

Post-Burn Training Program to Enhance Patients' Quality of Life and Reduce Post-Traumatic Stress Symptoms

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Abstract

Background: The experience of a burn injury can be a substrate for the development of negative impacts on an individual's biopsychosocial well-being. Post-burn training programs are crucial for patients' optimal health quality, aiming to facilitate a faster return to daily activities and work. **Aim:** This study aimed to evaluate the effect of training program on quality of life (QoL) and post-traumatic symptoms (PTSS) among patients with burns. **Design:** Quasi-experimental research (one group pre-posttest). **Setting:** The study was implemented at the outpatient clinics of the burn unit at El-Demerdash University Hospital. **Subjects:** 50 patients with burn who were selected purposively. **Tools:** A structured interviewing questionnaire (socio-demographic characteristics and clinical data tools, Burn-Specific Health Scale-Brief (BSHS-B), and Impact of Event Scale-Revised (IES-R)). **Results:** This study revealed a positive improvement in QoL and a reduction in experiencing PTSS among the studied patients after the program implementation. There was also a high negative correlation between total QoL and total PTSS among the studied patients in post-program implementation. **Conclusion:** Post-burn training program positively enhanced the QoL and reduced the PTSS of the studied patients. **Recommendations:** Educational and counseling programs should be conducted for patients and their families regarding burn management based on their needs.

Keywords: Post-Burn Training Program, Quality of Life, Post-Traumatic Stress Symptoms.

Introduction:

Burn injuries are one of the main causes of morbidity and death among people in the world. Burn management is extremely sophisticated since it requires a high degree of appropriate decision-making during the treatment (Opriessnig et al., 2023). Burn victims experience negative long-term irreversible scarring that can impact a person's performance, functional abilities, and physical as well as mental health. These patients may experience severe pain, and massive changes, such as negative body image, social isolation, stress, anxiety, depression, low self-esteem, unemployment, financial strain, and family issues (Farzan et al., 2023). Furthermore, many factors exacerbate post-burn psychological symptoms, including the depth and percentage of total body surface area (TBSA) burned, pain and the nature of surgical and intensive care interventions (Bettencourt et al., 2020).

Quality of life (QoL) is a wide concept based on an individual's perspective of how a condition influences physical, psychological, emotional, and social well-being (Jeschke et

al., 2020). Burns can significantly impact various dimensions of QoL, including physical, mental, and social functioning. Physical challenges, such as pain, scarring, and functional limitations, can affect daily activities and individuals' perception of body image. Psychologically, patients may experience anxiety, depression, and post-traumatic stress symptoms (PTSS) due to the massive trauma caused by the event (Rouzfarakh et al., 2021).

PTSS influences patients' physical and psychological well-being and overall quality of life. Individuals who have experienced severe burns often exhibit symptoms such as intrusive memories, nightmares, flashbacks, hyperarousal, and avoidance behaviors. These symptoms may persist long after the burn injury has healed and can impede the individual's ability to function and cope with daily life (Lodha et al., 2020).

Post-burn training programs effectively addressed the biopsychosocial needs of burn survivors and enhanced their early adjustment after hospital discharge (Shokre et al., 2024). The training program is directed to improve the

level of activities of daily living (ADL), optimize QoL minimize socioeconomic burdens, and reduce PTSS after burn injury. providing education and emotional support, and creating a therapeutic environment are critical aspects of patient care (Zabihi et al., 2024). Physiological and psychological nursing interventions containing fluid replacement, pain relieving measures, hygiene, wound care, emotional support, distortion of body image and negative thoughts, and psychoeducation for burn survivors are part of nursing roles (Nina & Rinat, 2017).

