

Effect of Secondary Level of Burn Injuries on Body Image and Self Esteem of Adolescents

Mohamed S.M.¹, Al-Rafay S.S.², Hassan S.E.³, Morsy M.A.⁴

B.Sc. Nursing 2010, Professor & Head of Pediatric Nursing Department, Professor of Pediatric Nursing, Assistant Professor of Pediatric Nursing, Faculty of Nursing, Ain Shams University, 2019

Abstract

Background: Burns are the second most common injury for adolescents in families of low socioeconomic status moreover burns and related injuries are still the major cause of mortality and disability around the world. **Aim:** This study aimed to assess the effect of secondary level of burn injuries on body image and self-esteem of adolescents. **Design:** A descriptive analytical design was used. **Setting:** This study conducted at the Burn Unit for both of El-Demerdash Hospital affiliated to Ain Shams University and Al-Ahrar Zagazig General Hospital affiliated to Ministry of Health. **Subject:** A purposive sample composed of 120 adolescents who were suffering from second degree of burn and admitted to the previously mentioned setting. **Tools:** Three tools used for data collection; A Structured Interview Questionnaire Format to assess characteristics of adolescents and history of burn, Body Image Scale to assess body image of the studied adolescents and Coopersmith Self-Esteem Inventory Scale to assess self-esteem of the studied adolescent. **Results:** the results of the study illustrated that there was a positive correlation between total body image of the studied adolescents and their total self-esteem and a negative correlation between total burn ratio and total body image and total self-esteem. **Conclusion:** Based on the findings of the current study, the study was concluded that, more than two thirds of the studied adolescent with secondary burn had moderate body image and the majority of them had moderate self-esteem. **Recommendations:** Develop a program to empower adolescents' for overcoming the effect of secondary level of burn injuries on body image and self-esteem.

Key words: Burn injury – body image – self-esteem – adolescents.

Introduction

Burns are forms of traumatic injuries occur when energy from heat sources is transferred to the tissues of the body. Injuries that result from direct contact or exposure to any thermal, chemical, electrical or radiation source. In addition to disrupt skin, which leads to increased fluid loss, infection, hypothermia, scarring, compromised immunity and changes in function, appearance, body image and self-esteem (Alfes et al., 2018).

Burns and related injuries are still the major cause of mortality and disability around the world always causing physical, psychological and economic loss in different societies; therefore, it is considered as one of the major health complications. Every year, approximately 2.4 million cases of burn injury occur in the world 1.5 million of which require treatment 750,000 are hospitalized and 170,000 die annually due to burn injuries (Partridge, 2017).

Partial thickness (second degree) of burn injuries involves the epidermis and the

dermal layer disrupted of the skin. Wounds are painful, moist, red and blistered. Keratinocyte at the wound edge loose adhesion to each other, develop flexibility, migrate over the wound bed. Wound should heal in approximately 14 days with variable amounts of scarring. Wound is extremely sensitive to temperature changes, exposure to air and light touch (*Hockenberry et al., 2019*).

Adolescent is a period of transition between childhood and adulthood a time of rapid physical, cognitive, social and emotional maturing as the boy prepares for manhood and the girl prepares for womanhood. Beginning with the gradual appearance of secondary sex characteristics at about 11 or 12 years of age and ending with cessation of body growth at 18 to 20 years (*Forster & Fraser, 2018*).

Burn unit nurses play a key role in helping to guide adolescents' reactions in a manner that will assist dealing with the many challenges face in recovery process and adapt to new body image, self-esteem and the processes that lead to changes in lives due to the injuries. Burn care is a multidisciplinary approach; the burn nurse will spend the greatest amount of time with adolescents during the physical and emotional healing process (*Minimas, 2017*).

Body image is a multidimensional, subjective and dynamic concept that encompasses adolescent's perceptions, thoughts and feelings about his or her body. Body image is not limited to the aesthetic characteristics of the adolescent; taking also into consideration of adolescent's state of health, skills and sexuality. Receptions of idealized body images in western society challenge adolescents grow up with and adapt to disfigurement from burns (*Keltner & Steele, 2019*).

Self-esteem is commonly conceptualized as the "feeling that one is

good enough" and consequently, adolescents with high self-esteem do not necessarily believe are superior to others. Thus, self-esteem involves feelings of self-acceptance and self-respect, in contrast to the excessive self-regard and self-aggrandizement that characterized narcissistic individuals of adolescent moreover, subsequent challenge to one's self-esteem is one of the most devastating consequences of a burn injury (*Clifton & Hemingway, 2018*).

