THE SOCIOECONOMIC IMPACT OF BURNS IN LAGOS, NIGERIA: A ONE-YEAR PROSPECTIVE STUDY

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SUMMARY. A one-year prospective study of burn patients presenting to the National Orthopaedic Hospital, Igbobi, Lagos from June 1, 2007 to May 31, 2008 was conducted to evaluate the socioeconomic impact of burn injuries sustained by the patients. A proforma reflecting the various data of interest was the main instrument of the study. The data was subjected to simple statistical analysis. A total of 52 patients with a mean age of 25 ± 17.1 years were studied. There were 27 males and 25 females giving a M:F ratio of 1.1:1. Man-hours were lost by 88.5% of the patients, 55.8% of whom were income earners. About 74% of the patients had returned to work or school at the conclusion of the study. The most common opportunity cost of treatment was a relative stopping work or school. Half of the patients were unsatisfied with their appearance and 26.9% desired cosmetic surgery. Social interactions were normal in 74.5% of the patients and none reported a poor quality of life. The study showed a significant socioeconomic burden from burns. It highlighted the importance of the informal socio-cultural support system and the need for formal, well-structured social support systems.

Keywords: burns, socioeconomic impact, socio-cultural support, Lagos

Introduction

Burn injuries result in profound morbidity and high mortality.1–4 They constitute one of the most devastating forms of trauma.5–6 The socioeconomic effects contribute immensely to the trauma of burns.7 In a developing nation such as Nigeria with poorly-developed and ill-funded health facilities, poor or non-existent public sector socioeconomic support systems and poor utilization of existing health insurance schemes, the impact of burns on the patient, his family and their socioeconomic activities can be quite profound.8

Burn injuries are quite common in Nigeria.9 Poor economic conditions compounded by epileptic power supply, scarcity and adulteration of petroleum products resulting in hoarding and inappropriate storage, as well as ignorance, poor domestic and industrial safety practices, and high rate of road traffic accidents contribute to the high incidence.1–3,8,10 The incidence of burn injuries has been related to socioeconomic status and has been found to be higher in low- and middle-income countries, socioeconomically-deprived groups and ethnic minorities.6,11–14

We conducted a study to examine the socioeconomic impact of burns in Lagos, Nigeria and the factors that influence this. We hope this study will assist clinicians, policy makers and health administrators in improving the funding of burn care, improve the healthcare system and encourage dissemination of burn prevention information with the goal of reducing the burden on burn patients and their families.

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Materials and methods

A prospective study was carried out on burn patients presenting at the National Orthopaedic Hospital, Igbobi, Lagos (NOHIL) Nigeria over a one-year period (June 1, 2007 to May 31, 2008).

NOHIL is a trauma centre and tertiary care institution located in Lagos, the biggest city in Nigeria. It has one of the three major burn care units in Lagos, Southwest Nigeria. All consenting patients who met the following criteria were enrolled in the study:

- Patients who presented with acute burn injuries and survived for more than 72 hours post-injury.
- Patients who presented with post-burn indolent ulcers and other post-burn complications that required reconstructive procedures, pressure garments, or other scar modifying agents.
- Patients followed up for other post-burn complications.

A special questionnaire which captured data on patients’ demographics, etiology, lost man-hours, post-injury employment, opportunity cost, psychosocial effects and quality of life was the main instrument for the study. Consent was obtained from the Hospital Ethics Committee and from the patients in the study. Patient surveillance was started as soon as the patient was enrolled and the data was continually updated throughout the period of the study. At the end of the study, the data was subjected to simple statistical analysis using EPI-INFO 2002 and MS Excel 2013.

Results

Demographics

A total of 52 patients were studied. There were 27 males and 25 females giving a M:F ratio of 1.1:1. The ages ranged from two months to 69 years with a mean (± standard deviation) of 25 (±17.1) years. The 20-29 age range was most commonly affected (Fig. 1). The majority of the patients had some form of formal education (Fig. 2). Twenty-seven patients (51.9%) presented in the acute phase while 25 (48.9%) presented in the late phase with various post-burn complications. The percentage of total body surface area involved ranged from 0.5 to 60% and the mean was 21.2 ± 14.3%. The majority of the patients (92.4%) had inpatient treatment. Only four patients (7.6%) were treated purely as outpatients. The average length of hospital stay was 3.2 ± 3.1 months with a range of 0.3 to 12 months. The average cost per patient per day was N8,855. Only one patient had a health insurance policy.

Aetiology

The majority of the patients had flame burn injuries (65.4%) and the incidents occurred mainly at home (Table I).

Occupation

Twenty-nine patients (55.8%) were income earners while 23 (44.2%) were non-income earners. Artisans and students were most commonly affected, each making up 32.7% of the study population (17 patients each). Only two patients were unemployed (3.8%). Four patients (7.6%) were infants.