Nurses who care for patients with burns can monitor burn wounds and play a critical role in determining the associated trauma that so often accompanies a burn injury. So, burn care nurses should work alongside a team of healthcare professionals including a surgeon, burn specialist, liaison psychiatric nurses, dietitian, pain management and physiotherapist experts, pulmonologist, and plastic surgeon. The burn care nurses and liaison psychiatric nurses are at the center of this team, the coordinators of all patients' care activities. Their essential and crucial roles are focused on assessing, identifying, and detecting physical and psychological problems, challenges, and negative impacts on the QoL of their patients (Schaefer & Szymanski, 2023 and University of West Florida, 2024).

Significance of the Study:

Burns are a universal health problem, according to the World Health Organization (WHO), the fourth leading cause of accidental injury trauma. Annually, around 11 million people suffer burn injuries causing 180,000 deaths (WHO, 2021). About 250,000 Egyptians experience severe burns per year and approximately 40% of them are gone because they did not take immediate interventions (Kandeel, 2019). Furthermore, the burn survivors need professional help and support, especially after hospital discharge. Post-burn training program effectively addresses the bio-psychosocial needs of patients and enhance their early adjustment after hospital discharge (Shokre et al., 2024; Zabihi et al., 2024). The study program aimed to evaluate the effect of

the post-burn training program in enhancing patients' QoL and reducing PTSS.

This study aimed to evaluate the effect of the post-burn training program in enhancing patients' QoL and reducing PTSS through:

1. Assessing QoL among patients with burns.
2. Assessing PTSS among patients with burns.
3. Developing and implementing the post-burn training program for patients with burns.
4. Evaluating the effect of the post-burn training program in enhancing patients' QoL and reducing PTSS.

Research Hypothesis:

The current study hypothesized that the post-burn training program will enhance QoL and reduce PTSS among patients with burns.

a. Research Design:

This study was a quasi-experimental research design (one group pre-posttest).

b. Study Setting:

This study was conducted at the two outpatient clinics of the Burn Unit at El-Demerdash University Hospital affiliated to Ain Shams University Hospitals. The clinics are concerned with burn patients' follow-up and wound dressing. It renders its services to more than one hundred patients per month five days a week from Saturday to Thursday (Tuesday off).

c. Subjects:

The study subjects were composed of 50 patients with burns in the above-mentioned setting with the following inclusion criteria:

• Inclusion Criteria:

Adult patients of both sexes, the ability to comprehend, the onset of burn more than three months, including hand/s, burn including partial thickness burn (2nd degree) on $\geq 15\%$ of their body surface area, and full thickness (3rd degree) on 5-10% of the body surface area.

• Exclusion Criteria:

Patients suffered from chronic diseases including psychiatric disorders and patients who had participated beforehand any training concerning burn.

• Sample Size:

Based on power analysis; Type I error (α) = 0.05 with confidence level ($1-\alpha$) = 0.95 and Type II error (β) = 85%, by power test ($1-\beta$) = 0.15, the sample size was calculated according to the following equation that has been adopted from (Gupta, et al, 2016)

$$N = 2(Z_{\alpha} + Z_{1-\beta})^2 \times SD^2 / d^2$$

Where: n is the sample size, Z_{α} and $Z_{1-\beta}$ are constant values for convention values of α and β values where $Z_{\alpha} = 1.96$ when $\alpha = 0.05$ and $Z_{1-\beta} = 1.036$ when $\beta = 0.20$, SD is the standard deviation obtained from the previous study (Moshki, et al., 2014) and d is the effect size.

$$N = 2(1.96 + 1.03)^2 \times 7.7^2 / 5^2 = 42.4$$

So, the minimal sample size was found to be = 45 patients.

d. Tools of Data Collection:

Data collection was done through the following tools:

I. Interviewing Questionnaire Sheet:

It was prepared by the researchers in the Arabic language after revising the related literature (Magbool, et al., 2021), which contains two parts:

- 1. Patient's Socio-demographic Characteristics:** included age, gender, marital status, level of education, residence, employment status, and monthly income.
- 2. Patient's Clinical Data:** to assess the cause, site, degree, and nature of the burn, and whether the patient had previous plastic surgery or not.

