Psychosocial Correlates of PTSD in patients with Fire Burns

by Afsheen Masood

PSYCHOSOCIAL CORRELATES OF PTSD IN PATIENTS WITH FIRE BURNS

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ABSTRACT

OBJECTIVE: Burn injuries are a common cause of morbidity and mortality throughout the world. Recent literature has highlighted the adverse psychological outcomes in victims of burn injury especially post-traumatic stress disorder (PTSD). The present study aims to elucidate the psychosocial correlates of post-traumatic stress disorder in the burn victims of Pakistan.

METHODS: A total of 200 burn victims were included in the sample. The standardized measures was used to assess the symptom levels of PTSD. The detailed demographic profile of the patients was also received for gleaning the demographics' association with PTSD symptoms. The screening of PTSD symptoms for further clinical management had also been catered through this data collection strategy.

RESULT: A high prevalence of PTSD was found among the burn victims. For analysis SPSS Version 22.0 was employed. The categorical variables were assessed for association with PTSD through Chi Square. The findings revealed that lower educational level, belonging to ethnic minority, being unemployed, being married, living with children, experiencing domestic violence, greater percentage of body surface area burnt, having suicidal tendency and having an assault intended burn injury were all associated with higher levels of PTSD.

INTRODUCTION

Burn injuries are a major cause of morbidity and mortality throughout the world. According to World Health Organization, burns are responsible for 265,000 deaths worldwide each year.[1] Greater number of (486,000) cases of burns are treated annually in the United States alone (American Burn Association, 2016). Literature shows that most burn injuries are accidental and are associated with cooking.[2,3] In addition to accidental fire burns, in South Asia, burns by assault are also very common; the recent event evidenced in newspaper reported incident where a father burnt live her daughter to death for the sake of family honour.[4] In this

reference, after fire burns, the assault-based acid throwing or vitriolage is more common in this region than anywhere else. [5] According to an indigenously conducted research in Pakistan, 46% of burns in Pakistani women were due to bursting of stoves or women put to fire after throwing petrol inside their homes while 33% were intentional, caused by the women's own close relatives and the leading cause reported were household quarrels.[6] Progressive Women Association, a nongovernmental organization working in rehabilitation sector of burn patients has documented 8,000 cases of women who were deliberately burnt, scalded or subjected to acid attacks in the Islamabad area from 1994 to 2010.[7] Thus, in South Asia, burn injuries establish itself as a major social dilemma thus reprimanding the grave attention from researchers as well as policy makers.

Burn injuries result in severe physical disabilities due to complications like scarring and contractures. [8] The psychosocial consequences of fire burns are not less debilitating as disfiguring-scars from burns may lead to wide array of behavioral and psychological complications such as social rejection, loss of self-esteem, stress, anxiety, depression and frustration.[9] All this cumulatively gets expressed in PTSD related symptoms after few months of recovery. There might have been other dimensions of this loss such as financial difficulties and protracted hospital stay leading to poorer socialization patterns. [10, 11, 12, 13] Van reported alarmingly higher prevalence of PTSD related symptoms in patients with PTSD. [13] Though some empirical evidences have revealed that few other significant issues also prevail such as sleep problems, states of partial confusions, Generalized Anxiety Disorder and lower physica and social functioning. [13, 14]

In the mid-nineteenth century, Jacob Mendes da Costa, an American surgeon, described a syndrome (da Costa syndrome) consisting of palpitation, dyspnea, extreme fatigue and faintness among soldiers of American civil war (1861-1865) who were exposed to excessive stress and fear. Life-threatening stressful events leave lasting scars on an individual's personality and behavior. After Costa's discovery of this syndrome, more than 150 years of research has elapsed and after several modifications in terminology, today, the psychological morbidity following a traumatic life event is embodied in another term: post-traumatic stress disorder (PTSD). Initially this was termed as form of anxiety disorder but due to its own distinctive features, in most recent revision, this has been classified as distinctively separate 11sorder with its own specific symptoms specificities. According to DSM-V, PTSD follows exposure to a traumatic life event and is characterized by 24urring, involuntary and intrusive memories of the event in the form of flashbacks and dreams; avoidance of or efforts to avoid stimuli related to the event and increased

arousal and reactivity in response to the event. The diagnostic specificities uphold that the symptoms must be present for duration of more than one month with a significant impairment in social and/or occupational functioning to establish a diagnosis of PTSD.[16, 17]

