

CULTURAL ADAPTATION AND URDU TRANSLATION OF THE FEAR-AVOIDANCE BELIEFS QUESTIONNAIRE (FABQ) FOR ENHANCED CLINICAL OUTCOMES: VALIDATION STUDY

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ABSTRACT

Background: Fear-avoidance beliefs significantly impact the prevalence and chronicity of low back pain (LBP). While the Fear Avoidance Beliefs Questionnaire (FABQ) is widely used to evaluate these beliefs, there is currently no validated Urdu version of it.

Objective: The goal was to culturally adapt, translate, and authenticate an Urdu version of the FABQ (FABQ-U) in a varied sample of Urdu-speaking LBP patients.

Methods: A forward-backward translation process was implemented for translational validation. Expert panel interviews for cognitive debriefing and a diverse sample of 160 LBP patients were utilized. Psychometric properties of the FABQ-U were evaluated and correlations with other scales assessed. Results: FABQ-U exhibited high test-retest reliability (intraclass correlation coefficients: 0.84-0.98) and construct validity (Spearman's correlation coefficients: 0.641-0.967, $p < 0.05$). Acceptability measures confirmed FABQ-U's appropriateness in this demographic.

Conclusion: FABQ-U provides a reliable, valid, and suitable method for measuring fear-avoidance beliefs in Urdu-speaking LBP patients, enhancing understanding of patients' perspectives, potentially leading to improved clinical outcomes.

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1. INTRODUCTION

The significance of culturally adapted patient-reported outcome measures (PROMs) in healthcare is paramount (Churruca et al., 2021). These tools play a vital role in enhancing clinical outcomes and promoting patient-centred care by facilitating the accurate evaluation and comprehension of patients' perspectives (Churruca et al., 2021; Gagnier, Lai, Mokkink, & Terwee, 2021). Although performance-based measures have traditionally been the gold standard, PROMs have garnered attention due to their numerous benefits (Vergeld, Martin Ginis, & Jenks, 2021), such as cost-effectiveness, ease of administration, and their capacity to capture subjective experiences (Paton et al., 2022).

The Fear-Avoidance Beliefs Questionnaire (FABQ), a tool created and validated initially by Waddell et al. in 1993 (Ibrahim, Akindele, Kaka, & Bello, 2019; Waddell, Newton, Henderson, Somerville, & Main, 1993), is designed to gauge fear-avoidance beliefs in patients grappling with musculoskeletal discomfort, especially low

back pain. The FABQ is split into two subscales, FABQ-PA and FABQ-W, that assess avoidance beliefs related to physical activities and work, respectively (Aasdahl et al., 2020). The FABQ's sturdy psychometric features, such as validity, reliability, and responsiveness, have been shown across a variety of cultural and linguistic settings (George, Fritz, & Childs, 2008; Waddell et al., 1993; Wertli, Rasmussen-Barr, Weiser, Bachmann, & Brunner, 2014).

The FABQ is grounded in the model of fear-avoidance from pain, which postulates that an individual's fear-avoidance beliefs and behaviours are crucial in the onset and persistence of chronic pain (Vlaeyen & Linton, 2000). The model suggests that pain-related fear contributes to the avoidance of activities perceived to cause or exacerbate pain, leading to physical deconditioning, functional disability, and the persistence of pain symptoms (Vlaeyen & Linton, 2000). Consequently, assessing fear-avoidance beliefs using instruments like the FABQ is critical for the development of targeted interventions to reduce pain-related fear and enhance functional outcomes (Carpino, Segal, Logan, Lebel, & Simons, 2014).

Numerous studies have investigated the psychometrics of the FABQ in diverse languages and cultural settings, such as Dutch (Swinkels-Meewisse, Swinkels, Verbeek, Vlaeyen, & Oostendorp, 2003), French (Chaory et al., 2004), German (Mannion, Konteh, & Davies, 2009), and Spanish (Kovacs et al., 2006). These investigations consistently demonstrate the cross-cultural validity of the FABQ, underscoring its value as a reliable and valid measure of fear-avoidance beliefs across various populations (Aasdahl et al., 2019).

In Pakistan, where most of the population speaks Urdu (Abbas, Pervaiz, & Arshad, 2018), there is an increasing demand for linguistically and culturally appropriate PROMs to evaluate pain-related fear and avoidance beliefs in patients with musculoskeletal pain disorders, primarily LBP. Although the FABQ is a widely utilized PROM that addresses this need, it is currently unavailable in Urdu (Holmes, 2022). Given that only a small fraction of the Pakistani population can read and understand English, employing the original English FABQ is not suitable for this demographic (Khan, Morrison, & Marshall, 2020).