II. Burn-Specific Health Scale-Brief (BSHS-B):

This scale was adopted by Kildal et al. (2001). It aimed to assess the QoL of patients with burns in terms of general, physical, mental, and social health. BSHS-B consists of 40 items covering nine well-defined domains including; (1) simple abilities (3 items) ex., “dressing by yourself”, (2) hand function (5 items) ex., “picking up coins from a flat surface”, (3) affect (7 items) ex., “I often feel sad or blue”, (4) body image (4 items) ex., “my general appearance

really bothers me”, (5) interpersonal relationships (4 items) ex., “my injury has put me further away from my family”, (6) sexuality (3 items) ex., “I am simply not interested in sex anymore”, (7) heat sensitivity (5 items) ex., “I can't get out and do things in hot weather”, (8) treatment regimen (5 items) ex., “I wish that I didn't have to do so many things to take care of my burn”, and (9) work (4 items) ex., “being burned has affected my ability to work.”

Scoring System:

Participants were informed to choose the best response clarifying their health status from a 5-point Likert scale of severity, where “0” is extreme and “4” is none at all. The total score range of BSHS-B was 0–160 in which a higher BSHS-B score shows fewer problems and consequently, a higher QoL.

III. Impact of Event Scale-Revised (IES-R):

It was developed by Weiss (2007). It is used to assess PTSD symptoms. IES-R is a self-reported instrument that corresponds to DSM-IV symptoms of PTSD. This tool is not proposed to be used to diagnose PTSD but rather to assess subjective distress caused by upsetting events and possibly to identify individuals for a initial diagnosis of PTSD. For every item, individuals indicate how much they were distressed or bothered during the past seven days. IES-R consisted of 22 items that is alienated into three subscales; (1) avoidance (8 items) ex., “I tried not to think about it”, (2) intrusion (8 items) ex., “I found myself acting of feeling like I was back at that time”, and (3) hyperarousal (6 items) ex., “I had trouble falling asleep.”

Avoidance Subscale: items 5, 7, 8, 11, 12, 13, 17, 22

Intrusions Subscale: items 1, 2, 3, 6, 9, 14, 16, 20

Hyperarousal subscale: items 4, 10, 15, 18, 19, 21

Scoring System:

A 5-point Likert scale to assess symptoms' intensity from 0 to 4 in which 0=not

at all, 1= a little bit, 2= moderately, 3= a lot, and 4=excessively.

The reviewed form of the IES-R has a scoring range of 0 to 88. On this test, scores more than 24 can be quite meaningful. High scores have the following associations.

Score (IES-R)	Consequence
24 or more	PTSD is a clinical concern. Those with scores this high who do not have full PTSD will have partial PTSD or at least some of the symptoms.
33 and above	This signifies the best cutoff for a possible diagnosis of PTSD.
37 or more	This is high enough to overwhelm the immune system's functioning (even 10 years afterwards an impact event).

Validity and reliability:

• Validity:

Five experts, including professors and assistant professors of Psychiatric/Mental Health Nursing and Medical-Surgical Nursing at the Faculty of Nursing, Ain Shams University assessed the face and content validity of study tools for relevancy, clarity, comprehensiveness, and feasibility of the tools and no modifications were done.

• Reliability:

By using Cronbach Alpha. For BSHS-B is 0.89 and the IES-R is 0.91

Pilot Study:

It was conducted on five patients (10% of the total sample) to ensure clearness of questions, applicability of the tools, and the time needed to be filled in. All patients involved in the pilot were included in the studied sample as no modifications were made.

