





## Cross-cultural adaptation, reliability, and validity of Kannada version of Fear Avoidance Belief Questionnaire in chronic low back pain

### Adaptação transcultural, confiabilidade e validade da versão Kannada do questionário de crenças, medo e evitação em dor lombar crônica

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**ABSTRACT | INTRODUCTION:** Activity of daily living (ADL) among the people with Chronic low back pain (CLBP) can be determined by Fear Avoidance Beliefs Questionnaire (FABQ). The Fear Avoidance Beliefs Questionnaire (FABQ) is a valid and reliable self-reporting questionnaire evaluating the patient's attitude and beliefs toward the effect of physical activity and works on their LBP. Till the date it was translated into various languages but is not available in Kannada language. Hence, we aimed to translate FABQ questionnaire into Kannada (FABQ-KA) and to study reliability and validity of Kannada version, FABQ-KA. **METHODS:** Translation and cross-cultural adaptation were performed according to the guidelines followed internationally. Those are: translation, synthesis, back-translation, revision by expert committee, pretesting and appraisal by advisory committee. Content validation was executed by the panel of 10 pre-identified members who were experts in using Kannada and English. They were provided with five options, "agree", "strongly agree", "neutral", "disagree" and "strongly disagree". for providing their valuable opinion regarding kannada translated content of FABQ-KA. The psychometric properties were tested by administering the questionnaire to 60 samples (18 to 75 years) was recruited by Purposive sampling. For test-retest reliability, people with CLBP were tested after a week by Intra-class correlation coefficient (ICC) and internal consistency was assessed by Cronbach's alpha ( $\alpha$ ). **RESULTS:** The demographic dimensions, age, height, weight and BMI for patients with CLBP recruited, n=60 were 41.50±10.59 (Years), 154.37±10.74 (cm), 62±11.04 (kg) and 25.99±4.47 (kg/m<sup>2</sup>) respectively with duration of LBP of 20.35±13.62 weeks. The content validity of kannada translated FABQ-KA by a panel of 10 experts were found to be, I-CVI of individual items of FABQ-KA  $\geq$  0.80 and the overall S-CVI for idiomatic equivalence (S-CVI = 89.9±6.33)%, semantic equivalence (S-CVI = 93±5.16)% and content relevance (S-CVI = 90.7±6.61)% were  $\geq$  0.90 or ( $\geq$  90%). The test-retest reliability of FABQ-KA was good (ICC (2,1) = 0.83). Internal consistency was found to be good (Cronbach's alpha = 0.91). **CONCLUSIONS:** The FABQ-KA translation and adaptation processes were successful; the adapted instrument demonstrated good psychometric properties. The FABQ-KA has proven to be reliable and valid tool and can be used in the Kannada speaking patients with CLBP.