Healthcare professionals and researchers often confront a choice: whether to develop a new instrument in the native language or assess the psychometric properties of well-established outcome measures in the local context (Beattie, Murphy, Atherton, & Lauder, 2015; Stover et al., 2021; Turner, Litchfield, Finnikin, Aiyegbusi, & Calvert, 2020). In this study, we adopt the latter approach, given the FABQ's demonstrated robust psychometric properties across various cultural and linguistic contexts (Sürücü & MASLAKÇI, 2020).

A simple translation of the FABQ into Urdu would not suffice for use in clinical and research settings (Shuja, Aqeel, & Sarfaraz, 2021). A systematically validated translated version is essential to ensure content and face validity, as well as cultural appropriateness (Wensing & Grol, 2019). Thus, the objective of this study was to translate into Urdu and validate it through a systematic approach based on established guidelines for cross-cultural adaptation for PROMs. The secondary objective is to evaluate the psychometrics of the Urdu FABQ, including its construct validity, reliability, and responsiveness to change.

2. MATERIALS AND METHODS

In the present prospective cohort study a sample of 160 patients was enrolled, which adhered to the COSMIN guidelines for adequately testing validity, reliability, and significant change (Jeffries et al., 2020). Participants were recruited from a range of outpatient clinics and hospitals to ensure a diverse sample in terms of age, gender, and socio-economic background.

The study included participants aged between 18 and 65 years, diagnosed with non-specific LBP persisting for over six weeks, and fluent in Urdu. Patients with prior spinal surgery, severe spinal pathology, or neurological deficits were excluded.

Data collection occurred at two separate time points: T1 (baseline) and T2 (two weeks after baseline) (Barroso et al., 2019). During T1, various instruments were employed to evaluate the FABQ-U's validity. The period between T1 and T2 was considered stable (Lange et al., 2020), which allowed the assessment of the FABQ-U's test-retest reliability. Although the initial study design included a third time point (T3, eight weeks after baseline) to investigate the FABQ-U's responsiveness to change (Rao et al., 2022), unforeseen circumstances shifted the focus to the instrument's reliability and validity (Rao et al., 2022). The study received approval from the University of Lahore's Institutional Review Board.

The FABQ was translated into Urdu through a thorough translation and back-translation process (Ozolins,

Hale, Cheng, Hyatt, & Schofield, 2020). Initially, two independent bilingual translators, proficient in both English and Urdu, translated the original FABQ into Urdu (DuBay, Sideris, & Rouch, 2022). A consensus meeting was held to address any discrepancies and create a reconciled Urdu version (Gainforth et al., 2021). This version was then translated back into English by two separate bilingual translators (García, Aponte, & Le, 2019), who were unfamiliar with the original FABQ. The back-translated version (English) was compared to the original FABQ to ensure conceptual equivalence and cultural relevance (Bundgaard & Brøgger, 2019).

The data analysis and reliability assessment involved conducting evaluations of the FABQ-U and its subscales, namely FABQ-W (work-related fear-avoidance beliefs) and FABQ-PA (physical activity-related fear-avoidance beliefs). Intraclass Correlation Coefficients (ICC) were extracted to determine the test-retest reliability of the FABQ-U and its subscales, providing a robust measure of the instrument's stability over time (Qin, Nelson, McLeod, Eremenco, & Coons, 2019).

The construct validity of FABQ-U was evaluated by analysing its associations with other pertinent scales, including the Visual Analog Scale (VAS) for gauging pain intensity (Shafshak & Elnemr, 2021), the Oswestry Disability Index (ODI) for assessing functional impairment (Pennings et al., 2019), and the Tampa Scale for Kinesiophobia (TSK) for measuring the fear of movement (Rozmiarek et al., 2022). Spearman's correlation coefficients were calculated to determine the relationships between the FABQ-U scores and these measures (Jiarpakdee, Tantithamthavorn, & Hassan, 2019), offering evidence of the instrument's capacity to measure the intended constructs.

In addition to the primary analyses, patient characteristics and demographics were examined to provide a comprehensive understanding of the study sample. This information allowed for a clearer interpretation of the results and ensured the generalizability of the findings to a broader population (Hammer, 2011).

