

Burn Specific Health among Accidentally Burn Survivors: Role of Negative Affectivity and Self Efficacy

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Abstract

Background: There is a constant rise in the proportion of the burn patients. Negative affectivity and poor self-efficacy are the potential risk factors that worsen the post-burn health and poor prognosis after burn injury.

Objectives: The aim of the present study was to investigate the relationship between negative affectivity (negative mood), self-efficacy, and burn specific health among adults who had survived from burn accidents.

Study design, settings and duration: The study was conducted using cross-sectional correlation design and data was collected from various hospitals of Pakistan including Military Hospital, Holy Family Hospital, Pakistan Institute of Medical Sciences, and Rah-Numa Welfare Organization during April - June, 2016.

Patients and Methods: A convenient sample (n = 117) was taken. Participants included both men and women with age range from 18 to 52 years. Neuroticism subscale of NEO-FFI, Generalized self-efficacy scale, and Burn specific health - brief scale was used for data collection.

Results: The negative affectivity was inversely related with self-efficacy and burn specific health, whereas self-efficacy was significantly positively associated with burn specific health. Accidentally burn survivors who were low on negative affectivity and high on self-efficacy exhibited better post burn health as compared to those survivors who scored high on negative affectivity and low self-efficacy. Male survivors exhibit better burn specific health as compared to female survivors. Negative affectivity was higher among those survivors who had burn injuries in the exposed body parts including face.

Conclusion: The findings of this study would be assistive for the medical and mental health professionals in designing and shaping customized interventions and rehabilitation programs for the post burn adults which will facilitate the process of recovery.

Key words: Negative affectivity, self-efficacy, burn specific health, post burn adults.

Introduction

Burn injury is an important, yet, under-researched area in Pakistan. It is a major cause of medico legal deaths in Pakistan.¹ The negative physical, psychological and social impacts on survivors with severe burns begin at the time of injury and extend throughout their individual lives.² Most of the burn patients have difficulty dealing with the burn injury as empirical evidence

reported that burn injury affects social, occupational, and induce many medical and emotional complications.³ Besides, unattractive appearances and contracture formation are the adverse effects of the scars which may not only lead to deformity and dysfunction, but also produce severe physical health issues such as decrease in range of motion, reduced muscle force, and altered sensitivity.⁴ Furthermore, lack of social support,⁵ body location of burn injury, and visible scarring are the factors that may aggravate and intensify the complexity of the problem. Burn patients may also report feelings of social stigmatization and various psychosocial complexities. For instance, most of the partners shun their mates after severe injuries. For the past few decades, the growing number of survivors of major burns has drawn the attention of researchers towards the psychosocial adjustment problems and wellbeing.⁶ Recovery from severe burn injury is a lengthy process and burn patients perceive their recovery process as a tough road to walk.⁷

Burn patients in Pakistan have taken alarming proportions as reported in a cross sectional study conducted in Burn Unit of Civil Hospital, Karachi.

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During the study period, 36.12% patients died who were admitted in the unit. Among the expired patients, 53.1% were men and 46.9% were women. Mortality rate was highest in the age-group of 16-30 years.⁸ Furthermore, a study⁹ description of surgical ward of Mayo Hospital revealed that almost 56% of burned women and 30% men admitted for treatment expired owing to their burn injuries, and a large number of burn patients (96%) belonged to low socio-economic status. Gender based narrations showed that explosions resulting from stove defect were the major theme among women; whereas, industrial accidents were the significant cause among male burned patients. In addition, 42.2% of burn incidents occur during the winter season; while burn injuries included homicidal intent (15%), suicidal attempts (6%), and accidental burns (79%). In another study,¹⁰ it was revealed that almost 22% of women injured because of stove burst and up to 27% of burns in women took place in kitchen affecting more housewives (35%) as compared to unmarried women (18%). Men had average of 27.4% total body surface area burned as compared to women (with an average of 39.5%); whereas mortality rate was higher in men (18%) than women (16%). The commonest affected part of the body was neck and hands.¹¹ Important risk factors for burns included wearing loose and/or flammable clothing, being younger, low socioeconomic status and the use of kerosene.¹²

Traditionally, increased attention was given to the psychological factors like social support, personality traits, resilience, emotional states and coping patterns used by the burn patients. Past literature revealed that burn patients exhibit more maladaptive personality traits, elevated levels of anxiety, depression, post-traumatic stress disorder and negative mood.^{13,14} In addition, body image dissatisfaction, low self-efficacy, negative affectivity, and lack of healthy coping strategies were strongly associated with greater risk of psychological maladjustment after burn injury.¹⁵ Negative affectivity apparently seems to be a predictor of negative mood and emotional state,¹⁶ therefore; individuals exhibiting negative affect suffer from increased level of emotional distress and possess poor abilities to cope with life stressors.¹⁷ Moreover, victims exhibiting higher negative affectivity and low self-efficacy are at greater risk of experiencing trauma, severe pain, and anxiety during the prolonged treatment and are more inclined towards post-traumatic stress disorder.¹⁸ Further evidence concluded that high levels of negative affectivity is related with low self-efficacy, resistance to positive health habits, and low outcomes expectancies associated with health.¹⁹ However, there is scarcity of research that depicted the predicting role of negativity and self-efficacy with burn specific health. Similarly, there is also paucity of empirical studies about the function of protective factors (such as efficacious beliefs of the burned patients) that play a pivotal role in the prognosis of physical and emotional health after burn injury.