**KEYWORDS:** Cross cultural adaptation. Chronic pain. FABQ. Reliability. Validity.

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**RESUMO | INTRODUÇÃO:** As Atividades da Vida Diária (AVD) entre pessoas com Dor Lombar Crônica (DLC) pode ser determinada pelo Questionário de Crenças, Medo e Evitação (FABQ em inglês). O FABQ é um questionário de autorrelato válido e confiável que avalia atitudes e crenças do paciente em relação ao efeito da atividade física e dos trabalhos em sua dor lombar. Até a presente data foi traduzido para vários idiomas, mas não está disponível em Kannada. **OBJETIVO:** Traduzir e estudar a confiabilidade e validade do questionário FABQ para o Kannada (FABQ-KA). **MÉTODOS:** Tradução e adaptação transcultural realizadas de acordo com os procedimentos recomendados internacionalmente: tradução, síntese, retrotradução, revisão por comitê de especialistas, pré-teste e avaliação por comitê consultivo. A validação de conteúdo foi realizada por um painel de 10 membros pré-identificados que eram especialistas no uso do Kannada e do Inglês. Eles receberam cinco opções, "concordo", "concordo totalmente", "neutro", "discordo" e "discordo totalmente". As propriedades psicométricas foram testadas pela administração do questionário a uma amostra com 60 participantes (18 a 75 anos), recrutados por amostragem de conveniência. Para a confiabilidade teste-reteste, as pessoas com DLC foram testadas após uma semana pelo coeficiente de correlação intraclassa (ICC) e a consistência interna foi avaliada pelo alfa de Cronbach ( $\alpha$ ). **RESULTADOS:** As dimensões demográficas, idade, altura, peso e IMC para a amostra de DLC (n = 60) foram 41,50 ± 10,59 (anos), 154,37 ± 10,74 (cm), 62 ± 11,04 (kg) e 25,99 ± 4,47 (kg/m<sup>2</sup>) respectivamente, com duração de DLC de 20,35 ± 13,62 semanas. A validade de conteúdo do FABQ-KA pelos 10 especialistas foi considerada, I-CVI de itens individuais de FABQ-KA  $\geq$  0,80 e o S-CVI geral para equivalência idiomática (S-CVI = 89,9 ± 6,33)%, semântica equivalente (S-CVI = 93 ± 5,16)% e o conteúdo relevante (S-CVI = 90,7 ± 6,61)%. foram  $\geq$  0,90 ou ( $\geq$  90%). A confiabilidade teste-reteste do FABQ-KA foi boa (ICC (2,1) = 0,83). A consistência interna foi boa (alfa de Cronbach = 0,91). **CONCLUSÃO:** Os processos de tradução e adaptação do FABQ-KA foram bem-sucedidos; o instrumento adaptado demonstrou boas propriedades psicométricas. O FABQ-KA provou ser uma ferramenta confiável e válida e pode ser usado em pacientes que falam Kannada com CLBP.

**PALAVRAS-CHAVE:** Adaptação transcultural. Dor crônica. FABQ. Confiabilidade. Validade.

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## Introduction

Chronic low back pain (CLBP) is defined as a localized to the lumbosacral area between the 12th ribs and gluteal folds, may associated with leg pain and neurological deficit last for more than 12 weeks duration<sup>1,2</sup>. The prevalence of low back pain (LBP) was in peak in middle age, represents the most productive years of a person's working life<sup>3</sup>. The individual factors, psychosocial factors, or socio-professional factors are the main factors makes LBP to become CLBP<sup>1</sup>. But the transition LBP to CLBP is poorly understood.

Among the psychosocial factors, pain-related fear is the most powerful predictor of disability and low participation level<sup>4</sup>. The "fear-avoidance model of exaggerated pain perception" suggests fear of pain and consequent pain avoidance behavior has a great impact on disability in activity of daily living (ADL) and work loss and implications for medical management in patients with LBP<sup>5</sup>. Thus perception that pain is not only influenced by organic pathology but also by induced pain-related fears<sup>6</sup>, and contribute to the maintenance of CLBP by decreasing the spinal mobility and muscle strength<sup>7,8</sup>. The strength of fear-avoidance beliefs and their powerful relationship to disability has implications for medical management<sup>5</sup>.

The Fear Avoidance Beliefs Questionnaire (FABQ), was developed. It is a 16-item self-reporting questionnaire with maximum score of 96 evaluating the patient's attitude and beliefs toward the effect of physical activity (FABQ-PA) and works (FABQ-W) on their LBP. It is reliable and valid questionnaire for use in chronic low back pain patients. In addition, this questionnaire is able to predict work loss due to back pain and impairments in daily living, outcomes of the treatment as well as level of performance in behavioral tests<sup>5,6</sup>.

The FABQ shows cultural bias because cultures vary in their perception of disease and what respect it should receive; measures specifically designed for the culture in which they will be used are needed<sup>9</sup>. Translating the questionnaire allows comparisons of different populations, permits researcher to examine functional status across a broad spectrum of people and exchange of information across cultural and linguistic barriers<sup>6</sup>. Till the date FABQ for low back pain has been translated in Gujarati, German, Arabic, Brazilian-Portuguese, Swiss-German, Spanish, Norwegian, Chinese, Persian, Italian, Finnish,

Japanese, Korean, Turkish, French, Greek, Hindi, Marathi<sup>6,9-21</sup>.