Duration of absence from work/school

Man-hours were lost by 46 patients (88.5%), 54.4% of whom were absent for 0.1 to 10 months (Fig. 3). The range was 0.5 to 72 months with a mean of 14.5 ± 16.6 months. This translated to about 2552 ± 2921.6 man-hours assuming an eight-hour workday for an average of 22 days per month.

Table I - Aetiology of burns

<table>
<thead>
<tr>
<th>Aetiology</th>
<th>Assault</th>
<th>Domestic</th>
<th>Ind/WR</th>
<th>RTA</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical</td>
<td>2 (3.9%)</td>
<td>1 (1.9%)</td>
<td>-</td>
<td>-</td>
<td>3 (5.8%)</td>
</tr>
<tr>
<td>Electricity</td>
<td>-</td>
<td>1 (1.9%)</td>
<td>1 (1.9%)</td>
<td>-</td>
<td>2 (3.8%)</td>
</tr>
<tr>
<td>Flame</td>
<td>18 (34.6%)</td>
<td>13 (25.0%)</td>
<td>3 (5.8%)</td>
<td>34 (65.4%)</td>
<td></td>
</tr>
<tr>
<td>Scald</td>
<td>9 (17.3%)</td>
<td>1 (1.9%)</td>
<td>3 (5.8%)</td>
<td>13 (25.0%)</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>2 (3.9%)</td>
<td>29 (55.7%)</td>
<td>15 (28.9%)</td>
<td>6 (11.5%)</td>
<td>52 (100.0%)</td>
</tr>
</tbody>
</table>

*% (Column %) / Column % Ind/WR WR % (Column %) / Column % RTA Wr % (Column %) / Column % traffic accidents

Fig. 1 - Age distribution.

Fig. 2 - Education.

Fig. 3 - Duration of absence from work/school.
Post-injury employment status

Seventy-four percent (34) of the 46 patients who had pre-injury employment had returned to work or school, while 12 (26.1%) had not (Fig. 4). Only three professionals (30%) had not returned to work while 10 out of 17 artisans (58.8%) were still to return to work. Fifty-nine percent of the income earners were back at work and 82.4% of the students were back to school at the conclusion of the study.

Opportunity cost

Many patients reported multiple opportunity costs. The most commonly reported was having to stop work or school (Fig. 5).

Satisfaction with post-injury appearance

Half of the patients were unsatisfied with their appearances at the time of concluding the study. Fourteen of them (26.9%) desired cosmetic surgery to improve their appearance though they had little or no functional deficits.

Social life

Thirty-eight patients (74.5%) had a normal social life, 11 (21.6%) had a subnormal social life, while two (3.9%) had none.

Quality of life

Fifty-four percent (28) of the patients studied considered themselves to have a good quality of life, 15 patients (28.9%) a fair quality of life, and nine (17.3%) an excellent quality of life. Many of these patients were still undergoing treatment.

Discussion

Young, active people at a very productive age constituted the bulk of our patients. Thirty-two patients (61.5%) lay within the 20-49 years range and 29 (55.8%) were income earners. When viewed in tandem with the average duration of absence from work or school of 14.5 ± 16.6 months (2552 ± 2921.6 man hours), the economic losses can certainly be described as enormous. It was gratifying to find that the majority of the previously employed patients (73.9%) were eventually able to return to work (58.6%) or school (82.4%) and most of those who had not (15.2%) were still undergoing treatment at the conclusion of the study. A systematic review of previous studies done by Mason et al. showed an average return to work rate of 72% after 3.3 years and concluded that nearly 28% of previously-employed burn survivors never return to work.15 Multiple factors including burn location, burn size, treatment variables, age, pain, psychosocial factors and job factors were found to influence return to work.

Our study also revealed a lower incidence of burn injuries among those with tertiary and postgraduate education. Thirty-four patients (65.4%) were not educated beyond secondary school level or had no formal education. This agrees with previous studies which found burn injuries to be more common among the lower socioeconomic groups.13,14

The high proportion of flame burn injuries (65.4%) also points to significant economic losses. The destructive power of fire is well known and much-feared.9-11 The dominance of domestic accidents (55.7%) suggested a heavy economic burden on the patients and their families, especially with the poor utilization of health insurance in Nigeria.16 This placed greater constraints on the resources available to pay for the patients' treatment. The relatively high cost of managing burn injuries is well-documented.17-19

Most patients and their families (61.5%) paid additional prices in the course of treating their burn injuries. The Nigerian traditional support system insists on relatives and friends constantly being with a patient while receiving in-patient treatment. In institutions such as the NOHIL where visiting hours are very strictly observed, the relatives and friends of patients often resort to hanging around the compound and corridors of the buildings. This often brings them in conflict with the care providers and security personnel. In our study, a relative temporarily stopping work or school to assist the patient was the most common opportunity cost (58.1%). This represents significant loss of man-hours and additional pressure on already over-burdened hospital facilities. A number of patients (23.1%) also reported that their businesses became troubled during their illness. This is not surprising in our country where most businesses depend almost totally on the presence of the owner to run it effectively and operate in an economy with high failure rate for small businesses.20 Only five patients (9.6%) reported having to sell some assets. This may sound surprising because of the huge cost of treatment in a low-income country along with the poor utilization and low coverage of existing health insurance schemes. However, the extended family system, close-knit communities, welfare associations and close friendships form an informal social support system.21 This support system often gives a variably-sized safety net that eases the financial burden on patients and their families. While it cannot replace formal and well-structured socioeconomic support systems, this informal system has proved invaluable to patients.
and care providers in their quest for the common goal of restoring the patient to full health. Two patients (3.9%) reported familial or marital instability following the burn injury and course of treatment. The low incidence of this in our study is not surprising because of the prevalent Nigerian cultural practices which encourage support and loyalty, from family members and spouses, in times of adversity.

