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Validation and Reliability of the Gujarati Version of the Shoulder Activity Level Scale (SALS)

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ABSTRACT

Background: Shoulder Activity Level Scale (SALS) is a reliable and valid tool that helps to measure Shoulder activity of an individual.
Materials and Method: SALS was translated into Gujarati from English using forward-backward-forward method. Face & content validity of Gujarati version of SALS is assessed by group consensus method. Group of experts in field of Medicine, Physiotherapy and language has analyzed each question for content, meaning, ease of administration. Concurrent validity has been assessed by comparing the English version of SALS with Gujarati version of SALS.
Statistical Analysis: Spearman's correlation coefficient was used to assess the strength of association between the measures of both the versions. Cronbach's alpha was used to assess reliability of Gujarati version of SALS
Results: There is a significant internal consistency (Cronbach' alpha=0.895; $p<0.05$) and significant test-retest reliability found for SALS Gujarati version. Spearman's correlation coefficient ($\rho=0.94$) suggested Significant correlation between original English and translated Gujarati scales.
Conclusion: Gujarati version of Shoulder Activity Level Scale has a good validity and reliability.

Key words: Gujarati SALS, translation of SALS, validity and reliability of Shoulder activity level scale.

INTRODUCTION

The shoulder joint is unique piece of human body having greatest joint range of motion than the other joints of the body. Its greatest range of motion or mobility make it more prone for shoulder problems. Important structure of the shoulder complex mainly include bones, joints, muscles, ligaments, tendons , nerves, blood vessels and bursae. The bones include clavicle, scapula, and humerus and joints include three synovial joints (glenohumeral, acromioclavicular, sternoclavicular) and two functional articulations (scapulothoracic, suprahumeral) make up the shoulder girdle complex. Shoulder complex has an unique designed combination of all these joints linking the upper extremity to the thorax. The muscles and ligaments of the shoulder complex serve as a primary mechanism for securing the shoulder girdle to the thorax and providing a stable base of support for upper extremity movements.[1,2,3] Shoulder movement is integral to activity of daily living and shoulder functions has significant impact on quality of life. Shoulder joint disorders are the second most common musculoskeletal disorders following the low back pain.[4] Although shoulder disorders are not considered as life threatening conditions, it can cause significant disability and difficulty in performing a majority of

activities daily living.[5] According to the International Classification of Function, Disability and Health (ICF) model of disablement, activity is defined as the execution of a task or action by an individual.[6] Activity level should be measured in addition to outcome measures of symptoms and functions in patients with different musculoskeletal disorders including shoulder joint disorders. [7] Determining the patient's activity level could be considered as an important prognostic factor relating to outcomes of treatment [8] and also important to assess the efficacy of different treatment regimes.[9,10]

The Shoulder Activity Level Scale (SALS) was developed by Brophy et al. to measure shoulder activity level in healthy individuals [8,12-14] and patients with shoulder disorders.[9] Previous studies using the SALS have shown its reliability, validity, and responsiveness.[8,9,11-14]

The Shoulder Activity Level Scale (SALS) is self measured tool, completed within 2 min this instrument evaluates a subject's overall shoulder activity level based on the frequency with which he or she completes five common activities of the shoulder. Frequency for each item is scored from 0 to 4 in increments of 1, with each point corresponding to a category of increasing frequency: never or less than once a month, once a month, once a week, more than once a week, or daily. The total numerical activity score is the sum of the individual item scores, ranging from a minimum of 0 points (if a patient answers ''never or less than once a month'' for all five items) to a maximum of 20 points (if the patient answers ''daily'' for all five items). Because the activity scale is designed to measure patients' overall level of activity, patients are asked to indicate how often they performed each activity during their healthiest and most active state in the previous year. In addition, persons are asked two multiple-choice questions regarding level of sports participation (without organized officiating, with organized officiating, or at a professional level) in contact and overhead- throwing sports.

The use of a self-administered scale in a native language would make research and the clinical management more effective. It is recommended that a self-reported measure is translated and adapted to the appropriate culture before it is used with subjects whose first language is not English. Currently, no measure is available for assessing shoulder activity level in subjects whose primary language is Gujarati. When the self-administered scales are not available in the native language of the patient, the therapist may be forced to self-translate or interpret the scale to the patient, which may affect the essential construct of the measurement. The availability of a self-administered scale in their native language will make clinical management and research more effective.

METHOD

This is a methodological and cross-sectional study. For translation of SALS from English language to Gujarati language permission was obtained from the developer of SALS (personal communication through E-mail, DrMarxTeam@robertmarxmd.com).

Translation process is carried out by using forward-backward-forward translation method according to Beaton Guidelines, 2000.

Process of translation of questionnaire:

Step 1

Translation process started with the two independent translators, who were bilingual and have sound knowledge of both the languages, translated the questionnaire into Gujarati (T1 and T2)

Step 2

The researchers have produced a combined Gujarati version (T12) of SALS from the two independent Gujarati translations.

Step 3

This version (T12) was given to two different translators for back translation (BT1 and BT2).

Step 4

The back translated versions were then compared with the original English SALS. As there was good match of these versions with the original one, the Combined Gujarati version T12 was produced.

