

Biosychosocial and Educational Needs of Patients with Burn Injuries

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Abstract

Background: Burn injuries are considered worldwide one of the leading causes of injury morbidity and mortality. Burn affect patient's physically, psychologically and socially. **Aim:** This study aimed to assess biopsychosocial & educational needs of patients with burn injuries **Design:** A descriptive exploratory study was utilized to conduct the study. **Setting:** This study was conducted at inpatient burn care unit at Kafr El-Dwwar General Hospital. **Sample:** A convenience sample of all available adult patients (n=104) from both gender with 2nd and 3rd degree burns, **Tools:** four tools used to collect data **I:** Patients interview questionnaire. **II:** physical needs assessment sheet. **III:** Psychological needs assessment sheet & **IV:** Social needs assessment sheet. **Results:** the study results showed that, 37.5% of the studied patients their age ranged between 20-<30, 71.2% of them had unsatisfactory level of knowledge, 68.3 % of the them had high total physical need level, 69.2% of them had high total psychological need level & 72% of them had high total social need level. Also, there was highly significant correlation between the studied patients' total knowledge level and their physical, psychological and social needs levels at p value <0.01**. **Conclusion:** Based on findings of the current study, it can be concluded that: Less than three quarters of the studied sample had got total unsatisfactory level of knowledge regarding burn injury and its management which reflecting their high educational need level. Also, more than two thirds of them had high total physical & psychological needs levels and less than three quarters of them had high total social need level. Additionally, there were highly significant correlation between patients' total physical, psychological and social needs levels. Also, there were highly significant correlation between patients' knowledge total need level and their physical, psychological and social total needs levels. **Recommendation:** Based on the results of the current research, Future research study should be done to implement and investigate the effect of the suggested program based on the studied biopsychosocial needs of patients with burn injuries on decreasing the incidence of morbidity & mortality among such group of patients.

Keywords: Biosychosocial, Educational Needs, Burn Injuries

Introduction

Burn is one of the most common health problems around the world. It includes 5 to 12% of trauma cases and event of the world (Albornoz *et al.*, 2017). Burn injuries are considered one of the most serious and

stressful injuries affecting all age groups. A burn is an injury to body tissue caused by direct contact or exposure to a thermal source, produced by chemicals, electrical current, radiation and friction (Mehta & Tudor, 2021).

Burning is a major cause of injury and it is one of the worst destructive conditions.

There are about 2.4 million burn cases per year worldwide that 650,000 of them need treatment, 75,000 are hospitalized and 8,000 to 12,000 are exposed to burn injuries. It is estimated that the incidence of severe burns in the lifetime to be around 1% and more than 300,000 deaths occur due to burns annually, worldwide (Abd Elalem *et al.*, 2018).

A major burn injury can impair skin integrity, sensation and may lead to hypertrophic scarring. In addition to changes in appearance and function brought about by scarring, deeper burns may result in damage to, or complete loss of, functionally or cosmetically important body parts.

Furthermore, many forms of psychological disturbance have been noted including body image dissatisfaction, depression, and post traumatic distress that often may take years to recover (*Sahin et al., 2020*).

The physical and psychological consequences of a major burn injury can interfere significantly with social and occupational performance, which may be exacerbated environmental barriers or lack of social support. The psychological well-being of patients seen in an adult burns clinic becomes an important consideration not only because of the recent disfigurement, functional losses, and trauma, but also because of the psychological components involved along with maintenance of compliance with the long treatment and recovery process (*Pallua et al., 2019*).

It is difficult to comprehend all needs of the patients with burns. Caring for these patients can be a daunting task because the psychological demands of the patient remain long after the physical aspects of the burn are resolved. The challenge comes in developing a plan of care to address the complex psychological needs of each patients with burns. Nurse must venture into resources that may not be readily available to apply therapeutic intervention (*Gastana et al., 2018*).

Nurses play a vital role in facilitating the involvement of family and friends in the recovery and rehabilitation of burn survivors. Nurses in burn units, have an important role in dealing with patients not only during the acute phase, but also during rehabilitation phase. Patients need physical, psychological and social support for weeks or even months after their exposure. The core of nursing interventions can help patients return to the highest possible level of independence and quality of life (*Chazi et al., 2019*).

Significance of the study:

Burn is a serious public health problem worldwide accounting for an estimated 265,000 deaths annually from fire alone. The vast majority 96% of deaths from fire-related burns occur in low- and middle-income countries. Burn is one of the leading cause of disability adjusted life-years in the developing world (*WHO, 2020*).

