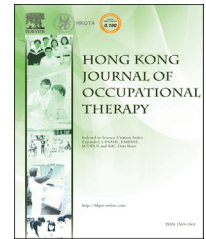




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ORIGINAL ARTICLE

# Functional Outcomes of Burn Patients With or Without Rehabilitation in Mainland China



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Received 13 May 2015; received in revised form 17 July 2015; accepted 22 August 2015  
Available online 30 November 2015

## KEYWORDS

burn injuries;  
functional outcomes;  
quality of life;  
rehabilitation;  
self-care  
performance

**Summary** *Background/Objective:* To evaluate the functional outcomes of moderate to severe burn patients with and without rehabilitation in terms of self-care performance and quality of life (QOL).

*Methods:* Fifty-five patients with total burn surface area of 30% or more were divided into two groups: rehabilitation and conventional care groups. The rehabilitation group underwent comprehensive rehabilitation interventions (e.g., occupational therapy, physiotherapy, and patient and family education) in addition to standard clinical interventions received by the conventional care group. The outcomes included self-care performance (Modified Barthel Index [MBI]), QOL (World Health Organization Quality of Life-BREF), pain and itchiness (Visual Analogue Scale [VAS]), quality of sleep, and mental health (Self-Rating Depression Scale [SDS] and Self-Rating Anxiety Scale) measured before and 3 months after the intervention.

*Results:* After the intervention, significant improvements were found in MBI, all dimensions of QOL, pain, and SDS in the rehabilitation group (all  $p < .05$ ). In the conventional care group, significant improvements were found only in MBI ( $p < .001$ ), the physical health dimension of QOL ( $p < .01$ ), and pain ( $p < .001$ ). Group comparisons showed that the rehabilitation group

**Funding/support:** This study was substantially supported by the Cynthia Tang Memorial Scholarship, Department of Rehabilitation Sciences of the Hong Kong Polytechnic University.

**Conflicts of interest:** All contributing authors declare that they have no conflicts of interest.

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<http://dx.doi.org/10.1016/j.hkjot.2015.08.003>

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achieved significantly better outcomes after the intervention in MBI ( $p < .001$ ), VAS score of itching ( $p = .009$ ), and the physical health ( $p = .002$ ), psychological health ( $p = .021$ ), and social relationships dimensions of QOL ( $p < .001$ ).

*Conclusion:* Patients with moderate to severe burn injuries can benefit from rehabilitation interventions in terms of physical health, mental health, performance of daily living, and QOL. Copyright © 2015, Hong Kong Occupational Therapy Association. Published by Elsevier (Singapore) Pte Ltd. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

## Introduction

Burns are one of the most devastating forms of injury and a major global public health crisis that severely endangers human life and health (World Health Organization, 2008). Burn injuries are considered to be the fourth most common type of trauma worldwide (Forjuoh, 2006; Peck, Molnar, & Swart, 2009; World Health Organization, 2008). The incidence of burns is 1.3/100,000 population in low- and middle-income countries, whereas in developed countries, it is 0.14/100,000 population (World Health Organization, 2008). No national-scale survey on burn incidence has yet been reported in Mainland China, but the actual incidence may be much higher than that in developed countries (Pan et al., 2011). According to Pan et al. (2011), the annual incidence of burns was 8.8–9.7/100,000 population in the Hainan Province of China. In addition, the survival rate of burn victims has risen to 92% for patients with more than 90% total burn surface area (TBSA) in Mainland China (Xu, 1997). Although most burn victims survive, they may suffer from multiple disabilities.

Burn injuries can create numerous barriers for patients even when immediate management is successful. The most common problems include the formation of hypertrophic scars, joint contractures, motor dysfunctions (such as loss of muscle strength, range of motion, coordination, and walking abilities), sensory disturbances (hypersensitivity, pain, itching, and loss of sensation), barriers to the activities of daily living (ADL), social problems, and psychological disturbances. Ultimately, the quality of life (QOL) and functional outcomes of burn survivors can be severely affected. Patients may experience negative effects in almost all aspects of their daily functions, physical health, and psychological well-being (Esselman, 2007; Meyers-Paal et al., 2000; Moi, Wentzel-Larsen, Salemark, Wahl, & Hanestad, 2006; Patterson et al., 1993). In Mainland China, burn rehabilitation is still under development and most doctors and hospitals focus on medical treatment rather than on rehabilitation (Chen et al., 2013). In addition, few hospitals or rehabilitation centres in China have a full team of professionals available to provide comprehensive rehabilitation for burn survivors (Chen et al., 2013). Therefore, many patients with burn injuries suffer from serious disabilities because of the lack of a treatment regimen and the concept of early rehabilitation after injury (Chen et al., 2013). In addition, without early rehabilitation to prevent and minimize scar formation, psychological and physical problems become more severe and in turn affect the functional outcomes of the patients.

A study of functional outcomes could help guide the assessment and treatment of patients during burn rehabilitation. Many previous studies around the world have shown that functional outcomes can be improved by rehabilitation interventions (Baker, Russell, Meyer, & Blakeney, 2007; Cowan & Stegink-Jansen, 2013; DeSanti, Lincoln, Egan, & Demling, 1998; Grisbrook et al., 2012; Sliwa, Heinemann, & Semik, 2005), but such studies of patients with burn injuries have been limited in Mainland China. The aim of this study was to evaluate and compare the functional outcomes of burn patients with and without rehabilitation in terms of self-care performance and QOL outcomes to provide insights to improve the current rehabilitation intervention practice in China, as well as in other parts of the world, and enhance the overall physical and mental health of burn survivors.

## Methods

### Study design and sampling of patients

A controlled clinical trial design was adopted to compare the functional outcomes of burn patients with and without rehabilitation interventions. Patients with moderate to severe burn injuries (TBSA  $\geq 30\%$ ) were recruited from a rehabilitation hospital (Guangdong Provincial Work Injury Rehabilitation Hospital) and four general hospitals (Guangzhou Red Cross Hospital, Nanfang Hospital, Guangdong General Hospital, and the First Affiliated Hospital of Sun Yat-Sen University) by convenience sampling. Patients were classified into two groups based on the intervention they would undergo, namely, the rehabilitation group (patients in the rehabilitation hospital) and the conventional care group (patients in the general hospitals). Informed consent to participate in this study was obtained from all patients. The study was approved by the Human Research Ethics Committee of the Guangdong Provincial Work Injury Rehabilitation Hospital (No. AF/SC-07/2013.01) and the Hong Kong Polytechnic University (No. HSEARS20150708003).

### Inclusion and exclusion criteria

The inclusion criteria included the following: (a) diagnosis of a burn injury, (b) adult aged 18–60 years, (c) the burn injury occurred during the previous 1–12 months, (d) the condition of the patient was stable and the wound had healed, and (e) the depth of burn was deep second degree or third degree. We excluded patients with severe

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