

A Scoping Review of Disabilities of the Arm, Shoulder, and Hand Scores for Hand and Wrist Conditions

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Purpose To evaluate the variability of reported baseline Disabilities of the Arm, Shoulder, and Hand (DASH) scores for non-acute hand and wrist conditions. We hypothesized that DASH scores for evaluation of hand and wrist pathology would provide a map of scores that would correspond to severity. In addition to providing a catalog of DASH scores for various upper extremity pathologies, we hypothesized that this review would support the validity of the DASH instrument.

Methods A literature search was performed using 3 databases (MEDLINE, EMBASE, and Cochrane Central Register of Controlled Trials) from the earliest available date through January 1, 2013. Search terms included “DASH” and “hand” and combinations of conditions found in the initial search. The search was restricted to studies with baseline DASH scores and DASH scores for isolated conditions, and written in the English language.

Results Our search identified 1,770 citations; 136 full-text articles were reviewed and 85 studies were included in the scoping review. This provided 100 DASH scores mapped for 24 different diagnoses. Most articles (67%) included chronic conditions for inflammatory or degenerative pathologies rather than posttraumatic disorders. Posttraumatic DASH score reporting ranged from 4 months to 11 years after injury, and final outcome scores varied among studies assessing the same pathology. The greatest variation and highest scores were for de Quervain tendinitis (range, 29–93) and scapholunate advance collapse (range, 17–89). These scores indicated higher disability in de Quervain tendinitis and wrist osteoarthritis compared with conditions such as thumb amputation and upper extremity replantation.

Conclusions Substantial variation in the DASH scores and methodology was found and indicates a need for further study of the DASH to allow for standardized interpretation. (*J Hand Surg Am.* 2014;39(12):2472–2480. Copyright © 2014 by the American Society for Surgery of the Hand. All rights reserved.)

Type of study/level of evidence Therapeutic III.

Key words Outcomes, DASH scores, scoping review.

OUTCOME STUDIES COMMONLY RELY ON patient reporting through validated questionnaires as the primary means of evaluation. Self-report questionnaires were developed to assess patient outcome with the aim of providing a single assessment

tool that would be applicable to all conditions to compare disability and possibly combine clinical research studies.^{1,2} The Disabilities of the Arm, Shoulder, and Hand (DASH) questionnaire is one of the most commonly used measures to assess upper

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Received for publication October 31, 2013; accepted in revised form July 29, 2014.

No benefits in any form have been received or will be received related directly or indirectly to the subject of this article.

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0363-5023/14/3912-0020\$36.00/0
<http://dx.doi.org/10.1016/j.jhssa.2014.07.050>

extremity disability and provide a global assessment of it.^{1,2} Clinicians can use the DASH in daily practice for clinical or research purposes because this instrument was designed to be a brief, self-administered measure of disability. The DASH is a 30-item questionnaire that assesses disability based on physical symptoms and function; it has demonstrated validity, reliability, and responsiveness to upper extremity disability assessment.^{3–6}

Disabilities of the Arm, Shoulder, and Hand scores are widely reported for a range of acute and chronic upper extremity pathologies. In the setting of acute pathology, the DASH can be used to measure immediate posttraumatic status or to follow the change in patient-reported disability over the course of recovery. Alternatively, the DASH can be applied to establish baseline disability for hand and wrist pathology arising from degenerative, inflammatory, or chronic posttraumatic conditions, which would then represent a point of reference to follow over the course of treatment. Various systematic reviews of the literature have discussed the DASH with respect to the clinimetric properties.^{7,8}

Scoping review studies are a qualitative version of a systematic review and aim to map the key concepts underpinning a research area and the main sources and types of evidence available.^{9,10} A scoping review addresses a broader topic in which many different study designs can be reviewed to give an overview of the specific area. In contrast to a systematic review of the literature, a scoping review does not address specific hypothesis-driven research questions nor does it assess the quality of the included studies. Instead, a scoping review identifies gaps in the literature and develops potential future research questions.

The purpose of this scoping study was to compile reported DASH scores for nonacute hand and wrist conditions. Given our initial results, our secondary aim was to assess how the DASH has been measured among different patient populations. Specifically, we investigated the following research questions: What DASH scores have been reported for different chronic inflammatory, degenerative, and posttraumatic pathologies? Does the trend of reported scores correspond to the severity of the condition? How has the DASH been used to measure disability in different patient populations?

MATERIALS AND METHODS

This scoping review followed the 5 stages outlined by Arksey and O'Malley⁹: identifying research questions; identifying relevant studies; selecting the study;

charting the data; and collating, summarizing, and reporting results.

Search strategy

We identified relevant articles by searching the following databases from the earliest available date through January 1, 2013: MEDLINE, EMBASE, and the Cochrane Central Register of Controlled Trials. Combinations of the search terms “DASH” and “hand” were used and were restricted to the English language. Further refinements to the search were imposed post hoc and included combinations of the following search terms: “DASH,” “Dupuytren contracture,” “replantation,” “amputation,” “lymphedema,” “cubital tunnel syndrome,” “carpal tunnel syndrome,” “ulnar impaction syndrome,” “thumb trapeziometacarpal osteoarthritis,” “scapholunate advanced collapse” (SLAC), “scaphoid nonunion advanced collapse” (SNAC), “SLAC and SNAC wrist,” “distal radius malunion,” “peripheral nerve,” “brachial plexus,” “de Quervain,” and “trigger finger.” Searches were modified to account for variation in terminology. For example, the post hoc searches for “ulnar impaction syndrome” were repeated with different terminology, including “ulnocarpal abutment” and “ulnar positive variance.” To increase the sensitivity of the search strategy, we also searched the gray literature (publications not found in journals or books) and other sources such as Web sites of relevant hand surgery organizations (American Society for Surgery of the Hand, American Association of Hand Surgery, International Federation of Societies for Surgery of the Hand, Federation of European Societies for Surgery of the Hand, South American Federation for Surgery of the Hand, and International Federation of Societies for Hand Therapy).

Article selection

Figure 1 shows the article search and selection process. The titles and abstracts of all articles reporting DASH scores for hand and wrist pathology were reviewed. We selected articles that reported DASH scores for a patient sample with a single pathology. For example, if the patient population being studied in an article had both complex regional pain syndrome and carpal tunnel syndrome, this article would be excluded. For our study, we were interested in pathologies that represent chronic inflammatory, degenerative, or posttraumatic hand and wrist conditions. The DASH scores for acute conditions after trauma were not a component of the search strategy. Minimum inclusion criteria were reporting baseline DASH scores (preoperative) for each condition and DASH scores for isolated conditions. These conservative criteria were chosen to

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