

Post-traumatic stress disorder, cognitive function and adjustment problems in women burn survivors: A multi-center study

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Abstract

Objective: To investigate the relationship of post-traumatic stress disorder, cognitive function and adjustment problems in women burn survivors.

Methods: The analytical cross-sectional study was conducted at the Department of Psychology, University of Gujrat, Pakistan, from November 15, 2017, to July 25, 2018, and comprised women burn survivors at different burn centres of hospitals, household bases and non-governmental organisations of Lahore, Gujrat, Rawalpindi and Islamabad, Pakistan. Data was collected using the civilian version of the standardised Post-Traumatic Stress Disorder Checklist, the Montreal Cognitive Assessment and the Adjustment Problem Scale for Adults. Data was analysed using Analysis of a Moment Structures software version 21.

Results: Of the 200 women, 100(50%) each were living in nuclear and joint family systems. The maximum number of women 74(37%) were aged 15-25 years; 93(46.5%) were married; and 82(41%) were employed. Post-traumatic stress disorder affected cognitive issues and adjustment of women burn survivors ($p=0.000$).

Conclusion: Post-traumatic stress disorder significantly affected cognitive issues and adjustment problems of women burn survivors.

Keywords: Post-traumatic stress disorder, Cognitive, Women burn survivors, Burn centres, Cross-sectional study, Multivariate Analysis. (JPMA 70: 2102; 2020)

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Introduction

Women were considered to be affectionate, real household asset and the most important part of every society. Females were key role players in carrying out family and daily living activities and were at greater risk of a burn injury. Study of the health-related quality of life (HRQOL) of females indicates a high rate of injuries compared to males, and females also demonstrated high rates of mental illness compared to male burn survivors.¹ Burn injury treatment till recovery is quite a difficult and tiring procedure because burn injury leads to a number of problems. Women burn injury survivors are at the greatest risk of psychological, emotional, physical and social hazards, which increases their dependency level. Literature has confirmed that almost 1/3 of burn injury victims are exposed to moderate to severe levels of psychological and social issues.² Further, it is also important to note that only a small number of acute burn survivors get psychiatric help after having the injury.³

Mostly they suffer from psychological issues, including acute stress disorder, depression, suicidal ideation and post-traumatic stress disorder (PTSD).⁴

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Thus, it is evident that PTSD is the ultimate effect of burn injury. Further, the Diagnostic and Statistical Manual of Mental Disorders - V (DSM-V) defines PTSD as a disorder resulting from a traumatic event. Apart from direct experience of trauma, even witnessing traumatic events, especially among family and friends can lead to trauma.⁵ A review of studies about the prevalence of PTSD in adult burn victims noted PTSD prevalence from 3% to 35% for the first month. In 3-6 months, the prevalence was 2-40%. After 9 months, the prevalence was 45%, and for more than 2 years, the prevalence ranged 7-25%. Threat to life, acute intrusive symptoms and pain were the strongest predictors for PTSD.⁶

Women burn survivors sometime had problems of cognitive impairment and adjustment problems due to PTSD. Cognition may be defined as a process in which individual identify, select, interpret, store and use information to give meaning to their social and physical environment.⁷ The cognitive process or functioning may include complex attention, executive functioning, learning and memory, language expression, perceptual-motor function and social cognitions.⁵ Moreover, cognition issues have psychological basis, and literature has confirmed the notion that PTSD may trigger cognitive dysfunction in survivors.⁸ A study established the fact that trauma can induced problems in cognitions of memory, especially related to the traumatic event.⁹

Moving on, adjustment is a process in which individuals try to adapt, cope and manage their demands, problems and challenges of daily life activities (DLAs).¹⁰ DSM-V has specified adjustment as emotional and behavioural changes because of some stresses in terms of depressed mood, anxiety, combination of anxiety and depressed mood, disturbance of conduct, combination of disturbance of emotions and conduct. The sub-domains of adjustment, such as depressive, anxiety and conduct symptoms, can be foreseen in terms of PTSD. Research confirms that burn and other trauma survivors report depressive¹¹ and anxiety symptoms.¹² Also, conduct disturbances of anger are evident in the trauma population.¹³ In Pakistan, women are approximately half of the total population as per the census of 2017.¹⁴ The Pakistan National Emergency Department Surveillance (PNEDS) gathered statistical data of burn victims from November 2010 to March 2011, and found that 403 patients visited the department. About half of the patients were aged 10-29 years. of the total, 21 died who were aged 40-49 years, and 308 had known intention of injury.¹⁵ Statistics have indicated that about 95% of burn deaths were in low and middle income countries (LMICs) compared to high income countries (HICs).¹⁶

