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## Future Anxiety and Its Relation to the Body Image and Self Concept Among Adolescents With Burn Injury

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### Abstract

**Aim of the study:** This study aimed to evaluate the psychological level of future anxiety and its relationship with body image and self-concept among adolescents with burn injury at Sohage City. **Patients and methods:** **Design:** A Cross sectional cohort descriptive study. **Setting:** This study was conducted in the burn care unit of faculty of medicine, Sohag University. **Sample:** A convenient sample of 90 patients with different degrees of burn injury with age range of 12 -18 years old. **Tools:** A Questionnaire sheet containing socio-demographic data and characteristics of the burn injury including site and cause. **Tool II:** The 3 main scales of this study were designed by the researchers depending on the related published scales with the required modifications. **Results:** There were high level of anxiety regarding future ( $137.01 \pm 23.72$  representing 78.28% of the total score), high level of dissatisfaction regarding body image ( $80.63 \pm 12.27$  representing 83.98% of the total score) and high level of disturbance of the self-concept among adolescents with burn injury was ( $72.31 \pm 6.10$  representing 77.75% of the total score). There was positive correlation between anxiety regarding the future and both body image dissatisfaction and disturbed self-concept among adolescents with burn injury. **Conclusion:** adolescents with burn injury showed higher levels of body image dissatisfaction due to burn injury that resulted in disturbed self-concept which led to higher levels of anxiety concerning the future. These psychosocial changes correlated positively with age of the adolescents and their levels of education. **Key Word:** Adolescents, Burn Injury, Future anxiety, Body image, Self-concept, Scales.

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### I Introduction

During adolescence teens develop a stronger recognition of their own personal identity, including recognition of a set of personal moral and ethical values, and greater perception of feelings of self-esteem or self-worth. An increased awareness of sexuality and a heightened preoccupation with body image are fundamental psychosocial tasks during adolescence. Dramatic changes in body shape and size can cause a great deal of ambivalence among adolescents, especially among females.

The burn injury is a distressing traumatic experience, with major physical, psychological and social effects. WHO reported that, 238,000 individuals died of fire-related burns in 2000, and 95% of these deaths occurred in low- and middle-income countries (WHO, 2002).

The majority of researches of burn care focused mainly on the medical aspects rather than psychological impacts and quality of life in patients with burns. In addition, the isolation of patients required during burn care and the psychological burden of body disfigurement are other important aspects in burn psychology that may not have attracted enough attention, especially in developing countries (Aili-low, 2007; Sadeghi-Bazargani and Mohammadi, 2011 and Sadeghi-Bazargani, 2011). Patients with burn injury may need to pay for medical, surgical, psychological, and rehabilitation care and also may suffer from delirium, depression, anxiety, post-traumatic stress disorder (PTSD) and the loss of their normal appearance (Fauerbach et al., 2001).

Muschalla, Linden & Olbrich (2010) reported that, anxiety is an emotional state associated with thinking in the future and it is associated with the future, the job and also work-related fears. Future anxiety is one of the anxieties that first described by Toffler (1970) under the term of future shock. Zaleski (1996) defined future anxiety as a state of apprehension, fear, uncertainty and anxiety of undesired changes expected to occur in the future. This fear of the future may be related to a variety of threats involving physical threats, such as illness or accident, or emotional threats, as the loss of one of the family members.

There has been a significant evidence of the role of body image in short-term (Fauerbach et al., 2000) and long-term long—term adjustment in adult (Thombs et al., 2008) as well as child surviving burn injury (Lawrence et al., 2007). Additionally, there is a substantial risk that, body image dissatisfaction following burn injury will have negative effects on quality of life and that these effects are obvious early in the adjustment period (Fauerbach et al., 2000). Also, Thombs et al., (2008) reported that, body image is the single most important predictor of long-term psychosocial functioning.

One's **self-concept** is a collection of beliefs about oneself that includes elements such as academic performance, gender identity, sexual identity and racial identity. Generally, self-concept refers to the answer "Who am I?" Self-concept also differs from self-esteem: self-concept is a cognitive or descriptive component of one's self (e.g. "I am a fast runner"), while self-esteem is evaluative and opinionated (e.g. "I feel good about being a fast runner") (Ayduk et al., 2009; Leflot et al., 2010 and Larson, 2012).