Karnataka is one of the major states in India, ranked 9th in terms of population. There is no questionnaire available for assessment of fear-avoidance beliefs among CLBP sufferers specific to Kannada speaking population. The objective of this study is to develop Kannada version of FABQ (FABQ-KA) and to test the reliability and validity of FABQ-KA in the patient with chronic low back pain.

## Methodology

The study protocol was approved by the University Ethics and institutional research committee. The study was performed in accordance with Helsinki declaration, revised 2013 and National ethical guidelines for biomedical and health research involving human participants, 2017. The study was performed between October, 2017 and May, 2019 in tertiary care teaching hospital. Before commencing the study, Gordon Waddell<sup>5</sup> was emailed to seek consent for the usage of FABQ-KA questionnaire who developed original version of FABQ in English language.

The FABQ had been cross-culturally adapted into Kannada version of FABQ in following eight steps:

1. Initial translation to Kannada language/ forward translation: The translation of FAB in Kannada language was performed by two individuals (orthopedician and physical therapist) whose native language is Kannada.
2. Synthesis: After discussion, the 2 translators produced a consensus version of the FABQ.
3. Back translation: Back translation of preliminary FABQ into English was conducted by two native English speakers who were fluent in both English and Kannada. The two translators were neither aware nor be informed of the concepts explored, and they had no medical background.
4. Reviewer's committee: An expert committee comprising of panel of 10 members performed cross-cultural adaptation and validation. After back translation, the questionnaire were forwarded to back translators. The health professional and a language professional reviewed all translations and developed the

pre-final version of FABQ-KA with emphasis on semantic, idiomatic, experimental and conceptual equivalence in relation to original back-translated FABQ versions. Then the questionnaire was content validation by the expert committee.

5. Content validation: Content validation was executed by the panel of 10 pre-identified members who were experts in using Kannada and English. They were provided with five options, "agree", "strongly agree", "neutral", "disagree" and "strongly disagree". for providing their valuable opinion regarding FABQ-KA. Eighty percent (80%) consensus agreement among the experts were required to validate the translated version of FABQ. Eighty percent of agreement between the experts were fixed in recommendation by Lynn to yield the item-level content validation index (I-CVI) of 0.80. According to Lynn's (1986) criteria, a minimum I-CVI of 0.78 for 6 to 10 experts is required to validate each item in a scale<sup>22-24</sup>. Hence, we have used an expert panel with 10 members to validate the kannada translated content of FABQ-KA. They were provided with options, agree, strongly agree, neutral, disagree and strongly disagree in a five point likert scale with kannada translated content of FABQ-KA. Neural, disagree and strongly disagree were considered as negative response while agree and strongly agree was considered as positive. Content validation of FABQ-KA was performed until the overall scale-level content validation index (S-CVI) reaches SCVI/Ave  $\geq 0.90$ <sup>23-25</sup>. Content validity were obtained for idiomatic equivalence, semantic equivalence and content relevance.
6. Pretesting: According to inclusion and exclusion criteria, the pre-final questionnaire was administered to 10 chronic low back pain patients. The interviewer reported on each respondents understanding the questionnaire items and making decision on them. As no further adaptation is indicated, the pre-final and final FABQ-KA is identical. The objective was to assess whether the translated questionnaire was understandable, the vocabulary was appropriate and also the expression was relevant for Kannada culture.
7. Validation study: Face validity and Content validity was obtained by the Experts and the translators.

8. Reliability testing: Reliability was reported in terms of test-retest reliability and internal consistency. Reliability of FABQ-KA was tested with 60 samples (18 to 75 years) recruited by Purposive sampling. Non-random sampling method of recruitment might have led to some degree of selection bias. The patients with LBP with or without referred pain for more than 3 months and able to read, write and speak in Kannada were included in the study, where as Back pain related to vertebral fracture or surgery within 5 years, spinal pathology (tumor, infection, inflamatory disease), spinal deformities, history of primary psychiatric disease (Anxiety, Depression, Dementia, Schizophrenia, etc.), brain surgery, clinically recognizable neurological deficit with cognitive impairment (stroke, Parkinson's disease, traumatic brain injury, Alzheimer's disease, etc.), Cardiovascular or respiratory problems, pregnancy and Other systematic disease with possible effect on musculoskeletal system (Urinary tract infection, cancer, kidney stone, etc.) were excluded from the study<sup>2,3,26</sup>. All participants signed written consent form stating their voluntary. Subjects who fulfilled the inclusion criteria were included in the study and they were asked to fill FABQ-KA. Patient with LBP attending physiotherapy OPD in tertiary care teaching hospital were included in the study.
  - i. Test-retest reliability: The recruited patients with LBP were asked to fill FABQ-KA by themselves twice with minimum gap of one week duration. So that person may not copy the same data as well as he/she will not forgot<sup>6,27</sup>. The readings were recorded to report test-retest reliability.
  - ii. Internal consistency: Internal consistency was measured with Cronbach's alpha ( $\alpha$ ), a statistic which was calculated from the pairwise correlations measured between paired readings of FABQ-KA.