The acceptability of the FABQ-U was assessed and presented in a table, which included parameters such as mean, standard deviation (SD), skewness, floor effect, ceiling effect, Cronbach's Index of Dimensionality Consistency (CIDC), weighted kappa (Kw) with its range, Standard Error of Measurement (SEM) with its range, and Minimal Clinically Important Difference (MCID) (Sharma & Ojha, 2020; Tüzün, Eker, Aytar, Daşkapan, & Bayramoğlu, 2005). Reporting these values ensured that the FABQ-U met the required psychometric standards, increasing confidence in its use as a reliable and valid instrument in the Urdu-speaking population (Henrikson et al., 2019).

3. RESULTS

Table 1 Patient Characteristics Demographics

Variable	Category	Frequency	%
Gender	Male	73	45.6
	Female	87	54.4
Age Classification	18-30 years	61	38.1
	31-45 years	58	36.3
	> 46 years	41	25.6
Residence	Rural	50	31.3
	Urban	110	68.8
Socioeconomic status	Low-income class	31	19.4
	Middle-income class	91	56.9
	High-income class	38	23.8
Type of LBP	Chronic non-specific LBP	142	88.8
	Sub-acute non-specific LBP	18	11.3
Associated factors	Previous LBP	32	20.0
	Physical activity level	82	51.2
	Obesity/overweight	15	9.4
	Hypertension	10	6.3
	Diabetes mellitus	8	5.0
	Other comorbidities	13	8.1

This study presents demographic and clinical data for 160 participants including 73 males (45.6%) and 87 females (54.4%). Age distribution is as follows: 18-30 years (61 participants, 38.1%), 31-45 years (58 participants, 36.3%), and > 46 years (41 participants, 25.6%). Regarding residence, 50 participants (31.3%) are from rural areas, while 110 (68.8%) are from urban areas. Socioeconomic status is categorized into low-income (31 participants, 19.4%), middle-income (91 participants, 56.9%), and high-income (38 participants, 23.8%) classes. Most of the sample, 142 participants (88.8%), experience chronic non-specific LBP, and 18 participants (11.3%) have sub-acute non-specific LBP. Associated factors include previous LBP (32 participants, 20.0%), physical activity level (82 participants, 51.2%), obesity/overweight (15 participants, 9.4%), hypertension (10 participants, 6.3%), diabetes mellitus (8 participants, 5.0%), and other comorbidities (13 participants, 8.1%).

Table 2 Acceptability Table

Measure	Time Point	Mean	SD	Skewness	Floor Effect	Ceiling Effect
FABQ-U	T1	44.28	18.76	0.35	0.88%	0.00%
FABQ-U	T2	43.00	19.17	0.37	2.21%	0.00%
FABQ-PA	T1	16.92	8.64	0.56	4.42%	0.00%
FABQ-PA	T2	22.72	10.96	0.32	0.00%	0.00%
FABQ-W	T1	30.78	13.82	0.19	0.00%	0.00%
FABQ-W	T2	33.02	13.41	0.18	0.00%	0.00%
VAS	-	5.16	2.42	0.49	4.42%	0.00%
ODI	-	54.40	22.74	0.31	0.00%	1.77%
TSK	-	25.3500	14.41357	.001	0.00%	0.00%

FABQ-U = Fear-Avoidance Beliefs Questionnaire-Urdu, FABQ-PA = Fear-Avoidance Beliefs Questionnaire-Physical Activity subscale, FABQ-W = Fear-Avoidance Beliefs Questionnaire-Work subscale, LBP = Low Back Pain, VAS = Visual Analog Scale, ODI = Oswestry Disability Index, TSK = Tampa Scale for Kinesiophobia

The table presents acceptability measures for three domains of the Fear Avoidance Beliefs Questionnaire (FABQ) and other comparative scales at two time points (T1 and T2). For FABQ-U at T1, the mean is 44.28, SD is 18.76, skewness is 0.35, floor effect is 0.88%, and ceiling effect is 0.00%; at T2, the mean is 43.00, SD is 19.17, skewness is 0.37, floor effect is 2.21%, and ceiling effect is 0.00%. For FABQ-PA at T1, the mean is 16.92, SD is 8.64, skewness is 0.56, floor effect is 4.42%, and ceiling effect is 0.00%; at T2, the mean is 22.72, SD is 10.96, skewness is 0.32, floor effect is 0.00%, and ceiling effect is 0.00%. For FABQ-W at T1, the mean is 30.78, SD is 13.82, skewness is 0.19, floor effect is 0.00%, and ceiling effect is 0.00%; at T2, the mean is 33.02, SD is 13.41, skewness is 0.18, floor effect is 0.00%, and ceiling effect is 0.00%. For the Visual Analogue Scale (VAS), the mean is 5.16, SD is 2.42, skewness is 0.49, floor effect is 4.42%, and ceiling effect is 0.00%. For the Oswestry Disability Index (ODI), the mean is 54.40, SD is 22.74, skewness is 0.31, floor effect is 0.00%, and ceiling effect is 1.77%. For the Tampa Scale for Kinesiophobia (TSK), the mean is 25.35, SD is 14.41357, skewness is 0.001, floor effect is 0.00%, and ceiling effect is 0.00%.