This has been reported in western empirical findings that a lifetime PTSD prevalence of 8.3% in general population of USA exists while some other researches revealed that a full PTSD prevalence of 1.8% and a partial PTSD prevalence of 8.7% in the general population of Germany is reported.[18, 19] Loey et al reported a PTSD prevalence 13-45% among burn victi while Sadeghi-Bazargani et al found that 31.5% of the burn victims in their study in Iran had a positive PTSD screening test after 3 months of injury.[21] From the above mentioned estimates of PTSD prevalence, it is clear that while burn patients are at a greater risk of developing PTSD than general population, though not all of them go on to develop PTSD. A review of literature shows that several factors, both subjective and objective, predict the development of PTSD in patients of burn injuries. Prominent among these factors are low coping self-efficacy, ineffective coping behaviors, immature defense styles, female gender, burns involving hands, higher percentage of total body surface area burnt, younger age, low social functioning, high neuroticism and low social support.[23, 24, 25] In addition to the above factors, a recent study in China found that PTSD levels were associated with demographic features and bio psychosocial factors. [26]

Most of the empirical studies on the predictors of PTSD have been conducted in the western countries. Unlike western countries, Pakistan is a predominantly patriarchal society. Keeping in view its unique cultural and religious environment, the predictors of PTSD among burn victims of our country might differ from those of the Western realm. Despite the fact that fire burn injuries, particularly intentional fire burns, have growing incidences in our country, there have been sparse studies in Pakistan that have explored the risk factors for PTSD among burn patients of Pakistan. One such study selectively focused on greater percentage of body surface area burnt to be the most significant factor in determining the risk of PTSD. [27] Given the paucity of empirical studies in our country about the plausible factors predisposing the patients with burns towards PTSD, further investigation is required. Thus the main goal of this research study is to fill this gap in literature and it has also been designed with the aim to determine the demographic and psychosocial factors associated with PTSD in patients with fire burn injuries in Pakistan. Another aim is to explore the prevalence of PTSD in fire burn victims seeking medical support at teaching hospitals in Lahore and Rawalpindi, Pakistan.

METHODS This quantitative study was designed through cross sectional survey research design. The sample size was computed through systematic and standardized formula

used for computing minimum sample size. Due to limitation of resources, minimum sample size was calculated through two methods. The sample size required for this study was based on previous literature that has suggested a low to moderate association of PTSD following burn injury with social support (-.28) (Ozer et al., 2008) and psychological resiliency (-.30) (Xia et al., 2014) . Therefore, it was judged that the adequate sample size for Chi Square analysis would be 107 based on moderate effect size f2 (0.15), power (.95), probability of alpha error (.05). Minimum sample size required for the present study came out to be 167 using following parameters: margin of error (5%), confidence level (90%) and response distribution (50%). Since, there were no apriori estimates of prevalence of post-traumatic stress disorder among patients with burn injury in Lahore and Rawalpindi, in this research study a hypothetical population size of 20,000 was used. There has been little variation in sample size for populations more than 20,000 (Raosoft, sample size calculator). The exclusion criterion was