Fieldwork:

The actual fieldwork of this study started from the beginning of December 2023, and was completed by the end of July 2024. The

program's sessions were conducted once/a week in the mentioned setting.

a. Assessment Phase:

At first, the researchers explained the study aims to obtain patients' written agreement to participate in the study. Confidentiality of any obtained information was assured. The subjects were informed about their right to participate or not in the study and to withdraw at any time without giving any reason. The participants were also assured of anonymity and that data would only be used for the study. The study tools were filled in by the patients, it took about 30 minutes. The researchers took the patients' telephone numbers at the first interview to determine the second appointment.

b. Planning Phase:

Extensive revising of recent related literatures of all aspects of the study including burns, QoL, PTSS after burn, and roles of medical-surgical and psychiatric-mental health nurses using books, articles, periodicals, magazines, and the internet was done to prepare data collection tools. Training sessions were designed including objectives, teaching contents, methods and media, and evaluation methods.

c. Implementation Phase:

At the beginning of this phase, the researchers introduced themselves and established a therapeutic relationship with the patients. The training program involved using various teaching methods and media such as open discussions, lectures, demonstrations, role plays, motivational video tapes, real materials, re-demonstrations, and handouts. The training program was written in a simple Arabic language based on the related literature; its contents were achieved through 12 sessions. These sessions were conducted for all patients as one group, they received a booklet teaching media as references. At the beginning of each season, the researchers provided clarifications and encouraged feedback from the patients.

Program's Sessions:

The Acquaintance Session: Each patient was acquainted with the training program's contents

and its objectives, and the data collection tools were filled in (first assessment).

Session One: It focused on an overview of burns.

Objective: At the end of this session, each patient should be able to identify the nature of the burn.

This session included: the concept of burn, degrees, signs and symptoms, complications, and methods of burn management. The researchers used one lecture and open discussions to fulfill the aim of the session.

Sessions Two and Three: They emphasized on burn symptoms' management.

Objective: At the end of these sessions, each patient should be able to identify methods of symptom management of burn.

These sessions included pain management; the researchers asked the patients to determine their pain by using the visual interpretation of pain that even children can relate to then, the researchers explained different methods of pain management such as relaxation techniques, breathing exercises, and guided imaginary activities. Patients were asked to apply these measures at home when they felt pain and record the visual interpretation of pain before and after these measures. The researchers used lectures, open discussions, and demonstrations as methods of teaching and used handouts and video tapes as session media. In the third session, the researchers explained how to prevent burn infection, focusing on the importance of hand washing and proper wound dressing under complete aseptic techniques. The researchers offered videotape about hand washing, wound dressing, and aseptic techniques using real materials for demonstration then, the patients were asked to re-demonstrate to help them apply the procedure properly. In the same session, the researchers also explained the importance of maintaining thermoregulation by explaining tips for dealing with temperature sensitivity.

Session Four: It focused on patients' independence by fostering simple abilities.

Objective: At the end of this session, each patient should be capable of accomplish ADLs independently.

At the beginning of this session, the patients were asked to determine their ability to perform ADLs using the Arabic form of the Katz index then; the researchers explained the effects of physical activities on functional abilities, pain, mood, and self-esteem. Patients were also asked to fill in the ADLs schedule as homework and to rate their levels of independence after each activity with the associated mood. Any attempt to be more independent was encouraged and supported by the researchers. In addition, this session was focused on preventing contracture of joints. The range of motion was demonstrated by the researchers and a videotape was watched then; patients were asked to re-demonstrate.

Session Five: It concerned with lifestyle modification post-burn.

Objective: At the end of this session, each patient should be able to practice a healthy lifestyle after the burn.

The researchers explained the effect of lifestyle modification on physical and psychological health after burn then, they clarified the aspects of these modifications including healthy nutrition, physical exercises, regular pattern of sleep, and compliance to treatment regimen. Patients were also encouraged to develop schedules for their physical exercise, sleeping patterns, medications.... etc. Any attempt to adhere to these activities was encouraged and supported by the researchers. The researchers used lecture and open discussions as methods of teaching and utilized program handouts and videotapes.

Session Six and Seven: It focused on developing a positive body image.

Objective: At the end of these sessions, each patient should be able to develop a positive body image post-burn.

