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TRANSLATION AND CROSS-CULTURAL ADAPTATION OF THE GUJARATI VERSION OF THE FUNCTIONAL STATUS QUESTIONNAIRE AMONG MIDDLE-AGED

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ABSTRACT

Background: Functional status reflects an individual's ability to perform daily and instrumental activities, serving as a key indicator of health, independence, and quality of life. The Functional Status Questionnaire (FSQ) is a validated and widely used tool designed to capture various domains of functional health. There is a lack of validated tools in the Gujarati language to effectively assess functional status.

Aim: This study aimed to translate, culturally adapt, and evaluate the reliability and validity of the FSQ for Gujarati-speaking adults.

Method: A methodological study was conducted to translate the FSQ into Gujarati, following the World Health Organisation (WHO) guidelines for translation and cross-cultural adaptation. The process involved initial translation, synthesis, back-translation, expert committee review, and pre-testing. Psychometric evaluation included content validity and test-retest reliability. Thirty Gujarati-speaking adults participated in pilot testing to assess the tool's reliability over time.

Results: The Gujarati version of the FSQ demonstrated strong psychometric properties. The Scale-level Content Validity Index (S-CVI) was 0.89, indicating high content validity. Test-retest reliability showed strong correlation coefficients across most domains, confirming the scale's stability, with an ICC value of 0.92.

Conclusion: The Gujarati-translated FSQ is a valid and reliable tool for assessing functional status in Gujarati-speaking adults. It offers culturally relevant insights, enabling healthcare providers to assess functional limitations accurately.

Keywords: Functional Status Questionnaire, Gujarati, Translation, Cross-cultural adaptation, Reliability, Validity

INTRODUCTION:

Functional status represents a vital dimension of overall health, encompassing an individual's ability to perform daily activities essential for independent living. It encompasses basic activities of daily living (ADLs), such as dressing, bathing, and feeding, as well as more complex instrumental activities of daily living, including managing finances, transportation, and medication management [(1)]. Assessing functional status is crucial in both clinical and community settings, particularly among middle-aged individuals who are at an increased risk of developing chronic conditions that may impair mobility, cognition, and self-care abilities [(2)].

Evidence suggests that early identification of functional limitations significantly improves health outcomes by allowing timely interventions [3]. Functional status assessments are associated with predicting future disability, hospitalization, and healthcare utilization. A study by Stineman et al emphasizes that functional decline is often a precursor to chronic diseases, mental health deterioration, and increased mortality risk, underscoring the need for routine functional assessment as part of comprehensive healthcare. [4]

Many standardized instruments, like the Katz Index of ADL, the Lawton-Brody IADL Scale, the Barthel Index, the Functional Independence Measure (FIM), and the Short Physical Performance Battery (SPPB), are often utilized to assess functional status. The Functional Status Questionnaire (FSQ) is a complete, self-reported instrument developed to assess physical, psychological, and social functioning in ambulatory patients. FSQ is a validated and widely used tool designed to capture various domains of functional health. Its availability is predominantly in English and a few other global languages.

Cross-cultural adaptation of assessment tools is essential to maintain the validity, reliability, and sensitivity of instruments across diverse populations. It involves not only translating the language but also adapting the content to align with cultural norms, health beliefs, and daily life practices of the target community [5]. Studies have demonstrated that culturally adapted functional assessment tools result in improved patient-clinician communication, better diagnosis of limitations, and more effective, tailored interventions. [6]

Multilingual societies such as India, especially the Gujarati-speaking community, have a gap in evidence of tools that accurately assess functional capacity in a relevant cultural or linguistic context [7]. Even though Gujarati is the most widely spoken language in India, a formally translated and culturally validated version of the FSQ does not exist. The absence of regionally adapted assessment tools can lead to misinterpretations of patients' function, which may result in underdiagnosis or suboptimal management of impairments. Consequently, health care providers in Gujarat and in the Gujarati-speaking regions may find it difficult to provide accurate person-centred care [8].

This study aims to translate and cross-culturally adapt the Functional Status Questionnaire (FSQ) into Gujarati for middle-aged individuals. The primary objective is to ensure that the adapted tool is linguistically accurate, culturally relevant, and psychometrically valid for assessing functional status within this population.

METHODOLOGY

The methodological study was conducted at the SBB College of Physiotherapy, Ahmedabad.

Ethical Considerations

Ethical approval for the study was obtained from the Institutional Ethics Committee before data collection. Informed consent was obtained from all participants involved in the pretesting and psychometric evaluation phases. Confidentiality and voluntary participation were ensured throughout the study.

Translation and Cross-Cultural Adaptation Process

The translation and cross-cultural adaptation process was systematically carried out following the internationally recognized guidelines recommended by the World Health Organization [9] and by Beaton et al. [6] for adapting self-reported health measures. This approach ensures both linguistic accuracy and cultural relevance while preserving the conceptual integrity of the original Functional Status Questionnaire (FSQ). The process consisted of the following five key steps:

1. Forward Translation
   Two independent bilingual translators, whose mother tongue was Gujarati and who were fluent in English, independently translated the FSQ from English to Gujarati. One translator had a medical background to ensure clinical relevance, while the other had a non-medical background to capture natural language use.

2. Synthesis of Translations
   Discrepancies in phrasing or interpretation were resolved by discussion, focusing on conceptual equivalence rather than word-for-word translation.

3. Back Translation
   The synthesized Gujarati version was then independently translated back into English by two

different translators who were native Gujarati speakers but blinded to the original FSQ. This step ensured that the translated items retained the same meaning as the original instrument without introducing unintended interpretations.