In the USA, burn is the 4th cause of mortality necessitating medical attention for about 2.5 million patients each year. Annually, more than 100,000 of burn patients are hospitalized. About 6000 of burn patients may die annually and permanent disability occurs in 50% of these patients (*Mckibben et al., 2021*).

Statistical record at the selected hospital recorded that total number of patients admitted to hospital during 2020- 2021 were 75,980. The patients with burn injuries with different age were 840 representing 8% of total admitted patients (*Kafer El Dwwar General Hospital Statistical Record, 2020-2021*).

Patients with burn have various biopsychosocial & educational needs so, this study aimed to assess needs of patients with burn injuries. Hopefully this study give insight about such needs to guide nursing intervention, help tailor management to meet patient' needs and provide full care thereby improving patients centered care to decrease morbidity & mortality rate.

Aim of the study

This study aims to assess biopsychosocial & educational needs of patients with burn injuries through:

- Assessing physical needs of patients with burn injuries.
- Assessing psychological needs of patients with burn injuries.
- Assessing social needs of patients with burn injuries.
- Assessing educational needs of patients with burn injuries.

Research Question:

What are the physical, psychological, social and educational needs of patients with burn injuries?

Subjects and Methods

Research Design:

A descriptive exploratory study was utilized to conduct the study.

Research Settings:

The current study was conducted in inpatient burn care unit at Kafr El-Dwwar General hospital which consisted of 5 floors

including departments with different specialists. The 4th floor, included burn ICU covering 4 beds, inpatient care unit covering 18 beds and dressing room for following up the patients with burn injuries.

Research Subjects:

A convenience sample of all available adult patients (104 patients) from both gender with 2nd and 3rd degree burns, with different educational level, conscious, able to comprehend, communicate verbally and agreed to participate in this study. The estimated study sample size is 104 adult patients, at confidence level 95% and precision rate at 0.05 by using Steven equation, 2012. Since the total number of them is 200 adult patients admitted in the selected setting during 2018-2019 was 200.

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

Where:

N=Total population,

n= sample size,

Z=1.96,

D=error level 5%, P=0.5.

Tools for data collection:

The following tools were used to fulfill the study aim.

I- Patients interview questionnaire: (Appendix I)

It was developed by the researcher after reviewing the related literature, (Fadoyibi et al., 2015); (Ackley et al., 2016); (Chazi et al., 2019) & (Haney, 2020). It was written in an Arabic language for gathering data in relation to the following:

A: Demographic characteristics:

It included age, gender, level of education, occupation, marital status, nature of work, residence, whom do your life with family income and health insurance.

B: Medical and clinical data:

It covered the past and present history of the studied patients. Covered associated chronic disease, previous surgery, burn causes,

site, depth and extent, TBSA, skin graft, treatment, local complication, signs of burn and first aid before coming hospital.

C: Knowledge assessment:

It was used to assess the studied patients' knowledge regarding burn & its management including; anatomy and physiology of the skin (4 questions), characteristic of burn injury (5 questions), first aid for burn (8 questions), caring after burn injury (5 questions), so total number of questions were 22.

❖ Scoring system:

The total score of the patients' knowledge for burn was 22 grades, and it was categorized as follows:

≥80% = ≥18 grades considered satisfactory level of knowledge which reflecting low educational need level.

<80% = <18 grades considered unsatisfactory level of knowledge which reflecting high educational need level.

II- Physical needs assessment sheet: (Appendix II)

It was used to assess physical needs of the patients with burn injuries it was developed by investigator based on recent relevant literature review (Finlay et al., 2014 & Lewis et al., 2014). It included 3 main categories related to: daily activity & exercises (10 items), burn skin care (7 items), nutrition (2 items), so total items were 19.

Scoring system regarding physical need:

≥80% = ≥ 15 items with positive response (low need).

<80% = < 15 items with negative response (high need).

III- Psychological needs assessment sheet: (Appendix III)

It was used to assess psychological needs of the patients with burn injuries as regard to self esteem & body image by using:

A: Self - esteem scale:

It was a standardized scale developed by (Connell et al., 2013) and used to assess

self-esteem among patients with burn injuries by assessing positive and negative feeling about self. It was translated into simple Arabic language then back translated into English to assure its accuracy & included 12 items.