Females had more burn injuries due to the socio-cultural responsibility of cooking in the domestic setting.¹⁷ There is a great need for providing proper information about how to regulate temperature of water in baths and unsafe cooking appliances can be the cause of burn injuries.¹⁸

There are factors that can hinder treatment and rehabilitation of the victims. These may include lesser family support, as well as medical and living expenses. It has been suggested that mental health specialists can provide better help in handling the psychosocial issues of burn victims using the social rehabilitation platform.¹⁹ There are cultures and social traits of overprotecting the disfigured person or to reject and tease the individual. In both the situations, the attitudes cripple the victims. Healthcare providers must focus on the cultural factors while dealing with burn survivors. Pre-injury physical and psychological problems, coping abilities, psychosocial and economic weaknesses, family care and social support affect the rehabilitation process, and, additionally, the fear of rejection due to appearance transformation may lead to depressed feelings with progression towards suicidal attempts.²⁰

The current study was planned to explore the role of PTSD in triggering cognitive and adjustment problems in women burn survivors.

Subjects and Method

The analytical cross-sectional study was conducted at the Department of Psychology, University of Gujrat, Pakistan,

from November 15, 2017, to July 25, 2018, and comprised women burn survivors at different burn centres of hospitals, household bases and non-governmental organisations (NGOs) of Lahore, Gujrat, Rawalpindi and Islamabad, Pakistan. The research proposal was initially discussed with clinical psychologists and psychiatrists to review the ethical concerns and study design. After approval from the institutional review committee, the sample was raised using purposive sampling technique from adult female burn victims whose injury duration was 6-24 months and the burn was accidental. Those with intentional burns or with co-occurrence of any other health problem or psychiatric disorder were excluded. The subjects included were patients who had been discharged from hospitals after recovery and could be approached during their follow-up visits in out-patient settings after permission from hospital and NGO administrations. Based on the inclusion and exclusion criteria these respondents were not available in hospitals and could only be approached in outpatient visits in hospitals or at homes. Maximum respondents were recruited who met the inclusion criteria. After informed consent from the subjects, data was collected regarding age, marital status, residential type, education, occupation and family income of patients. Also noted the burn severity, burn causative agent, first aid, health complaints, parts of body affected, duration of hospital stay, time since burn injury and satisfaction with treatment.

To avoid biasness, indigenous and translated versions of standard scales with cultural appropriateness were used. These included the Civilian Version of the PTSD Checklist in Urdu,²¹ Montreal Cognitive Assessment Urdu version²² and Adjustment Problem Scale for Adults.²³

The permission for use and translate the scales in the present research was obtained from the authors through email.

Data was analysed using Analysis of a Moment Structures (AMOS) version 21 with the analysis technique of Structure Equation Modelling (SEM) which is a multivariate technique used for structural relationships. It is a merger of multiple regression and factor analysis.²⁴ SEM can be significant when used in social sciences.²⁵ The analysis was confirmed on model fit indices of chi-square/df (CMIN/DF) ratio, Goodness of Fit Index (GFI), Adjusted Goodness of Fit Index (AGFI), Comparative Fit Index (CFI), Root Mean Square Error of Approximation (RMSEA). $P < 0.05$ was considered significant. Further, regression weights and covariance were also inspected.

Results

Of the 326 individuals approached, 200(61.34%) women

Table-1: Demographic, clinical and social information of patients.

Variables	F	%
Age (years)		
15-25	74	37
26-35	71	35.5
36-45	45	22.5
46-55	8	4
56-65	2	1.0
Family system		
Nuclear	100	50
Joint	100	50
Education		
Ill-Literate	21	10.5
Primary	11	5.5
Elementary	18	9.0
Matric	38	19.0
F.A/F.Sc	35	17.5
B.A/B.Sc	44	22.0
M.A/M.Sc	26	13.0
BS(Honors)	1	.5
MPhil	6	3.0
Employment status		
Employed	82	41.0
Unemployed	118	59.0
Marital Status		
Married	93	46.5
Unmarried	82	41.0
Separation	8	4.0
Widow	17	8.5
Children		
0-3	165	82.5
4-7	34	17
8-11	0	0
12-15	1	.5
Number of Siblings		
0-2	42	21
3-5	86	43
6-8	59	12.5
9-11	11	5.5
12-14	2	1
Birth Order		
1-3	144	72
4-6	47	23.5
7-9	8	4
10-12	1	.5
Family Income		
Less than 15000	29	14.5
15000-35000	146	73.0
Above 35000	25	12.5
Mode of Residence		
Urban	132	66.0
Rural	68	34.0
Type of Burn		
Scald/Hot Fluid	83	41.5
Hot Solid Material	22	11.0
Flames/Fires	36	18.0