The researchers helped the patients to explore their negative and irrational thoughts about their body shape and functions after the burn such as "People would avoid contact me", "I have a disfigured body" to replace them with positive ones through reassuring the patients

that some scarred skin progressively returns to a more normal skin tone, it as well becomes softer and flatter. Homework included recording such dysfunctional thoughts daily and encouraging the patients to replace them with positive ones. Any attempt to replace these dysfunctional thoughts is encouraged and supported by the researchers. The researchers explained how to improve patients' body image after the burn including how to improve the appearance of scars and restore body function such as clothes style, choosing suitable colors...etc , intimacy with their partners and the importance of social networks. These sessions were achieved using lectures, open discussions, and motivated videotapes.

Session Eight: It emphasized on PTSS.

Objective: At the end of this season, each patient should be able to identify the concept of PTSS.

The researchers explained the concept of post-traumatic stress symptoms, its possible causes, symptoms, effects on physical, emotional, psychological, and socio-economic aspects, and methods of management. The researchers used lectures, open discussion, role play, and videotape to fulfill the aim of the session.

Session Nine: It focused on restructuring intrusive thoughts.

Objective: At the end of this season, each patient should follow the therapeutic measures to modify negative beliefs.

At the beginning of the session, patients were asked to determine triggers of intrusive memories such as sight, smell, sound people... etc... The researchers also asked the patients to determine and modify these dysfunctional thoughts using a reframing intrusive thought worksheet that included identifying negative thoughts then, searching for evidence and evidence against these thoughts, and finally how reframing these thoughts to realistic ones. At home, the assignment of this session included recording these intrusive thoughts found with and against evidence and replacing them with positive ones, positive reinforcement is offered with any attempt to reframe the intrusive thoughts.

Sessions Ten and Eleven: They concerned with decreasing PTSS.

Objective: At the end of these sessions, each patient should be able to practice measures to decrease flashbacks, emotional distress, and nightmares.

In these sessions, the researchers asked the patients to determine their emotions using the emotion wheel. The researchers emphasized the importance of emotional awareness and expression. They also asked the patients to express these feelings to a partner, a friend, a family member, or any significant other. The researchers differentiated between positive and negative coping and clarified the signs of negative coping such as aggression, avoidance, overeating, hypersomnia...etc. Patients also were informed about tips on how to deal with flashbacks and distressing feelings such as grounding techniques (ex: describing surroundings), keeping a diary, focusing on their breath... etc. At home, the patients were asked to record their feelings after practicing these tips while experiencing flashbacks or distressed feelings.

Moreover, in these sessions, the researchers explained the importance of sleep hygiene to improve patients' sleep and decrease nightmares, accordingly, improving their quality of life. The researchers motivated the patients to practice sleep hygiene measures by using a motivated videotape.

Session Twelve: It concerned with fostering interpersonal relationships.

Objective: At the end of this session, each patient should be able to interact effectively with partners, family members, work colleagues.... etc.

At the beginning of this season, the researchers explained the importance of interpersonal relationships, engagement in dissimilar social and spiritual activities, and its effects during times of stress. The researchers also explained ways to have effective interpersonal relationships such as good listening, using body language, supporting others...etc. Then, the researchers offered a list of different social activities and encouraged the patients to engage in them. Patients were

encouraged to determine their list of pleasurable activities and develop a schedule for applying it.

d. Evaluation Phase:

During the evaluation phase, patients were evaluated for the effectiveness of the post-burn training program using the study tools after the program implementation.

Administrative Design:

An official letter was issued from the Faculty of Nursing, Ain Shams University to the director of El-Demerdash Hospital, Ain Shams University.

Ethical Consideration:

The study was approved by the Faculty of Nursing, Ain Shams University's Scientific Research Ethics Committee then, the researchers clarified the aim and objectives of the study to the studied patients, anonymity and confidentiality of the patient's data was maintained, patients' participation was voluntary; as they had the right to participate or not, and they had the right to withdraw from the study at any time without penalty. Written approval was obtained from the studied patients to participate in the study.