B: Body image and appearance scale:

It was a standardized scale developed by (Smith & Allorto, 2016) and translated into simple Arabic language then back translated into English to assure its accuracy used to assess body image and change in appearance among patients with burn injuries & included 14 items.

IV- Social needs assessment sheet: (Appendix IV)

This tool developed by researcher based on recent relevant literature review (Pishnamazi et al., 2013), (Lewis et al., 2014), (Stavrou & Wiser, 2017) & (Khaled et al., 2019). It consisted of six components: self-confidence (4 items), human internal system (6 items), performance system (10 items), social contact (1 item), family support (2 items) and sexual activity (1 item), so total items were 24.

❖ Scoring system:

5=Strongly agree, 4=Agree, 3=Sometimes, 2=Disagree, 1=Strongly disagree.

Regarding psychological need:

a -Total score for self esteem:

- $\geq 80\% = \geq 9.5$ items with positive response.
- $< 80\% = < 9.5$ items with negative response.

b -Total score for body image:

- $\geq 80\% = \geq 11$ items with positive response.
- $< 80\% = < 11$ items with negative response.

Total score for both psychological scales:

- $\geq 80\% = \geq 18.5$ items with positive response.
- $< 80\% = < 18.5$ items with negative response.

Regarding social need:

- $\geq 80\% = \geq 19$ items with positive response.
- $< 80\% = < 19$ items with negative response.

The total score for biopsychosocial need:

- $\geq 80\% = \geq 55$ items with positive response which reflecting low needs level.
- $< 80\% = < 55$ items with negative response which reflecting high needs level.

II. Operational design:

The operational design included preparatory phase, content validity and reliability, pilot study and field work.

Preparatory phase:

It included reviewing current and past, local and international related literature and theoretical knowledge of various aspects of the study using books, articles, internet, periodicals and magazines to develop tools of data collection.

Tools validity and reliability: (Appendix V)

Tools validity:

The face and content validity of the tools was reviewed by a jury of seven expertise (3 professors & 4 assisted professors) from faculty of nursing/Ain Shams University. The experts reviewed the tools to check clarity, simplicity, relevance, comprehensiveness, accuracy, appropriateness and applicability. Minor modifications were done, and the final form of the tools was developed.

Tools reliability:

The reliability of tools was done using alpha cronbach coefficient. The result values were (.820) knowledge, (.901), physical need, (.879) psychological need & (.863) social needs, which denoted high internal consistency of the used tools.

Pilot study:

The pilot study was carried out on 10% of total subjects (10 patients) to test clarity, feasibility, objectivity and to estimate the time needed to complete each tool. Needed modification were done in the data collection tools. The patients included in the pilot study were excluded from the study subjects.

Field of work:

Data was collected within (5) months from the beginning of March 2021 to the end of July 2021. The aim and nature of the study were explained by the researcher to all patients

who were included in the study and got their approval to participate in the study prior to data collection. The inpatient burn care unit in the previously mentioned setting was visited by the researcher three days a week from (08: 00 am to 02: 00 pm) meeting about 2-3 patients each time. Data collected tools took 45-60 minutes to be filled from each patient. In case of illiterate patients the tools filled by the researcher.

Administrative design:

An official permission was obtained from the faculty of nursing Ain Shams University to the director of Kafr El-Dwwar General hospital at which the study was conducted, explaining the purpose of the study and requesting the permission for data collection from the studied patients. Meeting and discussions were held by the researcher to explain to the patients the aim, the nature and the objectives of this study.

Ethical consideration:

The research approval was obtained from the scientific ethical committee in faculty of nursing, Ain Shams University before starting the study. The researcher clarified the objective and aim of the study to the patients included in the study. The researcher assured maintaining anonymity and confidentiality of the subject data. Patients were informed about their rights to participate or withdraw from the study at any time without any reason & consent was obtained from patients agreed to participate in the study.

Statistical design:

Data collected from the studied sample was revised, coded and entered using Personal Computer. Computerized data entry and statistical analysis were fulfilled using the Statistical Package for Social Sciences (SPSS) version 22. Data were presented using descriptive statistics in the form of frequencies, percentages and Mean SD. A chi-square (χ^2) statistic was used to measure how a model compares to actual observed data. Correlation coefficients used to measure how strong a relationship was between two variables.

