

QUALITY OF LIFE IN BURN PATIENTS IN GREECE

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SUMMARY. The Burn Specific Health Scale – Brief (BSHS-B) is one of the most commonly used instruments for the evaluation of quality of life after burn injury. It can be self-administered, and it is useful in evaluating psychopathological symptoms in burn victims. The aim of this study was to translate and culturally adapt the BSHS-B into Greek, assessing its internal consistency and validity. The cultural adaptation included forward and backward translation, reconciliation, and a pilot study. The Greek version was administered to a sample of 40 adult burn victims admitted to our Burn Centre. Internal consistency was verified using Cronbach's alpha, and construct validity was evaluated through correlation with the Short Form of Health Survey Questionnaire (SF-36) using Spearman analysis. The Cronbach alpha coefficient of the questionnaire's total score was 0.954, demonstrating that the internal consistency of the Greek version was very high. The test-retest coefficient using kappa correlation was 0.830 ($p < 0.001$). Significant correlations were identified between BSHS-B subscales and the SF-36 subscales - Physical and Social Functioning, and Emotional Role. Despite the limited size of the sample, the Greek version of the BSHS-B shows good reliability and construct validity and can be used in clinical practice for further evaluations of burn patients' quality of life.

Keywords: quality of life, burn injury, post-burn patient evaluation, specific instrument

Introduction

The Burn Specific Health Scale (BSHS), originally developed to reflect the morbidity associated with burn injuries, is the only condition-specific measure of health status currently in use for the burn injury population.¹ Health as defined by the World Health Organization is not only a biological but a bio-psycho-social phenomenon, which, apart from the absence of illness, consists of wellness and functionality of an individual at all levels of life.²

Burn injuries are an important factor of morbidity and mortality. In Greece, about 4,000 burn victims present each year to hospitals and burn centres of the country due to a variety of causes, extent, and severity of burn trauma.³⁻⁵ The impact of socioeconomic status on health has been extensively studied, and it has been shown that low socioeconomic status is related to lower values of various health and quality-of-health measures.⁶ The aim of medical services is no longer to simply treat diseases or give relief to

symptoms, but to improve the overall health, promoting and ensuring an adequate quality of life.⁶⁻¹⁰

Rehabilitation of the patient starts on the day of injury and comprises measures that are also undertaken during the phase of highly specialized and technologically focused intensive care. Active surgical treatment of wounds and scars, as well as physiotherapy and occupational therapy, continue long after the patient has left the intensive care unit, and they are part of the process of regaining functional capacity. Along with this physical approach, psychological and psychosocial issues are actively addressed in order to identify and treat severe comorbid conditions such as post-traumatic distress disorder (PTSD), mood and substance use disorders, and less pronounced psychological problems that may interfere with compliance to various rehabilitation measures.^{11,12}

Since 1980, international organizations such as the World Health Organization, the European Commission, and the Organization for Economic Cooperation and Develop-

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ment have developed methodologies which provide the theoretical interpretation and measurement of well-being and quality of life. There is an increasing interest in developing and accessing instruments to measure health-related quality of life in the general population (generic measures), and in specific groups of patients (disease specific measures).^{13, 14}

The Burn Specific Health Scale (BSHS) is the only condition-specific health status instrument for use in patients with burn injuries. Originally developed in 1982 by Blades et al.,¹ it was subsequently abbreviated¹⁵ and revised (BSHS-R).¹⁶ Finally, in 2001, a short version (BSHS-B) was produced.¹⁷ It is a self-administered questionnaire and the different versions have been translated into several languages. Among all the specific instruments available for measuring burn patients' quality of life, BSHS-B is the most widely used.¹⁸ The BSHS-B has 40 items covering nine domains (heat sensitivity, affect, hand function, treatment regimens, work, sexuality, interpersonal relationships, simple abilities, and body image). The short version is commonly cited in the literature and it was developed because of perceived shortcomings with respect to other versions in covering aspects of burn-specific health and intercorrelation of domains and subdomains.¹⁹

Limitations include the lack of information on clinically important changes, possible ceiling effects, and minimal comparison with other measures. There is a need for further research to investigate these clinimetric issues but the BSHS-B does represent an attractive option for the assessment of burn-specific health status in conjunction with generic measures of quality of life such as the Short Form 36 Health Survey Questionnaire (SF-36).²⁰ The above limitations were reported in the literature, but generally it is easy to use: it takes ten to fifteen minutes to be completed, and five minutes to be rated.

