

## Impact of Treatment Satisfaction on Post-Traumatic Symptoms, Cognitive Functioning and Psychological Adjustment in Women Burn Survivors

Dr. Iram Naz<sup>1</sup>, Amina Abbas<sup>2</sup>, Shumaila Ilyas<sup>3</sup>

<sup>1</sup> Assistant Professor, University of Gujrat, Punjab, Pakistan. <https://orcid.org/0000-0003-4116-7619>  
Email: [iram.naz@uog.edu.pk](mailto:iram.naz@uog.edu.pk)

<sup>2</sup> M.Phil. Scholar, University of Gujrat, Punjab, Pakistan. Email: [aminaabbas8700@gmail.com](mailto:aminaabbas8700@gmail.com)

<sup>3</sup> M.Phil. Student, Department of Psychology, University of Gujrat. Email: [zumurd321@gmail.com](mailto:zumurd321@gmail.com)

Corresponding Author: Dr. Iram Naz, Email: [iram.naz@uog.edu.pk](mailto:iram.naz@uog.edu.pk)

**DOI: <https://doi.org/10.70670/sra.v3i4.1162>**

### Abstract

The purpose of the study was to investigate the relationship between satisfaction with treatment and post-traumatic stress symptoms, cognitive functioning and psychological adjustment problems. The cross-sectional research design was used in the study. In a sample of two hundred adult female burn survivors living in Pakistan, which examined the association between satisfaction with treatment and posttraumatic stress symptoms (PTSD), cognitive functioning, as well as psychological adjustment problems. A purposive sampling was used to select the study participants, who had incurred an unintentional burn injury 6 months to 2 years before. Sociodemographic form, Urdu-translated version of Abbreviated PTSD Checklist Civilian Version (PCL-C), Montreal Cognitive Assessment (MoCA) scale and Adjustment Problem Scale were applied for data collection. The research was ethically approved and performed in different burn centers of Lahore, Gujrat, Islamabad and Rawalpindi. The variables based on treatment satisfaction (yes/no) were compared using an independent samples t-test. Cognitive functioning showed no significant difference between women who were satisfied ( $M = 14.77$ ,  $SD = 5.19$ ) and those who were not ( $M = 14.79$ ,  $SD = 4.39$ ) with treatment. Psychological Adjustment indicates a statistically significant difference. Compared to women who were satisfied ( $M = 100.60$ ,  $SD = 14.63$ ), those who were dissatisfied ( $M = 109.06$ ,  $SD = 13.56$ ) reported noticeably more psychological adjustment problems. Post-Traumatic Symptoms ( $t(198) = -2.60$ ,  $p = .010$ ) was another statistically significant difference. Compared to women who were satisfied ( $M = 22.07$ ,  $SD = 4.46$ ), those who were dissatisfied ( $M = 24.18$ ,  $SD = 3.40$ ) reported noticeably more PTSD symptoms. A statistically significant difference was also found. Women who were dissatisfied ( $M = 24.18$ ,  $SD = 3.40$ ) reported significantly higher PTSD symptoms than those who were satisfied ( $M = 22.07$ ,  $SD = 4.46$ ). The findings suggest that while satisfaction with treatment is not significantly associated with cognitive functioning, it is strongly linked to mental health outcomes. Dissatisfaction with treatment is associated with significantly greater psychological adjustment issues and more severe post-traumatic stress symptoms in women burn survivors. These results underscore the importance of quality and satisfying care in the recovery process for burn survivors.

### Introduction

Burns very often lead to intense psychological morbidity and psychological symptoms and after symptoms the psychological problems may last for far longer than the injury has healed. Many burn

survivors classify for stress-related disorders. Skin or organic tissues can sustain burn injuries, which can be brought on by radiation, nuclear energy, electrical conduction, or chemical activity. Inhaling smoke from the burn source can also cause respiratory difficulty in addition to burn injuries. Heat-related injuries, known as burns, can be brought on by any chemical, electrical, physiological, or biological factor and have serious consequences for people. Since the beginning of time, burns have remained the most severe traumatic event that mainly caused injury to mankind (Hettiaratchy & Dziwulski, 2004; Garcia-Espinoza et al., 2017). The burn injury directly lead to different psychological issues in burn survivors. The current study focuses on post-traumatic stress symptoms, cognitive functioning and psychological adjustment problems.