Significance of the Study:

Childhood burn injuries in Egypt are a significant problem especially during adolescent hood. Hence, burn victim increasingly focuses on the changes of body image one of the main problems of burned adolescent is disfigurement of body appearance and body dissatisfaction related to loss of normal tissue and its replacement with scar tissue which this truth is associated with low of self-esteem. Therefore, this study intended to describe the effect of secondary level of burned adolescents on their body image and self-esteem.

Aim of the study

The aim of the study was to assess the effect of secondary level of burn injuries on body image and self-esteem of adolescents.

Research Question:

What is the effect of secondary level of burn injuries on body image and self-esteem of adolescents?

Subjects and Methods

I. Technical Design:

Research Design:

A descriptive analytical design was utilized for conducting this study.

Research Settings:

The study was conducted at the Burn Unit for both of El-Demerdash Hospital affiliated to Ain Shams University and Al-Ahrar Zagazig General Hospital affiliated to Ministry of Health.

Research Subjects:

A purposive sample composed of 120 adolescents according to sample size formula

$$n = \frac{N \times P(1 - P)}{\left[N - 1 \times \left(\frac{d^2}{z^2} \right) \right] + P(1 - P)}$$

who attained the previously mentioned settings were recruited, regardless their gender, educational level, residence and job, 75 adolescents from El-Demerdash Hospital affiliated to Ain Shams University and 45 adolescents from Al-Ahrar Zagazig General Hospital affiliated to Ministry of Health. The studied adolescents were taken according to the following inclusion criteria:

- Age between (12:18) years old.
- Adolescents with first attack of burn injury.
- Adolescents with secondary level of burn.
- Adolescents are free from any acute or chronic physical or mental diseases.

Tools of Data Collection:

Three tools were used for data collection:

Tool I: A structured Interview Questionnaire Format:

It was developed by the investigator based on review of recent and related literature and reviewed by supervisors. It included two parts as following:

Part (1): It concerned with characteristics of adolescents such as: Age, gender, educational level, residence and job.

Part (2): This part concerned with history and characteristics of burn such as: Mechanism, causes, duration, site, visibility,

ratio, sensation, complications (infected burn wound, signs of infection, disability), graft characteristics (graft operation, site of graft, times of grafts), degree of wound healing, length of hospitalization and self-care of daily living activities (eating habits, clothing, walking, bathing, prayer, sleeping).

Tool II: Body Image Scale:

It was adopted from *Dion, Berscheid & Walster (1972)* to assess body image of the studied adolescents with secondary level of burn, this scale consists of 12 statements, each statement scored from zero to two score for disagree (0 score), not sure (1 score), agree (2 score).

❖ Scoring System:

Answers of adolescents were summed up and the total score was 24 scores, accordingly their total body image was categorized as follows:

- Low body image: score from (0 < 8).
- Moderate body image: score from (8 < 16).
- High body image: score from (16 < 24).

Tool III: Coopersmith Self-Esteem Inventory Scale (SEI):

It was adopted from *Coopersmith (2002)* to assess self-esteem of the studied adolescent with secondary level of burn, this scale consists of 24 statements, each statement scored from zero to one for not like me (0 score), like me (1 score).

❖ Scoring System:

Answers of adolescents were summed up and the total score was 24 scores, accordingly their total self-esteem was categorized as follows:

- Low self-esteem: score from (0 < 8).
- Moderate self-esteem: score from (8 < 16).
- High self-esteem: score from (16 < 24).

II. Operational Design: Preparatory Phase:

A review of the past and current related literature covering various aspect of nursing care of burn injury at adolescents was done using available textbook, articles, periodicals and magazines to get acquainted with the research problem and to develop the study tools.

Pilot Study:

A pilot study was conducted on (10%) 12 adolescents of total sample size 120 adolescents' to evaluate the research plan, clarity and applicability of the study tools. Over the period of two months, from the beginning of January 2018 up to the end of February 2018. No modifications of the tool were done. So that, adolescents who included in the pilot study was included in the study sample.

Validity of the Study Tool:

It was ascertained by a jury consisting of three professors from the Pediatric Nursing Department who revised the tools for clarity, relevance, applicability, comprehensives and understanding. According to their opinion, minor modifications were applied.