Compliance with Ethical Standards:

All procedures performed in this study followed the Scientific Research Ethics Committee of the Faculty of Nursing, Ain Shams University, and were approved under study number 23.11.169.

Statistical Design:

The collected data was organized and analyzed using appropriate statistically significant tests. The data was collected, coded, and entered on a personal computer. It was analyzed by using the statistical package for social science (SPSS) program under Windows version 11.0.1.

Data was presented in tables and graphs. The statistical analysis included: percentage, mean, standard deviation (SD), and (paired) t-tests to detect differences pre and post-implementation of the training program. The Pearson correlation coefficient (r) was used to assess the correlation between two or more variables post-implementation of the training program.

Significance of the results:

- P-value > 0.05 Not significant (NS).
- P-value ≤ 0.05 Significant (S).
- P-value ≤ 0.001 Highly Significant (HS).

Results:

Table 1: shows 58% of the studied patients fall between 18 to less than 30 years old with a mean age of 32.85 ± 10.44 , the table also shows that 56% were females and can read and write. Concerning marital status, results revealed that 52% were married and 66% of them were from the urban areas. Moreover, 58% of patients were unemployed and 76% of the them reported insufficient monthly income.

Table 2: clarifies that fire or flame was the most common cause of burns among the studied patients that represented 42%. Regarding site of burn, 40% of studied patients had hand and upper extremities burn. The study also shows that 58% of studied sample had second-degree burns and 64% of them did not undergoing a plastic surgery. Concerning nature of burn, 76% of the studied patients were accidentally burned.

Table 3: shows that there were highly statistically significant differences between the patients' burn-specific quality of health domains of simple abilities, affect, body image, interpersonal relationships, and treatment regimens pre-and post-program implementation ($p \leq 0.001$). In general, there were highly statistically significant differences between total patients' burn-specific quality of health domains pre- and post-program implementation ($p \leq 0.001$).

Table 4: clarifies that there were highly statistically significant differences between patients' PTSS domains of avoidance, intrusion, and hyperarousal pre- and post-program implementation ($p \leq 0.001$).

Table 5: The table illustrated that there was a high negative correlation between the total burn-specific quality of health and PTSS of the studied patients' post-program implementation ($p \leq 0.001$).

Table (1): Socio-demographic characteristics of the studied patients (N=50).

Items	NO	(%)
Age		
• 18 ->30	29	58.0
• 30 ->50	12	24.0
• 50 and more	9	18.0
Mean \pm SD 32.85 \pm 10.44		
Sex		
• Female	28	56.0
• Male	22	44.0
Marital status		
• Single	13	26.0
• Married	26	52.0
• Divorced	11	22.0
Educational level		
• Read and write	28	56.0
• Secondary	12	24.0
• University	10	20.0
Place of residence		
• Urban	33	66.0
• Rural	17	34.0
Employment status		
• Employed	21	42.0
• Unemployed	29	58.0
Monthly income		
• Sufficient	12	24.0
• Insufficient	38	76.0

Table (2): Distribution of clinical data of the studied patients (N=50).

Items	NO	%
Cause of burn:		
• Fire or flame	21	42.0
• Liquid or boiling water	20	40.0
• Electricity	4	8.0
• Chemical	5	10.0
Site of burn including hand/s:		
• Head and face	8	16.0
• Upper extremities	20	40.0
• Lower extremities	19	38.0
• Others	3	6.0
Degree of burn:		
• Second degree	29	58.0
• Third degree	21	42.0
Nature of burn:		
• Accidental	38	76.0
• Suicidal	10	20.0
• Homicidal	2	4.0
Previous plastic surgery		
• Yes	18	36.0
• No	32	64.0

Table (3): Comparison between burn-specific quality of health domains among the studied patients pre and post implementation of training program (N=50).