### **Gender and Cultural Context for Women Survivors**

Women face additional challenges related to body image and cultural expectations that impact their overall adjustment, according to research.

**Body Image Dissatisfaction (BID):** Women with burn injuries always report being more dissatisfied with their appearance in the first two years after discharge in comparison to men (Al Ghriwati et al., 2017). BID is an essential factor because it mediates the impact of being female on long-term depressive symptoms (Al Ghriwati et al., 2017).

**Psychosocial Distress and Appearance:** Generally, women are more vulnerable to the effects of disfigurement as a factor of internalization of valued appearance by society (Boersma-van et al., 2024). Studies suggest that women are at higher risk for poorer psychosocial adjustment at one year post-hospital discharge (Al Ghriwati et al., 2017; McGwin et al., 2002).

**Cultural Stigma:** In many cultures, especially in cultures that emphasize physical appearance related to social favorably and acceptance (e.g., some South Asian contexts), women burn survivors are affected by heightened appearance anxiety and stigma (Faisal et al., 2025). This cultural factor expands the psychosocial burden beyond the injury.

### **Post-Traumatic Stress Symptoms**

According to the Diagnostic and Statistical Manual of Mental Disorders-DSM-V, PTSD is a disorder brought on by stressful experiences. For instance, the person directly experiences the trauma, witnesses it, or a friend or close acquaintance has been going through horrific situations. The person has been exposed to unpleasant details of the traumatic incident directly, frequently, or intensely (American Psychiatric Association, 2013). The individual has experienced directly events of the traumatic experience, has observed the person who suffered while the trauma event occurred at her/him or someone close to her/him had trauma. Furthermore, the individual has directly experienced, or a person with frequent and strong disclosure to adverse information about the trauma event, (Williamson et al., 2020). Approximately 20% to 30% of survivors consistently have posttraumatic stress disorder (PTSD) (Fauerbach et al., 2007; Boersma-Van et al., 2024). Intrusive thoughts, reminders avoidance, and hyperarousal are common symptoms (Fauerbach et al., 2007). Psychological distress, which involves anxiety, depression, and somatic symptoms, is prominent in-hospital and persists at 6, 12, and 24 months after discharge in about 33% of patients. Psychological distress is a significant predictor of physical impairment and explains a major portion of variance in lower quality of life (QoL) concurrent to and in the long-term (Fauerbach et al., 2007).

### **Cognitive Functioning**

People's ability to pay attention, utilize language, manage memory, see the world, solve issues, and think and create are examples of cognitive processes or functioning. Additionally, memory is a cognitive skill that people possess that allows them to recall and process knowledge from the past so they may use it in the present. (Sternberg et al., 2012). The combination of trauma and perspiration,

invasive medical treatment; complications stemming from the injury; and longer stays in the hospital can all influence cognition.

1. **Etiological Factors:** Cognitive deficits found in burn survivors may result from multiple factors present in the acute recovery phase: the trauma, medication (such as opioids and sedatives for pain and procedures), sepsis, and extended stay (Dmitry et al., 2025).
2. **Domains Negatively Impacted:** Research indicates that cognition may be negatively impacted during the acute recovery phase in areas of attention, executive function, and memory with the addition of pain and anxiety (Dmitry et al., 2025). The evidence is not an overabundance compared to emotional findings; however, cognitive impairment is an area that strongly impacts the client's ability to comply with rehabilitation and return to work.

### **Psychological Maladjustment and Functional Impairment**

Burn sufferers' psychological adjustment is a major concern following burn trauma adversity. According to Mogul and Noor (2007), adjustment is the process by which a person tries to deal, manage, and adapt to the demands, issues, and obstacles of daily life.

Adjustment issues are categorized as a disorder in the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (American Psychiatric Association, 2013). Emotional and behavioral changes brought on by any recognized stressor or stresses that may occur within three months of the onset of the stressor or stressors are considered adjustment disorders. Furthermore, the symptoms might not be indicative of typical mourning. Burn survivors exhibit broad psychological maladjustment beyond PTSD diagnosis that extends into many realms of life: Patients experience high rates of anxiety (23% to 61% prevalence in early recovery) and depression that occurs in early recovery (23% to 61%) (Dmitry et al., 2025). Distress can persist for years and can affect daily functioning and social functioning (Dmitry et al., 2025). Psychological distress is a significant independent predictor of long-term diminished QoL and greater physical impairment (Fauerbach et al., 2007). Body image discomfort, which is worsened among women and with visible scarring, acts as a mediator of reduced QoL.

