Novelty Journals

ISSN 2394-7330

International Journal of Novel Research in Healthcare and Nursing
Vol. 4, Issue 3, pp: (234-245), Month: September - December 2017, Available at: www.noveltyjournals.com

Effect of Educational Program on Self-Image and Coping Strategies among Burned Children during Rehabilitation Phase

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Abstract: **Burn injury is one of the most common and devastating forms of trauma and a major health problem of pediatric morbidity and mortality worldwide.** ***Aim*****: The aim of this study is to investigate the effect of educational program on self-image and coping strategies among burned children during rehabilitation phase.** ***Design:*** **A quasi-experimental design was used.** ***Setting:*** **The study was conducted at the burn outpatient clinic in Hehia Burn Center at Hehia Central Hospital.** ***Sample*****: Convenient sample consists of 50 burned children admitted to the burn center, with different degrees of burns.** ***Tools*****: Four tools were used for data collection included a structured interview questionnaire sheet, the coping with burn questionnaire, self-image assessment scale, and, a constructed educational program interventions.** ***Results:*** **The results of the study revealed that before program implementation, more than half of burned children had unsatisfactory total self-image score and total coping strategies score, these results improved immediately after implementing the educational program. There were statistical significant differences in relation to the total self-image score and total coping strategies score of the burned children throughout the educational program phases.** ***Conclusion*****: it was concluded that the educational program has a positive effect on burned children's self-image and coping strategies during rehabilitation phase.** ***Recommendation*** **of this study was to structured psycho-educational programs should be done for burned children to provide them with essential knowledge about emotional and psychological problems resulted from burn injury.**

Keywords: **Burn, Self-image, Coping strategies, rehabilitation phase.**

I. INTRODUCTION

Burn injuries are among the most devastating of all injuries and a major global public health crisis. Burns are the fourth most common type of trauma worldwide, following traffic accidents, falls, and interpersonal violence. Approximately 90 percent of burns occur in low- to middle-income countries, regions that generally lack the necessary infrastructure to reduce the incidence and severity of burns. ***(Peck, 2013)***

Globally, injuries and deaths from burns are serious, yet largely preventable public health problem. It is estimated that more than 300,000 persons die each year worldwide because of fire-related burn injuries. It is estimated that there are about 195,000 deaths each year from fire alone. Deaths due to fire alone rank among the 15 leading causes of death among children and young adults 5-20 years. Many more are seriously injured, disabled, or disfigured because of all types of burns. ***(World Health Organization, 2016)***

Children have a high risk of sustaining a burn injury due to their physiological, psychological, and developmental differences. Burn injuries have a significant impact on pediatric patients and may affect a range of body systems. The impact of these injuries on children and families is often long lasting. As the injury itself and required treatment often causes distress, pain and anxiety, appropriate management by nurses is essential in providing family centered care. ***(Australian & New Zealand Burn Association, 2015)***

Self-image is a person's perceptions, thoughts and feelings about his or her body and has been found to be the strongest predictor of long-term psychosocial adjustment to a burn injury. Burn injuries can force the patient to adapt to alterations in physical appearance which can have a detrimental effect on body image and may also lead to worries about the reactions of others. ***(Grogan, 2008)***

Coping is a person's cognitive and behavioral efforts to manage stressful situations and accompanying negative emotions. The use of coping strategies is proposed to have a beneficial effect on health by affecting the stress response as well as unhealthy or health-promoting behaviors**. (Willebrand, 2015)**

Coping strategies play an important role in the psychosocial adaptations of burn patients. These include returning to normalcy, mediating and predicting stress and managing self-image disturbance after burn injury. (**Kornhaber, 2014**)

Burn rehabilitation is an undeniably difficult and time consuming effort that, to attain the objective of optimal long-term function must begin at the outset of burn care. Treatment goals and strategies vary, depending on the patient's injury, stage of treatment, age, and comorbidities. Goals range from minimizing loss of range of motion (ROM) in the critically ill patient to establishing a work-hardening program in recovered patients. **(Robert, 2016)**