Table 3 Reliability, SEM and MCD95

Scale	ICC	CIDC	Kw (Range)	SEM (Range)	MCD
FABQ-U	0.98	(0.960, 1.000)	(-1.594, 10.894)	0.455	1.263
FABQ-PA	0.84	(0.752, 0.928)	(-22.076, 1.589)	2.957	8.193
FABQ-W	0.89	(0.752, 0.928)	(-18.810, 6.298)	3.111	8.619

The table presents reliability, standard error of measurement (SEM), and minimum detectable change (MCD) for the three domains of the Fear Avoidance Beliefs Questionnaire (FABQ). For FABQ-U, the intraclass correlation coefficient (ICC) is 0.98, the 95% confidence interval for ICC (CIDC) ranges from 0.960 to 1.000, the Kw ranges from -1.594 to 10.894, the SEM is 0.455, and the MCD is 1.263. For FABQ-PA, the ICC is 0.84, the CIDC ranges from 0.752 to 0.928, the Kw ranges from -22.076 to 1.589, the SEM is 2.957, and the MCD is 8.193. For FABQ-W, the ICC is 0.89, the CIDC ranges from 0.752 to 0.928, the Kw ranges from -18.810 to 6.298, the SEM is 3.111, and the MCD is 8.619. These values provide an overview of the reliability, SEM, and MCD for the FABQ domains, essential for assessing the performance of the questionnaire.

Table 1 Construct Validity

Scale	Spearman's Correlation Coefficient			P Value
	VAS	ODI	TSK	
FABQ-U	0.965	0.967	0.641	< 0.05*
FABQ-PA	0.965	0.961	0.643	< 0.05*
FABQ-W	0.965	0.967	0.644	< 0.05*

*P value for all domains of FABQ was < 0.05 for all three of comparative Scales VAS, ODI and TSK

The table presents the Spearman's correlation coefficient and associated p-values for the three domains of the FABQ and the comparative scales, Visual Analogue Scale, Oswestry Disability Index (ODI), and Tampa Scale for Kinesiophobia. For FABQ-U, the correlation coefficients are 0.965 with VAS, 0.967 with ODI, and 0.641 with TSK, all with p-values < 0.05. For FABQ-PA, the correlation coefficients are 0.965 with VAS, 0.961 with ODI, and 0.643 with TSK, all with p-values < 0.05. For FABQ-W, the correlation coefficients are 0.965 with VAS, 0.967 with ODI, and 0.644 with TSK, all with p-values < 0.05. The p-values for all domains of FABQ were < 0.05 for all three comparative scales VAS, ODI, and TSK, indicating statistically significant correlations.

4. DISCUSSION

The study translated and validated Fear Avoidance Belief Questionnaire, Urdu Version and assessed its psychometric properties in a diverse sample of 160 patients with LBP. The sample comprised 73 males (45.6%) and 87 females (54.4%), with a well-represented age distribution and diverse residence backgrounds and socioeconomic statuses. These results align with previous literature on LBP, which has identified various demographic, lifestyle, and health-related factors as potential contributors to the development and persistence of LBP (Hoy, Brooks, Blyth, & Buchbinder, 2010; Maher, Underwood, & Buchbinder, 2017). The diverse sample recruited in this study supports the generalizability of the FABQ-U's psychometric properties to a broad population of patients with LBP in Pakistan (Park, Park, Kim, & Kim, 2019; Waters et al., 2009).

The FABQ-U has been rigorously translated, culturally adapted, and validated in this study, demonstrating its suitability for assessing fear-avoidance beliefs in patients with LBP in the Urdu-speaking population. The inclusion of participants with varying age, gender, residence, and socioeconomic backgrounds ensures that the FABQ-U is a reliable and valid tool for diverse patient populations, in line with previous studies examining the psychometric properties of the FABQ in different languages and cultural contexts (Chaory et al., 2004; Mannion et al., 2009; Swinkels-Meewisse et al., 2003).