### **Psychosocial influences on treatment satisfaction.**

Patient perception of care, or treatment satisfaction, is strongly associated with psychosocial recovery and for adherent at an often grueling rehabilitation experience.

**Connection to adherence and outcomes:** Higher levels of social support which is typically associated with perceived quality and compassion are linked to psychosocial adjustment and may facilitate post-traumatic growth in burn survivors (Babar & Ahmad, 2025; Fauerbach et al., 2007).

**Psychological interventions:** Combining psychological interventions to care, contributing to overall satisfaction with treatment, was found to dramatically reduce the risk of depression, anxiety and even reduce the length of a hospital stay compared to education in standard care (Ayman et al., 2021) suggesting the psychosocial nature of recovery was itself therapeutic.

### **Rational of the study**

Survivors' mental health, cognitive abilities, and general ability to adjust to daily life can all be significantly impacted by burn damage. Medical treatments focus on physical recovery, but psychological outcomes are greatly influenced by psychosocial factors including treatment satisfaction. Women who have survived burns frequently deal with additional stresses, such as dependency, stigma, and a lack of support networks, which can increase their susceptibility to signs of PTSD and psychological maladjustment.

Gaining insight into the effects of treatment satisfaction can help improve mental health support and rehabilitation tactics. A higher level of satisfaction may foster positive coping, trust in healthcare, and better psychological functioning, while dissatisfaction can increase distress and hinder recovery. This

work is important because it highlights the combination of psychological therapy with medical treatment to improve general well-being and long-term adjustment, and it focuses specifically on women burn survivors, a demographic that is frequently neglected in trauma research.

### **Objectives of the Study**

To explore difference in satisfaction with treatment in post-traumatic stress symptoms, cognitive functioning and psychological adjustment in women burn survivors.

### **Research Methodology**

The purpose of the current research was to explore the post-traumatic stress symptoms, cognitive and adjustment problems in women burn survivors according to satisfaction with treatment.

### **Design**

Cross-sectional research design was used in the present research.

### **Participants**

Two hundred women who had survived burns made up the study's sample. Adult women over the age of 19 who had sustained unintentional burn injuries six months to two years before the study began were the participants. Men, cases of intentional burn injuries, and anyone with physical ailments, psychiatric issues, or disabilities were not included. To keep the focus on adult survivors, women under the age of 19 were also not included.

### **Sampling technique**

Participants were recruited using the purposive sampling technique. The selection process was based on age, gender, and burn injuries. This is the type of non-probability sampling.

### **Measures**

Data from respondents was gathered using the following tools. A form for sociodemographic data was created. Factors such as age, education, marital status, family structure, employment status of the participant, spouse, children, parents, siblings, family income, type of residence, burn type, burn severity, affected body part, first aid, time since burn, length of hospital stay, health issues, satisfaction with treatment, and who brought the patient to the hospital are all included. Additionally, the respondents' PTSD symptoms were assessed using the Abbreviated Post-Traumatic Stress Disorder PTSD Checklist Civilian Version (PCL-C: Lang et al., 2012). Not at all, a little bit, moderately, quite a bit, and extremely are the six 5-point Likert scale items. The scale displayed a specificity of .72 and a sensitivity of .92. The scale's sensitivity is .92 and its cutoff is 14. Cronbach's alpha for it was .78. For the current study, the scale was translated into Urdu. Women who had survived burns had their cognitive functioning evaluated using the Montreal Cognitive Assessment (MoCA; Habib et al., 2010) in Urdu. This short screening test (around ten minutes) assesses a variety of cognitive abilities, such as executive processes, naming, attention, language, abstraction, memory, orientation, and visuoconstructional skills. With a total score of 30, normal cognition is indicated by a score of 26 or higher. MoCA has shown great reliability ( $\alpha = .884$ ; test-retest = .966) and excellent sensitivity (87%) for moderate cognitive impairment (Nasreddine et al., 2005). It also has substantial associations to intelligence ( $r = .822$ ) and MMSE ( $r = .867$ ) (Tu et al., 2013). Lastly, the Adjustment Problem Scale investigates adults' psychological adjustment issues (Naz et al., 2018). There are three subscales and 48 elements on the scale. Conduct difficulties, anxiety, and depression were the subscales. The three-point Likert scale, which ranged from 1 to 3, served as the basis for the response categories. Additionally, the range of the minimum and highest scores is 48 to 144. The scale has a high reliability of .929 and convergent validity of  $r = .626^{**}$  and divergent validity of  $r = .058$ , respectively (Naz et al., 2022).

