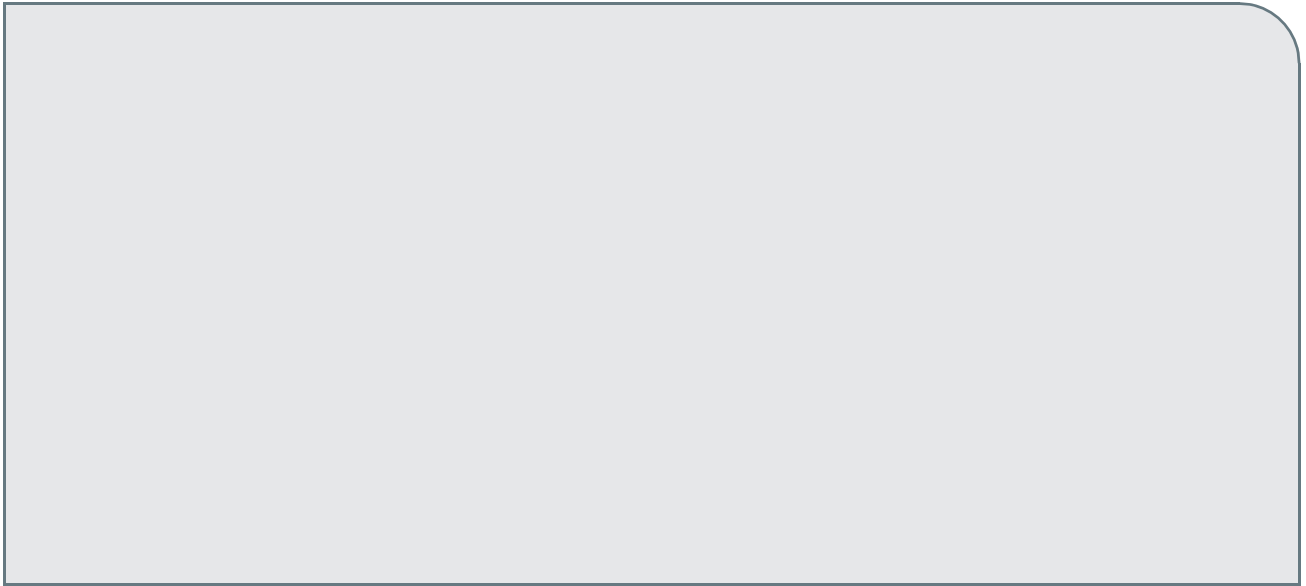


Effect of a Nurse-Led Rehabilitation Program: A Quasi-Experimental Study Examining Functional Outcomes in Patients With Hand Burns

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rehabilitation programs can help patients avoid undesired physiological complications, improve self-management practices, have a favorable effect on the patient's physical state, and eventually result in better performance (Gorbani et al., 2021; Waqas et al., 2016). However, inadequate data support solid recommendations for effective structure and content for nurse-led rehabilitation interventions related to severe hand burns because of the variety in the duration and structure of these interventions, patients' medical characteristics, and self-report functional outcome tools. Therefore, an assessment of the effectiveness of such nursing programs to enhance functional outcomes in patients with severe hand burns in underdeveloped countries such as Egypt is required. We believe that this study will be a helpful resource for burn nurses because it will provide scientifically validated data to support their clinical rea-

Table 1

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Table 1. (Continued)

Note. ...

burn care research's reported attrition rate of 20% (Bayuo et al., 2021), an additional six people were recruited for each group, for a total of 36 participants per group. Of the 450 patients selected for participation, 92 met the inclusion criteria, and 80 gave their verbal and written consent (final sample size: 80 participants; see Figure 1).