Half of our patients were unsatisfied with their appearance. This was not unexpected. Various studies have documented the poor perception of body image common among burn patients, especially those with visible scars. Cosmetic surgery was desired by 26.9% of the patients to improve their appearance, subscribing to “the mythology of surgery”. The psychosocial effects of post-burn scarring are well-documented as they often weigh down the patients social and economic interactions. There may be attendant sexual dysfunction which may lead to relationship problems and failure of marriages.

The majority of our patients (74.5%) felt their social life was normal while 21.6% considered theirs subnormal. Two patients reported no social life. The assessment was purely subjective. The patients were asked to rate their level of social interactions pre- and post-injury including visits to friends and family, going for social events and going out with friends and family. Social interactions are often put at risk by the physical and psychological scars that follow burn injuries. Taal et al. found loneliness to be a problem in one of four patients studied in the Netherlands. While half of our patients were bothered about their appearance, they were able to overcome their anxiety and fears to live normal social lives. Our informal but very effective social support system may contribute to these positive findings. Patterson et al. found social support to be positively-related to self-esteem, positive body image and satisfaction with life among patients. Maes et al. and Partridge in separate studies found social anxiety not to be a significant problem in the first year after the injury. It would have been interesting to use some objective measures and follow up our patients beyond the specified one-year period of the study.

Quality of life (QOL) is affected by physical, psychological and social factors. A little over half of our patients (53.9%) reported a good QOL, 28.9% a fair QOL and 17.3% an excellent QOL. Nobody reported a poor quality of life. These findings are typical of Nigerians who are known to be incurable optimists. Our study, unfortunately, was subjective and did not utilize any objective instruments. A number of studies found the majority of the subjects to have an adequate QOL which improved over time and no long term decrease in QOL. Some short-term studies that assessed patients at discharge and at 6 months follow-up did report a decreased QOL with only a small improvement recorded over 6 months. Our patients appeared to have adjusted very well to the burn injuries and their sequelae. Aided by a strong culture of social support, their quality of life was largely perceived as being good.

Little has changed for the better in Nigeria since the study was conducted. There is still inadequate funding of healthcare and very poor health insurance penetration. This is worsened by many states failing to domesticate the law (Act 35 of 1999) that set up the National Health Insurance Scheme, making it difficult for state and local government employees to benefit from the scheme. The bulk of the Nigerian workforce is employed in the informal sector. With the low confidence level of Nigerians in insurance companies and our usual optimistic failure to plan for adverse events, health insurance is a rarity among patients from this large chunk of the Nigerian workforce and their dependents.

In spite of spirited efforts by the Nigerian Burn Society, government at all levels has continued to pay lip service to burn prevention including public enlightenment and enactment of protective legislation. Burn injuries remain very common and mismanagement by quacks is worsened by a poor referral system and poverty. In the year 2008, the national minimum wage in Nigeria was ₦7,500. In the same year, Aghachi et al. estimated the average daily cost of treating a patient to be ₦8,855 (₦1,000 = €4.44 at the time of the study). Today, the minimum wage is ₦18,000 and ₦1,000 = €2.4. Nigeria’s economy is also in recession accompanied by massive job losses and astronomical inflation, which has increased the cost of healthcare significantly along with basic commodities, especially food and medicine. Labour productivity, which measures remunerations amongst other parameters, is very low in Nigeria. The National Bureau of Statistics’ figures for Nigeria’s labour productivity from 2010 to 2014 was ₦639.34/hour (€3.47 at the prevailing exchange rate then and €1.51 at today’s exchange rate). In 2012, Turkey recorded labour productivity of €26.6/hour, Russia €22/hour, Brazil €9.84/hour, United Kingdom €44.6/hour, United States €58.9/hour, and Norway €79.6/hour.

The socioeconomic impact of burns is likely to be the same, if not worse now than at the time of the study.

Conclusion

Burn injuries place a huge socioeconomic burden on the patient, the patient’s family and friends, the society and the nation. The patients show a remarkable capacity to bear and overcome this burden. Formal socioeconomic support systems along with affordable and accessible health insurance may help reduce this burden. Our sociocultural support systems are likely to be largely responsible for the remarkably positive outcomes seen in the study, and should be encouraged and fine-tuned to work better for the patient and society.

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