Results

Table (1): Shows that, 37.5% of the studied patients their age ranged between 20- <30, 60.6% were females, 59.6% had primary education, 54.8% of them were married and 46.2% were housewives. Regarding the nature of work of the studied patients 60.6% was handwork and 50.9% of them from urban area. In addition to 78.8%, 71.2% & 75% respectively of the studied patients lived with family, had insufficient family income and had no health insurance.

Table (2): Illustrate that, 57.6% & 60.6% respectively of the studied patients hadn't any chronic disease and previous operation. Regarding causes of burn among, 34.6% of studied patients were either scald or flame. Regarding the depth of burn, 52.8% of studied patients had second burn degree. In addition to site of burn, 44.2% of studied patients affected face and neck. Regarding TBSA among, 35.7% of studied patients had burn in anterior & posterior lower extremities.

Figure (1): Shows that, 71.2% of the studied patients had total unsatisfactory level of knowledge regarding burn injury and its management which reflecting their high educational need level.

Figure (2): Shows that, 68.3% of the studied patients with burn injuries had total high physical need level. While, 31.7% of them had total low need level.

Figure (3): Shows that, 69.2% of studied patients with burn injuries had total high psychological need level. While, 30.8% of them had total low need level.

Figure (4): Shows that, 72% of the studied patients with burn injuries had total high social need level. While, 28% of them had total low need level.

Table (3): Shows highly significant correlation about three studied variable was found patients' total physical, psychological and social needs levels $PV=(0.000^{**}, .002^{**}, 0.001^{**})$. Also, there was high significant correlation between patients knowledge total need level and their physical, psychological and social total needs levels with p value $<0.01^{**}$.

Table (1): Number and Percentage distribution of the studied patients according to their demographic characteristics (n=104).

| Items | No | % |
|--------------------------|----|------|
| Age | | |
| 20- < 30 | 39 | 37.5 |
| 30 - <40 | 21 | 20.2 |
| 40- < 50 | 29 | 27.9 |
| > 50 | 15 | 14.4 |
| Gender | | |
| Male | 41 | 39.4 |
| Female | 63 | 60.6 |
| Educational level | | |
| Illiterate | 13 | 12.5 |
| Primary education | 62 | 59.6 |
| Higher educational | 29 | 27.9 |
| Marital status | | |
| Single | 47 | 45.2 |
| Married | 57 | 54.8 |
| Occupation | | |
| Employee | 26 | 25.0 |
| House wife | 48 | 46.2 |
| Doesn't work | 30 | 28.8 |
| Nature of work | | |
| Hand work | 63 | 60.6 |
| Office work | 41 | 39.4 |
| Residence | | |
| Rural area | 51 | 49.1 |
| Urban area | 53 | 50.9 |
| Live with whom | | |
| Alone | 22 | 21.2 |
| With family | 82 | 78.8 |
| Family income | | |
| Sufficient | 30 | 28.8 |
| Insufficient | 74 | 71.2 |
| Health insurance | | |
| Yes | 26 | 25.0 |
| No | 78 | 75.0 |

Table (2): Number and percentage distribution of the studied patients according to their medical & clinical data (n=104).

| Items | No | % |
|--|----|------|
| Presence of chronic diseases | | |
| Hypertension | 25 | 24.1 |
| Diabetes | 19 | 18.3 |
| None | 60 | 57.6 |
| Previous operations | | |
| Yes | 41 | 39.4 |
| No | 63 | 60.6 |
| Cause of burn | | |
| Scald | 36 | 34.6 |
| Flame | 36 | 34.6 |
| Electrical | 9 | 8.7 |
| Chemicals | 19 | 18.3 |
| Others | 4 | 3.8 |
| Depth and of burn | | |
| Second degree | 55 | 52.8 |
| Third degree | 49 | 47.1 |
| Site of burn | | |
| Face and neck | 46 | 44.2 |
| Trunk | 12 | 11.5 |
| Extremities | 20 | 19.2 |
| Genitalia | 16 | 15.3 |
| More than areas | 10 | 9.7 |
| TBSA | | |
| Anterior and posterior head and neck (9%) | 15 | 14.5 |
| Anterior and posterior upper extremities (18%) | 10 | 9.7 |
| Anterior and posterior trunk (36%) | 15 | 14. |
| Perineum (1%) | 27 | 25.9 |
| Anterior and posterior lower extremities (36%) | 37 | 35.7 |

