



3rd ASIAN PACIFIC CONFERENCE ON PUBLIC HEALTH

Validation of a Malay Version of Disability of Arm, Shoulder and Hand Questionnaire (MVDASH)

Dr. Ameer Al-Husuny

Prof. Dr. Lekhraj Rampal

Assoc. Prof. Dr. Manohar Arumugam

Assoc. Prof. Dr. Hejar B. Abdul Rahman

Dr. Jama`Yah Binti Zakaria

INTRODUCTION



❖ Hand injuries are the most common body injuries. They constitute 28.6% of all injuries and occur more frequently in age group between 20-40 years.

(Trybus *et al.*, 2006)


❖ Wrist, forearm and elbow frequently coexist with hand injuries and as such it is useful to assess these injuries by using one outcome measure like **Disabilities of the Arm, Shoulder and Hand (DASH)** Questionnaire for upper extremities problems.

(Urso-Baiarda *et al.*, 2008; Gummesson *et al.*, 2003; Davis *et al.*, 1999)

DASH is a self-administered instrument developed to evaluate upper extremity disability and symptoms by considering the upper extremity as one functional unit.

(Urso-Baiarda *et al.*, 2008; Gummesson *et al.*, 2003; Solway *et al.*, 2002 Davis *et al.*, 1999)

DASH DESCRIPTION

- ❖ The main part of the DASH is a **30-item** disability/symptom scale which contributed to **patient's health status**. 
- ❖ The first **21 items** ask about the degree of difficulty in performing different **physical activities** in the arm, shoulder, or hand.
- ❖ The next **5 items ask about** symptoms of pain, tingling, weakness and stiffness evaluates the **severity of injury**.
- ❖ In addition, **4 items** are on the effects of these injuries in relation to patient's **social activities, work, sleep, and self-image**.
- ❖ Each item has **five response options** using Likert-like scale. Responses are rated between **0** (no difficulty) to **5** (unable).
- ❖ The **overall scores** for all items ranged from **0** (no disability) to **100** (most severe disability).
- ❖ The score **were excluded** if more than **3 items** (10%) of the questionnaire were **missed** by the respondent.

(Gummesson *et al.*, 2003; Beaton *et al.*, 2001)

DASH TRANSLATION AND VALIDATION

- ❖ **DASH** Questionnaire has already been translated into several languages, worldwide.
- ❖ **DASH** reliability and validity has been carried out for the English American, German, Italian, Spanish, Swedish, French and Dutch.
(Padua et al., 2003; Offenbacher et al., 2003; Rosales et al., 2002; Veehof et al., 2002; Beaton et al., 2001; Dubert et al., 2001; Atroshi et al., 2000)
- ❖ A Malay version of **DASH** is lacking.
- ❖ This study was done to translate the **DASH** Questionnaire from the English language into a Malay version of DASH (**MVDASH**) and to evaluate its reliability and validity.

MATERIALS AND METHODS



DASH Translation

- Forward and backward translation according to the Published **DASH** Translation Guidelines.
(Beaton *et al*, 2000; Guillemin *et al*, 1993)
- The forward translation from English into Malay version was performed by five professionals and five other professionals for backward translation.

Test Reliability

- Cronbach's alpha was used to measure internal consistency reliability.
- The inter-rater reliability was then carried out for homogeneity.

Face Validity

- The questionnaire was validated by administering it to **30 patients** from orthopaedic ward in Serdang Hospital.
- These patients were requested to give their comments about the **language, level of understanding** and **overall format** of the **MVDASH**

Data Analysis

- **Descriptive analysis** was done for the translation methods and face validity technique.
- The **statistical analysis** was done to determine Cronbach's alpha value, as well as, intra-class correlation ICC.
- **SPSS** (version 18.0) was used for the data analysis.

RESULTS



DASH TRANSLATION

- ❖ All the translators involved in the **forward** and **backward** translations were in **agreement** regarding terms of the content.
- ❖ **Modifications** were made in the Malay adaptation after intensive discussions by the researchers involved in the translation process.
- ❖ finally the researchers decided to present the **entire 30 questions** in this final Malay version of **DASH**.

