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# Quality of life of individuals treated in an outpatient burn treatment centre: Application of the *BSHS-R*

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ABSTRACT

*Background:* Burns are injuries that affect individuals' physical and emotional health and may impair their quality of life (QOL). This study aimed to evaluate the QOL of individuals from an outpatient burn treatment centre in southern Brazil, according to the Burn Specific Health Scale-Revised (BSHS-R), and to determine the relationships between sociodemographic variables, burns history and the mean domains of BSHS-R.

*Methods:* A cross-sectional study was carried out with 107 participants from July 2012 to January 2013 by administering the BSHS-R scale and a questionnaire to collect sociodemographic data and the participants' history of burns. Statistical analyses were performed comparing the scores obtained in the domains of the BSHS-R. Multiple linear regressions with the stepwise method were used to obtain a model that allowed the prediction of BSHS-R as a function of independent variables.

*Results:* A negative impact on the individuals' quality of life was revealed for the domains *Simple Functional Ability*, *Work*, *Affect and Body Image and Interpersonal Relationships*. Predictors of a poorer BSHS-R total score were: environment of trauma occurrence (reg. coefficient −0.39 95% CI −0.77;−0.01), gender (reg. coefficient −0.52 95% CI −0.82;−0.21), occupation (reg. coefficient −0.52 95% CI −0.86;−0.18) and place of residence (reg. coefficient −0.52 95% CI −0.83;−0.13).

*Conclusions:* Sociodemographic determinants have the greatest effect on determining the QOL of individuals who have suffered burns. Therefore, actions to promote education on preventing burns in workplaces and homes are needed.



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## 1. Introduction

Burns are one of the most important public health problems due to their high incidence in both developed and developing countries. However, deaths are only part of the problem; disabilities and disfigurements can lead to stigma and rejection [1]. Technological advances in health care have decreased mortality in burn victims. However, survivors must endure painful procedures throughout their treatment in addition to facing the physical, emotional, and social difficulties caused by this trauma throughout the rehabilitation process. These intense changes are believed to deeply affect the quality of life (QOL) of many of these individuals [2–4].

The quality of life group of the Division of Mental Health of the World Health Organisation (WHO) states that improved QOL is considered a potential outcome of care practices and should be included in public policy for health promotion and the prevention of diseases. Therefore, QOL information has been used to assess the effectiveness, efficiency, and impact of certain treatments in groups of patients [5]. Health professionals are interested in burn victims' QOL [4] so that they may recognise and evaluate the patient's experience throughout the care process [6]. This may contribute to better quality care, promote improved QOL, and allow the patient's maximum recovery of health.

This study aimed to evaluate the QOL of individuals from an outpatient burn treatment centre in southern Brazil, according to the Burn Specific Health Scale-Revised (BSHS-R), and to determine the relationships between sociodemographic variables, burns history and the mean domain of the BSHS-R. The hypothesis is that QOL of individuals who have suffered burns is more affected by sociodemographic determinants than by determinants related to their own burns history.

## 2. Methods

### 2.1. Type of study and settings

This was an analytical cross-sectional study in which patients were evaluated at an outpatient burn treatment centre (BTC) at the University Hospital (UH), Londrina, a medium-sized city located in southern Brazil. The BTC of UH is a referral centre for the treatment of patients with burns. It is part of a tertiary-level public teaching hospital and a subsidiary of the Universidade Estadual de Londrina. It has 10 ward beds, six beds in the Intensive Care Unit (ICU), two surgical centres, a balneotherapy service, and an outpatient facility. It attends individuals of all ages. In 2012, 284 individuals were hospitalised and 1233 outpatient consultations were conducted, including previously hospitalised patients and less complex cases that did not require hospitalisation [7].

### 2.2. Inclusion and exclusion criteria of the sample

This study comprised all patients seen at the outpatient BTC after discharge, from July 2012 to January 2013. The inclusion criteria were as follows: aged at least 12 years (to be sure individuals were capable of assessing their own social experiences); there having been an interval of at least 2 months since discharge, considered the minimum amount of time appropriate for the individual to have had and be able to discuss everyday experiences after discharge (the maximum time limit was fixed in 18 months); having been hospitalised in the BTC at some stage of treatment; having no previously diagnosed psychiatric illness after discharge that could limit cognitive, logical, or pragmatic skills. All participants signed an informed consent approved by the Ethics Committee of the Universidade Estadual de Londrina.

### 2.3. Data collection

The data were collected through burn patients' medical records and their participation in a structured interview that included a questionnaire with questions on sociodemographic characteristics, burns history, and the BSHS-R scale. Sociodemographic data included: gender, age, place of residence, occupation, family income, education, and condition of financial responsibility in the family. Burns history was assessed by factors (independent variables) which included: length of hospital stay (LHS), frequency of hospitalisation, depth of burn, total burn surface area (TBSA), body region affected, type of burn, environment of trauma occurrence, type of surgeries, and time since discharge from hospital (TSDH).

The BSHS-R is a specific scale for the assessment of QOL in burn victims, reviewed by Balock, Buncker, and De Vellis in 1994, which features 31 items [8]. It was adapted and validated for use in the Brazilian population in 2008 by Ferreira et al. [9] and organised into six domains: Simple Functional Ability, Work, Interpersonal Relationships, Treatment Regimens, Heat Sensitivity and Affect and Body Image. The responses are computed on a five-point scale from 1 to 5; the possible range of scores is 31–155, with higher values indicating better QOL.

### 2.4. Data analysis

The descriptive analysis expressed the values of mean and standard deviation or median and quartiles (25–75%) of each variable group after the Shapiro-Wilk test as well as relative and absolute frequency in case of categorical variable. In order to compare three or more subgroups, the Kruskal–Wallis test was used and to compare two subgroups, the Mann–Whitney test was applied.

Multiple linear regressions with the stepwise method were used to obtain a parsimonious model that allowed the prediction of BSHS-R subscales (including the total) as a function of the independent variables (sociodemographic and burn history). The assumptions of independence of errors were calculated through Durbin–Watson with an acceptable range of between 1.5 and 2.5 as well as the influential cases being measured by Cooks' distance. The VIF (variance inflation factor) was used to diagnose multicollinearity and any variable with a value of above 5 was not tolerated. Adjusted $R^2$ was utilized in order to reduce the inflation in $R^2$. Some independent variables were used in the regression model as dummies (for instance, occupation and environment of trauma occurrence). Statistical significance was set at 5% and the software IBM-SPSS, version 20.0 was used.