## Procedure

Purposive sampling was the method used to choose the study's sample. Women responders who were inadvertently burned made up the sample. Additionally, the injury needs to be between six months and two years old. Respondents must be at least 19 years old. The Advanced Studies and Research Board (A.S.R.B.) at the University of Gujarat in Pakistan reviewed and approved the study's goals, materials, and methods. The sample came from several burn centers run by hospitals, communities, and non-governmental organizations in Lahore, Gujrat, Islamabad, and Rawalpindi, Pakistan. The scale booklet, written consent, and permission letter were provided to the hospital and non-governmental organizations in order to collect data. The heads of several hospitals and NGOs were given an overview of the study. The respondents were contacted with formal consent from the relevant authorities. They received thorough training and an explanation of the study's illuminating advantages. Additionally, the responders received assurances regarding anonymity, including that their identity would remain hidden and confidentiality would be upheld. The respondents' written consent was also obtained. This survey only included respondents who voluntarily participated. By introducing themselves, their affiliation with the institution, and the purpose of the study, the researcher built rapport with the respondents before administering the scales. The participants were tempted to carefully study the items and select the answers that best suited their replies and mental state. Through email, the authors granted permission for the use of all the scales in this study. The researcher thanked the responders for helping to complete the study at the conclusion of data collecting. The researcher also gave the responders the researcher's email address and contact information so that, after the study is finished, anyone who has questions about the results can get in touch with them. Ultimately, the researcher greatly valued the assistance of the hospital, NGOs, and respondents during the data collection process.

## Data Analysis

Descriptive statistics and independent sample t-test were used for the analysis of data.

## Results

Most female burn survivors were unemployed, between the ages of 15 and 35, and had a bachelor's degree. The majority were married with one to three children. They typically originated from middle-class (15,000–35,000) urban families with three to five siblings. The predominant source of burns was scald/hot fluid, with third-degree burns involving 1–3 body regions. The majority were taken to the hospital by their parents as soon as possible after the injury, received first aid right away, were happy with the care they received, had brief hospital stays, and had two to three health issues.

**Table 1: Comparison of Cognitive Functioning, Psychological Adjustment and Post-Traumatic Symptoms by Satisfaction with Treatment (Yes/No)**

Variable	Satisfaction with Treatment	<i>n</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>df</i>	<i>p</i>	95% CI of Mean Difference
Cognitive Functioning	Yes	166	14.77	5.19	-0.03	198	.973	[-1.91, 1.85]
	No	34	14.79	4.39				
Psychological Adjustment	Yes	166	100.60	14.63	-3.11	198	.002	[-13.83, -3.09]
	No	34	109.06	13.56				

Variable	Satisfaction with Treatment	<i>n</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>df</i>	<i>p</i>	95% CI of Mean Difference
Post-Traumatic Symptoms	Yes	166	22.07	4.46	-2.60	198	.010	[-3.71, -0.51]
	No	34	24.18	3.40				

*Note.* Equal variances were assumed for all three variables based on Levene's test ( $p > .05$ )

Cognitive functioning, adjustment issues, and post-traumatic symptoms were compared between women burn survivors who were satisfied and those who were not using an independent samples t-test. Women burn survivors who were satisfied ( $M = 14.77$ ,  $SD = 5.19$ ) and those who were not satisfied ( $M = 14.79$ ,  $SD = 4.39$ ) did not vary significantly;  $t(198) = -0.03$ ,  $p = .973$ . The two groups of satisfied and dissatisfied, however, differed significantly ( $t(198) = -3.11$ ,  $p = .002$ ). Compared to those who were satisfied ( $M = 100.60$ ,  $SD = 14.63$ ), those who were dissatisfied ( $M = 109.06$ ,  $SD = 13.56$ ) reported more psychological adjustment issues. Lastly, there was a significant difference in post-traumatic symptoms as well ( $t(198) = -2.60$ ,  $p = .010$ ). Compared to those who were satisfied ( $M = 22.07$ ,  $SD = 4.46$ ), those who were not satisfied ( $M = 24.18$ ,  $SD = 3.40$ ) had more PTSD symptoms. It may conclude that while there was no difference in cognitive functioning, contentment was linked to much less adjustment issues and PTSD symptoms.