Rehabilitation of patients with large burns starts on the day of injury, for the severely injured this is just the beginning of a long journey involving adaptation to a life post burn. The physical and psychological impact of burn injury can be severe, and the process of recovery or adaptation depends on individual as well as circumstantial factors. **(Hale, 2013)**

The nurses play an important role in the overall management of a burn patient. The goal of rehabilitation nursing is to assist burned children with disability and/or chronic illness to attain and maintain maximum function. The rehabilitation staff nurse assists patients in adapting to an altered lifestyle, while providing a therapeutic environment for burned children and their family's development. The rehabilitation staff nurse designs and implements treatment strategies that are based on scientific nursing theory related to self-care and that promote physical, psychosocial, and spiritual health**. (Jacelon, 2011)**

II. AIM OF THE STUDY

The aim of this study was to evaluate the effect of the educational program on self-image and coping strategies among burned children during rehabilitation phase.

Research Hypothesis:

The main research hypothesis: the educational program (EP) for burned children will have a positive effect on self-image and coping strategies during rehabilitation phase.

III. SUBJECTS AND METHODS

Research Design:

A quasi-experimental design was selected for the current study, with pre/post assessment of the effect of the educational program on self-image and coping strategies among burned children during rehabilitation phase.

Setting

The current study was conducted at the burn outpatient clinic in Hehia Burn Center at Hehia Central Hospital, El Sharkia governorate.

Sample

A convenience sample consists of 50 burned children who admitted to burn center, with different degree of burn and the size of studied sample was all admitted burned patients during 6 months starting at the beginning of October 2016, till the end of March 2017.

Tools of data collection

Tool 1 A structured Interview Questionnaire sheet:

Data collection tool comprised of a questionnaire having two main parts including: *Part A*:Characteristics of studied children such as age, sex, residence, birth order, level of education, occupation, and family income,

Part B: History of burn injuries among studied children such as pattern of injury, causative agent, sites of burn, total body surface area, degrees of burn, and length of hospital stay.

Tool 2 The coping with Burns Questionnaire (CBQ):

The coping with Burns Questionnaire was developed by, Stanton, (1994), to evaluate coping with burn injury. The scale is based on the theory of coping as a process and the items selected are those previously found important in research on trauma or health status.

The subjects were instructed to think how much they used the strategies described in each item. Items were rated on a scale of 1–4 (1 – does not apply/not used, 2 – used somewhat, 3 – used quite a bit and 4 – used a great deal). The CBQ consists of 33 items divided into six subscales corresponding to different dimensions of coping: Revaluation/adjustment, Avoidance, Emotional support, Optimism/problem solving, Self-control and Instrumental action**.**

The total score of coping with burn questionnaire was classified as follows:

1. Good > 75%
2. Fair 50-75%
3. Poor <50%

Tool 3 Self-image assessment scale:

Self -image assessment scale was developed by Abd- Elgawad, (1995), to evaluate self – image among burn injury. This scale consists of 48 statements answered by burned children by Yes or No.it measures three dimensions, and it was used as a Pre-test, and post-test.

The total score of self-image assessment scale:

A score of one was given to each statement answered by Yes and zero to each statement answered by No. A total score was 48.

The self-image assessment scale was classified into four levels:

1. High, when the score ranged from 1-15 of the total score.
2. Moderate, when the score ranged from 16-20 of the total score.
3. Low, when the score ranged from 21-29 of the total score.
4. Very low, when the score ranged from 30-48 of the total score.

Tool 4 The Educational Program:

Educational program aimed to improve burned children's self-image and coping strategies during rehabilitation phase to provide proper care for them. The educational program of this study was implemented on burned children in twelve sessions twice weekly. The length of each session differed according to the content and children's responses. It was ranged from 60-90 minutes for each. The burned children were divided into small group; each group consisted of three to five patients. In spite of this, some burned children refused to be a part of these groups and preferred to be alone during receiving the educational program's sessions.

The first session for pre-assessment, second to six sessions were about burn injuries, seven to eight sessions about self-image among burned children, nine to ten sessions were about coping strategies, eleven session for knowledge about rehabilitation phase, and twelve session for termination of the educational program and post-assessment . **Pilot study:**

A pilot study was conducted on 10%of children to evaluate the content of the tools, their clarity as well as to estimate the time needed for filling the sheets with the collected data.