The detailed description about the cross-cultural adaptation procedure is explained in the flow-chart, Figure 1 and kannada translated content of FABQ-KA is displayed in Figure 2.

Figure 1. Cross-cultural adaptation procedure

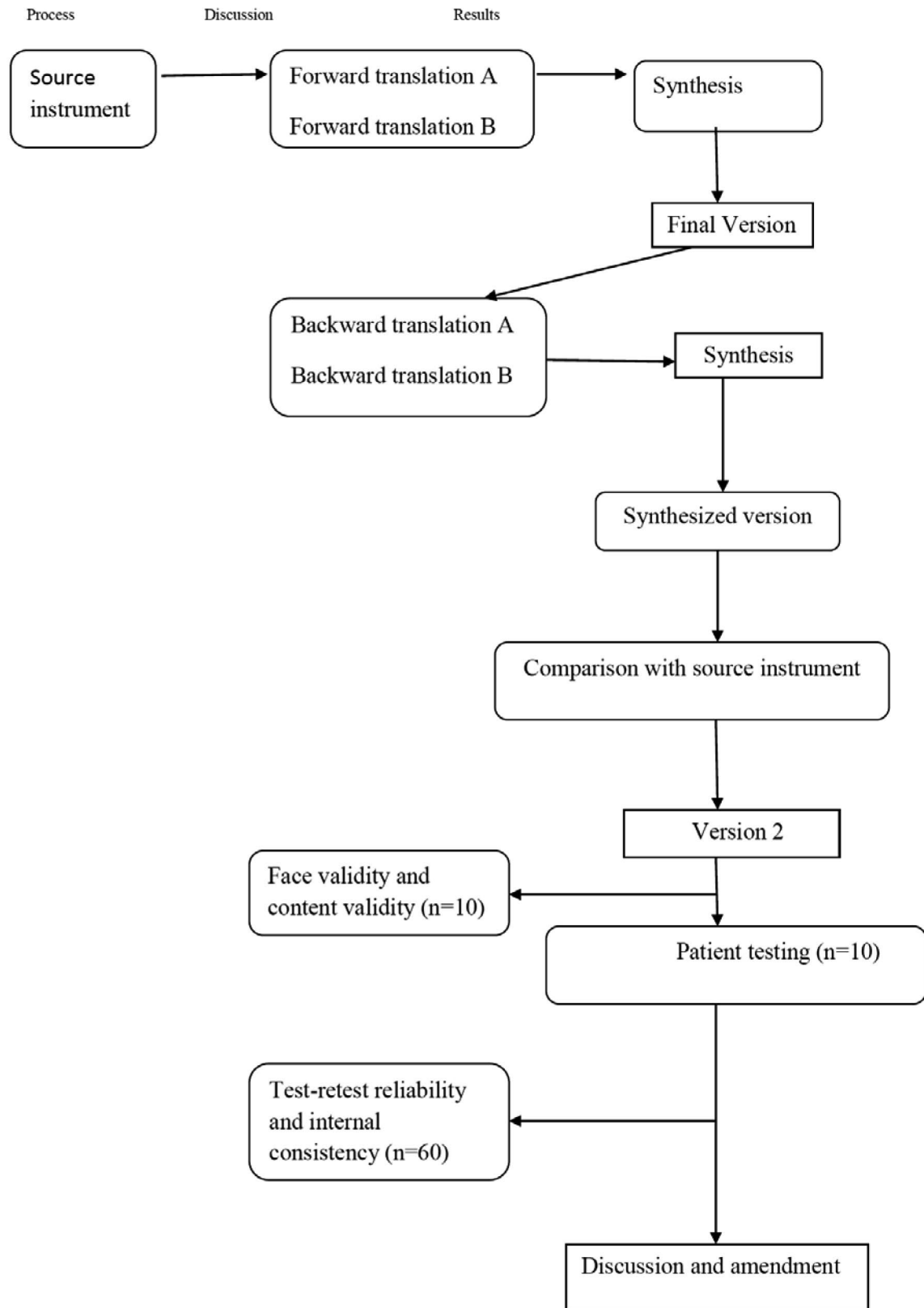


Figure 2. Kannada translated content of FABQ-KA

ಹೆಸರು ..... ದಿನಾಂಕ .....

ಭಯ ತಪ್ಪಿಸುವ ನಂಬಿಕೆ ಪ್ರಶ್ನಾವಳಿ

ಕೊಟ್ಟಿರುವಂಥಾ ಹೇಳಿಕೆಗಳಿಗೆ 0 ದಿಂದ 6 ರ ವರೆಗಿನ ಸಂಖ್ಯೆಗಳಿಗೆ ವೃತ್ತ ಹಾಕಿ ತಮ್ಮ ದೈಹಿಕ ಚಟುವಟಿಕೆಗಳಾದಂತಹ ಬಗ್ಗುವುದು, ಎತ್ತುವುದು, ನಡೆಯುವುದು ಅಥವಾ ವಾಹನ ಚಲಾವಣೆಯು ಯಾವ ರೀತಿ ಬೆನ್ನು ನೋವಿನ ಮೇಲೆ ಪರಿಣಾಮ ಬೀರುವುದೆಂದು ತಿಳಿಸಿರಿ.