TEST RELIABILITY

❖ Internal consistency

Cronbach's alpha was 0.99 for the overall MVDASH, while for the physical components; it was 0.98. For the symptom and social components were 0.94 and 0.95 respectively.

❖ Inter-rater reliability

Intra-class correlation coefficient (ICC) was 0.943.

FACE VALIDITY

- ❖ The mean age for the 30 patients was 34.60 ± 12.56 years. All of the patients were male.
- ❖ The analysis for their responses showed that **MVDASH** is well accepted and understandable in related to the translated language, understanding and overall format.

FACE VALIDITY

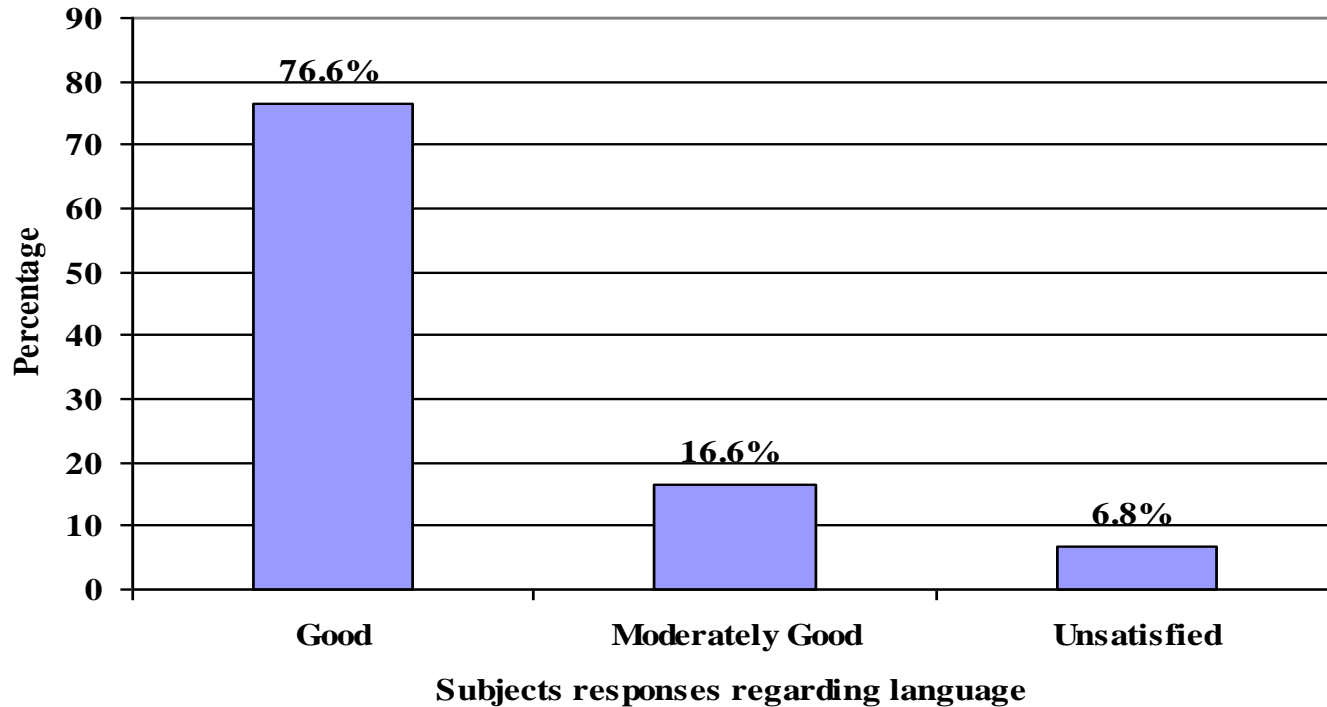


Figure 1: Subject's response regarding the language of MVDASH

FACE VALIDITY

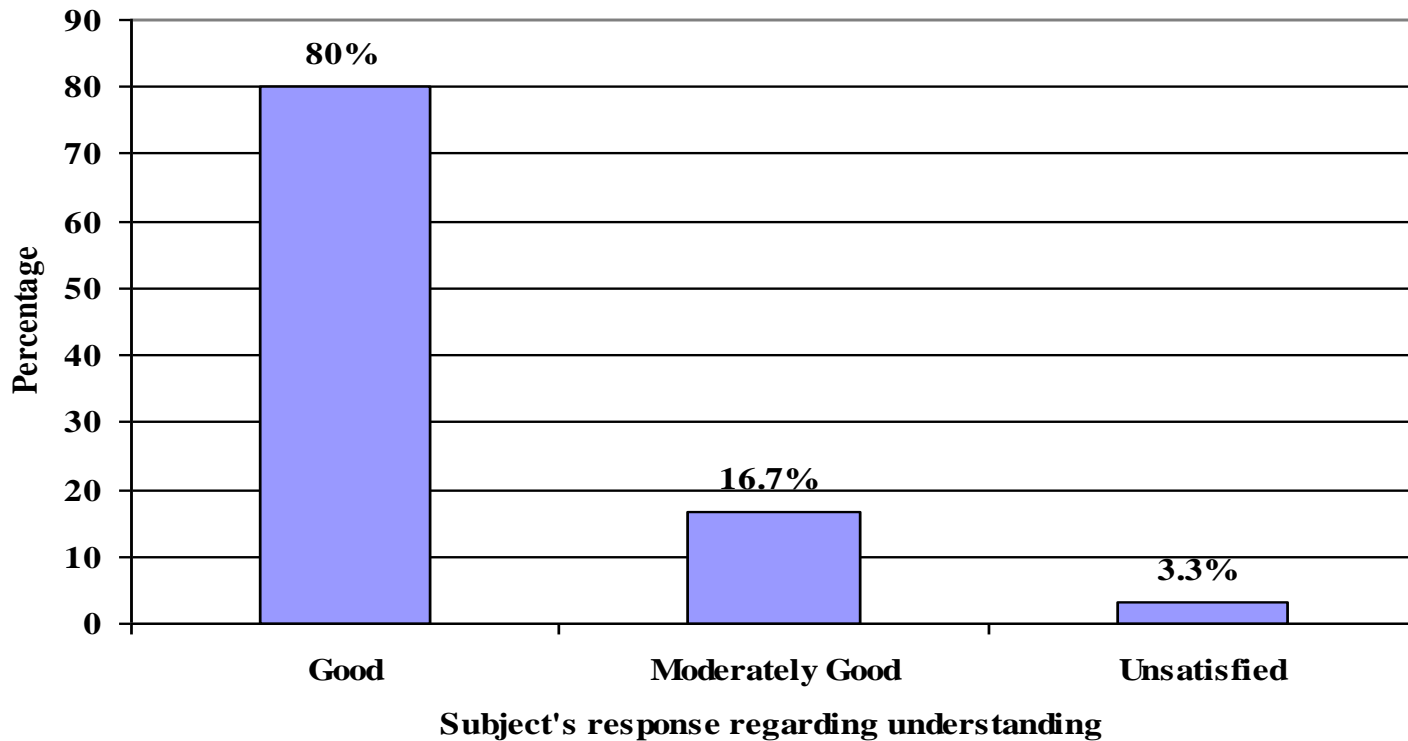


Figure 2: Subject's response regarding the **understanding** of **MVDASH**