Chemical Burn/Strong Acid	43	21.5
Electric Burn	13	6.5
Inhalational Burn	3	1.5
Burn Severity		
First Degree burn	16	8.0
Second Degree burn	79	39.5
Third Degree burn	105	52.5
Part of Body Effected		
1-3	178	89
4-6	22	11
First Aid		
Yes	163	81.5
No	37	18.5
Satisfied with Treatment		
Yes	166	83.0
No	34	17.0
Duration of Burn Incidence (Months)		
6-15	150	75
16-25	50	25
Hospital Duration (Hours)		
0-1000	112	88.5
1001-2000	49	8.5
2001-3000	25	1
3001-4000	14	.5
Health Problems		
0-1	38	19
2-3	157	78.5
4-5	5	2.5
Who Bring to Hospital		
Parents	118	59.0
Siblings	32	16.0
Friend	6	3.0
Husband	37	18.5
Other	7	3.5

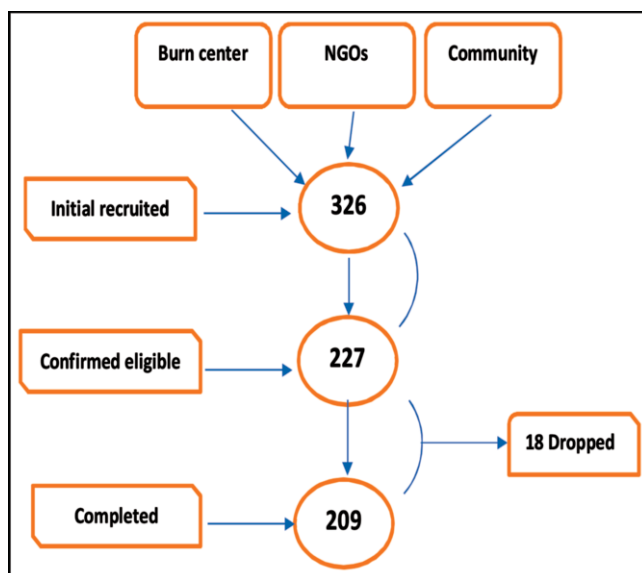
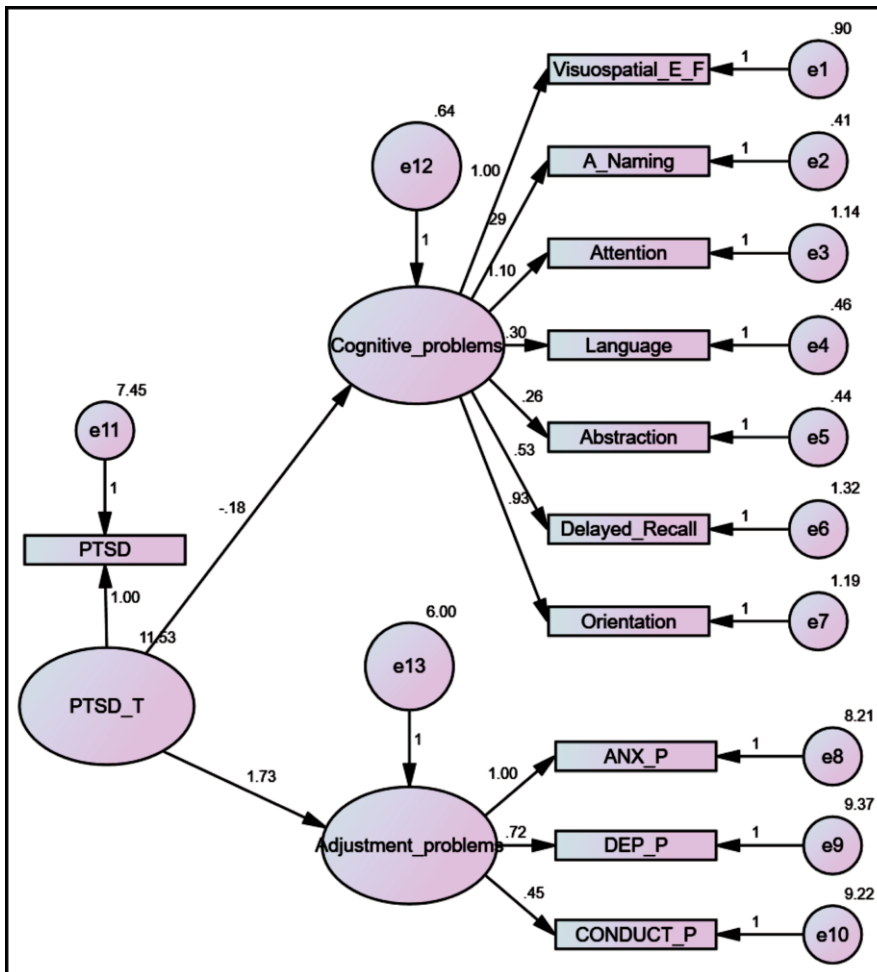