The objective of this study was to explore the relationship between negative mood (affectivity) and self-efficacy with burn-specific health among post burn survivors. Moreover, it was also intended to explore the role of gender and specific body parts affected by burn in relation to negative affectivity, self-efficacy, and burn-specific health.

Patients and Methods

A convenient sample (n= 117) of post burn adults comprising both men (n = 50) and women (n = 67), with age range from 18-52 years (Mean = 33.28, SD \pm 4.97) were enrolled for this study. Reference record of respondents was acquired from various hospitals located in Pakistan including Military Hospital, Rawalpindi, Holy Family Hospital, Rawalpindi, Pakistan Institute of Medical Sciences, Islamabad and Rah-Numa Welfare Organization, Islamabad. Following scales were used for data collection:

To measure the negative affectivity, Neuroticism-Subscale of NEO-FFI²⁰ was used. The scale consisted of 12 items based on 5-point scale ranging from strongly disagree (1) to strongly agree (5). The possible score may range from 12–60. Higher scores on the scale indicate high levels of neuroticism and Chronbach's alpha of 0.86 was achieved for the present sample.

Generalized Self-Efficacy Scale²¹ was used to assess perceived self-efficacy of the accidentally burn survivors. The scale constituted 10 items, designed to assess optimistic self-beliefs to cope with a variety of difficult demands in life. It was a 4-point rating scale ranging from Not at All (1) to exactly True (4). Possible score on the scale ranged from 10 – 40, and higher scores on the scale reflect higher self-efficacy. In the current sample, Chronbach's alpha of 0.84 was acquired for this scale.

The revised version of Burn Specific Health Scale-Brief (BSHS-B)²² was used. The BSHS-B was a 40-item questionnaire with nine sub-scales measuring perceived function and wellbeing. Four subscales reflect psychosocial difficulties: Affect (7 items, α = 0.81), Body Image (4 items, α = 0.76), Interpersonal relationships (4 items, α = 0.78), and sexuality (3 items, α = 0.72). Five subscales reflect physical difficulties: heat sensitivity (5 items, α = 0.80), simple abilities (3 items, α = 0.70), treatment regimen (5 items, α = 0.89), hand function (5 items, α = 0.84), and work (4 items, α = 0.85). The items were rated on a 5-point scale ranging from extremely (0) to Not at All (4). Scores could fluctuate from 0 – 160 and high scores reflect better burn specific health; while, reliability coefficient of 0.92 was achieved on the total scale for the present sample.

Respondents were identified from the records of various hospitals. Burn patients were approached individually, and initially, rapport was developed with the respondents owing to the sensitivity of the issue. Respondents were briefed about the purpose of the study

and their informed consent was acquired. They were also ensured about the confidentiality of the information and data would be used only for academic and research purposes. Respondents were requested to express their concerns if they found any difficulty in answering the statements. Humane and practical considerations were fully taken into account while interacting with the respondents. Respondents were also offered tangible support by the researchers in terms of accompanying them for therapies and provision of medicines.

Data was entered using SPSS 18. After data entry and cleaning, Pearson correlation was used to determine the relationship among all the variables of the study. t-test and one-way ANOVA was employed in order to compute the group differences in the levels of negative affectivity, self-efficacy and burn-specific health. Before analysis, psychometric assumptions of the data was seen. Data screening did not showed problems with assumptions of normality and linearity.

This study protocol was approved by Institutional Ethics Review Board of Pakistan Institute of Medical Sciences, Islamabad.

Results

Duration of the burn injury of respondents at the time of data collection was from 1-5 years (M = 2.23, SD ± 1.14). Respondents included both married (n = 58) and unmarried (n = 59) individuals living in extended (n = 67) and nuclear (n = 50) family systems. Mostly respondents had burn scars on hidden areas of the body (i.e., shoulders, chest, abdomen, thighs, legs, arms; n = 53), exposed areas of the body (i.e., neck, hands, and feet excluding face; n = 33) and exposed burned body parts with face (n = 31).

The inter-correlations among study variables are mentioned in Table-1. The negative affectivity has significant negative relationship with burn specific health and self-efficacy; whereas, self-efficacy showed significant positive association with burn specific health.