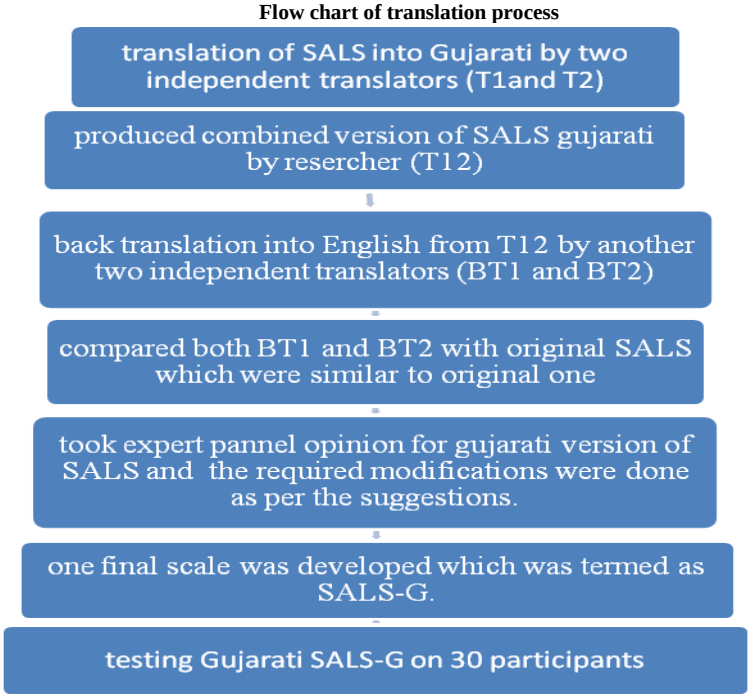
Step 5

Combined Gujarati version T12 was given to the expert panel consisted of 7 members from Medicine, Language, and Physiotherapy and having minimum of 10 years of experience in their respective fields. Agreement with the questions by at least 80% can be considered for group consensus method. Each of the panel members was personally contacted by primary author for the expert opinion. Assessment criteria were kept as content and meaning of question, formation and easiness of administration. Each question was scored as accepted, rejected or accepted with modification along with the remarks. All the members accepted the translated version with >80% agreement for all the questions and the final translated Gujarati Questionnaire has been prepared which is named as SALS-G

The final translated Gujarati Questionnaire (SALS-G) and original English Questionnaire were given to the 30 individual (Target population) for validity measurement. Inclusion criteria were kept as age>=20 years, both male and female and having knowledge of both Gujarati and English language. Individuals who were not willing to participate were excluded. Both Original English and translated Gujarati Questionnaires were given in random order (odd numbers were given English version first and Even numbers were given Gujarati version first to complete) one day apart. Then the answers from Gujarati Questionnaire were compared with the answers of original English Questionnaire.

To check the reliability of Gujarati version of Questionnaire, (SALS-G) was given to 40 participants of 20 to 60 years of age and who can read and understand Gujarati language. Age group were between 20-30, 30-40, 40-50 and 50-60years.each age group contained 10 participants including male and female both. After 15 days Gujarati translated Questionnaire (SALS-G) has been given to same participants.

Flow chart of translation process



Statistical analysis:
Shoulder activity level scale of both version were analyzed with use of SPSS version 20 with level of significance kept at 5%. Spearman's correlation co-efficient was used to assess the strength of association between the measures. The internal reliability of the tool was evaluated with Cronbach's alpha.

RESULT

Validation phase
The subjects recruited for the validation assessment phase of the study were 30 individuals with mean age of 24.31 ± 3.67 years. Spearman's correlation coefficient (ρ) was calculated for correlation between English and Gujarati version of SALS and ρ=0.94suggested Significant correlation between both the scales.

Reliability phase
The subjects recruited for the reliability assessment phase of the study were 40 individuals out of which 20 were males and 20 were females.

Age group	N	Mean	SD
21-30	10	22.2	1.72
31-40	10	33.8	2.52
41-50	10	44.2	2.04
51-60	10	54.7	2.83

The internal reliability of the scale was evaluated with Cronbach's alpha. Results showed significant internal consistency (Cronbach' alpha=0.895; $p<0.05$) which is larger than 0.7 necessary for the overall consistency and almost perfect test retest reliability for all the questions of SALS Gujarati version.

DISCUSSION

The aim of this study was to translate and validate Shoulder Activity Level Scale in a sample of Gujarati population. Gujarati version of Shoulder activity level scale has acceptable properties for assessing Shoulder Activities in adults. For face and content validity, none of the questions were rejected by the panel of experts. Four questions required discussion among experts and were accepted with modification. Question number 1 and 5, instead of Pound, Kilograms(kg) was used. As kilogram is common measurement of weight of things or persons in Gujarat rather than pound so pound is converted to kg. In question no. 4 baseball and golf ball is replaced by cricket ball and hockey ball as golf and baseball games are not played in Gujarat. There were two multiple choice questions which assessed the subject's sports participation. Examples of the contact sports given in the 1st mcq were replaced by Kabbadi, Kho-Kho, Football and Hockey as these games are commonly played in Gujarat. In 2nd mcq regarding participation in sports that involve hard overhand throwing examples kept were baseball and quarterback in American football which were replaced by tennis , cricket, volley ball, shotput, spear throw and javelin throw (bhaala phenk) in translated version.
Validity was found by comparing the English version of SALS with Gujarati version of SALS. The samples recruited in the validation phase of the study were 30 individuals with mean age of 24.31 ± 3.67 years. The results demonstrated a high and considerable positive association between the two questionnaires in terms of construct validity. The Spearman's Correlation Coefficient was ρ=0.94 which suggests that the two questionnaires were significantly positively correlated. The internal reliability of the scale was assessed with Cronbach's alpha. This analysis showed high consistency of the tool, which is higher than 0.7 for all the questions of the scale. Our findings are consistent with findings of Hossein Neghaban et al, studied reliability, validity and responsiveness of the Persian version of SALS in group of patients in 2014.[15]

CONCLUSION

Gujarati version of Shoulder Activity Level Scale is valid and reliable tool to be used in Gujarati Population.

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Conflict of Interest: None

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Ethical Approval: Approved

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