		ಸಂಪೂರ್ಣವಾಗಿ ಒಪ್ಪುವುದಿಲ್ಲ		ತಿಳಿದಿಲ್ಲ		ಸಂಪೂರ್ಣವಾಗಿ ಒಪ್ಪುತ್ತೇನೆ		
		0	1	2	3	4	5	6
1	ನನ್ನ ನೋವು ದೈಹಿಕ ಚಟುವಟಿಕೆಗಳಿಂದ ಉಂಟಾಗುತ್ತದೆ	0	1	2	3	4	5	6
2	ದೈಹಿಕ ಚಟುವಟಿಕೆ ನನ್ನ ನೋವನ್ನು ತೀವ್ರಗೊಳಿಸುತ್ತದೆ.	0	1	2	3	4	5	6
3	ದೈಹಿಕ ಚಟುವಟಿಕೆಗಳು ನನ್ನ ಸೊಂಟದ ಮೇಲೆ ಪರಿಣಾಮ ಉಂಟುಮಾಡಬಹುದು	0	1	2	3	4	5	6
4	ನನ್ನ ನೋವನ್ನು ತೀವ್ರಗೊಳಿಸುವ ದೈಹಿಕ ಚಟುವಟಿಕೆಯನ್ನು ನಾನು ಮಾಡಬಹುದು	0	1	2	3	4	5	6
5	ನನ್ನ ನೋವನ್ನು ತೀವ್ರಗೊಳಿಸುವ ದೈಹಿಕ ಚಟುವಟಿಕೆಯನ್ನು ನಾನು ಮಾಡಲು ಸಾಧ್ಯವಿಲ್ಲ	0	1	2	3	4	5	6

ನಿಮ್ಮ ದೈನಂದಿನ ಕೆಲಸಗಳು ಮತ್ತು ಅದು ಯಾವ ರೀತಿ ನಿಮ್ಮ ಬೆನ್ನು ನೋವಿಗೆ ಕಾರಣ ಅಥವಾ ಸೂಕ್ತ ರೀತಿಯಲ್ಲಿ ಪರಿಣಾಮ ಬೀರುವುದು?