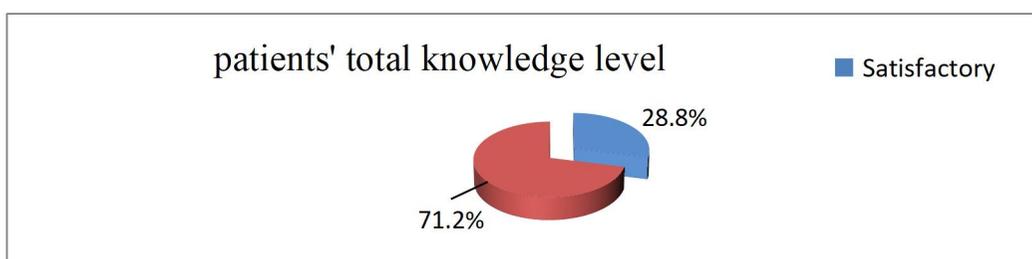


Figure (1): Percentage distribution of studied patients total knowledge level regarding burn injury & its management (No= 104).

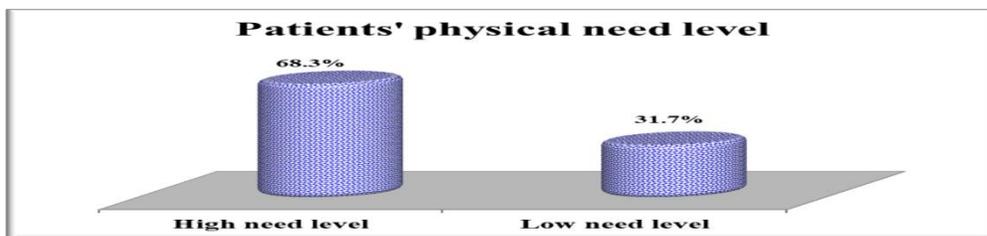


Figure (2): Percentage distribution of the studied patients' total physical need level (No= 104).

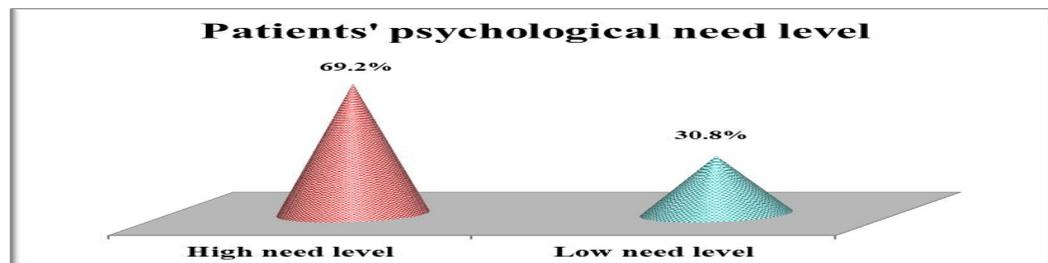


Figure (3): Percentage distribution of the studied patients' total psychological need level (No= 104).

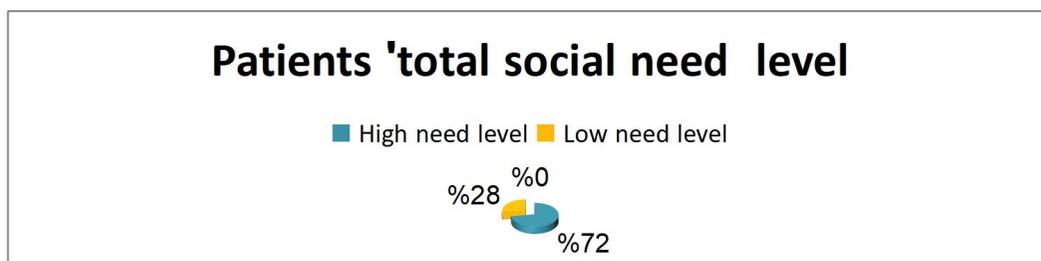


Figure (4): Percentage distribution of the studied patients' total social need level (No= 104).