Self-concept plays a major role in facilitating positive contributions of social support to the emotional and behavioural adjustment of young adolescents burn survivors as social support predicts better self-esteem, more positive body image and overall adjustment in this population (Fauerbach et al., 2002; Rosenberg et al., 2007).

Nurses are the frontline of care and possess many roles within the care of pediatric burn patients. Nursing roles in pediatric burn care can be organized into three major areas of care including acute, rehabilitative and psychological. It is the roles that nurses carry out that make a difference in the long term quality of life in the pediatric burn patient (Brown et al., 2013; McGarry et al., 2014)

## **II Significance Of The Study**

Burn injury is one of the important problems during the adolescent period with severe distressing consequences. There are conflicting results in the literatures regarding the psychosocial consequences of burn injury among children and adolescents. Some studies reported that, self-concept, behaviour and body esteem were within the normal range or higher (Lawrence et al. 2007; Liber et al., 2008). In contrast, other studies found that, children and adolescents with burn injury showed significant problems with quality of life especially appearance (Van Baar et al 2011; Maskell et al., 2013), phobias, overanxious disorders, depression and PTSD (De Young et al., 2012) which may lead to parental separation and/or dissociative responses during burn treatment (Saxe et al., 2005) that can be painful and traumatic (Miller et al., 2010; Kipping et al., 2012). Due to the scarcity of studies dealing with the psychological aspects of burn injury among adolescents in our locality and the anticipated role of nurses, family and peers for psychological adjustment of those patients, this study was designed to clarify the situation.

### **Research questions:**

- 1- Do adolescents with burn injury have significant levels of future anxiety, body image dissatisfaction and disturbance of self-concept?
- 2- Are there correlations between body image, self-concept and future anxiety among adolescents with burn injury?
- 3- Are there relationships between future anxiety, body image and self-concept and socio-demographic characteristics of adolescents with burn injury?

**Aim of the study:** this study aimed to evaluate the psychological level of future anxiety and its relationship to body image and self-concept among adolescents with burn injury in Sohag City

## **III Methodology**

**Design of the study:** Cross sectional cohort descriptive study.

**Setting:** This study was conducted in the burn care unit of faculty of medicine Sohag university.

**Sample:** A convenient sample of 90 patients with different degrees of burn injury with age range of 12 -18 years old were selected for this study.

**Tool for data collection : includes the following:**

- **Socio-demographic data** and characteristics of the burn injury including site and cause.
- **Future anxiety Scale, developed by Zaleski (1996):** This scale consists of 35 phrases distributed, according to the Likert scale. Five responses for each paragraph starting from I strongly agree, I agree, agree to certain extent, I do not agree, I strongly disagree). Grades (1, 2, 3, 4, 5) were given for alternatives respectively in case of positive terms, while grades (5, 4, 3, 2, 1) were given respectively in the case of negative terms. The measure consists of 35 negative paragraphs. Therefore the extent of the measure ranges from 35 to 175 scores; the high score refers to the high level of adolescents' future anxiety. For assessing the consistency of the measure, Cronbach's alpha was calculated and reliability coefficient of the whole measure was calculated as 0.79.

**Body Image Scale, Developed by McDermott et al., 2014:**

The measure in its final form involved 32 paragraphs. The three-dimensional scale was used where grades (1, 2, 3) were given for alternatives (always - sometimes - rarely) respectively if the statement is positive, the scores (3, 2, 1) were given respectively in case negative terms where the total scores obtained by the adolescents with burn injury in the scale with highest score (96) and lowest (32). Higher scores will indicate higher levels of body image dissatisfaction and lower scores will indicate higher levels of body image satisfaction. The overall stability of the body image scale was assessed by calculating the alpha coefficient of Cronbach's alpha which was 0.87.

**Self-Concept Scale: by Fitts & Roid (1964).**

The scale in its final form consisted of 31 paragraphs involving three subscales: physical self, social self and personal self-subcales. The researcher used a three-dimensional scale where grades (1, 2, 3) were given for alternatives (always - sometimes - rarely) respectively if the statement is positive, the scores (3, 2, 1) were given respectively in case of negative terms where the total scores obtained by the adolescents with burn injury in the scale with highest score (93) and lowest (31). The overall stability of the body image scale was assessed by calculating the alpha coefficient of Cronbach's alpha which was 0.81.

**Methods for data collection:**

- Before starting this study, administrative approval was obtained from dean of Faculty of Medicine, Sohag University and the director of burn care unit in Sohage University Hospital.