Administrative design:

To carry out the study in the selected setting, an approval was obtained from the director of Hehia Central Hospital, and Head of the Burn center. After clear explanation about the study, aim of the study and setting where the study would be conduct and its benefits.

Ethical consideration:

The agreement for participation of subjects was obtained after the explanation the aim of the study. They were given opportunity to refuse to participate. They were notified that they could withdraw at any stage of the research. Also they were assured that information would be confidential and used for research purpose only.

Statistical design:

All collected data were organized, categorized, tabulated, entered, and analyzed by using SPSS (Statistical Package for Social Sciences); a soft-ware program version 20, which was applied to frequency tables and statistical significance. Associations were assessed by using the arithmetic mean, standard deviation (SD), chi-square, t-test, Z test, and coefficient correlation (r) to detect the relations between variables.

- Non- significant (NS) $p > 0.05$
- Significant (S) $p \leq 0.05$

IV. RESULT

Table (1) shows Characteristics of the studied children. It was found that 58% of studied children aged 16-18 years, with mean age of 14.72± 2.26 years. More than half of studied children were females. Regarding to residence, it was found that equal ratio (50%) of studied children were living in both urban and rural areas and 44% of studied children were the fourth birth order. Concerning the level of education, 60% of studied children were studying in secondary school. Results of the present study showed that 96% of studied children's family had sufficient income.

History of burn injuries among studied children was illustrated in **table (2)**. It was found that 98% of studied children had an accidental burn. In relation to the causative agent, 68% were burnt due to boiling liquid. The same table clarifies that the highest percentage of children's visible sites was the face which constituted 54.2% compared to 54, 5% had non-visible sites as lower limbs. Concerning total body surface area (TBSA), 32% of studied children had burn injuries less than 20% TBSA while 58% had burn injuries within 20% - less than 40% TBSA. It was found also that 50% of studied children had a second degree of burn. In relation to the length of hospitalization, 32% of studied children stayed from 30 to less than 60 days in the hospital.

Figure (1) represents levels of self-image throughout the program phases. It was found that none of studied sample had high level of self-image, before implementation of educational program, compared to 6% after implementation of educational program. The result was statistically significant (**P: 0.000)**. It was clear from the table that none of studied children had moderate level of self-image, before implementation of educational program, compared to 90% after implementation of educational program. The result was statistically significant (**P: 0.000)**.

It was found that 54% of studied children had very low level of self-image, before implementation of educational program which decreased to 2% after implementation of educational program. It was statistically significant difference **(P: 0.000)**.

The total mean score of coping with burn questionnaire throughout the program phases was portrayed in **figure (2)**. It was found that total mean score of re-evaluation was 16.12±4.56 before implementation of the educational program compared to 27.46±4.79 after implementation of the educational program. The difference was statistically significant. **(P: 0.000),** It was found that total mean score of emotional support were 6.80±2.65 before implementation of educational program which increased to 10.20±2.03 after implementation of educational program. The difference was statistically significant. **(P: 0.000)**, and as regards to this table, it was found that total mean score of optimism were 6.80±2.65 before implementation of educational program which increased to 10.20±2.03 after implementation of educational program. The difference was statistically significant. **(P: 0.000)**

Relation between self- image score and history of burn injuries among studied children is represented in **table (3)**. The results showed that there was statistical significant relation between total self-image score and their causative agent, degree of burn and length of hospitalization throughout post phase of implementation of educational program. In addition, there was a significant relation between total self-image score and their total body surface areas (TBSA) throughout pre phase of implementation of the educational program.

Table (4) illustrated the relation between the coping score and history of burn injuries of studied children throughout the program phases. This table revealed that there was a significant relation between the coping score and degrees of burn injuries throughout pre phase of implementation of educational program.