6	ನನ್ನ ನೋವು ನನ್ನ ಕೆಲಸ ಅಥವಾ ಕೆಲಸದಲ್ಲಿ ಸಂಭವಿಸಿದ ಅವಘಡದಿಂದ ಆಗಿರುತ್ತದೆ	0	1	2	3	4	5	6
7	ನನ್ನ ಕೆಲಸ ನನ್ನ ನೋವನ್ನು ತೀವ್ರಗೊಳಿಸಿದೆ	0	1	2	3	4	5	6
8	ನನ್ನ ನೋವಿಗೆ ಪರಿಹಾರ ಪಡೆದುಕೊಳ್ಳಬಹುದು	0	1	2	3	4	5	6
9	ನನ್ನ ಕೆಲಸವು ನನಗೆ ಅತಿಯಾಗಿದೆ	0	1	2	3	4	5	6
10	ನನ್ನ ಕೆಲಸವು ನನ್ನ ನೋವನ್ನು ಜಾಸ್ತಿ ಮಾಡುತ್ತದೆ ಅಥವಾ ಜಾಸ್ತಿ ಮಾಡಬಹುದು	0	1	2	3	4	5	6
11	ನನ್ನ ಕೆಲಸವು ನನ್ನ ಸೊಂಟದ ಮೇಲೆ ಪರಿಣಾಮ ಉಂಟು ಮಾಡಬಹುದು	0	1	2	3	4	5	6
12	ನಾನು ನನ್ನ ದೈನಂದಿನ ಕೆಲಸಗಳನ್ನು ಈ ನೋವು ಇರುವ ಕಾರಣದಿಂದ ಮಾಡಲಾಗುವುದಿಲ್ಲ	0	1	2	3	4	5	6
13	ನಾನು ನನ್ನ ದೈನಂದಿನ ಕೆಲಸಗಳನ್ನು ಈ ನೋವಿನಿಂದಾಗಿ ಮಾಡಲು ಸಾಧ್ಯವಾಗುತ್ತಿಲ್ಲ	0	1	2	3	4	5	6
14	ನಾನು ನನ್ನ ದೈನಂದಿನ ಕೆಲಸಗಳನ್ನು ನನ್ನ ನೋವು ಕಡಿಮೆ ಆಗುವವರೆಗೆ ಮಾಡಲು ಸಾಧ್ಯವಿಲ್ಲ	0	1	2	3	4	5	6
15	ನಾನು ನನ್ನ ದೈನಂದಿನ ಕೆಲಸಗಳಿಗೆ ಮೂರು ತಿಂಗಳೊಳಗೆ ಹಿಂತಿರುಗುವೆನೆಂದು ಅನಿಸುವುದಿಲ್ಲ	0	1	2	3	4	5	6
16	ನಾನು ನನ್ನ ಕೆಲಸ ಕಾರ್ಯಗಳನ್ನು ಹಿಂದಿನಂತೆ ಮಾಡುತ್ತೇನೆ ಎಂದು ಅನಿಸುತ್ತಿಲ್ಲ	0	1	2	3	4	5	6

ಅಂಕಗಳು:

ಮಾಪನ 1 : ಕೆಲಸದ ಬಗ್ಗೆ ಇರುವ ಭಯ ನಿವಾರಕ ನಂಬಿಕೆ - ಐಟಂ 6  
 ಮಾಪನ 2 : ದೈಹಿಕ ಕೆಲಸಗಳ ಬಗ್ಗೆ ಇರುವ ಭಯ ನಿವಾರಕ ನಂಬಿಕೆ - ಐಟಂ 6

## Statistical analysis

Normality of the collected data was established by Kolmogorov-Smirnov test. As the data was confirmed to follow normal distribution, the descriptive statistics of Demographic dimensions such as age, weight, height and BMI were reported in mean  $\pm$  SD. Each Kannada translated content of FABQ-KA item was content validated and reported in term of I-CVI. The overall validation of kannada translated content of FABQ-KA was reported in S-CVI after the end of scale validation by panel of experts. S-CVI was computed by averaging calculation method (S-CVI/Ave)<sup>23-25</sup>. Lynn recommended that minimum I-CVI of 0.78, in case of 6 to 10 experts and overall the scale should an SCVI/Ave of 0.90 or higher for considered to have excellent content validity<sup>23</sup>. Internal consistency was reported in terms of cronbachs  $\alpha$ . Cronbachs  $\alpha$  coefficient was calculated for item-scale correlation of FABQ-KA. Test-retest reliability was tested by using theintra class correlation coefficient, ICC<sub>(2,1)</sub>. For all the statistical analysis, the level of significance was set at  $p < 0.05$  and was analysed using the statistical software, statistical package for social sciences (SPSS), Version – 20.

