

Socio-demographic features and quality of life post burn injury

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ABSTRACT

Introduction: Burn injury is a highly devastating injury accounting for the major cause of disability-adjusted life years (DALYs) lost mostly in developing countries. Physical trauma, body disfigurement, the social stigma associated with injury completely shatter an individual's life. **Aim:** To study the quality of life among burn injury patients. **Methodology:** A cross-sectional hospital-based descriptive study was done on 150 burn injury patients. During the initial recruitment from Burns and Plastic Surgery Ward, socio-demographic profile and burn incident-related data were collected, whereas the WHO QoL-BREF tool was applied after 3 months of discharge during a follow-up visit in the outpatient department of Burns and Plastic Surgery to assess the quality of life among subjects. Data were compiled in MS Excel and statistical analysis was done using SPSS 20 version. **Results:** The study revealed poor quality of life among four domains of QoL; it was most inferior in the psychological domain followed by the physical health domain, environment domain, and social relationship domain. **Conclusion:** Advancement in the medical field has improved the survival rate in victims although the patients recover from the acute painful phase of physical trauma. However, the psychological and social impacts of injury remain unaddressed leading to a poor QoL. There is a need for an integrated approach for prevention and enhancement of the quality of care for the victims in all four domains of life. More emphasis is needed on rehabilitative care for long-term improvement in the QoL of the affected person.

Keywords: Burn injury, quality of life, sociodemographic profile, WHO BREF

Introduction

In the era of the epidemic due to non-communicable diseases, among trauma, burn injuries are the second most common cause of mortality and morbidity after road traffic accidents. Burns are the preventable form of injuries leading to the majority of unnatural medicolegal cases; moreover, the maximum (70%) burden is on children and productive age group population (females in the domestic and males in outdoor) while working in hazardous circumstances.^[1] Globally, 180,000 deaths occur annually and in

India, 6 to 7 million become the victim of burn injury.^[2,3] Out of these, 1 million are moderate-to-severe grade requiring high-quality medical care and long-term rehabilitative services.^[1] Delhi itself is a witness of 1.4 lakh near-fatal cases per year due to burn-related mishaps that translate into 1 death in every 4 min. The number of cases and people seeking medical care has also increased within the last 5 years to give a 10-fold rise in outpatient care and a four- to five-fold rise in hospital admissions. National programme for prevention and management of burn injuries | national health portal of india [Internet]. [cited 2021 Dec 3]. Available from: https://www.nhp.gov.in/national-programme-for-prevention-and-management-of-burn-injuries_pg.

Burn injuries are under-appreciated injuries that are associated with substantial morbidity, mortality along with long-term

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profound alterations. It can victimize anyone, anytime, and anywhere resulting in lifelong physical and psychosocial scarring.^[4]

It is a highly devastating injury requiring integrated specialized team care starting from the rescue phase to immediate management for physical trauma and short- and long-term endless rehabilitative phase surgery and care. Traumatic events during burn injury, along with its consequences such as slow recovery and long rehabilitation periods shatter an individual's internal self completely. Burn cases have the maximum hospital bed occupancy rate and it leads to a high financial burden for the family and the hospital. Burn injuries are a major cause of disability-adjusted life years (DALYs) lost in the South East Asia Region (SEAR) region of the world health organization (WHO).^[1,2]

Burn injuries have been recognized as the concern of public health, leading to initiatives such as the creation of the first worldwide database, i.e., a global burn registry since 2018 by the WHO.^[5]

Various factors such as response to injury, time of initiation of treatment, family support, quality of treatment, diet, occupational and physiotherapy, and counseling play a pivotal role in determining the quality of life (QoL) among the victims of burn injury. The QoL is affected in various domains.^[6]

The QoL is an individual's perception as to their position in life in the context of culture and value systems in which they live and in relation to their goals, expectations, standards, and concerns.^[7]

QoL is a broad-ranging concept incorporating a complex interaction among persons, physical health, psychological state, level of independence, social relationship, personal beliefs, and their relationship to the salient features of the environment. It measures the impact of disease and impairment on daily activities, behavior, perceived health, and disability status.^[6]

This study is an attempt to assess the impact of burn injury among the various domains of QoL of the victim and correlate various factors affecting these domains in the Indian scenario.