- A written consent was obtained from the participating patients or their parents after explaining the nature and benefits of the study. Then the patients who agreed to participate were interviewed by the researchers for collection of data.

- Data collection was conducted from June to December 2017.

- The Participants were asked to answer the questions of tool 1 of the socio-demographic data and data related to the burn injury. The patients and their parents were given a full explanation of the nature of the 3 scales and the meaning of each paragraph. Then they were asked to answer to each statement after thinking and taking free time. The average time taken for completing the interview and answer of all questions for each patient was one hour.

**Ethical consideration:**

The study was approved from the ethical committee of the Faculty of Nursing, Sohag University. The students were clearly informed that their participation is voluntary and have the ethical right to participates or refuse. It was further emphasized that their responses are confidential, and had their right to withdraw from the study any time without giving further explanation. Privacy and confidentiality were resolutely kept in all data collection procedures.

**Statistical analysis:**

Data were collected and analyzed by computer program SPSS" ver. 21" Chicago. USA. Data were expressed as mean, standard deviation and number, percentage. Pearson's correlation was used to determine significance. N.S P > 0.05 no significant, \*P < 0.05 significant, \*\* P<0.001 moderate significance and \*\*\* p<0.000 highly significance.

## **IV Results**

**Table (1):** Shows the socio-demographic characteristics of adolescents with burn injury. The mean age was  $15.32 \pm 2.05$  years old with nearly equal male to female percentage.

**Table (2):** shows the characteristics of the burn injury among adolescents. About three fourths of the burn injury were in the face and hands (73.3%), one fourth in the abdomen and other sites were the legs and back. Hot liquids were the cause of burn injury among two thirds of the adolescents while gas ignition was the cause among one third.

**Table (3):** Measurement of the mean scores of the three scales among adolescents with burn injury showed that the mean score of future anxiety scale was  $137.01 \pm 23.72$  representing 78.28% of the total score, body image scale mean score was  $80.63 \pm 12.27$  representing 83.98% of the total score. Also the mean score of total self-concept scale was  $72.31 \pm 6.10$  representing 77.75% of the total score.

Regarding future anxiety scale, the most common phrases that gained higher mean score were: I expect other disasters (4.34), I am afraid of death and I have many wishes I hope to achieve (4.27). Regarding body image scale, the most common phrases that gained higher mean score were: I cannot stay long in a place (2.81), I'm worried about the change in my body's appearance (2.79) and People's eyes hurt me (2.78).

Regarding self-concept scale, the most common phrase of the physical self-subscale that gained higher mean score was: I feel that my condition affects the extent of my movements (2.63), the most common phrases

of the social self-subscale that gained higher mean score were: I hope that people do not treat me as a weak person dependent on others (2.89) and I feel comfortable while at home (2.81). On the other hand, the most common phrases of the personal self-subscale that gained higher mean score were: my personal life should not be limited to my family (2.63) and withdrawing is better than making mistakes (2.57).

**As shown in table (4)**, there were positive correlation between the future anxiety, body image and self-concept scales and the age of adolescent with burn injury. Concerning the subscales of the self-concept scale, there were positive correlation between physical self and personal self-subscale and the age of participants.

**Table (5):** showed that there was positive correlation between future anxiety and body image and total self-concept scales and also physical self and personal self-subscale while negative correlation with social self-subscale. Similarly were the correlation of the body image, self-concept scales with the other scales and subscales.

**Table (6):** The mean scores of the three main scales (future anxiety, body image and self-concept scales) and the subscales of the total self-concept scale (physical self, social self and personal self) statistically significantly increased with increasing the age of adolescents with burn injury.

Concerning the sex, The mean scores of the self-concept scale and personal self-subscale were significantly higher among female adolescents than male otherwise no differences between males and females regarding other scales. The mean scores of the self-concept scale and physical self-subscale were significantly higher among urban than rural adolescents, otherwise no differences between urban and rural regarding other scales.

The mean scores of the three main scales and three subscales were statistically significantly higher among adolescents with higher levels of education. Regarding the father and mother education levels, the mean scores of the self-concept scale and physical self-subscale (father) and personal self-subscale (mother) of the adolescents with burn injury were significantly higher levels of education.

Regarding the father job, the mean scores of the future anxiety and body image scales and physical self-subscale were significantly higher among adolescents with burn injury whose fathers had manual work than other jobs.