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Table (1): Characteristics of the studied children

Characteristics	No	%
Age (years)		
▪ 12	21	42.0
▪ 16-18	29	58.0
Mean ± SD	14.72 ± 2.26	
Sex		
▪ Male	23	46.0
▪ Female	27	54.0
Residence		
▪ Rural	25	50.0
▪ Urban	25	50.0
Child's order		
▪ First	8	16.0
▪ Second	4	8.0
▪ Third	11	22.0
▪ Fourth	22	44.0
▪ Fifth+	5	10.0
Education		
▪ Illiterate	2	4.0
▪ Preparatory	18	36.0
▪ Secondary	30	60.0
Family Income		
▪ Insufficient	4	8.0
▪ Sufficient	46	92.0
Burn occurred		
▪ At home	33	66.0
▪ Other places	17	34.0

Table (2): History of burn injuries among studied children (n=50)

Variables	No	%
Pattern of burn injury		
▪ Accidental	49	98.0
▪ Criminal	1	2.0
Causative agent		
▪ Boiled liquids	34	68.0
▪ Electrical burn	2	4.0
▪ Flame	14	28.0
Site of burn (area affected)		
Visible sites #		
▪ Head	5	20.8
▪ Face	13	54.2
▪ Neck	8	33.3
▪ Hands	10	41.7
▪ Feet	9	37.5
Non- visible sites #		
▪ Anterior trunk (Chest)	7	15.9
▪ Abdomen	9	20.5
▪ Posterior trunk (Back)	2	4.5
▪ Perineum	2	4.5
▪ Upper limbs	18	40.9
▪ Lower limbs	24	54.5
Total body surface area (TBSA)		
▪ Less than 20.0%	16	32.0
▪ 20.0% –	29	58.0

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▪ 40.0% – ▪ 60.0 % and more	5 0	10.0 00.0
Degree ▪ Second degree ▪ Third degree ▪ Second & third	 25 9 16	 50.0 18.0 32.0
Length of hospitalization (days) ▪ Less than 30 days ▪ 30 days – ▪ 60 days – ▪ 90 days and more	 10 16 14 0	 20.0 32.0 28.0 00.0

 # More than one answer

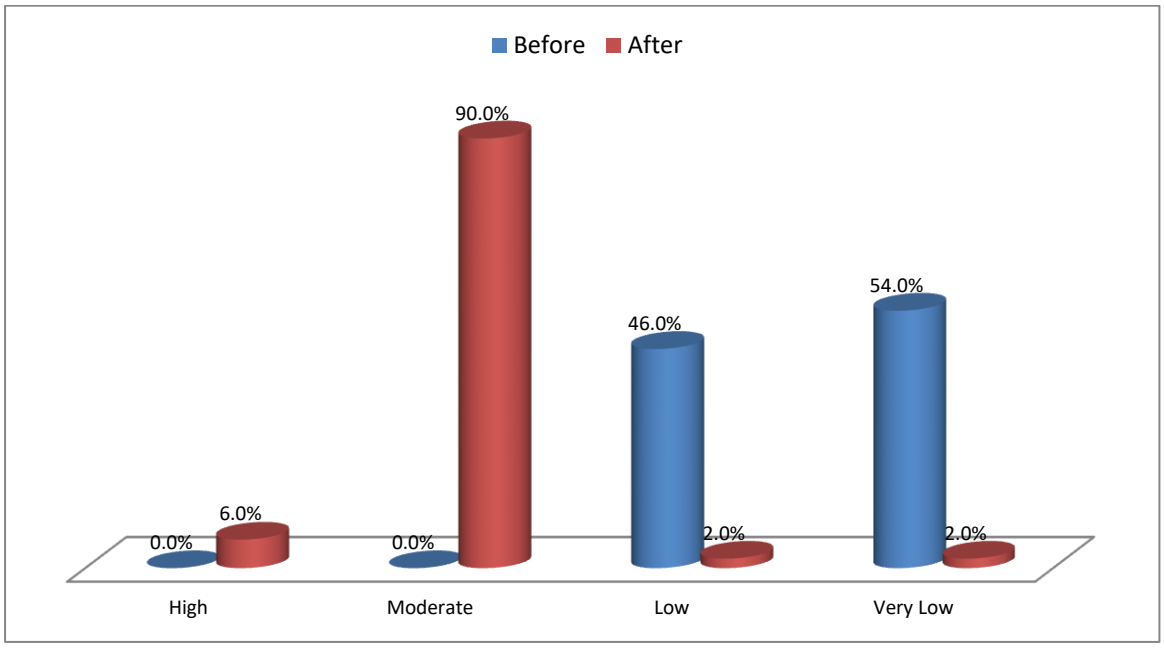

Figure (1): Levels of self-image throughout the program phases (n=50)