Methodology

A cross-sectional descriptive study was conducted in a tertiary care hospital. The unit of study comprised subjects who suffered a burn injury, patients were recruited from Burns and Plastic Surgery ward, data regarding sociodemographic features were collected during initial recruitment, and the Quality of life questionnaire WHO—QoL BREF (Hindi version) was administered during the follow-up visit at 3 months in the outpatient department (OPD). Participants were patients admitted to the burn ward, physically and mentally stable without any comorbid disease (hypertension, diabetes, cancer, asthma, epilepsy, etc.). The items cover four domains, namely the physical health domain, psychological domain, social relationship domain, and environment domain. Each of these domains is scaled up in a positive direction (i.e., a higher score denotes higher QoL).

For the calculation of the total affected body surface, the rule of 9 was used.^[8]

Data collected by the above method were first entered and cleaned in an MS Excel sheet and further analyzed using SPSS 20.0. Re-categorization of the QoL questionnaire was done as per the prescribed guidelines and mean scores were calculated among the various domains of QoL. The raw score thus obtained was converted into the transformed score as per the guidelines, which was further converted into the WHO 100 comparable score as per the table provided in the guidelines.^[8]

Bi-variate correlation (Pearson's) was applied among the four domains of QoL and the total body surface area affected and age of study subjects. Tests of significance such as independent *t*-test and one-way analysis of variance were applied to compare the means of QoL domain scores with categorical predictor variables such as sociodemographic factors (gender, residence, place, etc.).

Results

The QoL was assessed among 150 burn injury subjects during the follow-up visit. About half (50.7%) of the subjects were young adults. The mean age was 30.83 ± 11 years, among these, 60% comprised the male population. A little less than two-thirds of the subjects were married and among these 44% were married for more than 7 years. The majority of subjects were literate and belonged to the lower middle class as per the Prasad scale.^[9] In occupation most of them were either unemployed or house wives (the majority were male and mostly unemployed and housewife sounds contradictory, please check). The mean time taken in seeking medical care was 30.83 min and the majority of patients (78%) got medical care within 2 h, the delay in seeking medical care ranged from 10 min to 30 days. In addition, 94% of the injuries were accidental as claimed by the respondents, mostly occurred due to mishaps caused by flame burns or electrical burns or scald burns. The majority of patients were wearing synthetic material cloths (39%) at the time of the incident followed by mixed material (35%) and cotton/other material (26%). Among the body part involvement, upper limbs were the most commonly burnt, mainly due to the use of hands to smother the fire. Similarly, hands and heads were most commonly affected by electrical burns as they were the most common contact points with a live wire.

Effect of burn injury on quality of life of patients

The QoL of burn injury subjects was assessed using the WHO QoL-BREF questionnaire and the results obtained were: the mean raw score in the physical domain was 18.7 ± 5 , 14.9 ± 4.5 in the psychological domain, 9.45 ± 1.9 in the social relationship domain and 22.9 ± 3.9 in the environment domain. Thus, on further transformation, as per the prescribed guidelines, the mean transformed scores (mean \pm standard deviation [SD]) in various domains were physical domain (42 ± 17.9), psychological domain (37.6 ± 18.8), social relationship domain (59.7 ± 16.0), and environment domain (57.5 ± 13.8). Overall, the impact of

burn injury on QoL is deteriorating all the four domains of QoL although physical and psychological domains were the worst affected during the time of assessment as depicted in Table 1.

On assessing the correlation between the QoL scores and the total body surface area using Pearson's bivariate correlation, an inverse relation was obtained in all the domains as depicted in Table 2.

The environment domain was found to have a strong inverse correlation with the total body surface area.

On assessing the correlation between the age of the subjects and various QoL domains, no significant correlation was obtained as depicted in Table 3.