Figure-1: Flow diagram. Nine questionnaires were discarded because of incomplete and missing information and finally 200 patients completed the study.

Table-2: Model fit summary (N=200).

P Value	Chi-square/df	GFI	AGFI	CFI	RMSEA
0.000	2.208	0.926	0.884	0.931	0.078

GFI: Goodness of Fit Index; AGFI: Adjusted Goodness of Fit Index; CFI: Comparative Fit Index; RMSEA: Root Mean Square Error of Approximation.



PTSD: Post-Traumatic Stress Disorder; Visuospatial_EF: Visuospatial and Executive Functioning; A_Naming: Animal Naming; ANX_P: Anxiety Problem; DEP_P: Depression Problem; CONDUCT_P: Conduct Problem.

Figure-2: Structure equation modelling (path analysis) for PTSD, cognitive and adjustment problems.

completed the study (Figure-1). Of them, 100(50%) each were living in nuclear and joint family systems. The maximum number of women 74(37%) were aged 15-25 years; 93(46.5%) were married; and 82(41%) were employed (Table-1). All indices concluded that the model was appropriate (Table-2).

The PTSD regression estimate was -1.8 for cognitive problems ($p < 0.01$) that PTSD increase by 1 unit led to decreased cognitive ability by 1.8 units. The PTSD

regression estimate was 1.73 ($p < 0.01$) for adjustment problems, indicating 1-unit increase in PTSD increased adjustment problems by 1.73 units (Figure-2).

Discussion

Findings confirmed the hypothesis that PTSD had a significant association with cognitive and adjustment problems of women burn victims. Earlier studies have indicated that burns were common in females.²⁶ After burn injury, various issues may lead to harmful consequences. Psychopathology is one of the hazardous results of a burn injury, with one study reporting that 38.1% of the burn injured had PTSD.²⁷

It was reported that burn victims are at greater risk of developing a cognitive deficit.²⁸ Another study also confirmed that burn survivors' cognition was more impaired compared to other trauma-induced populations.²⁹ It is confirmed that PTSD may trigger problem to the executive cognitive functioning.³⁰ Moreover, PTSD may cause a problem in paying attention on a task or activities.³¹ In older adults, PTSD impaired cognitive functioning of memory and leaning.³²

PTSD is known to cause functional or adjustment impairment in trauma victims.³³

Pakistan is a country where females are at a higher risk of having a burn injury due to social traditions and ignored safety procedures. The triggering problems may be linked with kitchen settings, squatter settlements, burns from woman clothing, like dupatta, and murder of females in the name of honour.³⁴⁻³⁶

In the current study, cognitive and adjustment issues in women burn survivors were measured. Other

psychological factors can also be explored like isolation, loneliness, self-confidence, motivation, social support and resilience, self-identity or self-concept. Future studies may also explore burn injury impact on families, friends and significant others along with eyewitness of the burn trauma. Similar studies may also be replicated on men and children.

The findings of the current study are generalizable owing to its sample size which though had 200 burn victims, they did have clinical significance which is difficult to acquire.

Conclusion

PTSD was found to have the potential to lead to problems in cognitive and adjustment of women burn survivors. Trauma-related stress boosted adjustment issues related to anxiety, depressive symptoms and conduct disturbances.

Limitations

The sample size for the study was not calculated as only the possibly available cases were included due to limited reachable geographical regions.

Disclaimer: The text is based on a PhD thesis submitted to the Department of Psychology, University of Gujrat.

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