Hierarchical Regression analysis (stepwise) was computed with negative affectivity and self-efficacy as predictor variables and burn specific health as outcome variable. Model 1 showed negative affectivity as prominent predictor of burn specific health. The ΔR2 value 0.25 indicated that negative affectivity explained 25% variance in predicting burn specific health. It has also been found that negative affectivity (β = -.47, p < .001) has significant negative effect on burn specific health. Model 2 showed that self-efficacy was the second important predictor. The ΔR2 value indicated 18% variance in the dependent variable (burn specific health) which was accounted for by self-efficacy. (Table-2)

Table 1: Inter correlations among all the study variables. (n = 117)

Variables	Negative Affectivity	General Self Efficacy	Burn Specific Health
Negative affectivity	–	-.56*	-.49*
General self-efficacy		–	.47*
Burn specific health			–

*p-value < .001

Table 2: Hierarchical regression analysis for predicting burn specific health among post burn adults. (n = 117)

Variables	β	r ²	Δr ²	F	F change
<i>Model 1</i>					
Negative affectivity	-.47**	.28	.25	73.67**	73.67**
<i>Model 2</i>					
Negative affectivity	-.34*	.16	.14		
Self-efficacy	.53**	.21	.18	54.19**	14.47**

**p-value < .001; *p-value < .01

Table 3: Gender differences in relation to variables of the study. (n = 117)

Variables	Men (n = 50)		Women (n = 67)		t (115)	p-value	95% CI		Cohen's d
	M	SD	M	SD			LL	UL	
Negative affectivity	35.12	5.68	40.19	6.47	8.41	.00	-7.35	-2.79	.67
Self- efficacy	23.24	6.23	17.00	4.57	12.55	.00	3.52	8.95	.83
Burn specific health	92.72	16.76	70.95	19.11	19.38	.00	9.01	34.51	.94

Note: CI = confidence interval; LL = lower limit; UL= upper limit; M=Mean

Table 4: One way ANOVA for burn body parts among post burn adults. (n = 117)

Variables	Group 1 (n = 53)		Group 2 (n = 33)		Group 3 (n = 31)		F	p-value	Post-hoc Difference
	M	SD	M	SD	M	SD			
Negative affectivity	34.92	6.36	38.72	6.02	42.58	4.66	17.01	.00	3> 1, 2
Self- efficacy	22.71	8.14	18.78	7.76	15.38	5.25	9.97	.00	1> 2, 3
Burn specific health	96.69	16.51	70.60	13.20	62.41	24.52	22.67	.00	1> 2, 3

Note: df = 2, 114; Group 1= Hidden body parts; Group 2 = Exposed body parts excluding face; Group 3 = Exposed body parts including face

Table-3 showed significant gender differences on negative affectivity, self-efficacy and burn specific health. It has been found that male post burn survivors exhibit significantly low level of negative affectivity, high self-efficacy and better burn specific health as compared to female survivors. Table-4 showed significant difference among three groups on negative affectivity, self-efficacy and burn specific health. Post-hoc comparisons using the Bonferroni test indicated that individuals with hidden burned body parts (Group1) had better burn specific health, high self-efficacy and low levels of negative affectivity as compared to exposed body parts excluding face (Group 2) and exposed body parts including face only (Group 3). Similarly, negative affectivity was highest among the post burn survivors with exposed body parts including face only (Group 3).

Discussion

This study examined the relationship of negative mood and self-efficacy with burn-specific health among post burn survivors. Moreover, the role of gender and specific body parts affected by burn in relation to negative affectivity, self-efficacy, and burn-specific health was also explored. Results indicated that negative affectivity is negatively associated with self-efficacy and burn specific health, whereas self-efficacy is significantly positively associated with burn specific health. These findings are quite consistent with the earlier studies which also indicated that higher level of negative affectivity is directly related with worse health conditions among patients.²³ Similarly, another study showed that individuals rated low on self-efficacy exhibited poor adjustment after burn injury whereas optimistic individuals are better adjusted in their lives after post burn.¹⁶ Additional evidence showed that individuals reflecting elevated levels of negative affectivity and low efficacious skills are more prone to display greater health related difficulties after post burn.²⁴ It has also been observed that low sense of self efficacy is associated with elevated symptoms of depression, anxiety and negative association with subjective well-being.¹⁸

The results of the current study are in line with the past research. For instance, we found that negative affectivity has significant negative relationship with burn specific health and self-efficacy, whereas, self-efficacy showed significant positive association with burn specific health (Table-1). In addition, to see the predicting role of self-efficacy and negative affectivity, findings showed that negative affectivity and self-efficacy explained 25% and 18% variance in burn specific health respectively (Table-2). An equal inference has been drawn in the earlier studies indicating that negative affectivity is a precursor to different physical illness, mental disorders and avoidance to use mental health facilities.¹ Moreover, negative affectivity also predicted lower recovery from

depression, physical illness, negative health related quality of life and poor self-efficacy.²