Burn-specific quality of health domains	Pre		Post		Paired t test	P value
	Mean	SD	Mean	SD		
Simple abilities	5.29	2.93	9.67	4.31	10.17	HS
Hand function	13.36	3.61	15.19	4.96	9.67	S
Affect	12.97	4.46	24.92	6.39	13.94	HS
Body image	10.82	3.92	14.97	3.46	18.32	HS
Interpersonal relationships	9.76	4.11	15.81	4.61	21.15	HS
Sexuality	6.42	2.96	7.67	3.99	28.51	NS
Heat sensitivity	14.69	2.91	16.33	3.13	12.13	NS
Treatment regimens	10.97	3.62	21.46	2.11	13.65	HS
Work	11.36	2.89	12.81	3.48	10.34	NS
Total	95.64	31.41	138.83	36.44	51.33	HS

(NS) Non-significant $p > 0.5$ (HS) Highly statistically significant $p < 0.01$ **Table (4): Comparison between post-traumatic stress symptoms among the studied patients pre and post implementation of training program (N=50).**

Post-traumatic stress symptoms (PTSS)	Pre		Post		Paired t test	P value
	Mean	SD	Mean	SD		
Avoidance	15.36	4.98	9.93	2.81	26.73	HS
Intrusion	16.79	3.59	11.14	4.14	16.54	HS
Hyperarousal	12.16	4.33	8.61	3.15	36.27	HS
Total	44.31	12.9	29.68	10.1	93.70	HS

(HS) Highly statistically significant $p < 0.001$ **Table (5): Correlation between total burn-specific quality of health and post-traumatic stress symptoms among studied patient's post-training implementation (N=50)**

Variables	Pearson's r-value
Total PTSS	- 0.812**
Total Burn-Specific Quality of Health	

(HS) Highly statistically significant $p < 0.001$ **Discussion:**

The care management of the patients in the hospital is considered the first line of care. Patients always need continuous care and follow-up after discharge. The patient and family are required to deal with the associated physical and psychological problems. Nurses need to provide psychoeducation and counseling to assist patients to improve their QoL and reduce their psychological stress (Coleman et al., 2014). This study aimed to evaluate the effect of a post-burn training program to enhance patients' QoL and reduce PTSS.

The socio-demographic data of the studied patients, results revealed that most of the subjects were of adult, females, married, and could read and write. Concerning residential areas, above half of them were from urban areas

and did not have jobs while about three-quarters of them had insufficient finances.

Concerning patients' clinical data, the present study illustrated that more than two fifths of the studied patients expose to burn due to fire or flame. These findings were compatible with the study results of Magbool et al. (2021) who found that flame and hot liquids were most common cause in their study of "the effect of self-care education on quality of life and body image among burned patients". Another study asserted that flame was the main cause of burning (Hashemi et al. 2014). This result may be attributed to female burn injuries that are always accidentally injured from hot liquids cooking stoves. while men are mostly burned if he has jobs relating to exposure to electricity, chemicals, or fires

The current research found that two fifths of subjects had burns on hand and upper extremities. These results were consistent with the study carried out by **Sarma et al., (2024)** who found that around half of study sample had burn in their upper extremities.

Regarding the degree of burn, above half of the subjects were second burn degree. This result is supported by **Lotfi et al. (2018)** also revealed that most of the patients in both control and experimental groups were second to third degrees.

As regards previous plastic surgery, about two thirds of the subjects had no plastic surgery. This result may be due to they did not have enough finance and covering insurance to perform this type of surgery as more than half were unemployed.

The study showed that three quadrants of the patients were accidentally burned. These results may be attributed to subjects informed that they have a lack of awareness about safety measures when they face accidents. The study of **Faisal et al. (2016)** revealed that most of their studied patients were also accidentally burned which is congruent with the present study.