The respondents were recruited through non probability purposive sampling procedures by hospital administration according to predetermined criterion of research of including only those with fire burns. A total of 200 respondents, age ranges between 20-55 years were referred to a clinical psychologist through outpatient department as most of the patients with fire burns sought follow up and cosmetic surgery after few months of recovering from fire burn injuries. Thus the patients comprised mainly of enrolled clients at burn centers and plastic surgery units of Mayo Hospital, Services Hospital and Jinnah Hospital, Lahore and two private Cosmetic Centers for rehabilitations became the targeted sample set. The data collection lasted for four months from Nov, 2015 to Feb, 2016. The patients seeking follow-up and checkups were included in this study as PTSD symptom criterion relies on eruption of problems at least for a month after the event has elapsed out for a considerable duration of at least few months or more. The instrument used included the demographic information sheet and Clinician-Administered PTSD Scale for DSM-5 (CAPS-5). After seeking formal permissions from all concerned departments, the respondents were made to give their consent on written Performa before their active participation in the study. All the participants were ensured confidentiality, anonymity and right to withdraw. The Clinician-Administered PTSD Scale for DSM-5 (CAPS-5) is a 30-item structured interview that corresponds to the DSM-5 criteria for PTSD and formal online training was received before administering this to target respondents. The demographic section included information on variable such as age, ethnicity, background, family structure, occupation, relationship and socioeconomic status. The data were analyzed in SPSS v. 22.00 (IBM, Chicago, Illinois). Descriptive statistics and frequencies were run for categorical variables. Mean (SD)

s calculated for quantitative variables. Pearson Product Moment Correlation was employed. Chi Square test was used to check association between independent categorical variables with at least 5 expected values in each cell.

RESULTS

TABLE: I PARTICIPANT CHARACTERISTICS

A total of 200 respondents were evaluated. Most of the respondents were males, followers of Islam, middle class, high school graduates and were married. Mean scores on age and PTSD revealed that Mean age of the respondents was 30.56 years (10.3). Most of the respondents had high PTSD levels 170 (50%). A small percentage of the respondents had received psychological therapy in the past, cosmetic treatments and group therapy. Among men, a fewer of the respondents were heavy smokers and abused drugs such as antidepressants, sleeping pills, gutka and heroin. Some of the respondents had suicidal ideation (22.5 %). Detailed results have been presented in Table 1.

TABLE: II BIOPSYCHOSOCIAL CORRELATES OF PTSD AMONG PATIENTS OF FIRE BURN INJURY

Detailed results of psychological correlates of PTSD are given in Table 1. According to Chi square analysis, respondents who had a university degree reported lower PTSD levels than their counterparts. Punjabis (natives) had higher PTSD levels than their counterparts of other ethnicities. Employed respondents reported higher levels of PTSD than those who were unemployed or housewives. Those who were married and were currently living with children reported higher PTSD levels than those who were not. Respondents who had experienced domestic violence (40/343) were more likely to have higher PTSD levels than their counterparts. Those patients who had experienced burn injuries less than one year ago had higher PTSD levels than their counterparts.

TABLE: I PARTICIPANT CHARACTERISTICS

Variable		Clinician-Administered PTSD Scale for DSM-5 (CAPS-5)				Chi Square value
		Low levels		High levels		
		Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)	
Gender	male	21	10.5%	90	45%	.82[4]
	female	9	4.5%	80	40%	

Ethnicity	Punjabi	45	22.5%	75	37.5%	11.21^{2}
	Urdu	6	3%	30	15%	
	Others	10	5%	34	17%	
Religion	Islam	70	35%	90	45%	19.38^{3}
	Other	6	3%	34	17%	
Education	Illiterate	12	6%	75	37.5%	26.07^{3}
	High School	40	20%	35	17.5%	
	Graduate	13	6.5%	25	12.5%	
Occupation	housewife	15	7.5%	60	30%	12.85^{2}
	employed	65	32.5%	35	17.5%	
	other	25	12.5%	35	17.5%	
Social status	Low socioeconomic	8	4%	65	32.5%	
	Middle class	22	11%	95	47.5%	
	Higher socioeconomic class	3	1.5%	7	3.5%	5.75^{4}
Background	Rural	33	16.5%	59	29.5%	
	urban	23	11.5%	85	42.5%	4.15^{4}
Relationship status	single	8	4%	45	22.5%	28.12^{3}
	married	67	33.5%	80	40%	
History Psychiatr	yes	3	1.5%	20	10%	2.03^{4}
	no	67	33.5%	110	55%	