Table (3): Correlation between studied variables.

| Items | 1 | 2 | 3 | 4 |
|----------------------------------|---------------------------|----------------------------|---------------------------|---|
| 1-Total knowledge level | | | | |
| 2- Total physical need level | R.. 712 p. value.001** | | | |
| 3-Total psychological need level | R.. 841 P. value.000** | R.. 651 P. value. 001** | | |
| 4- Total social need level | R.. 522 P. value.002** | R.. 699 P. value. 000** | R.. 834 P. value.000** | |

** Highly statistically significant at p<0.01

Discussion

Unfortunately, the patients' physical needs cause their psychological needs to be disregarded. The psychological trauma resulting from burning can affect all parts of a person's life. They cause tension in relationships, depression or drug abuse, and even more

pressure on their physical health (*Mamashli et al., 2019*).

This study aims to assess needs of patients with burn injuries through:

- Assessing the biosychosocial needs of patients with burn injuries.
- Assessing the educational needs of patients with burn injuries.

Regarding age of the studied patients, it was observed that highest percentage of them their age ranged between 20<30 years. This explains that most of those patients were young adult workers and exposed to burn sources in their work while low percentage of them their age were more than 50 years. This finding is in disagreement with **(Chazi et al., 2019)** who conducted study about "Bio-Psychosocial Needs for Patients with Second Degree Burns: Suggested Rehabilitation Program and Follow up Care" this study was conducted in the outpatient clinic of the burn unit of a university hospital, Egypt and reported that the highest incidence of burn occurred in adults aged 20 - 30 years.

Concerning gender of the studied patients, the present study revealed that two thirds of the studied patients were females. From the investigator' point of view, the interpretation of the previous findings may be because women are more contact with fire at home such as cooking to prepare food for their families which might lead to a higher exposure to fire and burn. This study finding is in harmony with **(Waqas et al., 2018)** who performed study entitled "perceived social support among patients with burn injuries" this study was conducted in four teaching hospital in the Punjab province of Pakistan and showed that nearly two thirds of the studied patients were females.

Relevant to occupation, the present study displayed that the highest percentage of the studied sample were housewives. This finding might due to the highest percentage of studied patients were females, married and had primary education. This result is in the same line with study conducted by **(Heydarikhayat et al. 2018)** under title "Effect of post-hospital discharge follow-up on health status in patients with burn injuries" this study was carried out in Inkermandshah Iran and showed that highest percentage of the studied sample were housewives.

Concerning the medical history of the studied patients, the current study revealed that more than half of studied patients didn't have any chronic disease, this finding might due to the highest percentage of studied patients were

young adult age ranged between 20-30 years & about two-thirds of them did not have previous operation. Regarding cause of burn, the present study finding mentioned that one-third of them had scald and flame burn. This finding could be attributed to the highest percentage of studied patients were housewives exposed to flame during preparing their home duties such as cooking.

This study result is matched with **(Abd Elalem et al., 2018)** who conducted study about "The effect of self-care nursing intervention model on self-esteem and QoL among burn patients" this study was conducted in burn unit of emergency hospital, Menoufia University at Menoufia governorate, Egypt and revealed that main cause of burn was flame.

As regard the depth of burn, the present study result reported that more than half of studied patients had second degree of burn & the remaining had third degree. According to **(Lotfi et al., 2018)** who revealed that regarding the burn-related variables, most of the individuals in the control and intervention groups had second and third degree burn.

Referring to site of the burn, the current study revealed that half of the studied patients had facial and neck burn, this study outcome might due to that the majority of the study subjects were females, housewives and had accidental burn during home duties. This result matched with **(Kazemzadeh et al., 2019)** who conducted study entitled "Qol in women with burns in Iran" this study was conducted in Imamkhomeini Hospital, Tehran, Iran and stated that highest percentage of studied sample had facial and neck burns as the most site.

Concerning the studied patients' total knowledge level about burn injury, the present study revealed that less than three quarter of them had unsatisfactory level of knowledge which reflecting their high educational need level. This study result might due to highest percentage of the studied patients had primary education and lack of knowledge provided by different methods such as mass media and this emphasizes the role of assigned nurses regarding patient education about burn injury and management. This study finding is in harmony with results of the study conducted by

(Mohammed et al., 2021) who conducted study about "Knowledge, Acceptance and Perception on Covid-19 Vaccine among Malaysians: A web based survey" and stated that, three quarters of the studied sample had unsatisfactory knowledge regarding burn injury.

According to the studied patients' total physical need level during burn injury the present result displayed that highest percentage of them had high need level. This result might be due to burn increases level of stress, following repeated experiences of stress, increased hormonal responses to general stress (i.e., cortisol secretion) and reduced volume of the hippocampus may lead to persistent pain, limiting patients' ability to work and decreasing independence which reflected on their high physical need level & this emphasizes the vital role of nurses to meet such need.