Reliability of the Study Tool:

Cronbach alpha coefficient was used to assess the internal consistency of the tool. The questionnaire value was (0.872).

Field Work:

The actual fieldwork of the study was carried out from the beginning of March 2018 to the end of October 2018 (8 months) the investigator was available in the study settings 2 days/week Tuesdays and Wednesdays by rotation to collect data from 9 am to 2 pm. The adolescents were interviewed (for 45–60 minutes). The investigator started the interview by introducing herself to the adolescent, giving them clear and brief idea about the aim of the study and its expectation to each adolescent before starting the interview questionnaire. Then each adolescent with

secondary level of burn injury was interviewed to answer the questions and to be assessed by two scales.

III. Administrative Design:

An official approval was obtained to carry out the study that, issued from the Dean of Faculty of Nursing, Ain Shams University to the Directors of El-Demerdash Hospital affiliated to Ain Shams University and Al-Ahrar Zagazig General Hospital affiliated to Ministry of Health.

Ethical Considerations:

Ethical approval was obtained from the Scientific Ethical Committee Faculty of Nursing, Ain Shams University. In addition, written informed consent was obtained from adolescents prior to data collection. They had assured that anonymity and confidentiality would be guaranteed and the right to withdraw from the study any time. Ethics, values, culture and beliefs were respected.

IV. Statistical Design:

The collected data were organized, revised, stored, tabulated and analyzed using number and percentage distribution. Statistical analysis was done by computer using Statistical Package of Social System (SPSS) package version 20. Proper statistical tests were used to determine whether there was a significant statistical difference between variables of the study.

Significance of the Results:

- Highly significant at p -value < 0.01 .
- Statistical significant was considered at p -value < 0.05 .
- Non-significant at p -value > 0.05 .

Result

Table (1) shows that, more than half (53.4%, 59.2% & 55.8%) of the studied adolescents were in the age group 16–18 years with mean age 15.3 ± 2.27 years, male and from rural areas respectively. Additionally, more than

one third (37.5%) had preparatory school educational level.

Table (2) illustrates that, most (90%) of the studied adolescents exposed to accidental burn and more than half (54.2%) of them exposed to burn due to fire. Moreover, this table reveals that, less than half (47.5%) of the studied adolescents had hospitalization period ranged between 10 > 20 days.

Figure (1) reveals that, more than two thirds (69%) of the studied adolescents had moderate body image and 26% and 5% of them had low and high body image respectively.

Figure (2) represents that, the majority (88%) of the studied adolescents

had moderate self-esteem and 8% and 4% of them had low and high self-esteem respectively.

Table (3) clarifies that, there was a positive correlation ($r=0.532$) between total body image of the studied adolescents and their total self-esteem ($p<0.01$).

Table (4) shows that, there was a negative correlation ($r=-0.396$) between total burn ratio of the studied adolescents and their total body image ($p<0.01$).

Table (5) illustrates that, there was a negative correlation ($r=-0.314$) between total burn ratio of the studied adolescents and their total self-esteem ($p<0.01$).

Table (1): Distribution of the Studied Adolescents Regarding to their Characteristics (N=120).

Items	No	%
Age (Years)		
12 < 14 Years	34	28.3
14 < 16 Years	22	18.3
16 ≤ 18 Years	64	53.4
$\bar{X} \pm SD$	15.3 ± 2.27	
Gender		
Male	71	59.2
Female	49	40.8
Educational Level		
Illiterate	19	15.8
Read and Write	7	5.8
Primary	11	9.2
Preparatory School	45	37.5
Secondary	18	15
Diplome	20	16.7
Residence		
Urban	53	44.2
Rural	67	55.8

Table (2): Distribution of the Studied Adolescents Regarding to their Burn history (N=120).