FACE VALIDITY

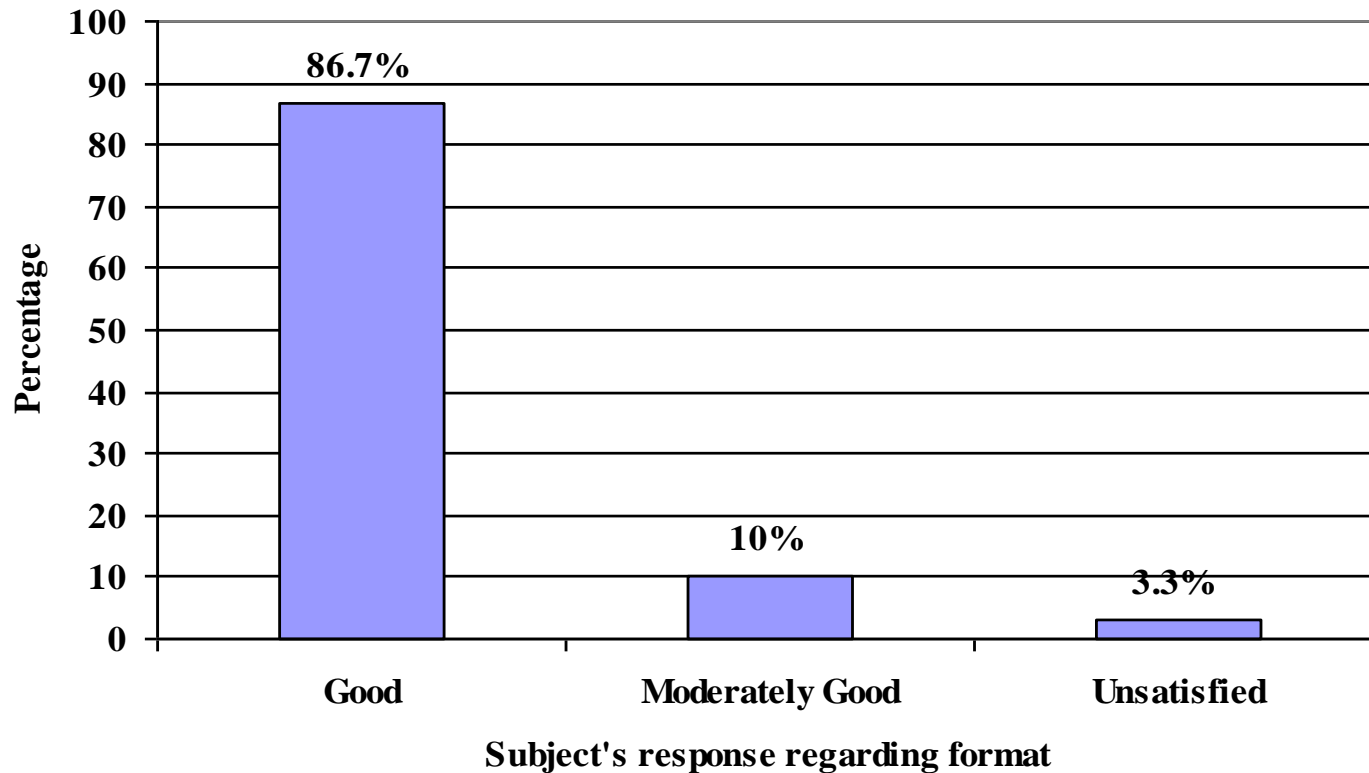


Figure 3: Subject's response regarding the **overall format** of **MVDASH**

DISCUSSION AND CONCLUSIONS



❖ Increasing usage of **DASH** as an **outcome** instrument to measure disability of the upper extremity is due to its ability to measure problems of the **whole upper extremity**.
(Offenbacher *et al.*, 2003)

❖ **DASH** Questionnaire has already been translated into **several languages**. This translation of **DASH** into **Malay** version is timely and of much relevance to Malaysia.

❖ The **internal consistency** of the **Total DASH**, as well as, **physical**, **symptom** and **social** components fulfilled the level recommended for individual patients according to Streiner.

(Streiner *et al.*, 2003)

❖ The **validation** process of the Malay **DASH** Questionnaire showed **high internal consistency** which is similar reliability to the **original English** version as well as to the **German**, **Italian**, **Spanish**, **Swedish** versions.

(Offenbacher *et al.*, 2003; Padua *et al.*, 2003; Rosales *et al.*, 2002; Beaton *et al.*, 2001; Atroshi *et al.*, 2000)

CONCLUSIONS

- ❖ A well-translated and culturally adapted MVDASH was developed to produce a reliable and validated version for clinical, research and compensation use at the end of the study.
- ❖ The internal consistency and Inter-rater reliability of MVDASH was very high. The face validity showed a good understanding of the questionnaire by the respondents with regards to language and the overall format.

