

Special Article - Burns

Physical, Emotional and Social Correlates in the Rehabilitation Process of Burn Patients

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Abstract

Purpose: The purpose of the study was to determine the physical, emotional, and social correlates in the rehabilitation of burn patients.

Method: In this cross-sectional study, approved by the Ethics Committee of the State University of Londrina, we evaluated 107 patients seen in the outpatient Burn Treatment Centre, University Hospital of Londrina, Brazil, after discharge. We used a structured form that addressed socio demographic characteristics and physical, emotional, and social changes that characterize this phase. Data were analysed using descriptive statistics, Fisher's exact test, and linear-by-linear association measures, with Statistical Package for the Social Sciences.

: All subjects reported experiencing aesthetic sequelae. The degree of dependence in everyday activities was significantly associated with family income ($p = 0.017$), occupation after burn ($p = 0.023$), and functional sequelae ($p = 0.004$). Total burned surface area was associated with reports of functional sequelae ($p = 0.046$) and degree of dependence for activities of daily living ($p = 0.000$).

Conclusion: Burned patients' perception of their rehabilitation process is a tool that directs multidisciplinary care.

Keywords: Burn; Physical correlates; Emotional correlates; Social correlates

Introduction

Burns result in lasting or permanent injuries, loss of or reduction in functional capacity, and physical and aesthetic sequelae that can cause psychological damage. These sequelae are determined by the impairments involved, are a chronic health condition, and require specific assistance for rehabilitation [1].

Due to the increased survival rate of burn patients, it is necessary to better understand the complex issues related to rehabilitation, such as pain, scarring sequelae, and issues involving their functional, emotional, and social rehabilitation [2].

In our experience, the individual burn victim is happy and relieved immediately after resolution of the acute stage to have survived a serious condition that threatened his life. At the same time, the patient is facing negative changes in his health that may be regarded in different ways.

The suffering caused by burns is even more tragic when one realizes that they are preventable. The suffering caused by burns is even more tragic when one realizes that they are preventable. For this reason, the World Health Organization (WHO) warns the need to implement public policies to accident prevention and for the treatment to the survivors of this trauma in developing countries to reduce the death and disability rates [3].

Therefore, the aim of this study was to identify physical, emotional, and social correlates to burn victim rehabilitation in order to deepen our knowledge of this important phase in the life of the individual

and ensure adequate and complete assistance by the health team.

Methods

We used a cross-sectional analytic approach, approved by the Ethics Committee of the Universidade Estadual de Londrina (CAAE: 03942112.1.0000.5231; sound: 083/2012) to evaluate individuals assisted in the outpatient Burn Treatment Centre (BTC) of the University Hospital of Londrina (UHL). Patients completed a structured form that addressed socio demographic characteristics (gender, age, marital and living status, occupation before and after the trauma, type of job and status of financial responsibility in the family) and physical, emotional, and social correlates of the burn rehabilitation process: Total Body Surface Burned (TBSA), body areas affected, types of sequelae, grievances related to discomfort, adherence to care, the degree of dependence for activities of daily living, type of support received, and sources of support.

The BTC of UHL is the referral site for the treatment of patients of all age groups with burns of the State of Paraná. The UHL is a public and education institution affiliated with the State University of Londrina (SUL). The BTC has 10 ward beds, 6 beds in the Intensive Care Unit (ICU), 2 operating theatres, 1 prompt service, and 1 outpatient department. In 2012, 284 individuals were hospitalized and 1233 were seen on an outpatient basis. Patient visits included the return of previously hospitalized patients as cases of patients with complexes [4].

All participants of the study were individuals assisted at the outpatient service from July 2012 to January 2013, who fulfilled the

Table 1: Association between income and the degree of dependency for activities of daily living reported by individuals burn victims (N = 107). Londrina, Paraná, Brazil, 2013.

Degree for activities dependency of daily living	Income (in dollars)					
	≤ 800 dollars		>800 dollars		Total	
	n	%	n	%	n	%
Independent	33	52.0	33	75.0	66	62.0
Partially dependent	25	40.0	10	23.0	35	33.0
Totally dependent	5	8.0	1	2.0	6	5.0
Total	63	100.0	44	100.0	107	100.0

Linear-by-Linear Test; $p=0.017$.

Table 2: Association between occupation after the burn and the degree of dependency for activities of daily living reported by individual burn victims (N = 107). Londrina, Paraná, Brazil, 2013.