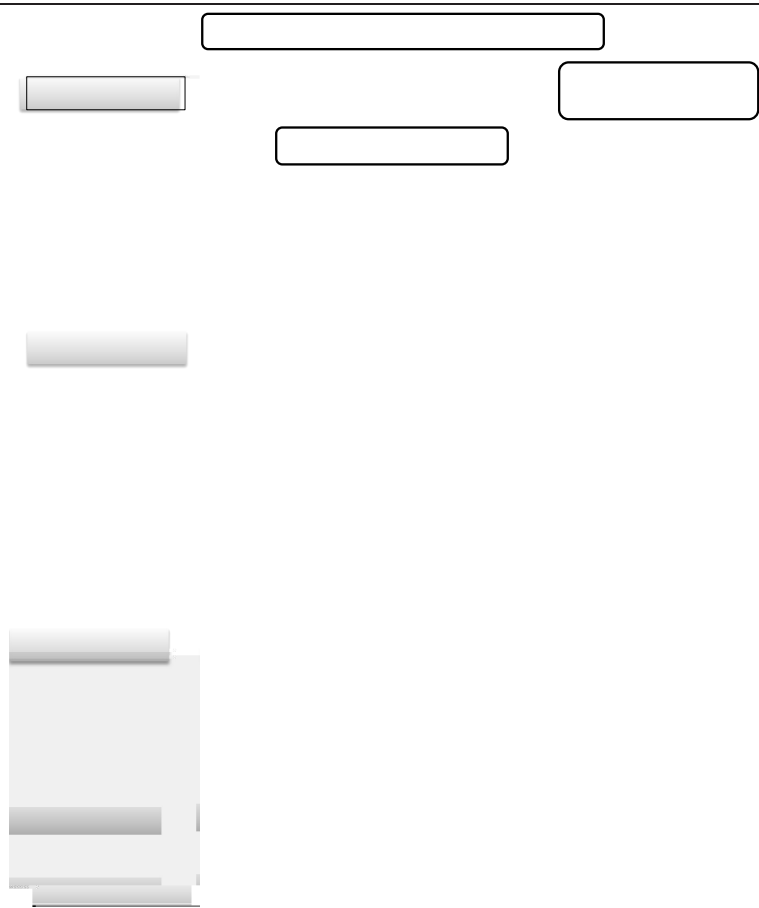
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The case information survey was used to measure the sociodemographic and medical characteristics of the participants. These included gender, age, marital status, education, residence, job status, cause of burn, degree and depth of burn, first aid, percentage of TBSA, skin graft, and affected joints. The DASH outcome survey was used

to assess the primary outcome (functional ability and disability or symptoms), and the HMFOC was used to assess the secondary outcome (hand motor performance).

DASH Outcome Questionnaire

Hudak et al. (1996) developed and validated the 30-item self-administered DASH outcome questionnaire to assess functional status and degree of disability or symptoms in patients with upper-limb musculoskeletal diseases, with an emphasis on the patient's ability to do various upper-extremity activities. It includes the following physical function, social, and symptoms-related domains: the level of difficulty in completing different physical activities as a result of hand, arm, or shoulder problems (21 items);



pain symptom intensity, tingling, stiffness, activity-related pain, and weakness (five items); and the impact of the problem on work, social events, self-image, and sleep (four items; Hudak et al., 1996). Participants can score interference and difficulty with ADLs on a 5-point Likert scale, with 1 indicating "not at all", 2 indicating "a little", 3 indicating "moderately", 4 indicating "quite a bit", and 5 indicating "very much". Participants who scored 30–66, 67–99, and 100–150 were considered to have mild, moderate, and severe disability and severity, respectively. Participants with scores of less than 33 were considered to have no disability. The DASH has been translated into 56 languages and has proven to be a reliable and valid tool for a wide range of upper-extremity problems, including second- or third-degree hand burns (Alotaibi, 2010; Aghajanzade et al., 2019; Gummesson et al., 2003; Perera et al., 2015; Sigirtmac & Oksuz, 2021). Cronbach's alpha, the test-retest correlation coefficient, and the content validity index for the DASH were .90, .96, and .71, respectively (Beaton et al., 2001). The DASH-Arabic version (Alotaibi, 2010) was employed in this study, with a Cronbach's alpha of .96. The DASH took 10–15 minutes to administer.