Discussion

QoL was found deteriorating post-burn injury among various health domains of QOL. Psychological domain, with mean scores of 37.6 ± 18.8 , and physical domain, with mean scores of 42 ± 17.9 , were the most deteriorated domains, whereas the environment domain with mean scores of 57.5 ± 13.8 and social domain with mean scores of 59.7 ± 16.0 were found to be least affected at the time of interview [Table 1].

Our findings were similar to those reported by Misra *et al.*^[10] in Delhi where the psychological domain (35.1) was found to be worst affected; however, they reported the social domain (28.5) as more affected than the physical domain (68.9). This variation

may be due to different time frames in different studies. It shows that initially due to difficulty in accepting body disfigurement and disability to work lead to the worsening of psychological and physical domains, because there is the support of family, and relatives in this period, the social domain is not deteriorated too much; however, as the time passes gradually the support and care from family members, relatives, and society starts to decline and there occurs a feeling of burden and difficulty in sustaining future life, (but there is no evidence to this in your study because yours is a cross-sectional and not longitudinal). Similarly, other researchers had used different QoL assessment scales but found poor scores on physical, psychological, and social domains in their studies.

Total body surface area

Our study found a significant inverse correlation between the total body surface area affected and physical ($P = 0.030$) and psychological domains ($P = 0.032$), whereas this relationship was not found to be significant in social and environmental domains. This might have been due to the fact that the physical and psychological domains deal with personal adjustment to the disaster, whereas social and psychological domains involve the reactions and responses of the near and dear ones and also that of the society at large. Similar to our finding, Leblebici *et al.*^[11] in Turkey reported an indirect correlation ($r = -0.528$) between the total body surface area using the SF-36 scale [Table 2].

Age

In our study, we found no significant correlation between the age of the subjects and QoL, as the impact of burn injuries such as physical and mental trauma, disability, and disfigurement affected all the age groups in a similar manner. This was similar to the finding reported by Elsherbiny *et al.*^[12] in Egypt [Table 3].

Conclusion

Burn, its consequences, and slow recovery and long rehabilitation periods shatter an individual's internal self. Physical disability, cosmetic disfigurement, and dependency on caregivers deteriorate the QoL of the patient after burn injury.^[13,14] Although all the domains get affected, the domains affected worst in the present study are psychological and physical domains as compared to the social relationship and environment domains.

An inverse relationship has been observed in the domains of QoL, psychological, social relationship, and environment domains with total body surface area involved in burn injury.

Higher-income countries have significantly lowered their burden of burn injury and improved the QoL of victims by a combination of adapting necessary preventive strategies and improving the care provision, India. Lower middle- income countries (LMIC) can also focus on improving awareness,

Table 1: Quality of life scores in domains of WHO QOL-BREF

Domain	Raw score		Transformed score	
	Mean±SD	Range	Mean±SD	Range
Physical	18.7±5	9-32	42±17.9	7-89
Psychological	14.9±4.5	7-29	37.6±18.8	4-96
Social	9.45±1.9	3-15	59.7±16.0	17-100
Environment	22.9±3.9	14-35	57.5±13.8	25-100

Table 2: Bivariate correlation (Pearson's) of total body surface area with QOL domain

Total body surface area affected	Physical domain	Psychological domain	Social domain	Environment domain
R	-0.177	-0.175	-0.140	-0.74
P	0.030	0.032	0.087	0.371

Table 3: Bivariate correlation (Pearson's) of age with quality of life domain

Age	Physical domain	Psychological domain	Social domain	Environment domain
R	0.003	0.002	-0.047	0.116
P	0.975	0.983	0.565	0.159

developing and enforcing effective policies, strict regulatory guidelines to deal with grievances, and capacity building in burn care at all levels to provide good QoL to their country persons.^[1,14]

Limitations

- Due to medicolegal implications, most of the patients stated the intent of burn as accidental;
- The patients with comparatively more grievous burns could not be followed up as the incident has resulted in death.

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Conflicts of interest

There are no conflicts of interest.

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