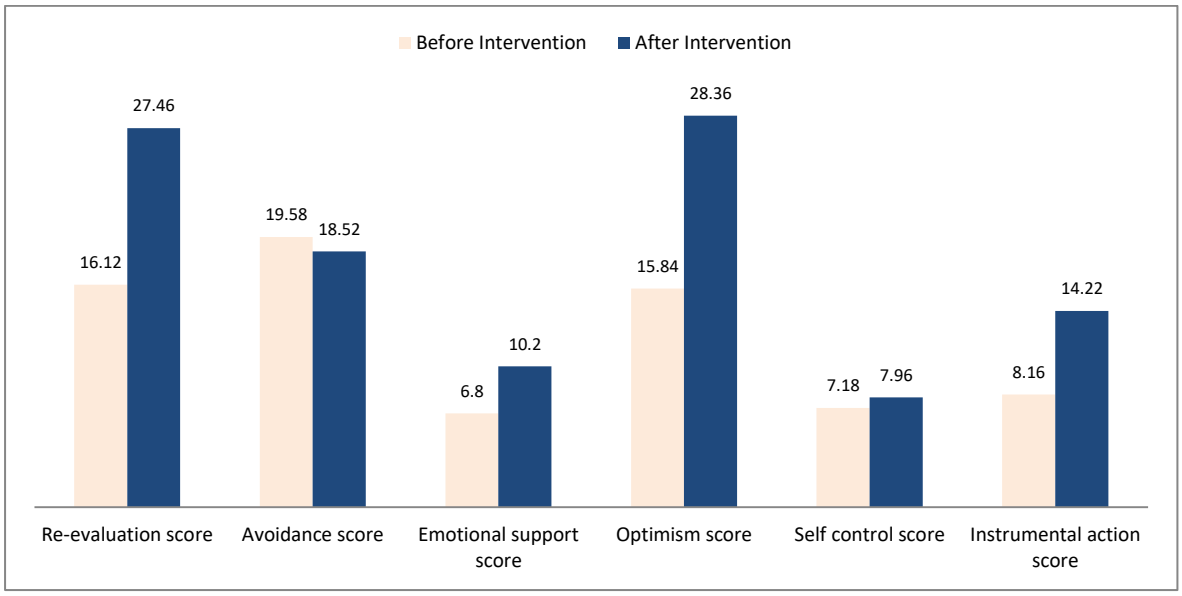

Figure (2): Total mean score of coping with burn questionnaire throughout the program phases (n=50)

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Table (3): Relation between total self-image score and history of burn injuries among studied children throughout the program phases

Characteristics	No	%	Self -Image Score	
			Before	After
Causative agent				
▪ Boiled liquids	34	68.0	29.26 ± 5.28	17.74 ± 2.97
▪ Electrical burn	2	4.0	31.50 ± 4.94	16.50 ± 0.71
▪ Flame	14	28.0	31.50 ± 5.19	17.64 ± 2.34
Significance test			F= 0.988, P0.380	F= 0.187, P 0.030*
Site of burn				
▪ visible areas	4	8.0	29.25 ± 4.50	18.50 ± 0.58
▪ invisible areas	26	52.0	29.62 ± 5.31	17.73 ± 3.42
▪ Both	20	40.0	30.60 ± 5.74	17.40 ± 1.88
Significance test			F= 0.234, P0.792	F= 0.290, P 0.757
Total body surface area (TBSA)				
▪ <20.0%				
▪ 20.0-	29	58.0	28.31 ± 4.84	17.86 ± 3.16
▪ 40.0-60.0%	16	32.0	32.44 ± 5.25	16.94 ± 1.34
	5	10.0	31.80 ± 4.49	18.80 ± 3.27
Significance test			F= 3.955, P0.026*	F= 1.079, P 0.348
Degree				
▪ **Second degree**	25	50.0	30.36 ± 5.48	17.12 ± 1.13
▪ **Third degree**	9	18.0	26.56 ± 3.54	18.67 ± 5.57
▪ **Second &third**	16	32.0	31.31 ± 5.08	17.94 ± 2.14
Significance test			F= 2.673, P0.030*	F= 1.193, P 0.312
Length of hospitalization (days)				
▪ < 30 days				
▪ 30-	10	20.0	29.80 ± 6.09	17.20 ± 1.75
▪ 60-<90 days	16	32.0	29.58 ± 5.66	17.31 ± 1.74
	14	28.0	30.86 ± 3.88	18.64 ± 4.33
Significance test			F= 0.270, P0.054*	F= 1.280, P 0.288