Items	No	%
Mechanism of Burn		
Accident	108	90
Suicide	4	3.3
Criminal	8	6.7
Causes of Burn		
Boiling Water	23	19.2
Boiled Oil	81	15
Chemical Liquid	4	3.3
Electric Burn	6	5
Fire	65	54.2
Radiation	4	3.3
Duration of Hospitalization		
< 10 Days	29	24.2
10 < 20 Days	57	47.5
20 < 30 Days	23	19.2
30 Days & More	11	9.2
$\bar{X} \pm SD$		15.7 ± 9.3
Ratio of Burn		
< 10 %	30	25.0
10 < 20 %	62	51.7
20 < 30 %	19	15.8
30 % & More	9	7.5
$\bar{X} \pm SD$		15.57 ± 7.6

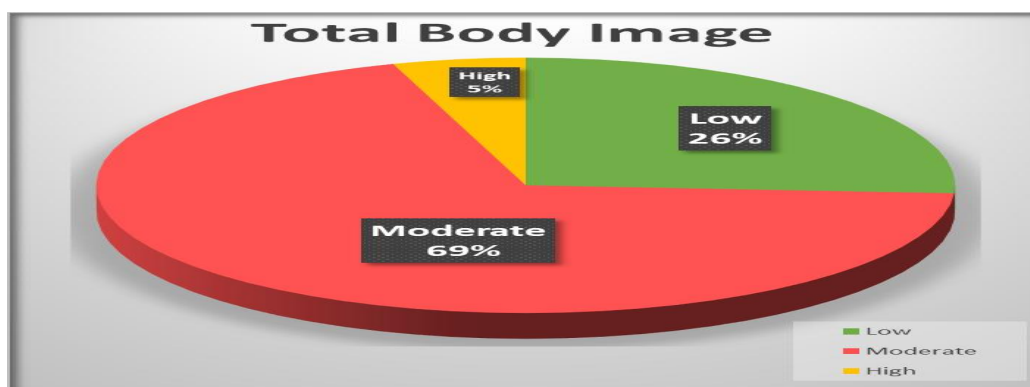
**Figure (1):** Percentage Distribution of the Studied Adolescents Regarding their Total Body Image.



Figure (2): Percentage Distribution of the Studied Adolescents Regarding to their Total Self-Esteem .

Table (3): Correlation between Total Body Image of Adolescents and their Total Self-Esteem (N=120) .

Item	Total Body Image	
	r	P-value
Total Self-Esteem	0.532**	0.000

(**) Statistical Significant at P-value <0.01

Table (4): Correlation between Total Burn Ratio of Adolescents and their Total Body Image (N=120).

Item	Total Burn Ratio	
	r	P-value
Total Body Image	-0.396-**	0.000

(**) Statistical Significant at P-value<0.01

Table (5): Correlation between Total Burn Ratio of Adolescents and their Total Self-Esteem (N=120).

Item	Total Burn Ratio	
	r	P-value
Total Self-Esteem	-0.314-**	0.000

(**) Statistical significant at p<0.01

Discussion

The results of the current study showed that, more than half of the studied adolescents were in the age group from 16 to 18 years with mean age 15.3 ± 2.27 years. This finding was in agreement with that of *Hassan et al., (2018)* who carried out a study in Egypt entitled “*Quality of Life among Patient with Burn*”, and reported that, the majority of the study sample less than thirty years old.

In relation to the studied adolescents’ gender, the result of the current study showed that, more than half of the studied adolescents were males. This result was in the same line with *Fernandes (2012)*, who conducted a study entitled “*Burn injuries in Children and Adolescents: Clinical and Epidemiological Characterization*”, and mentioned that, the majority of the studied adolescents were boys. While this finding was disagreement with *WHO (2017)*, who stated that, females have slightly higher rates of burn injury compared to males according to the most recent data and with *Shehata et al., (2018)* who reported that, more than half of patients were female. This

may be due to the female more contact with fire at home.

Regarding educational level among the studied adolescents, more than one third had preparatory school educational level this, might be related to low socioeconomic standard in rural area. This finding was consistent with that of **Edgar (2015)**, who stated in research entitled "*Demonstration of the Validity of the SF-36 for Measurement of the Temporal Recovery of Quality of Life Outcomes in Burn Survivors in Australia*", and mentioned that, which the numbers of burn victims didn't completed their education because of their burn injury.

As regard of residence, the results of the present study showed that, more than half of the studied adolescents had living in rural areas. This finding was in agreement with that of **Abdel-Saied et al., (2016)** who carried out a study in Egypt entitled "*Assessment of Predisposing Factors for Joint Contracture among Patients with Burn at One of the Governmental University Hospitals*", and mentioned that, in relation to residence more than half of the study subjects were living in rural area. In the same content **WHO (2018)**, indicated that, individual's living in low and middle-income countries (as in rural area) are at higher risk for burns than people living in high-income countries.