REFERENCES

- Atroshi I, Gummesson C, Andersson B, Dahlgren E, Johansson A. The disabilities of the arm, shoulder and hand (DASH) outcome questionnaire: reliability and validity of the Swedish version evaluated in 176 patients. *Acta Orthop Scand.* 2000; 71(6), 613-618.
- Beaton DE, Bombardier C, Guillemin F, Ferraz MB: Guidelines for the process of cross-cultural adaptation of self-report measures. *Spine*, 2000; 25:3186-3191 Trybus M, Lorkowski J, Brongel L, Hladki W. Causes and consequences of hand injuries. *Am J Surg.* 2006; 192(1): 52-57.
- Beaton DE, Katz JN, Fossel AH, Wright JG, Tarasuk V, Bombardier C. Measuring the whole or the parts? Validity, reliability, and responsiveness of the Disabilities of the Arm, Shoulder and Hand outcome measure in different regions of the upper extremity. *J Hand Ther.* 2001; 14(2), 128-146.
- Davis AM, Beaton DE, Hudak P, Amadio P, Bombardier C, Cole D, et al. Measuring disability of the upper extremity: a rationale supporting the use of a regional outcome measure. *J Hand Ther.* 1999, 12(4), 269-274. Urso-Baiarda F, Lyons RA, Laing JH, Brophy S, Wareham K, Camp D. Prospective evaluations of the Modified Hand Injury Severity Score in predicting return to work. *Int J Surg.* 2008; 6(1): 45-50.
- Dubert T, Voche P, Dumontier C, Dinh A. [The DASH questionnaire. French translation of a trans-cultural adaptation]. *Chir Main.* 2001; 20(4), 294-302.
- Guillemin F, Bombardier C, Beaton D. Cross-cultural adaptation of health-related quality of life measures: literature review and proposed guidelines. *J Clin Epidemiol.* 1993; 46(12), 1417-1432.
- Gummesson C, Atroshi I, Ekdahl C. The disabilities of the arm, shoulder and hand (DASH) outcome questionnaire: longitudinal construct validity and measuring self-rated health change after surgery. *BMC Musculoskelet Disord.* 2003; 4, 11.
- Solway S, Beaton DE, McConnell S, Bombardier C. *The DASH Outcome Measure User's Manual*, 2nd ed. Toronto: Institute for Work & Health, 2002.
- Offenbacher M, Ewert T, Sangha O, Stucki G. Validation of a German version of the 'Disabilities of Arm, Shoulder and Hand' questionnaire (DASH-G). *Z Rheumatol.* 2003; 62(2), 168-177.
- Padua R, Padua L, Ceccarelli E, Romanini E, Zanolli G, Amadio PC, et al. Italian version of the Disability of the Arm, Shoulder and Hand (DASH) questionnaire. Cross-cultural adaptation and validation. *J Hand Surg Br.* 2003; 28(2), 179-186.
- Rosales RS, Delgado EB, Diez de la Lastra-Bosch I. Evaluation of the Spanish version of the DASH and carpal tunnel syndrome health-related quality-of-life instruments: cross-cultural adaptation process and reliability. *J Hand Surg Am.* 2002; 27(2), 334-343.
- Streiner D, Norman GR: *Health measurement scales. A practical guide to their development and use.* 3rd ed: Oxford Medical Publications, 2003.
- Trybus M, Lorkowski J, Brongel L, Hladki W. Causes and consequences of hand injuries. *Am J Surg.* 2006; 192(1): 52-57.
- Urso-Baiarda F, Lyons RA, Laing JH, Brophy S, Wareham K, Camp D. Prospective evaluations of the Modified Hand Injury Severity Score in predicting return to work. *Int J Surg.* 2008; 6(1): 45-50.
- Veehof MM, Slegers EJ, van Veldhoven NH, Schuurman AH, van Meeteren NL. Psychometric qualities of the Dutch language version of the Disabilities of the Arm, Shoulder, and Hand questionnaire (DASH-DLV). *J Hand Ther.* 2002; 15(4), 347-354.

Thank you

for your attention