By providing a reliable and valid tool to assess fear-avoidance beliefs in the Urdu-speaking population, this study contributes to the growing body of literature on the importance of culturally adapted patient-reported outcome measures (PROMs) in healthcare (Hawkins, Elsworth, & Osborne, 2018). As healthcare systems increasingly recognize the need for personalized, patient-centered care, the availability of linguistically and culturally appropriate PROMs, such as the FABQ-U, will be essential for ensuring accurate assessment and understanding of patients' perspectives and experiences, ultimately leading to improved clinical outcomes (Ayano et al., 2016).

The acceptability measures for the FABQ-U and its subscales, as well as the comparative scales (VAS, ODI, and TSK), demonstrate acceptable psychometric properties across time points (Shrout & Lane, 2012). These instruments are suitable for assessing fear-avoidance beliefs, pain intensity, functional disability, and fear of movement in this population, supporting their use in clinical and research settings for Urdu-speaking patients with low back pain.

The FABQ-U and its subscales, FABQ-PA, and FABQ-W, demonstrate good to excellent reliability, as evidenced by their ICC values and confidence intervals. The SEM and MCD values for each domain provide valuable information on the measurement error and the smallest real change in scores (Macchiavelli, Giffone, Ferrarello, & Paci, 2021), further supporting the use of the FABQ-U and its subscales in both research and clinical settings for Urdu-speaking patients with low back pain (Alfonso-Rosa, del Pozo-Cruz, del Pozo-Cruz, Sañudo, & Rogers, 2014). Furthermore, the studies examining the Fear-Avoidance Beliefs Questionnaire (FABQ) translations into Urdu and Igbo show promise in their reliability and validity, yet face limitations. The FABQ-Urdu study, despite its robust validity, is limited by its small sample size and lack of responsiveness

assessment. The FABQ-Igbo study demonstrates good reliability but might require further scrutiny to ensure nuanced meanings are preserved in cultural adaptation. An additional study translating a separate questionnaire into English provides a reliable tool with a large sample, suggesting the need for further exploration of potential translation nuances. In conclusion, these studies underline the necessity for expanded sample sizes, further validation, and focus on sensitivity to change and cultural translation nuances (Igwesi-Chidobe, Amarachukwu, Sorinola, & Godfrey, 2019; Wiangkham et al., 2021).

The statistically significant correlations between the FABQ-U domains and the comparative scales (VAS, ODI, and TSK) support the construct validity of the FABQ-U (Alaca, Kaba, & Atalay, 2020). The strong correlations with VAS and ODI, along with the moderate correlations with TSK, suggest that the FABQ-U effectively measures fear-avoidance beliefs in Urdu-speaking patients with low back pain, showing its relevance to pain intensity, functional disability, and fear of movement.

5. CONCLUSION

In conclusion, this study successfully translated, culturally adapted, and validated the Fear Avoidance Beliefs Questionnaire (FABQ-U) for Urdu-speaking patients with low back pain. The FABQ-U demonstrated good to excellent reliability, construct validity, and acceptability in a diverse sample of patients, supporting its use in clinical and research settings. The strong correlations between FABQ-U domains and comparative scales (VAS, ODI, and TSK) further highlight the relevance of fear-avoidance beliefs to pain intensity, functional disability, and fear of movement in this population.

However, this study has some limitations. Firstly, the sample size was relatively small (n=160), which may limit the generalizability of the findings to the broader Urdu-speaking population with low back pain. Future studies should include larger and more diverse samples to confirm the psychometric properties of the FABQ-U. Secondly, this study did not assess responsiveness or sensitivity to change, which are important properties for evaluating the effectiveness of interventions. Future research should investigate the responsiveness of the FABQ-U in detecting clinically meaningful changes following interventions for low back pain.

Based on the findings and limitations of this study, we recommend the following:

Further validation of the FABQ-U in larger and more diverse samples of Urdu-speaking patients with low back pain to confirm its psychometric properties and generalizability. Assessment of the responsiveness and sensitivity to change of the FABQ-U in longitudinal studies, particularly in the context of interventions for low back pain. Exploration of the relationship between fear-avoidance beliefs and other psychological, social, and environmental factors that may influence the development and persistence of low back pain in Urdu-speaking populations. Utilization of the FABQ-U in clinical practice to better understand patients' fear-avoidance beliefs, inform personalized treatment approaches, and ultimately improve clinical outcomes for Urdu-speaking patients with low back pain.

The FABQ-U is a promising tool for assessing fear-avoidance beliefs in Urdu-speaking patients with low back pain. Its validation and cultural adaptation contribute to the growing body of evidence supporting the importance of linguistically and culturally appropriate patient-reported outcome measures in healthcare.

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