Regarding to the studied adolescents mechanism of burn, the result of the current study illustrated that, most of the studied adolescents exposed to accidental burn. This result was in the same line with that of **Abdel-Saied et al., (2016)** who reported that, about three quarters of the study subject were exposed to accidental burn incidence which was very high.

As regards to causes of burn, the result of the present study illustrated that, more than half of the studied adolescents exposed to burn due to fire; this might be

due to careless handling of gas pipes without safety features. This finding was consistent with **American Burn Association (ABA) (2018)**, which reported that, the flame burns predominate in all patients. Additionally, this finding was in agreement with that of **Ibrahim et al., (2016)** who conducted a study in Egypt entitled "*Pain Intensity and Quality of Sleep among Patients with Burn Injury at one of the Governmental Hospital in Egypt*", and reported that, the majority of the studied sample affected by thermal burn injuries by flame.

This could be due to different settings of studies, the result of the present study illustrated that, less than half of the studied adolescents had hospitalization period ranged between 10>20 days with mean duration of hospitalization 15.7±9.3 days. This finding was disagreement with that of **Mostafa et al., (2015)** who carried out a study in Egypt entitled "*Burn Patients Knowledge Regarding Rehabilitation: Proposed Rehabilitative Guidelines*", and reported that, regarding the length of hospitalization, more than half of the studied sample, their duration of hospitalization was less than seven days.

Regarding to the studied adolescents, the result of the present study revealed that, more than two thirds of the studied adolescents had moderate body image. This result was supported with that of **Szczechowicz & Lewandowski (2017)**, who stated in research entitled "*Polish Adaptation and Validation of Burn Specific Health Scale – Brief in Poland*", and reported that, the majority of the studied patients were extreme difficulties in for getting that their appearance was changed.

Regarding to the studied adolescents, the result of the present study represented that, the majority of the studied adolescents had moderate self-esteem. This result was in the same line with that of **Pope & Solomons (2016)**, who stated in research entitled "*Body*

Image and Quality of Life in Young Burn Survivors in Australia”, and mentioned that, the stress of the burns occasionally precipitates a psychological crisis and physical appearance will be altered and self-esteem is usually adversely affected in the patient, who was sustained a major burn.

The finding of the current study clarified that, there was a positive correlation between total body image of the studied adolescents and their total self-esteem. This finding was in agreement with that of *Yousef et al., (2018)* who conducted a study in Egypt entitled “*Future Anxiety and its Relation to the Body Image and Self-Concept among Adolescents with Burn Injury*”, and reported that, there were a positive correlations between body image and self-esteem mean scales among adolescents with burn injury.

The finding of the current study illustrated that, there was a negative correlations between total burn ratio of the studied adolescents and their total body image and total self-esteem. This finding was in agreement with that of *Kurt et al., (2013)* who conducted a study entitled “*Body Image and Self-Esteem in patients with Rheumatoid Arthritis*”, and observed that, there was the patients who had changed in hands and body parts and gait disturbance were not satisfied with their body image and their self-esteem levels were affected negatively.

From the study, the investigator founded a lot of physical, psychological, social and economic complications that have been reported as a result of secondary level of burn injury that have a negative impacts on body image and self-esteem of these adolescents’. Therefore, reducing these effects of burn injury of adolescents through promoting self-care nursing intervention model when providing nursing care helping adolescents for recovery and in coping process from all aspects; physically,

psychologically and socially and prevent future episodes of self-aggression, that lead to improvement of body image and self-esteem of adolescents with secondary level of burn injury.

Conclusion

Based on the findings of the current study, the study concluded that, more than two thirds of the studied adolescents with secondary burn had moderate body image and the majority of them had moderate self-esteem. Moreover, there was a positive correlation between total body image of the studied adolescents and their total self-esteem and negative correlations between total burn ratio and total body image and total self-esteem. These conclusions answer on research question.

Recommendations

In the light of the findings of the current study, the following recommendations are suggested:

- Develop a program to empower adolescents’ for overcoming the effect of secondary level of burn injuries on body image and self-esteem.
- Establishing a counseling program to support adolescents’ with secondary level of burn injury and a better body image and self-esteem.
- Replication of the current study using a larger probability sample from different geographical areas in Egypt to achieve for generalization of results.

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Conflict of Interest:

- No

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