Table (4): Relation between the coping score and history of burn injuries of studied children throughout the program phases

Characteristics	No	%	Coping Score	
			Before	After
Causative agent				
▪ Boiled liquids	34	68.0	73.19 ± 12.75	105.74 ± 12.43
▪ Electrical	2	4.0	69.50 ± 9.19	106.50 ± 3.53
▪ Flame	14	28.0	76.43 ± 8.25	109.14 ± 6.44
Significance test			F= 0.422, P0.658	F= 0.480, P 0.622
Site of burn				
▪ Visible areas	4	8.0	74.25 ± 6.89	110.25 ± 5.74
▪ Invisible areas	26	52.0	72.25 ± 13.46	103.42 ± 13.27
▪ Both	20	40.0	77.00 ± 9.01	110.30 ± 5.94
Significance test			F= 0.866, P0.427	F= 2.675, P 0.079
Total body surface area (TBSA)				
▪ < 20.0%				
▪ 20.0-	29	58.0	76.14 ± 12.80	104.59 ± 13.14
▪ 40.0-60.0%	16	32.0	72.19 ± 9.11	109.75 ± 5.78
	5	10.0	71.80 ± 10.21	109.40 ± 5.73
Significance test			F= 0.751, P0.478	F= 1.358, P 0.267
Degree				
▪ **Second degree**	25	50.0	69.92 ± 10.17	106.92 ± 9.99

▪ **Third degree**	9	18.0	79.67 ± 15.19	101.33 ± 17.54
▪ **Second &third**	16	32.0	78.56 ± 8.53	109.44 ± 5.92
Significance test			F= 4.460, P0.017*	F= 1.661, P 0.201
Length of hospitalization (days)				
▪ < 30 days				
▪ 30-	10	20.0	72.00 ± 9.12	107.80 ± 5.09
▪ 60-< 90 days	16	32.0	75.92 ± 13.03	104.04 ± 13.31
	14	28.0	73.42 ± 10.10	110.73 ± 7.10
Significance test			F= 0.487, P0.617	F= 1.974, P 0.150

V. DISCUSSION

As regard the characteristics of the studied children, the results of the present study showed that, the mean age of studied children was 14.72±2.26 years, this result was in accordance with **Elnabawy, (2003)** who conduct his study about impact of burn injuries on self-image of adolescents at faculty of nursing, Cairo University, and found in a study that age group of the studied sample was between 14-19 years.

These findings might be due to the core responsibility is placed upon adult children, and they commented that this result may be explained by the fact that adult children are generally active and therefore they are more than others exposed to hazardous situations both at home and at work. The findings of the current results disagreed with **Micak, (2009),** about pre-hospital care and emergency management of burn victims, in Chicago, American college of surgeons reported that the higher incidence of burn injury is present among young adults.

The results of the current study showed that more than the half of the studied children was females. This may be partly explained by female spending more time at home, participating in activities such as preparing and serving hot drinks, cooking and heating water and being exposed to equipment and devices such as space heaters and stoves. In addition to these exposures, the design and layout of the house, availability of safe places to play, developmental stage and supervision practices are likely to impact on burn risk for children. On the other hand, **Raffi et al., (2012)** in a study about the epidemiology of pediatric burn injury in Isfahan, Iran found that more than half of studied sample was males.