To see gender differences on negative affectivity, self-efficacy and burn specific health, results demonstrated that male post burn survivors demonstrated low level of negative affectivity, high self-efficacy and better burn specific health as compared to female survivors. Moreover, individual's burn scars on hidden burned body parts had better burn specific health, high self-efficacy and low levels of negative affectivity as compared to the patients with exposed body parts. These findings would be helpful in devising appropriate intervention plans (Table-3 & 4). It can be inferred from the results of current findings, that burn victims who receive burn scars on the exposed body parts may experience more problems in coping or regulation to their emotions. These findings receive substantial support from various studies indicating that women exhibited more negative affectivity as compared to men and gender has a profound effect on post-burn health; such as men reflected elevated levels of self-esteem and body image satisfaction after burn injury where as women displayed low levels of emotional stability.⁵ The possible reason could be that women who sustained burn injuries are less likely to work outside the home, live in single family housing, to be partnered, and to have children.²⁵

Results further showed that post burn adults with burned faces exhibited reasonably higher level of negative affectivity, low perceived self-efficacy and poor burn specific health as compared to other post burn adults with exposed burn body parts excluding face (i.e. hand, fingers, neck and feet) and with hidden burn body parts. Prior evidences also suggested that a common outcome for survivors of severe burn injury is visible scarring, which may often result in negative physical and emotional consequences.²⁶ Visible scarring is related to the body image of the victim, which alternately affects psychological well-being.²⁷ Body image is a part of the self-concept that is shaped from social and personal experiences.⁷ Literature has also reported significant relationship between psychological adjustment and sensory and social experiences such as appearance-related teasing. Moreover, society values beauty and those bearing visible scars are frequently socially stigmatized and marginalized.^{6,28} At the same time, both indigenous and global literature supports the notion that pre-morbid factors have a greater influence on post burn psychological adjustment than does the extent or location of the injury; however there is evidence that location of injury is also important.²⁹ Pakistani studies conclusively suggested that depending upon the location and visibility of the scarring, women suffered greater and more prolonged psychological maladjustment related to altered body image and sexual dysfunction than their male counterparts.^{11,13} A deviation from the accepted norm through burn injury can initiate psychological complications for those at risk because of factors such as

poor coping skills, poor family support, and low self-esteem. Similarly, additional studies demonstrated a strong correlation between female gender and poor psychological outcomes related to body image dissatisfaction and psychological complications.³⁰⁻³²

Future research should explore some additional issues related to the burn victims. For instance, recent western literature has also demonstrated that burn patients have prolonged derangements in endocrine, metabolic, cardiac, and respiratory organs potentially impacting their cardiovascular health. In addition, self-harm risk increases significantly after burn injury that underscores the need for screening and targeted interventions after discharge. The role of the multidisciplinary treatment, integrated and trauma-informed care is essential. Measuring the impact burn injuries have on social participation is equally integral to the understanding and improving survivors' quality of life,^{1,33} while keeping in mind the difficulties in delivering best practiced treatments to many survivors, especially, those in rural and remote areas and those with comorbidities.

The study has certain potential implications. The findings of the study would be helpful to plastic surgeons, dermatologists, psychologists, and social workers to understand the patient's psychological reactions, their coping styles, and the role of social support in the rehabilitation program for these survivors. In our culture, religion plays a significant role in healing. Therefore, understanding the potential role of spiritual transcendence may help in improving the psychological adjustment of burn patients.³⁴ In addition, provision of social support among certain subgroups of Pakistani burn patients may be ensured.³⁵ Educating people and creating awareness that prevention is always the rule to be safe from burns but, once they occur, immediate and proper care should be given with rigorous treatment in order to minimize the post-burn problems.³⁶

Cross-sectional nature of data, use of self-report measures, merely relying on respondents, retrospective account of data is the potential limitations of the study. We included only those burn survivors who were available and willing to participate in the study, thereby limiting the sample size. The results of this study are based on quantitative methods only; however, the use of qualitative techniques would enhance greater understanding of the phenomena, as it may permit respondents to express variations of their experiences and perceptions. Moreover, the sample of the present study comprised of adults only. It would have been more comparative if respondents from different age groups could also be included.

Early interventions would be helpful in reducing the potential psychological, emotional, and social problems among post burn victims. Knowledge of risk factors can guide treatment and rehabilitation efforts in a more individualized and direct way. Current findings would be assistive for both the mental health professionals and medical professionals in devising customized interventions

and rehabilitation programs for the post burn victims that will ultimately facilitate the recovery.

Conflict of interest: None declared.

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