The aim of this study was to translate and culturally adapt the BSHS-B into Greek, and to present the preliminary results of this validation project, assessing the internal consistency (reliability of the scale) and construct validity.

Materials and methods

Procedure

The specific instrument (BSHS-B) was forward and backward translated from the Swedish original version into Greek by two independent researchers, and then elaborated by consensus using a third expert, according to the procedure proposed by the "Trust Scientific Advisory Committee". This version was culturally adapted via detailed discussion item by item and word restatement (while preserving the essential characteristics of the questionnaire), in a pilot group of ten patients, and the result was the final Greek version of the questionnaire.

Sample-data collection

The survey was conducted from April 2011 to April 2012 (1-year period) and it involved a sample of 40 burn patients admitted to the Burn Unit of Plastic and Reconstructive Surgery's Clinic (O Evaggelimos General Hospital, Athens). The sample population consisted of adult individuals. All the instruments were administered during the first month of hospitalization of the burn patients. Data concerning gender, age, percentage of total body surface area burned, depth of burn, education, and employment status were collected. The survey was approved by the scientific committee of the hospital and it was conducted according to the principles of data protection and confidentiality.

Instruments

- The BSHS-Brief (disease specific instrument). The BSHS-B takes 10-15 minutes to complete and 5 minutes to score. Responses are made on a 5-point scale from 0 (extremely) to 4 (none/not at all) for each of the 40 items and patients are asked to select the best answer. Mean scores are calculated for each of the domains.
- The Short Form 36 Health Survey Questionnaire (SF-36) is a generic questionnaire used to assess and evaluate general health conditions. SF-36 in Greece has proven reliability and validity.^{21,22}

Both instruments were administered by the same trainee plastic surgeon.

Statistics

For the variables, mean and standard deviations were calculated, while the correlations were calculated using Spearman Rho and Cronbach's α used to calculate the internal consistency of the instrument. The statistical analysis was performed using the statistic program SPSS (version 20).

Results

The sample consisted mostly of male individuals (73.6%), aged around 52, more often employed, with medium level of education and approximately 15% of total body surface area burned (*Table I*).

Internal consistency was calculated for the whole instrument, and separately for the nine subscales using Cronbach's alpha value (*Table II*). High level of internal consistency was observed for the total instrument.

Test-retest reliability was evaluated using kappa correlation coefficient ($k = 0.830$, $p < 0.00001$). Construct validity was investigated through correlation with the generic instrument SF-36 (*Table III*). Several correlations were found between BSHS-B subscales and the SF-36, related to the physical and social functioning domain and

Table I - Demographic data of burn patients (N = 40)

Gender	
Male	73.6%
Female	26.4%
Age (yr)	52.20 (SD 18.49) (range 18-88)
Education	
< 9 yr	47.1%
> 9 yr	52.9%
Employment	
Unemployed	32.4%
Employed	44.1%
Retired	20.6%
Student	2.9%
Burned % TBSA	15.59 (SD, 13.02) (range: 2-52)

Table II - Cronbach's alpha values

	Cronbach's alpha
Total instrument	0.954
Simple abilities	0.805
Hand function	0.929
Work	0.830
Affect	0.850
Relationships	0.431
Sexuality	0.581
Body image	0.839
Heat sensitivity	0.814
Treatment regimens	0.917

Table III - Correlations (Spearman) between BSHS-B and SF-36 subscales

BSHS-B	SF-36	
Simple abilities	Physical functioning	-0.58*
Hand function	-	-
Work	-	-
Affect	Role emotional	-0.41*
Relationships	Social functioning	-0.37*
Sexuality	-	-
Body image	-	-
Heat sensitivity	-	-
Treatment regimens	-	-
*p<0.01		

the emotional role domain. Higher scores in the SF-36 questionnaire demonstrate a better quality of life, so that the significant correlations between BSHS-B and SF-36 were negative.