Regarding degrees of burn injuries, the present study revealed that majority of burn injuries with second degree of burn. That might be due to lack of knowledge about fist aid of burn which leads to increase duration of exposure to burn before first intervention which transfer burn injury from first to second degree. This finding is nearly in agreement with **Parbhoo, (2010)**, which conducted his study on children admitted to the Red Cross Children's Hospital, in Cape Town, South Africa, for describing burns in a cohort of children, who found that majority of burn injuries with second degree of burn. This result disagreed with **El-Maghawry, et al (2016)**, about decrease healthcare associated burn wound infections in the burn unit of Al Ahrar Hospital in Zagazig city, Sharkia Governorate, who found that third degree of burn injury is the major degrees of burn among burned children.

The highest percentage of burned children in the current study had burn injury covering 20% to less than 40% from the total body surface area (TBSA). And it was found that total body surface area had a highly significant positive correlation with total scores of self-image. This means that the burned children who had large body surface area, had low or very low self –image. This may be because any change or alteration in body structure would lead to disturbed self-concept especially that due to large affected TBSA.

These findings of the current study go with the results obtained by **Robert, et al (2000)** who found in a study about disfiguring burn scars and adolescent self-esteem at University of Texas Medical Branch, Galveston, that mean percent of total body surface area burned was 39% and adolescents with disfiguring burn scars possess an overall feeling of worth similar to their peers. This result disagreed with **Jain, et al (2017)** who conducted his study on burn patients to assess the level of anxiety, depression, and self-esteem, and look at various burn-related variables that affect them. He found that there was no significant association between TBSA and anxiety, depression or self-esteem, and the same was true for facial burns.

The results of a study done by **Agbenorku, et al (2013)** about pediatric burns mortality risk factors in a developing country's tertiary burns intensive care unit, which found in his study that scald burns were the most frequent cause of burn injuries especially, caused by hot or boiling water. Also in the same line, results of the study of **Al-Zacko, et al (2014)** who conducted a study to determine the characteristics and case fatality rate of pediatric burns in Mosul, Iraq, that concluded scald was the most common type of burn and occurred mainly in domestic settings. This finding was agreed with the results of the current study that concluded that the major causative agent of burn injuries of the studied children was boiled liquid, and the majority of pattern of burn injury was accidental burn.

This may be explained that hot liquids are of high importance in our homes and most frequently used in many life aspects. Also, this may be related to the rise of physical mobility and social independence of older children especially girls for preparing foods and other works related cooking. This result disagreed with **Elnabawy, (2003)**, and **Lehna, (2015)** who concluded in a study about childhood burn survivors and their siblings' perception of their body-image at a school of nursing and medicine; at University of Louisville, they found that the major causative agent of children's burn was flame injuries.

The results of this study showed that all burn injuries occurred at home mostly 66% in the kitchen which is in agreement with other studies done elsewhere **(Chalya et al., 2013).** This may be explained that home environment remains to be a dangerous place for children due to lack of enough space for children to play, lack of separate cooking room, improper handling of hot foods and fluids like water, porridge and tea, poor infrastructure and architectural like living in a single room which put children at risk of burn injuries due to their easy reach of hot staff. Therefore, some work needs to be done to reduce high density at homes by building well-designed houses, with a provision of playground for children. This can be achieved by individual, family and community sensitization and possibly by putting in place a house building policy which favors well-designed houses, with provision of playground for children

All burned children in the current study were non-intentional, they occurred accidentally. This finding contradicts slightly with the finding by **Chalya et al., (2011)** in Northern Tanzania who found that about 2.9% of burn injuries were intentional mainly due to child abuse. This difference may be due to the small sample size of the current study. A review of burns in Tanzania by **Outwater et al., (2013)** revealed that a 1971-1974 study based on admissions to Muhimbili National Hospital (MNH) that found most childhood burns were due to accidental falls into fires and scalds from boiling water. This may be due to overcrowding with inadequate cooking facilities are important contributory factors to childhood burns

The results of the present study which revealed that the length of hospitalization was ranged from 30 days to 60 days. This was may be explained as the studied children who had burns injuries from second degree, had more scares and contractures, so stayed more days in the hospital for caring and treatment. This agreed with **Rosanova, et al (2014)** in a study for evaluating the risk factors for mortality in pediatric burn patients, who found that the median length of hospital stay was 33 days.