**Table (1): Socio-demographic characteristics of adolescents with burn injury**

	No. (n= 90)	%
<b>Age: (years)</b>		
< 15	36	40.0
15 - 16	19	21.1
> 16	35	38.9
Mean ± SD (Range)	15.32 ± 2.05 (12.0 – 18.0)	
<b>Sex:</b>		
Male	44	48.9
Female	46	51.1
<b>Residence:</b>		
Rural	53	58.9
Urban	37	41.1
<b>Education:</b>		
Primary	10	11.1
Preparatory	34	37.8
Secondary	46	51.1
<b>Father education:</b>		
Illiterate/ Read & write	40	44.4
Primary	3	3.3
Preparatory	5	5.6
Secondary	13	14.4
University	29	32.2
<b>Mother education:</b>		
Illiterate/ Read & write	49	54.4
Primary	2	2.2
Preparatory	2	2.2
Secondary	16	17.8
University	21	23.3
<b>Father job:</b>		
Manual worker	20	22.2
Employee	37	41.1
Farmer	33	36.7
<b>Mother job:</b>		
Working	19	21.1
Not working	71	78.9

**Table (2): Characteristics of the burn injury among adolescents**

	No. (n= 90)	%
<b>Site of burn:</b>		
Face	35	38.9
Hands	31	34.4
Abdomen	23	25.6
Legs	20	22.2
Back	9	10.0
<b>Cause of burn:</b>		
Hot liquids	56	62.2
Gas ignition	34	37.8
<b>Other persons burn:</b>		
Yes	12	13.3
No	78	86.7
<b>Hospital stay: (days)</b>		
< 15	35	38.9
15 - 20	36	40.0
> 20	19	21.1
<b>Deaths:</b>		
Yes	6	6.7
No	84	93.3

**Table (3): The mean scores of the future anxiety, body image and self concept scales among adolescent with burn injury**

	Mean ± SD	Weight (%)	Range
<b>Future anxiety scale</b>	137.01 ± 23.72	78.28%	79.0 - 175.0
<b>Body image scale</b>	80.63 ± 12.27	83.98%	50.0 - 96.0
<b>Total self-concept scale</b>	72.31 ± 6.10	77.75%	49.0 - 83.0
<b>Physical self</b>	19.04 ± 3.48	79.16%	9.0 - 24.0
<b>Social self</b>	25.49 ± 2.17	84.96%	20.0 - 29.0
<b>Personal self</b>	27.78 ± 4.04	71.23%	15.0 - 37.0

N.S  $P > 0.05$  no significant, \* $P < 0.05$  significant, \*\*  $P < 0.001$  moderate significance and \*\*\*  $p < 0.000$  highly significance.

**Table (4): Correlation between the future anxiety, body image and self concept scales and the age of adolescent with burn injury**

	Age (years)	
	r-value	P-value
<b>Future anxiety scale</b>	<b>0.358</b>	<b>0.001*</b>
<b>Body image scale</b>	<b>0.315</b>	<b>0.002*</b>
<b>Total self-concept scale</b>	<b>0.333</b>	<b>0.001*</b>
<b>Physical self</b>	<b>0.281</b>	<b>0.007*</b>
<b>Social self</b>	-0.178	0.093
<b>Personal self</b>	<b>0.370</b>	<b>0.000*</b>

N.S  $P > 0.05$  no significant, \* $P < 0.05$  significant, \*\*  $P < 0.001$  moderate significance and \*\*\*  $p < 0.000$  highly significance.

**Table (5): Correlation among the future anxiety, body image and self concept scales among adolescent with burn injury**

		Future anxiety scale	Body image scale	Physical self	Social self	Personal self	Total self-concept scale
<b>Future anxiety Scale</b>	r-value						
	P-value						
<b>Body image Scale</b>	r-value	<b>0.614</b>					
	P-value	<b>0.000*</b>					
<b>Physical self</b>	r-value	<b>0.681</b>	<b>0.778</b>				
	P-value	<b>0.000*</b>	<b>0.000*</b>				
<b>Social self</b>	r-value	<b>-0.503</b>	<b>-0.458</b>	<b>-0.489</b>			
	P-value	<b>0.000*</b>	<b>0.000*</b>	<b>0.000*</b>			
<b>Personal self</b>	r-value	<b>0.614</b>	<b>0.655</b>	<b>0.712</b>	<b>-0.581</b>		
	P-value	<b>0.000*</b>	<b>0.000*</b>	<b>0.000*</b>	<b>0.000*</b>		
<b>Total self-concept scale</b>	r-value	<b>0.633</b>	<b>0.713</b>	<b>0.873</b>	<b>-0.342</b>	<b>0.891</b>	
	P-value	<b>0.000*</b>	<b>0.000*</b>	<b>0.000*</b>	<b>0.001*</b>	<b>0.000*</b>	

N.S  $P > 0.05$  no significant, \* $P < 0.05$  significant, \*\*  $P < 0.001$  moderate significance and \*\*\*  $p < 0.000$  highly significance.