ic illness						
Family history of	yes	8	4%	12	6%	.73[4]
Psychiatric illness	no	60	30%	120	60%	
Psychological Therapy	yes	2	1%	30	15%	4.59[1]
	no	20	10%	148	74%	
Cosmetic treatment	yes	19	9.5%	21	10.5%	5.02[1]
	no	50	25%	110	55%	

TABLE: II PSYCHOSOCIAL CORRELATES OF PTSD IN BURNT PATIENTS (N=200)

Domestic violence	yes	1	0.5%	130	65%	5.01[2]
	no	45	22.5%	24	12%	
Forensic history	by accident	4	2%	65	32.5%	1.05[4]
	by assault	6	3%	125	62.5%	
Time since burn	1 year	24	12%	135	67.5%	8.06[2]
	More than one year	12	6%	59	29.5%	
Permanent disability	yes	14	7%	36	18%	3.59[4]
	no	22	11%	128	64%	

Burnt face	yes	24	12%	70	35%	.61[4]
	no	26	13%	80	40%	
Living children	yes	28	14%	82	41%	19.9[3]
	no	38	19%	62	331%	
Suicidal Ideation	yes	2	1%	45	22.5%	6.12[2]
	no	33	16.5%	120	60%	

Note: 1 denotes P < .05, 2 denotes P < .01, 3 denotes P < .001, 4 denotes P > .05

DISCUSSION

Discussion

Results revealed that level of PTSD is more in Punjabi ethnic group (fire burn victims), in comparison to any other ethnic group, this is attributable to their prime place of location probably. Educated and employed females experienced and reported the trauma as being more aggravated and severe in impact than illiterate females. Married females with no psychiatric premorbid reported higher scores on PTSD related symptoms. Hundreds of women are disfigured or die of stove-burns every year. Niaz suggested that the victims are usually young married women and the aggressors include husbands and in-laws.[6,7] The motive behind stove burning is to get rid of the lady in home and get married with new one without any raised social queries and objections, sometimes women are burnt in order to kill them by apparently accidental mode and that paves the way for remarrying thus claiming more dowries to have an heir for the family. A study conducted by Masood showed that among burn patients unmarried victims were 61.1%, married were 11.1% and divorced were 27.8%. 22.2% of the victims were illiterate, 44.4% were under matriculation and 33.3% were above matriculation. 44.4% of the victims were related to beautician by occupation, 5.6% were housewives and 50% were related to other occupations or were idle. 61.1% of the victims were having 10,000 monthly income and 38.9% having 10,000 of monthly income. 77.8% were from joint family system and 22.2% from nuclear family system.[32] This research study revealed that a higher prevalence of PTSD is

evident in patients with fire burns. Studies have generally reported lower PTSD levels in victims of burn injuries. For instance, an empirical finding reported a PTSD prevalence of 38.1% in a Turkish population of burn victim.[7] It was reported in Iran that prevalence of 31.5% in an Irani population. However, a study from our country showed that 77% of the patients with acute burn injury were at risk of developing PTSD which is close to our estimate. [21] The higher prevalence of PTSD in burn victims of our country may be attributed to the low number of mental health facilities in our country. According to a WHO survey only 5 mental hospitals and 3 20 psychiatrist exist in Pakistan to cater to the needs of more than 160 million people (WHO-AIMS Report on Mental Health System in Pakistan, 2009). Worsening this situation is the stigmatization by the society of the mental patients, an attitude which discourages people from seeking psychological treatment. The high levels of PTSD in our study sample are, thus, expected given the reluctance of patients to avail the already meager psychiatric facilities. Higher educational attainment (university degree) was associated with lower PTSD level. Although we couldn't find any study elucidating this relationship among burn victims, several other PTSD studies corroborate our result. For instance, in a review of risk factors for PTSD in general population, Halligan et al described low education level as a prominent demographic risk factor. [13] Similarly, low education was also found to be associated with greater PTSD by Engelhard et al. [11] This relation predictably extends to PTSD among burn victims in our study. Lower educational attainment may be a sign of lower IQ and a vast body of research relates lower IQ to higher incidence of various psychiatric disorders.[22]