This result disagreed with **Prado, (2008)** who concluded a study about psychological impact of burns on children treated in a severe burns unit at University hospital virgin Rocio, Spain, found in his study that the studied children enrolled were in hospital for a mean period of 17 days, although more than 75% were in hospital for less than 20 days.

Regarding studied children's self- image, the present study revealed that there was a significant relationship between total scores of self-image and educational level. This result of the present study may be explained by that more than half of the studied sample was from secondary school and this age stage makes burned children more concerned about their body image especially if they had disfiguring scars, deformity, and contractures. All of these lead to, burned children may not able to achieve independence, their role in the social frame of the family and society was disturbed, and their abilities to understand and accept others around them. Also, the degree of satisfaction and trust towards themselves and other was disturbed.

These findings were supported by the study of **Feng, (2006)**, who mentioned that the self-image level of burn patients was different in different sex and education level. Moreover, the self -evaluation score and study ability was higher in those with higher education level than those with lower education. Also, total scores of self-image were significantly correlated

with birth order. This may mean that the burned children who ranking three or fourth and more between the siblings, had low or very low self-image.

In the present study, there was no significant relationship between total self-image and both of age and gender. This result was in accordance with **Feuerbach, (2007)** who found in his study about comparing the body esteem of pediatric survivors of burn injury with the body esteem of an age-matched comparison group without burns, that among the pediatric of burn injury, body esteem was unrelated to demographic variables e.g., gender, age. This finding may be explained that psychosocial challenges faced by burn survivors as reconstruction of identity culturally related stigma and social rejection after the accident also living with an altered body image is difficult in a society that values physical appearance and stigmatizes the disfigured so that disturbance affected in both sex and it also stands a barrier in any age stage.

On studying the coping strategies of burned children, **Bras, (2007)** found in his study about coping with severe burns in the early stage after burn injury, at University of Zagreb, found that the highest mean score was on the emotional support subscale and then on the optimism and problem-solving subscale. It was found that the strategies emotional support and optimism-problem solving were related to better health status, while avoidance, re-evaluation-adjustment, self-control and instrumental action were related to poorer health status. This finding was nearly similar to the results of the current study as it was found that the highest mean score was on optimism and re-evaluation.

On the other hand, the study of **Willebrandt, (2015)** supported to the hypothesis that subgroups of individuals react differently after burn trauma as a result of environmental and constitutional factors. It is highly likely that these diverse groups of individuals require different types of support, which means that different treatment strategies should be individually tailored to the specific needs of the patient. The main strength of this investigation is the inclusion of burn-injured patients into the acute phase of the treatment. A weakness in the design is that coping strategies were assessed in a relatively small sample of the patients and without a follow-up.

The results of the current study indicated that there was a significant relationship between total scores of coping and degrees of burn injuries .this is may be explained as the studied children who had burn injuries from second degree, also had more scares and contractures, and cause feelings of stress and guilt, this may reflect on their ability for coping. This finding agreed with **Rashid, (2017)** who mentioned in his study about the management of burn trauma in children and teens that there is a relation between children's coping strategies and their degrees of burn injuries.

VI. CONCLUSIONS

The implementation of the educational program had a positive effect in improving burned children's self-image and coping strategies during rehabilitation phase.

VII. RECOMMENDATIONS

Based on the main study findings, the following recommendations are proposed:

1. Structured psycho-educational programs should be done for burned children to provide them with essential knowledge about emotional and psychological problems resulted from burn injury.

2. Burned children require bio-psycho-social support while undergoing treatment in hospital and should be continued while discharged and until full rehabilitation.

3. Initiate a system for individual and family therapy in the" Burn Unit "should be done to share all experience about their limitation caused by burn injury and the coping ways to deal with them.

4. It is mandatory to design and provide an educational handout about psychological effect of burn injury and its management plan for burned children in the unit.

5. Continuous educational programs should be done for nurses about burn injuries especially physical and psychological management for burn patients that have a great effect on healing process.

6. Conduction of support groups for burned children to cope with their disturbance should be held.

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