**Table (6): The relations of the mean scores of future anxiety, body image and self concept scales and socio-demographic characteristics of adolescent with burn injury**

	Future anxiety scale	Body image scale	Physical self	Social self	Personal self	Self-concept scale
	Mean ± SD	Mean ± SD	Mean ± SD	Mean ± SD	Mean ± SD	Mean ± SD
<b>Age: (years)</b>						
< 15	127.19 ± 23.68	74.72 ± 13.22	17.39 ± 3.97	24.28 ± 1.65	25.69 ± 3.96	69.36 ± 7.20
15 – 16	142.37 ± 21.78	84.21 ± 6.14	20.42 ± 2.76	25.16 ± 1.83	28.74 ± 3.05	74.32 ± 4.81
> 16	144.20 ± 21.76	85.23 ± 11.49	20.00 ± 2.54	26.86 ± 2.58	29.40 ± 3.71	75.26 ± 4.04
<b>P-value</b>	0.000*	0.001*	0.003*	0.034*	0.000*	0.001*
<b>Sex:</b>						
Male	132.52 ± 25.03	80.27 ± 13.04	18.39 ± 3.68	25.86 ± 2.26	26.61 ± 4.46	70.86 ± 6.78
Female	141.30 ± 21.82	80.98 ± 11.62	19.67 ± 3.18	25.13 ± 2.05	28.89 ± 3.26	73.70 ± 5.06
<b>P-value</b>	0.084	0.919	0.141	0.109	0.018*	0.040*
<b>Residence:</b>						
Rural	135.25 ± 25.76	79.26 ± 13.47	18.51 ± 3.51	25.32 ± 2.24	27.21 ± 4.07	71.04 ± 6.44
Urban	139.54 ± 20.53	82.59 ± 10.17	19.81 ± 3.32	25.73 ± 2.08	28.59 ± 3.90	74.14 ± 5.13
<b>P-value</b>	0.514	0.438	0.038*	0.372	0.216	0.025*
<b>Education:</b>						
Primary	136.70 ± 24.03	75.10 ± 16.33	17.40 ± 5.32	25.20 ± 1.69	26.10 ± 6.38	68.70 ± 12.41
Preparatory	125.35 ± 22.08	75.74 ± 10.86	17.82 ± 3.40	24.44 ± 1.37	26.06 ± 3.11	70.32 ± 4.83
Secondary	145.70 ± 21.46	85.46 ± 10.45	20.30 ± 2.54	26.85 ± 2.50	29.41 ± 3.38	74.57 ± 3.82
<b>P-value</b>	0.000*	0.000*	0.002*	0.012*	0.000*	0.001*
<b>Father education:</b>						
Illiterate/	137.03 ± 21.70	79.50 ± 12.72	19.20 ± 3.07	25.48 ± 2.56	27.80 ± 4.00	72.47 ± 4.68
R/W	134.38 ± 26.35	69.13 ± 20.80	14.63 ± 4.75	25.00 ± 1.85	24.37 ± 5.95	64.00 ± 9.67
Basic education	140.62 ± 28.41	82.00 ± 9.16	18.23 ± 2.13	25.54 ± 2.18	26.92 ± 3.01	70.69 ± 4.48
Secondary	136.10 ± 24.59	84.76 ± 7.11	20.41 ± 3.15	25.62 ± 1.70	29.07 ± 3.38	75.10 ± 5.16
<b>P-value</b>	0.767	0.306	0.004*	0.869	0.076	0.001*
<b>Mother education:</b>						
Illiterate/	127.10 ± 20.09	78.43 ± 13.44	18.67 ± 3.23	25.27 ± 2.49	23.65 ± 3.67	71.59 ± 4.81
R/W	129.00 ± 42.72	73.00 ± 26.56	14.50 ± 6.35	24.00 ± 1.15	26.50 ± 9.81	62.00 ± 15.01
Basic education	139.38 ± 32.23	82.88 ± 6.37	19.63 ± 2.78	26.69 ± 1.20	27.88 ± 2.99	73.19 ± 4.29
Secondary	141.00 ± 19.19	85.52 ± 6.85	20.33 ± 3.23	25.38 ± 1.77	29.57 ± 3.37	75.29 ± 5.46
<b>P-value</b>	0.559	0.394	0.107	0.056	0.044*	0.023*
<b>Father job:</b>						
Manual worker	150.60 ± 7.17	86.10 ± 7.99	20.20 ± 2.33	24.50 ± 2.54	28.45 ± 3.80	73.15 ± 4.72
Employee	139.00 ± 22.85	82.65 ± 10.43	19.59 ± 3.48	25.70 ± 1.71	28.49 ± 3.59	73.78 ± 5.48
Farmer	126.55 ± 26.73	75.06 ± 14.24	17.73 ± 3.72	25.85 ± 2.28	26.58 ± 4.47	70.15 ± 6.98