Degree of dependency for activities of daily living	Occupation After the Burn									
	Unemployed		Housewife or student		NISS Dependent		Worker		Total	
	n	%	n	%	n	%	n	%	n	%
Independent	7	44	10	62	23	62	26	87	66	62
Partially dependent	8	50	4	25	19	25	4	13	35	33
Totally dependent	1	6	2	13	3	13	-	-	6	5
Total	16	100	16	100	16	100	30	100	107	100

Linear-by-Linear Test; $p=0.023$.

following inclusion criteria: being older than 12 years, having been discharged at least two months prior to the study, and giving written consent for participation in the study after receiving an explanation of it. Patients with debilitating psychiatric illness leading to impaired cognition or logical and pragmatic reasoning were excluded.

Data collection initially occurred during the waiting time for outpatient care, lasting about twenty minutes. Additional data was gathered from medical records of these individuals.

The data were analysed with Fisher's exact test and linear-by-linear association measures, using Statistical Package for Social Sciences (SPSS) version 19.0. We wanted to identify associations of the individual on story of their degree of dependence for activities of daily living and their functional sequelae with the variables of gender, age, marital status, level of financial responsibility in the family, income, job and TBSA. The significance threshold was 0.05. The answers to the open questions were transcribed during the interview and analysed to identify units that characterize similarities and differences. Finally, these units were quantified into categories of analysis.

Results

The survey was conducted with 107 burn patients. The majority (59.0%) were male, between 20 and 49 years (66.0%), and living with a partner (68.0%). Almost all (96.0%) lived with at least one other person.

Before the burn, 96.0% of individuals possessed a job, 80.0% with remunerated employment, and 16.0% were students or homemakers. Only 4.0% reported being retired people, pensioners from the National Institute of Social Security (NISS).

After the burn, adding to the group of retirees, amounted to 42.0% of subjects, required sickness benefit from the NISS, 15.0% reported being unemployed and without income and only 27.0% were able to

return to job. The most frequently cited job before and after the burn trauma was related to trade or repair activities and general services. More than half of those surveyed (59.0%) reported an income less than eight hundred dollars and to be financially dependent on their families (52.0%).

Most burns were located in regions of the trunk (75.0%), upper limbs (68.0%) and hands (52.0). Inhalation injury was found in 17.0% of the individuals researched.

Concerning the level of dependence in activities of daily living, the majority of respondents (62.0%) reported that they were independent. The association between the degree of dependency and family income was significant ($p = 0.017$). Those who reported lower income demonstrated greater dependence than the group with better financial conditions (Table 1).

Table 2 shows a statistically significant association between the occupation after the burn and the degree of dependency for activities of daily living ($p = 0.023$). Those who were unemployed and NISS dependent reported a higher degree of dependence than other individuals did.

Regarding the consequences of the burn, 100% 72.0%, and 67.0% of the subjects reported aesthetic, emotional, and functional sequelae, respectively. Only 22.0% reported sequelae related to sexuality. There was a significant association between functional sequelae and the degree of dependency for activities of daily living ($p = 0.004$). Table 3 shows that more than half of patients (51.0%), even if reported to be independent, had functional sequelae.

There was no significant association between gender ($p = 0.578$), age ($p = 0.470$), the level of financial responsibility in the family ($p = 0.157$), or marital status ($p = 0.174$), and the degree of disability in activities of daily living. However, TBSA was associated with reports of functional sequelae ($p = 0.046$) and with the degree of dependence for activities of daily living ($p = 0.000$). Table 4 shows that the patients

Table 3: Association between degree of dependence for activities of daily living and functional sequelae reported by individual burn victims (N = 107). Londrina, Paraná, Brazil, in 2013.

Degree of dependence for activities of daily living	Functional Sequelae					
	Yes		No		Total	
	n	%	n	%	n	%
Independent	37	51	29	83	66	62
Partially dependent	30	42	5	14	35	33
Totally dependent	5	7	1	3	6	5
Total	72	100	35	100	107	100

Linear-by-Linear Test; $p=0.004$.

with more than 20% of the body burned showed greater functional impairment and a higher degree of dependence than those with fewer injuries.

The association between financial responsibility and the reporting of functional sequelae tended toward significance ($p = 0.065$), with sequelae being worse for the heads of households (76.0%) than for those dependent on others for their livelihood (59.0%).

Reporting of functional sequelae was not significantly associated with gender ($p = 0.147$), age ($p = 0.180$), family income ($p = 1.000$), or occupation after the trauma ($p = 0.211$).