4. Expert Committee Review
   An expert committee comprising five members, including physiotherapists, evaluated the translated version. The committee reviewed all translated items for experiential and conceptual equivalence and also rated each item for relevance, making necessary modifications to improve clarity, cultural relevance, and comprehension. Feedback was incorporated to refine any ambiguous terms or culturally inappropriate expressions.

5. Pretesting (Cognitive Debriefing)
   The pre-final Gujarati FSQ was tested on a sample of 10 middle-aged Gujarati-speaking participants who matched the target population characteristics. Participants were explained the study and interviewed regarding the clarity, comprehension, and relevance of each item.

This multistep process ensured that the final Gujarati FSQ was both linguistically accurate and culturally appropriate for use in clinical and research settings among Gujarati-speaking populations.

Psychometric Evaluation

The psychometric validation process focused on content validity, internal consistency, reliability, and test-retest reliability.

1. Content Validity
   Content validity was quantitatively assessed using the Item-Level Content Validity Index (I-CVI) and the Scale-Level Content Validity Index (S-CVI), based on ratings from the expert panel. Each item was rated for relevance on a 4-point Likert scale. An I-CVI of ≥0.78 was considered acceptable [10].

2. Internal Consistency Reliability
   Internal consistency was measured using Cronbach's alpha coefficient, a widely accepted metric to assess how well the items in the scale are interrelated. A Cronbach's alpha value of ≥0.70 is generally considered acceptable for newly adapted instruments [11].

3. Test-Retest Reliability
   Test-retest reliability was assessed by administering the Gujarati FSQ twice to a subset of participants with a 2-day interval between assessments. The Intraclass Correlation Coefficient (ICC) was calculated to determine the stability of the responses over time, with an ICC of ≥0.75 indicating good reliability [12].

Statistical Analysis

Descriptive statistics were used to summarize participant demographics, presented as mean ± standard deviation. A p-value <0.05 was considered statistically significant. The sample size of 30 participants was based on guidelines by Bujang et al. [13], recommending this number for pilot reliability studies. Data were analysed using SPSS version 20.0 and Microsoft Excel.

RESULTS

The 5 expert panel physiotherapists and their demographic details are as shown in Table 1

Variables	**Mean + SD**
Age (years)	27.8 ± 1.3
Years of Experience (years)	3.5 ± 1.54

Table 1: Demographic details of the expert panel

A total of 30 participants were included in the pretesting phase of the Gujarati FSQ. The mean age of participants was 52.4 years ± 6.09, with ages ranging from 45 to 60 years. The sample consisted of 18 females

(60%) and 12 males (40%), representing the typical middle-aged Gujarati-speaking population targeted for this adaptation.

Table 2 summarizes the total reliability and validity indices of the Gujarati FSQ, including S-CVI, ICC, and Cronbach's alpha, demonstrating strong psychometric properties for use in the target population.

Property	Statistics	Value	Interpretation
1. Content Validity	I-CVI	0.76-0.92	good item-level agreement.
	S-CVI	0.89	strong overall content validity.
2. ICC	Cronbach's Alpha	0.984	excellent consistency between items.
3. Test-Retest Reliability	ICC (Single Measure)	0.97 (95% CI: 0.88 – 0.99)	high stability over time.

Table 2: - Psychometric Properties of the Gujarati Version Of FSQ

There was also excellent test-retest reliability for the total score of the Gujarati version of FSQ, as well as for the individual items (Table 3)

Domain	Pearson's Value (r)	p-value
BADL	Not Applicable	<0.01
IADL	0.761	<0.01
Mental Health	0.736	<0.01
Work Performance	0.992	<0.01
Social Activities	0.882	<0.01
Interactions	0.432	<0.01

Table 3: - Test- Retest Properties of the Gujarati Version Of FSQ

DISCUSSION

The Gujarati FSQ, after translation, demonstrated adequate levels of validity and reliability, thereby justifying its use in administering functional assessments to this group. Some minor linguistic adaptations were made to ensure cultural clarity, particularly on matters of occupational performance and social interaction. Test-retest measurement showed an excellent degree of stability across most areas; however, a ceiling effect was observed in BADL, reflecting little variability across the participants in this group. Generally, the instrument was able to distinguish on functional differences relevant to the community and thereby justify its use in clinical settings as well as research settings.

Translation and cultural adaptation to other languages, including Swedish, French, German, and Hungarian, more recently [14-15], have been done to facilitate its use. These have retained the original format (34 items and subscales) but incorporated linguistic and contextual changes to achieve conceptual equivalence.

In the German, French, and Swedish versions, there were mostly idiom substitutions and rewording changes, supplemented with contextual changes, including rephrasing references to routine activities and changing weights of measurements to the metric system. Translations followed standard forward–backward translation processes and pilot-tested among indigenous patient groups to evaluate clarity and cultural appropriateness. Psychometric testing ensured adequate internal consistency (Cronbach's $\alpha \geq 0.70$) and construct validity.

The Hungarian translation also applied an equally rigorous process, including expert review, cognitive debriefing, and pretesting among older adults. Revisions consisted of clarifying definitions and interpreting health-related concepts into Hungarian culture and care settings. The translated instrument was shown to have good reliability and validity and could be applied in clinical settings. This is the same as in the present study.

CONCLUSION AND CLINICAL IMPLICATIONS

The Gujarati version of the Functional Status Questionnaire is a valuable tool for assessing functional status within the Gujarati population. A culturally sensitive tool that identifies unique challenges and strengths, enhancing communication, engagement, and quality of care. It supports better monitoring and more personalized interventions in Gujarat, contributing to improved health outcomes.

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ETHICAL APPROVAL

- Institutional Review Board of SBB College of Physiotherapy
- Protocol Number: - PT25/DS/MS/FSQ/2024-25

CONFLICT OF INTEREST

The authors declare that they have no conflicts of interest related to this study.

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