<b>P-value</b>	0.002*	0.004*	0.028*	0.143	0.190	0.091
<b>Mother job:</b>						
Working	133.42 ± 24.27	83.11 ± 7.88	19.74 ± 3.26	25.47 ± 1.47	28.89 ± 3.54	74.11 ± 5.78
Not working	137.97 ± 23.66	79.97 ± 13.16	18.86 ± 3.53	25.49 ± 2.34	27.48 ± 4.13	71.83 ± 6.13
<b>P-value</b>	0.339	0.957	0.502	0.700	0.140	0.183

*N.S P >0.05 no significant, \*P <0.05 significant, \*\* P<0.001 moderate significance and \*\*\* p<0.000 highly significance.*

## V Discussion

Scientific advances in treating acute burns have led to a marked increase in the number of children surviving massive burns. As the number of children living with burns has increased, so too has concern for the psychosocial outcomes and interest in action to enhance quality of life for burned children (Sheridan et al., 2000 ; Fabia and Groner, 2009)

In the current study, measurement of the mean scores of the three scales among adolescents with burn injury showed that, the mean score of future anxiety scale was 137.01 ± 23.72 representing 78.28% of the total score indicating high level of anxiety regarding future. Concerning the body image scale, the mean score was 80.63 ± 12.27 representing 83.98% of the total score indicating high level of dissatisfaction regarding body image. Also the mean score of total self-concept scale was 72.31 ± 6.10 representing 77.75% of the total score which indicates high disturbance of the self-concept among adolescents with burn injury.

Although this study investigated the future anxiety as a part of general anxiety, many studies investigated the anxiety as a general term including the future among adolescents with burn injury. So the results of this study can be compared with other studies dealing with anxiety as general item. These studies reported that, anxiety is one of the major disturbances that occurs following burn injuries which are in agreement of our study results (Lawrence et al. 2007; Hulbert-Williams et al. 2008).

Similarly, It is well documented that patients with disfiguring burn scars experience anxiety and difficulties regarding social interaction and their changed body image has a profound psychological impact (Rumsey et al., 2007; Corry et al.,2009). Hulbert-Williams et al. (2008) also carried out a study to evaluate anxiety among 60 patients with burn injury from UK and reported higher levels of anxiety. In addition, Liber et al., (2008) reported that, children with burn injuries can experience anxiety, depression, fear and body image alterations and these effects are related to the physical change following burn and to how the affected people cope with their everyday difficulties and their peers (Liber et al., 2008).

In the same way, Mohammed and Ramprasad (2013), reported that, anxiety with different grades was a major co-morbid factor among 78% of adolescents and adults with burn injuries. They added that, the factors predisposing to anxiety were usually accidental circumstances leading to injury, worry about the progress of treatment and survival, fear of disfigurement and anxiety about the future rehabilitation, if disabled.

Self-concept plays a significant role in facilitating positive contributions of social support to the emotional and behavioural adjustment of young adolescents. it is especially important when dealing with young burn survivors because social support assures better self-esteem, more positive body image and overall adjustment among this group of patients (Fauerbach et al., 2002; Rosenberg et al., 2006).

The results of current study are supported by the study of Lawrence et al. (2007) who reported a strong relationships between self-concept and post-burn scarring. Also they added that, burn survivors with changed physical appearance due to scarring may suffer from low self-concept and depressed mood and may has sensation of guilt and responsibility concerning the burn injury which may further affect their self-concept.