Furthermore, 62% in the intervention group and 65% in the control group had been burned by a flame, and 55% in the intervention group and 60% in the control group had third-degree burns. Regarding burn size, 62% of the intervention group and 67.5% of the control group had burn percentages ranging from 25% to 50%. Approximately 81% of the participants did not receive first aid following the burns, and only one participant in the intervention group received a skin graft. A chi-square test (χ

functional outcomes in adult patients with severe hand burns admitted to a burn unit at a teaching hospital in an Arab developing country. It found that the early nurse-led rehabilitation program had a significant effect on the patients' functional outcomes. Patients who received the intervention had better functional outcomes (as measured by DASH and MFIC) after 4 weeks than those who received only the routine hospital burn surgical intervention.

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interventions vary and evidence on effectiveness is ambiguous. Therefore, service gaps may emerge in providing early comprehensive rehabilitation support to patients with hand burns. Meeting this need requires developing and testing such programs to ensure that patients with hand burns obtain adequate care covering their needs in a coordinated and continuous manner. This nurse-led rehabilitation program offers additional knowledge about the planning and application of professional support for patients with hand burns as well as strengthening inpatient burn care. Early rehabilitation interventions for patients with severe hand burns are critical and should begin on the day of the burn (Lotfi et al., 2020; Procter, 2010). In addition, this model of care was developed in response to a global demand for early and continuous rehabilitation care for patients with burns (Herzog et al., 2020).

Few nursing studies have assessed hand function after severe hand burns, and the majority do not report functional outcomes. Seyedoshohadaee et al. (2022) and Aghajanzadeh et al. (2019) investigated the efficacy of a rehabilitation nursing program and occupational rehabilitation in enhancing hand burn patients' daily functioning and performance. They found significant differences in pre- and post-intervention mean DASH scores, indicating that the interventions were useful in reducing the challenges experienced by patients with hand burns during daily activities. The DASH is a tool for evaluating hand function status, disability, and symptoms and has been used extensively in interventional research to evaluate functional outcomes following hand burns. Although physical function is better measured by healthcare professionals through physical examination and observation, in their systematic review, Wilitavaara and Florin (2022) stated that the DASH, a patient-reported outcome measure, represents ADLs and gross motor tasks and performance, which is a practical way to assess physical function. After the interv

Some of the study's strengths should be highlighted. A detailed description of the rehabilitation program was included, as well as a variety of comprehensive interventional methods to improve functional outcomes (social support, involvement of families, health education sessions with audiovisual aids, a hand burn rehabilitation education booklet, and hand rehabilitation exercise sessions). This information could help other researchers in developing early and long-term nurse-led rehabilitation programs and interventions for patients of various ages with hand burns. Furthermore, based on current literature (system-

dailynewsegypt.com/2020/08/31/ahl-masr-hospital-for-burns-to-open-early

Alotaibi, N. M. (2010). Cross-cultural adaptation process and pilot testing of the Arabic version of the Disability of the Arm, Shoulder and Hand (DASH-Arabic). *Ergonomics*, 53(4), 80–86. 10.1258/ht.2010.010021.

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attributed to the rehabilitation intervention, which depends on the involvement of a trained team (registered nurse, expert burn nurse, and senior physiotherapist). Therefore, this study provides data to support the effectiveness of such programs that addressed the rehabilitation nursing model's role in improving functional outcomes for adult patients with burns. Furthermore, it has ramifications for the future allocation of resources in Egypt's rehabilitative settings. To our knowledge, studies are lacking on the effect of nurse-led rehabilitation programs or interventions on functional outcomes in Egypt. The findings of this study could influence future research as well as the development of evidence-based practice for burned hands in inpatient nursing rehabilitation.

Conflict of Interest

The authors declare no conflict of interest.

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