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Influencing factors of the quality of life in Chinese burn patients: Investigation with adapted Chinese version of the BSHS-B

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ABSTRACT

Objective: The study aims to evaluate the quality of life (QOL) in burn patients in China and find out principal influencing factors, so as to provide evidence for interventions.
Methods: A total of 271 burn patients in three major burn units in China were asked to fill in the adapted Chinese version (ACV) of the Burn Specific Health Scale-Brief (ACV BSHS-B) in order to seek out the principal influencing factors in combination with a self-designed demographic and disease condition questionnaire. Multivariable linear regression was used to analyse the principal influencing factors.
Results: The findings showed that there were seven principal influencing factors for the overall ACV BSHS-B score. They were: percent total body surface area (TBSA) burned (with the standardised regression coefficient being −0.594), burn area of lower limber (0.241), itch level (−0.227), pain level (−0.220), gender (0.217), mechanical ventilation (0.216) and hand deformity (−0.141).
Conclusion: QOL decreased in burn patients to different degrees depending on the intensity of burns. With a better understanding of influencing factors of burn patients' QOL, the medical and nursing staff can take specific countermeasures to help patients gain a higher QOL.

1. Introduction

Research statistics have shown [1] that the median lethal death (LD50) of burn patients was enhanced from 65% to 81% by the beginning of 1990s. With the decrease in mortality after burn, more and more researchers began to pay much attention to burn patients' quality of life (QOL). Burn-caused functional disorders and injuries make it inconvenient and difficult for patients to deal with daily life and social communications. Evaluation of QOL can comprehensively assess the impact of burn on the patients' psychological, physiological and social aspects, etc., which is conducive to the evaluation of prospective intervention and clinical treatment regimes and reasonable use of medical resources.

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Salvador-Sanza et al. [2] in Spain found that physical and psychological functions, as well as the body image of patients, changed after burn, especially in the case of severe burn and hand burn which caused much limitation for patients' rehabilitation. Severe burn not only caused a decrease in patients' daily life ability but also resulted in many complications, such as muscular atrophy, scar contracture, skeleton mummification, neuron impairment, itching, depression and pain [3] as well as the degree of co-operation on treatment [4]. The modification of burn patients' QOL is a complex process with interactive effects from physiological, social and psychological changes [5,6]. The ratio of burn area per total body surface area (TBSA), degree of burn, age and burn site were key factors that influenced burn patients' QOL [7,8]. In 1995, Tanuula [9] found that the total health scores of patients whose ages were more than 25 years with a burn area larger than 30% TBSA were obviously lower than those of other patients. The level of QOL in burn patients was low not only in the stage of hospitalisation but also during rehabilitation, which restricted the patient's return to society [10–12]. Moreover, burn patients seemed to have lower employment rates than the general population [13]. Further, the loss of employment would impact the patients' QOL [14,15]. With the measurement of self-rating scales, van Loey et al. [16] protested that more attention needed to be paid to the psychological recovery of patients who were discharged from hospitals. Ehde et al. [17,18] found that more than 1/3 of severe burn patients had sleep disturbance even 1 year after discharge. They might have severe posttraumatic stress symptoms and distress.

Thanks to the major improvements in burn care in the 20th century, mortality from burns has substantially decreased. Nowadays, even patients sustaining massive burns have high survival rates [19]. This has resulted in a shift in attention from mortality towards the functional outcome of burns. Survivors of major burns often experience considerable problems, affecting a broad range of functional dimensions. This includes physical problems, mental problems and social problems [19]. Moreover, small burns can also have significant consequences for a person's functioning, especially when the functional body areas such as the hands are affected [20].

The Burns Specific Health Scale (BSHS) was proposed in 1979 by Blades et al. [21,22] and it was followed by the abbreviated [23], revised [24] and brief versions published by Gerdin et al. in 2001 [25]. Subsequently, Echevarria-Guanilo et al. [26] and Litleré Moi et al. [27] brought the BSHS series into different countries [28–34], and Zhang et al. [35] developed the adapted Chinese version Burns Specific Health Scale-Brief (ACV BSHS-B) in 2012 with sound reliability and validity. However, no paper is yet available that describes the influencing factors which may predict the QOL of Chinese burn patients. This study aims at finding out the influencing factors of the quality of life in Chinese burn patients whose burn area is >10% TBSA with the ACV BSHS-B and a self-designed demographic and disease condition questionnaire.

2. Aim

The direct aim of this study is to find out the main influencing factors associated with Chinese burn patients' QOL. In addition, we hope that the results of this study can provide some references to clinicians. Some intervention measures or innovative treatments may be developed from the results of this study, which might improve the QOL of burn patients in the future.

3. Participants and methods

3.1. Participants

This study was approved by the Ethical Research Committees of the hospitals involved. A total of 271 burn patients from the Burn Center of Changhai Hospital in Shanghai City, Department of Burn Surgery, First People's Hospital of Zhengzhou City in Henan Province and Department of Critical Care Medicine, First Affiliated Hospital of Nanchang University in Jiangxi Province were chosen for questionnaire investigation between 1971 and 2010. The inclusion criteria were: (1) burn area >10% TBSA; (2) age >18; (3) discharged from the Burn Center for >2 years; (4) total hospital stay >10 days; (5) no mental diseases; and (6) understand written Chinese or could complete the questionnaires with staff's assistance. Those with one of the following conditions were excluded: (1) died during or after hospitalisation, (2) refused to participate in the investigation and (3) did not fill out the questionnaires completely. Questionnaire investigations were carried out via letters, interviews, e-mails and telephones. A follow-up reminder was sent by telephone or mail to those without a reply in a month.

3.2. Measures

3.2.1. Adapted Chinese version of BSHS-B

The QOL statuses of participants were measured with the ACV BSHS-B developed by Zhang et al., a 38-item inventory with six domains: simple abilities, body image, sexuality, affect, work and interpersonal relationships. The items were rated on a scale from 0 – all the time/great difficulty to 4 – never/no difficulty. The total Cronbach's alpha value was 0.97 and total split-half reliability was 0.98 [35].

3.2.2. Demographic and disease condition questionnaire

A self-designed demographic and disease condition questionnaire (DDCQ) was used, which listed 24 relevant factors that possibly had an impact on the QOL in burn patients based on literature review and clinical experience from researchers. It included: (1) participants' demographic information, such as: gender, age, educational background and length of stay (LOS); (2) place and time of burns happening; (3) area and degree of burns; (4) major intervention during hospitalisation, such as mechanical ventilation; (5) complications or symptoms during hospitalisation, such as: hand or foot deformity, pruritus and pain; and (6) rehabilitation and plastic surgery, such as surgery number, professional rehabilitation training.

3.3. Statistical analysis

A significance level of 0.05 was set for tests of hypotheses. All data were entered using Excel 2007 and analysed by Statistical