Regarding patients' QoL, the present study clarified that there were highly statistically significant changes post-program implementation in the total mean scores of patients' burn-specific quality of health and its domains regarding simple abilities, affect, body image, interpersonal relationships, and treatment regimens. Furthermore, statistically significant differences between pre-and post-program regarding hand functioning. These results also emphasized the active responsiveness of the studied patients during the program sessions. The researchers also taught the studied patients how to deal with their physical symptoms such as pain management, preventing skin infection, and proper wound dressing during sessions and at home. Furthermore, the program presented the requirements to foster their daily activities and independence which is a part of the patient's quality of living. The study also emphasized the improvements in body image and interpersonal relationships after program implementation among studied patients as they became more reactive to the care of their scares and improving their body

appearance as well as the need for social activities and family support.

The result of the current study agrees with the experimental clinical trial of **Hashemi et al. (2014)** which presented "the effect of Orem's self-care programs on burn patients' quality of life". Their results suggested that the QoL in the experimental group was increased while the control group didn't show any change in their QoL. The same findings by **Li et al. (2017)** reported that the patients obtained higher scores in physical health and QoL after rehabilitation nursing interventions.

A study also conducted by **Rouzfarakh et al. (2021)** showed a highly statistically significant improvement in patients' burn-specific quality of health domains of simple abilities, hand function, affect, body image, and interpersonal relationships after the implementation of rehabilitation program. The recent findings of **Ghasemi et al. (2024)** demonstrated that implementing exercise training and follow-up program for patients with burns effectively improves their QoL.

The current study showed non-significant improvements in the other domains of QoL such as sexuality, heat sensitivity, and work domains post-program implementation. This may be because these domains require prolonged time for achieving a positive progress. In studies by **Spronk et al., (2018)** and **Oh et al. (2021)**, they supported the current study results and emphasized that temperature sensitivity is common after a burn injury and continues during the first year after injury. They added that temperature sensitivity improves and becomes less intrusive over time.

Concerning post-traumatic stress symptoms, the study results clarified that there were highly statistically significant differences between all dimensions (avoidance, intrusion, and hyperarousal) and total patients' PTSS pre- and post-program implementation. This is because the researchers focused on helping the studied patients to identify their negative thoughts and emotions and they provided methods for soothing distress feelings, and flashbacks. The researchers also instructed the patients to practice these methods at home and as a part of their lifestyle. The same results appeared in the study results applied by **Shokre et al. (2024)** who illustrated marked enhancements in all dimensions of PTSS

compared to the control group. The current findings were incongruent with the study of **Paggiaro et al. (2022)** who explained that an educational program did not show success in alleviating PTSS in patients with burns.

As regards the correlation between total patients' QoL and total PTSS, there was a high negative correlation post-program, which can mean patients with burn have higher scores of health-related QoL and less suffering from PTSS. This result was parallel with **Spronk et al. (2018)** who reported that health-related quality of life after burns is affected by the severity of burns and the psychological response to the trauma. The result of this study was like the study result presented by **Kadam et al. (2021)** who explained that fear-avoidance reaction after burn can predispose to worsen the patients' QoL. Based on the research hypothesis of the current study, the post-burn training program can enhance patients' QoL and reduce PTSS among patients with burns.

Conclusion:

The current research found marked improvements among patients with burns related to their QoL and a reduction in PTSS after applying the burn training program. In addition, there was a high negative correlation between the study variables (total patients' QoL and PTSS).

Recommendations:

The results of this study recommended the following recommendations:

- Continuous educational programs for patients with burns to improve their QoL and avoid psychological problems.
- Preventive program immediately after burn injury to foster patient's coping ability and reduce PTSS occurrence.
- Comprehensive nursing intervention focusing on biopsychosocial domains is recommended for effective management among patients with burn.
- A multidisciplinary approach is essential for effective management involving a team of healthcare professionals including a burn specialist, surgeon, intensivist, dietitian, pain management and physiotherapist experts, pulmonologist, and plastic surgeon alongside the medical-surgical and liaison psychiatric nurse.

- Further researches are needed to determine patients' health needs and problems at different age groups for all burn degrees using large group size in different settings.

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