Another factor, suggested in this investigation is that lower education level may be associated with greater overall stress in life and therefore, a greater risk for psychiatric morbidity. [18] Finally, tho 17 ith higher educational accomplishment are more likely to have a positive attitude towards mental health services and are more likely to seek professional help as compared to those with lower education. Those who were employed had higher levels of PTSD than the unemployed and housewives. This is rather surprising because unemployment has been strongly associated with increasing severity of PTSD symptoms in general population. [33] However, among burn victims, special factors may contribute to the negative impact of employment on PTSD symptoms. First is the stigmatization of work-colleagues towards employed burn victims which may contribute to increased stress in the latter. Secondly, the increased stress of the work itself when combined with the stress of the recent trauma may be responsible for higher PTSD among working burn victims. Une 19 oyed burn victims and housewives are protected from both these factors. Nevertheless, further research is needed to

elucidate the association of employment and PTSD among burn victims more fully. Punjabis, natives of the province where the study was conducted, had higher PTSD than those belonging to other communities. Several studies have found higher levels of PTSD among ethnic minorities as compared to the ethnic majority and these contradict our result. For instance, in a review of PTSD among military veterans, Loo concluded that veterans belonging to ethnic minorities (African-American and Hispanics) generally had higher PTSD than those belonging to the ethnic majority (whites).[34]

It is probable that while PTSD symptoms may be bearable at low levels, when they cross a certain threshold, the sufferer may view suicide as the only means of escape from the bitter reminders of the traumatic event that appear constantly in the form of PTSD symptoms. Screening burn victims for high levels of PTSD and suicidal ideation may be effective in reducing suicides among them. There are certain limitations to be considered. The results of this study should be interpreted with caution. The cross-sectional design of this study limits inferences about temporality and causality of the results. Use of interviewer based and self-report instruments psychological instruments add potential recall bias, which can be minimized by using ICD-11 or DSM-V criteria for diagnoses of PTSD in future studies. The present study utilized purposive sampling technique. The limited sample size taken from limited units may undermine its generalization.

CONCLUSION AND SUGGESTIONS

The findings help to derive the distinctive personal and psychosocial characteristics due to which patients with Fire burns in their recovery phase happen to go through agonizing states of PTSD. The insightful contribution of the findings can be pragmatically be used in devising intervention programs of counseling and psychotherapies for effective rehabilitation of patients with fire burns. In the light of this inferred data findings, the health professionals and psychologists can work in close liaison with each other in order to facilitate the normal functioning and rehabilitation of the Fire burn victims. This is suggested that by incorporating qualitative research design and by incorporating larger sample size from diverse regions, this research study can be made much more internally and externally valid, sound and strengthened in its generalizability and implications.

CONFLICT OF INTEREST

The authors report no conflicts of interest. The project was not provided funding of any sort. The content is solely the responsibility of the authors and does not necessarily represent the official views of the institutes from where the authors belong to. Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

AUTHORS' CONTRIBUTION

Following authors have made substantial contributions to the manuscript as under:

AM: Conception and design; acquisition, analysis and interpretation of data; drafting the manuscript; final approval of the version to be published

FK:, drafting the manuscript, final approval of the version to be published

SG: Acquisition of data, Critical revision, final approval of the version to be published

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