In the same way, Corry et al. (2009), studied the relation between post-burn scarring and self-concept among adolescents and found decreased scores for physical appearance, happiness and satisfaction as items of self-concept among those patients while other domains of self-concept had normal scores.

Thombs et al., (2007) evaluated the levels of depression, body image and physical function in a study focusing on the long-term adjustment of 224 burn survivors seeking reconstructive surgery. They found that, 46% of those patients had depression and that body image dissatisfaction was the single most important predictor of depression. Interestingly, the depression was not related with the site or the size of the burn, or the patient's age.

In the current study, there were positive correlations between the future anxiety, body image and self-concept mean scores and the age of adolescent with burn injury. Similarly, Tyack and Zivani, (2003) reported that, age at the time of the burn was related to post-burn psychological adjustment while Noronha and Jan Faust, (2007) found no significant correlation between age at time of injury and psychological outcome. These conflicting results may be attributed to many affecting factors including location, culture, size and site of burn and social and family support.

Also There was a positive correlation among the mean scores of future anxiety, body image and total self concept scales among adolescents with burn injury. This means that, the physical change resulting from



burn injury is followed by body image dissatisfaction, and low level of self concept which is usually associated with high level of anxiety regarding the future whether concerning job, marriage or other social relations. These results are in agreement with Pellard, (2006) and Walker, (2009) who reported that, physical impairment due to burn is a greater source of distress and burn survivors usually feel adequate self-worth within the society of family and friends. On the other hand, socially they manifest lowered self-esteem, which is obvious in the form of anxiety, withdrawal and intrusive thoughts.

Additionally, Fauerbach et al., (2000) and Thombs et al., (2007) and (2008) reported that, body image is the single most important predictor of long-term psychosocial functioning and that body image importance is evident early in the adjustment process. Also there is a significant risk that, image dissatisfaction following burn injury is associated with negative effects on quality of life.

Similarly in consistent with our results, Blakeney et al., (2008), stated that, the physical changes due to burn scar contractures do not prevent burn survivors from performing activities required for self-care. However these changes during childhood and adolescence had great social and emotional challenges which lead to long-lasting anxieties, fear of new social settings, and decreased self-esteem.

Concerning the sex, the mean scores of the self-concept scale and personal self-subscale were significantly higher among female adolescents than male. This indicates that, female adolescents with burn injury had higher level of self-concept disturbance than male. In contrast with our results, Lawrence et al. (2007) reported that, male burn survivors showed no significant differences in comparison to age-matched controls, but females reported better body esteem than the control. also, Mohammed and Ramprasad (2013), reported that, anxiety was significantly higher among females than males with burn injury. These differences can be explained by the differences in the culture concerning to how female adolescents can express their feelings and concepts especially in the south Egypt.

In this study adolescents with burn injury and also whose one or both parents with higher levels of education showed higher levels of body image dissatisfaction, anxiety regarding the future and disturbed self concept. We didn't find in the literatures studies dealing with issue. However, as a logic thinking, higher levels of education increase their levels of orientation, scope of thinking and knowledge of the possible consequences of burn injury. So the anxiety about the future following disfigured body image and low self-concept will be higher among adolescents with higher levels of education.

Finally, Rosenberg et al., (2007) stated that, family support appears to be the most important factor of psychosocial adjustment for pediatrics burn survivors while support received from peers is more important for older child or adolescent. Thomas et al., (2009) studied the differences between well-adjusted and poorly adjusted adolescent survivors of burns and reported that high family stability with no conflict, high extroversion and social risk taking represented 80% of the variance between the 2 groups. These studies direct our attention towards the great importance of the psychosocial support for this category of patients and the significant role of nurses, family and peers for psychological adjustment side by side with medical care.

In conclusion, adolescents with burn injury showed higher levels of body image dissatisfaction due to burn injury that resulted in disturbed self concept which led to higher levels of anxiety concerning the future. These psychosocial changes correlated positively with age of the adolescents and their levels of education.

### **Recommendations**

The burn hospitals must be supplied with nursing specialists in mental health and psychotherapy to increase the opportunity of early detection and rapid intervention with psychotherapy for those cases. Establishing a counseling program to support children and adolescent with burn injury to reduce their psychological problems. Designing an educational program for the community with the appropriate first aid and the steps to be taken when burn occurs and how to deal with burn cases to reduce burn complications.

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