from situation to situation and nature and type of trauma. However no matter what the dimensions and medico-legal nature of the trauma is, one most effective strategy is of multi disciplinary approach involving medical, psychological and sociological experts. However as the nature and impact of the trauma is fast changing, the needs of conducting intensive research are also increasing to formulate theories and modify strategies.

The book is proceeding of presentations of such research work during the I[st] International Conference on Bio-psychosocial Perspectives of Trauma 2019 organized by Indian Mental Health and Research Centre Lucknow in collaboration with Shia P.G. College (Lucknow University) Lucknow on 13th January 2019. I am sure that this book will facilitate understanding of the subject and sensitize the readers.

There has always been a need to study "trauma" and its aspects through the Biopsychosocial model. Today's hectic lifestyle and environmental factors contribute a lot in predisposing and perpetuating the stressful factors which can further transform into traumatic events.
This book "Traumashastra" has tried to fill in the gap by providing empirical and review studies in favour of Biopsychosocial perspectives of trauma coming out of the 1st International Conference on Biopsychosocial Perspectives of Trauma, held at Shia P.G. College on 13th January 2019. The editors have done a commendable job. I am sure this book will be useful to the students as well as professionals working in the sector of Trauma management.

Prof. Talat Husain Naqvi
Principal
Shia P.G. College, Lucknow

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