The main complaints of discomfort experienced by patients were pruritus (73.0%), dry skin (69.0%), and pain in burned areas (59.0%).

Adherence to necessary care was characterized by sun protection (94.0%), skin hydration (87.0%), use of elastic mesh (82.0%), and physiotherapy (61.0%). Participants cited analgesics or antihistamines (37.0%) and relaxing massage (29.0%) as a help in the relief of symptoms of discomfort.

The majority reported having support after the trauma of the burn from family (98.0%) and friends (43.0%). Few (1.0%) reported receiving support from health professionals related to the return to everyday life (1.0%).

Regarding the type of support received, the majority (94%) rated emotional support as the most important. Financial support (27.0%) and support for infrastructure (21.0%) were also reported. Infrastructure support was related to aid for transportation and

Table 4: Associations between TBSA and reported functional sequelae and the degree of dependence for activities of daily living of individual burn victims (N = 105). Londrina, Paraná, Brazil, 2013.

	TBSA							
	≤10%		11-20%		>20%		Total	
	n	%	n	%	n	%	n	%
* Functional sequelae								
Yes	22	56	22	67	26	79	70	67
No	17	44	11	33	7	21	35	33
** Degree of dependence for activities of daily activities								
Independent	33	85	19	58	13	39	65	62
Partially dependent	6	15	11	33	17	52	34	32
Totally dependent	-	-	3	9	3	9	6	6
Total	39	100	33	100	33	100	105	100

Linear-by-Linear Test; * $p=0.046$; ** $p=0.000$. N=105. No records TBSA of 2 participants were found.

accompaniment in medical consultations, physical therapy, travel, etc.

Discussion

Burn victims are a heterogeneous group of individuals, differing in age, previous diseases, history of the burn, and locations and depth of the lesions [5-6]. Furthermore, their prior lifestyle and social relationships can influence the way that they will face the return to daily activities after trauma [7].

Burns are important because they cause not only life-threatening harm but also important functional and aesthetic stigmas in their survivors. In general, burns affect people who were previously healthy and determine prejudice due the occupational absenteeism, given the high prevalence of these lesions in economically active young [8]. This information was confirmed in this study, which also showed that burn trauma is prevalent among males. These results are consistent with national and international literature, which reports a greater number of burn cases in men, who have higher occupational and domestic exposure [9-11].

The most affected age group was between 20 and 49 years, which is also the age range of most concentrated workforce production. However, after trauma, most individuals become dependent on social security, due to lack of physical and emotional capability to return to work.

Another social problem exacerbated by the trauma of the burn is related to informal activities, common in Brazil [12]. Interviewees engaged in such activities at the time of the trauma did not possess rights to indemnifications benefits that Brazilian labour legislation guarantees to registered workers. These individuals, unable to return to work, had a degree of dependence for activities of daily living significantly higher than that of patients who previously had regular employment. A Swedish longitudinal and prospective study examined the unemployment situation of burnt individuals, finding that unemployment is responsible for substantial impairment in several aspects of quality of life [13].

The quest for independence is an important aspect of the rehabilitation of individual burn victims [14]. We found that most participants considered themselves independent in performing

everyday tasks as well as self-care. Those who reported being partially dependent needed the help of the partner and other family members to accomplish tasks such as cooking, shopping, or even driving a car.

The research participants from the poorer classes experienced forms of social exclusion due to their greater degree of dependence in activities of daily living, which may result in economic difficulties, compared with other individuals with higher incomes. This finding is disturbing because the treatment after burns can be expensive and prolonged, up to four times higher in the rehabilitation phase than in the acute phase, according to a German study on the financial costs [15].

Inhalation injury has been reported to be associated with increased mortality due to respiratory complications and related to more-severe burns and concomitant trauma. For these reasons, special attention should be paid to the rehabilitation process in patients with this type of injury [16].

The impact of burn-caused deformities is difficult to measure and can decrease the chances of affected individuals to be economically and socially productive [11]. The present study showed a relationship between functional sequelae and the level of responsibility for the livelihood of the home, specifically among the heads of family or household. Thus, there is a need for research on the difficulties these individuals face in maintaining their status as providers, the findings of which can be used to develop practices aimed at optimizing their rehabilitation.