Discussion

The Greek version of BSHS-B revealed a high score

with Cronbach's alpha index, suggesting an excellent rate of internal consistency.^{23,24} Cronbach's alpha values were higher than 0.9 both for the whole instrument and for 2 subscales out of 9, and higher than 0.8 for 5 subscales out of 9. Low index measures were found for the subscales of interpersonal relationships (0.431) and sexuality (0.581). This could be interpreted as a difficulty in speaking about interfamilial and interpersonal relationships - a sign of the conservative Greek society. This assumption requires further investigation.

Another necessary and sufficient prerequisite when measuring reliability of an instrument is test-retest reliability. Test-retest reliability assesses the degree to which test scores are consistent from one test administration to the next. Measurements are gathered from the values obtained by the same person at two different times as reported in other studies.^{25,26} For the Greek version of BSHS-B, this criterion, as measured with kappa coefficient, was high (0.83). As a result, repeatability was confirmed and variability was excluded.

Validity verification follows reliability. Establishing the validity of an index implies its comparison with a gold standard. Both reliability and validity are required to assess applicability of an instrument.²⁷ Construct validity was investigated through correlation with scales of the generic instrument SF-36. The Greek version of BSHS-B exhibited positive correlations with SF-36, indicating good construct validity. Subscales of simple abilities, affect, and interpersonal relationships in the BSHS-B were related respectively to domains of physical functioning, role, and emotional and social functioning in SF-36.

The limitations and concerns of this study are related to the small sample size, therefore a greater sample in future studies is needed to generalize the results in primary care, without reducing the applicability of this Greek version of the BSHS-B in clinical practice. There seems to be a more or less obvious reciprocity between sample size and attrition, and a way out of this dilemma would be the use of better developed routines for conducting multicentric studies, in particular focusing on the longitudinal course.²⁷

Conclusions

The proposed Greek version of BSHS-B shows reliability and good construct validity. The size of the BSHS-B is likely to be suitable for further clinical use as a self-administered interview for post-burn patients, as there is an increasing need for an integrated approach with a psychological evaluation. A more representative sample needs to be evaluated in order for the BSHS-B to be used as a screening instrument for identifying psychopathological conditions related to burn injury and for evaluating the efficacy of clinical practice in preventing mental disorders and in improving the quality of life of patients.

RÉSUMÉ. La Burn Specific Health Scale (BSHS) - Brief (Echelle sanitaire spécifique pour les brûlures – version brève) constitue un des instruments les plus communs utilisés pour l'évaluation de la qualité de la vie post-brûlure. L'échelle, qui peut être auto-administrée, est utile pour évaluer les symptômes psychopathologiques chez les victimes de brûlures. Le but de cette étude était de traduire et d'adapter la BSHS sur le plan culturel pour être utilisée dans la langue grecque, avec une évaluation de sa cohérence et validité interne. L'adaptation culturelle comprenait la traduction littérale avec rétrotraduction et version intermédiaire, et une étude pilote. La version grecque a été administrée à un échantillon de 40 grands brûlés adultes traités dans notre centre des brûlés. La cohérence interne a été vérifiée moyennant l'alpha de Cronbach et la validité du construit a été évaluée par corrélation avec la Forme Brève du Questionnaire sur la Santé (SF-36) utilisant l'analyse de Spearman. Le coefficient alpha de Cronbach du score total du questionnaire était 0,954, ce qui démontre que la cohérence interne de la version grecque était très élevée. Le coefficient test-retest utilisant la corrélation de kappa était de 0,830 ($p < 0,001$). Des corrélations significatives ont été constatées entre les sous-échelles BSHS et les sous-échelles de la SF-36 - Fonctionnement Physique e Social, et Rôle Emotionnel. Malgré les dimensions limitées de l'échantillon, la version grecque de l'BSHS-B montre une bonne fiabilité et validité de construit et peut être utilisée dans la pratique clinique pour d'autres évaluations de la qualité de la vie des brûlés.

Mots-clés: qualité de vie, brûlures, évaluation du patient brûlé, instrument spécifique

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