The present study finding is online with a study conducted by (Chazi et al., 2019) aimed to identify the physical, social, and psychological needs of patients with second degree burns and suggested the importance of rehabilitation program for such group of patients that will improve quality of life after acute stage recovery, occupational training programs to adapted to their new condition, prompt recovery, rehabilitation and facilitate in-dependency, a study carried on 154 patients with second degree burns from both gender and aged 18 years old or above, at the outpatient clinic of a burn unit, affiliated to Cairo university hospital.

Regarding to the studied patients' total psychological need level regarding burn injury the current study showed that more than two thirds of them had high psychological need level. From investigator' point of view, this study outcome may be due to the patients with a burn injury experienced increased depressive and anxiety symptoms in their day-to-day lives and in relation to specific aspects of treatment. So that, psychiatric consultation is appropriate for such group of patients to provide psychological support & medical as needed.

This study finding is matched with study result conducted by (Nelson et al., 2019) entitled "The biopsychosocial model of pain in

the context of pediatric burn injuries" this study was conducted in shiner's children's hospital-Boston, Massachusetts and showed that burn affect negatively on psychological condition, However, no study to date reflected the additive effects of burn injury on psychological functioning among the studied sample.

Regarding to the studied patients' total social need level regarding burn injury the current study result revealed that less than three quarters of them had high social need level. From investigator' point view, this result due to patients with symptoms of post-traumatic stress related to their burn injury may be particularly at risk for impacted social functioning (e.g., less engagement, poorer friendships, etc.). Also, they had feeling stigmatized among their society due to visible scarring and/or pressure. This study result is supported with study conducted by (Szabo et al., 2017) entitled "Social competence in pediatric burn survivors" this study was conducted in Johns Hopkins School of Medicine, Tafts University and reported that most of the studied sample had negative feeling related to total social need. Suggested development of social support programs had the potential to assist burn injury patients in returning to work or finding new employment opportunities that meet their physical and psychological capabilities post-burn.

Considering of correlation between studied variables, the present study showed that there was highly significant correlation about three studied variables; the studied patients' total physical, psychological and social need levels. Also, there was high significant correlation between the patients' total knowledge level and their physical, psychological and social total needs levels. This could be attributed to more than two thirds of patients under study had unsatisfactory level of knowledge which has negative consequences on meeting their needs levels and reflecting their high educational need level. The physical and psychological consequences of a major burn injury can interfere significantly with social and occupational performance, which may be exacerbated by environmental barriers or lack of social support.

This study result is in the same line with (Chazi et al., 2019) who showed that there was a strong correlation between psychosocial and physical needs among the studied patients with second degree burn $p < 0.00$.

The present study findings disagree with (Abd Elalem et al., 2018) who conducted study in Egypt and mentioned that there was negative correlation between psychosocial, social and physical needs among the studied patients before intervention.

Nursing assessment should be provided throughout inpatient care and support by social workers, clinical psychology services through inpatient admission and following discharge, these services provide ongoing support to burn patients to assist them to pass the very critical period in their life. Nurse have a key role in helping the burn patients to adapt to their new condition (Langeschmid et al., 2019).

Conclusion

Less than three quarters of the studied sample had got total unsatisfactory level of knowledge regarding burn injury and its management which reflecting their high educational need level. Also, more than two thirds of them had total physical & psychological needs levels and less than three quarters of them had total social need level. Additionally, there was highly significant correlation between patients' total physical, psychological and social needs levels. Also, there was highly significant correlation between patients' total knowledge need level and their physical, psychological and social total needs levels.

Recommendations

- Develop rehabilitation programs taking into consideration the studied biopsychosocial needs of the patients with burn injuries and follow up care to facilitate physical recovery, psychological and social support.
- Apply a multidisciplinary approach including physiotherapist, psychologist, surgeon and nurses for the success of comprehensive management and rehabilitation activities for meeting the needs of patients with burn injuries.
- Counseling programs should be conducted to the patients and their families regarding

the burns care management based on their individualized biopsychosocial and educational needs.

- Future research study should be done to implement and investigate the effect of the suggested program based on the studied biopsychosocial needs of the patients with burn injuries on decreasing the incidence of morbidity & mortality among such group of patients.
- The study should be replicated on large sample and in different hospitals settings in order to generalize the results.

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