Functional sequelae and dependence in performing daily activities were significantly associated with each other and with having the most extensive burns. Extensive lesions affecting the trunk, upper limbs, and hands, as reported in the present study, lead to physical and social disability, especially in the context of work and family, due to the need such patients have for assistance in activities of daily living. These findings support those of a Brazilian study which found that burns have negative effects on not only the victim but also their family and social circles, with an emphasis on the negative impact of this trauma in the area of work for individuals with more than 20% TBSA [17].

Research on the meanings of quality of life in burn patients showed that the sequelae brought about great dissatisfaction with their physical appearance. Consequently, many patients try to hide their burns out of shame or fear of scaring people. Furthermore, the negative impact of sequelae, in general, on the patient's self-image due to difficulties related to work, travel and relationships, highlights limitations in family and sexual relationships [1]. Sequelae related to sexuality were less reported in the present study; however, this fact can be explained by participants' reluctance to discuss private matters, considered by many as a 'taboo' because of their family and cultural context.

Limitations in speaking on this topic are not restricted to burn patients. Research conducted with members of healthcare professionals of various specialized Brazilian centres found that only 28% of those interviewed felt comfortable in starting a conversation about sexual intimacy with their patients and only 38% believe that their healthcare service does an adequate job in this area. These results showed a significant lack of literature about sexuality after burns and

the need to increase the collective awareness of health professionals about the importance of sexual counselling to patients and their partners when necessary [18].

One of the most common issues for burn patients is itching skin [19]. It requires priority treatment because the patients often suffer silently with this discomfort because of inadequate understanding of its pathophysiology and effective therapeutic interventions for its control [20-21]. In the present study, this problem was also prominent and its relief was accomplished with the use of antihistamines. However, based on the current literature, the treatment can be optimized with the prescription of gabapentin for patients who respond poorly to antihistamines [19]. In addition to itching, pain and skin dryness were also noted by individuals who sought relief through oral analgesics and application of skin moisturizers.

The awareness of the need for skin protection from the sun was almost unanimous among interviewees, demonstrating that education in this regard has become a practice among the healthcare team. The use of elastic mesh has been accepted, but some patients resist it because they consider it costly. Moreover, it is uncomfortable, especially during hot days, due to the compression and heat sensation it causes. Although its therapeutic efficacy is still questionable [22], this care is routinely prescribed to try to minimize hypertrophic scarring and improve the aesthetics and functionality of the burned skin.

This study showed that burned individuals appreciated the support provided by family and friends who gave them security and acceptance in this new phase of rehabilitation. However, despite being aware of the importance of the healthcare team in all phases of treatment of burn patients, participants did not report professional support to be essential for their recovery.

It is known that the referral site is an important tool in the structure of the Brazilian Unified Health System (SUS), in order to ensure full accessibility to health services [23]. Following the treatment of acute trauma and hospital discharge, these individuals were referred to health services located in their hometowns to continue the treatment. However, many of these places do not have the resources and infrastructure to cater to all requirements of burned individuals, such as physiotherapy, psychological support, transportation to consultations, medicines, and cosmetic products. Therefore, it is logical to assume that the reason this type of support is not mentioned may be related to deficiencies in service that cause a deficit in the supply of these needs; thus, patients perceive professional support to have little relevance in the rehabilitation process. However, the perceptions of the burned individual about the performance of the health care team serves as an evaluation of interventions provided, and can be used to improve care [24].

Emotional support was recognized by the participants as necessary for better rehabilitation because it was through such support that the individuals found encouragement to resume their everyday lives. Financial and infrastructure support were also recognized as important due to the high number of individuals with some degree of dependence in activities of daily living and economically. Considering these results as well as the importance given to such support by the present participants, it is worth mentioning that a study with 687 burn victims found that a lack of family and financial support for

treatment were the main risk factors for problems in the psychosocial rehabilitation period [7].

Conclusion

This study focused on physical, emotional, and social correlates in the rehabilitation process of burn patients. Although most of these patients consider themselves independent in activities of daily living, the degree of dependency in activities of daily living was associated with low income, unemployment, dependence on social security, more than 20% TBSA, and the presence of functional sequelae. This variable also was related to the victims of extensive burns.

The healthcare team must reconsider the impact of their role to provide support for the individual to recognize the importance of their work in the context of rehabilitation. It is the responsibility of health services to provide appropriate assistance and referrals in order to offer complete treatment.

One limitation of the study is that these findings may not be generalizable to other burn patients. On the other hand, our results enhance understanding of the factors influencing this phase of treatment and can be used to improve the quality of multidisciplinary care provided to burn patients.

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