## Discussion

These findings indicate a strong connection between satisfaction with medical care and psychological outcomes in women burn survivors. While cognitive functioning does not seem to be related to treatment satisfaction, dissatisfaction with care is related to poorer psychological functioning and higher PTSD (post-traumatic stress disorder) symptoms. The most significant finding was the difference in psychological adjustment problems ( $M = 109.06$ ) of women survivors who were dissatisfied with care, compared to survivors who were satisfied ( $M = 100.60$ ), which reported a strong effect ( $t(198) = -3.11$ ,  $p = .002$ ). This is consistent with prior research establishing patient-centered care as important during recovery from traumatic injury, and the quality of the caregiving relationship. In medical settings, patient satisfaction is closely tied to things like: Effective communication from staff, perceived empathy and support, and being included in treatment decisions (Wiechman, 2011; Goldstein et al., 2024). For burn survivors this injury represents not only a physical injury but also a serious traumatic injury and will create for survivors an ongoing lifelong journey in dealing with disfigurement, pain, and lost function (Wiechman, 2011; Kang-Auger et al., 2025). When patients perceive unmet emotional needs, or inadequate care, it can compound an existing stressor, and prevent the emotional processing needed to adjust properly (García-Espinoza et al., 2017; Pan & Wang, 2025). Conversely, ostensibly supportive, quality care can become a protective factor, generating the safety and control needed for psychological healing (Wiechman, 2011; Tian, 2023). For instance, survivors who were dissatisfied with care reported higher Post-traumatic Symptoms ( $M = 24.18$ ) than satisfied survivors ( $M = 22.07$ ), ( $t(198) = -2.60$ ,  $p = .010$ ), echoing a growing literature on developing PTSD, following trauma. Burn injury is a special kind of intense trauma, uniquely related to humanity (Hettiaratchy & Dziewulski, 2004). When a person is directly exposed to a traumatic event, PTSD results (American Psychiatric Association, 2013). Medical care, requiring painful procedures and in high-acuity settings can contribute to PTSD symptomology particularly if there is a perception of distressful care or lack of caring (O'Brien & Lushin, 2019; Mann et al., 2024). Dissatisfaction may have arisen from, A sense of being revictimized and powerless during treatment, poor pain management that exacerbated distress (O'Brien & Lushin, 2019; Suen et al., 2021). On the other hand, positive treatment experiences can create a sense of mastery and trust in the healthcare system for

patients, which is an important buffer against the ongoing symptoms of hyperarousal and avoidance associated with PTSD (Wiechman, 2011; Du et al., 2022). Therefore, there was no significant difference in cognitive functioning ( $t(198) = -0.03, p = .973$ ) demonstrated between groups, suggesting that satisfaction with care may not have an effect on basic cognitive processes (attention, memory, and executive function). This supports the distinction between the psychological/emotion effects of trauma from neurocognitive effects. And while an individual who sustained a significant burn trauma wound, or more serious in smoke inhalation cases, can have physiologic changes that impact cognition (Hettiaratchy & Dziewulski, 2004; Ali & Ali, 2022), the perception of quality of care has an effect on emotional and mental health outcomes (Adjustment, PTSD) rather than cognitive status at baseline (Vetrichevvel et al., 2018; Radstaak et al., 2022).

## Conclusion

It was concluded that that, although satisfaction status has no effect on cognitive functioning, it significantly affects psychological outcomes linked to adjustment and post-traumatic symptoms. In particular, those who expressed less satisfaction had more severe PTSD symptoms and more psychological adjustment issues than those who expressed greater satisfaction. The two groups' cognitive functioning did not, however, differ significantly.

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