## Results

The demographic dimension of patients (n=60) with CLBP was reported in Table 1. The content validity of kannada translated FABQ-KA by a panel of 10 experts were found to be, I-CVI of individual items of FABQ-KA  $\geq 0.80$  and the overall S-CVI for idiomatic equivalence, semantic equivalence and content relevance  $\geq 0.90$  or ( $\geq 90\%$ ). For content validity equivalence all 10 experts answers were located between mostly agree and strongly agree of FABQ-KA, for idiomatic equivalence (S-CVI =89.9 $\pm$ 6.33)%, semantic equivalence (S-CVI=93 $\pm$ 5.16)% and content relevance (S-CVI=90.7 $\pm$ 6.61)%. Test-retest reliability (n=60) was tested by using the intraclass correlation coefficient, ICC (2,1) and Internal consistency (n=60) was reported in terms of cronbachs  $\alpha$  measured in two session after 1 week is reported in Table 2.

**Table 1.** Descriptive statistics for demographic characteristics of patients with chronic low back pain

Demographic dimensions	Mean $\pm$ SD
Age (Years)	41.50 $\pm$ 10.59
Height (cm)	154.37 $\pm$ 10.74
Weight (kg)	62.00 $\pm$ 11.04
BMI (kg/m <sup>2</sup> )	25.99 $\pm$ 4.47
Duration of LBP (Weeks)	20.35 $\pm$ 13.62

**Abbreviations:** BMI – Body mass index; LBP – Low back pain

**Table 2.** Test-retest reliability of FABQ-KA scores

FABQ-KA	Session 1	Session II	Cronbach's alpha	ICC	p-value
FABQ-TOTAL	53.78±9.07	52.85±7.95	0.909	0.83	0.989
FABQ-PA	18.93±4.39	19.70±3.92	0.867	0.75	0.756
FABQ-W	34.93±7.92	33.38±7.19	0.903	0.80	0.831

**Abbreviations:** FABQ-KA - Fear Avoidance Beliefs Questionnaire – Kannada version; ICC - intraclass correlation coefficient; FABQ-PA - Fear Avoidance Beliefs Questionnaire-Physical activity; FABQ-W - Fear Avoidance Beliefs Questionnaire-Work

## Discussion

Fear of pain and its avoidance are needed to be taken in to account in both assessment and management of musculoskeletal disorders in early stages of the natural history of low back pain. Thus it will establish an effective treatment plan to prevent chronic low back pain. It is important to focus on educating patient's regarding pain along with gradual exposure to activities to help reduce pain-related fear

In this study 60 patients who fulfilled the inclusion criteria have participated. FABQ-KA questionnaire was given twice with 1-week interval to measure the test-retest reliability and to measure validity. The results of the study showed good correlation ICC=0.83,  $p < 0.00$  and internal consistency (cronbach's alpha=0.909).

For content validity equivalence all 10 experts answers were located between mostly agree and strongly agree of FABQ-KA, for idiomatic equivalence (average=89.9±6.33), semantic equivalence (average=93±5.16) and content relevance (average=90.7±6.61). Thus, FABQ-KA was content validated for idiomatic equivalence, semantic equivalence and content relevance.

In previous studies, test retest reliability of Gujarati version was excellent and it was tested twice within 48 hour interval for patients with chronic low back pain (ICC=0.915,  $p < 0.001$ ). Content validity and face validity found to be excellent<sup>6</sup>. In Brazilian Portuguese version test-retest showed excellent reliability (ICC= 0.93)<sup>15</sup>. In Finnish version test retest showed excellent reliability (ICC= 0.91)<sup>28</sup>.

Italian version of FABQ-I with interval of 1 week time, the test-retest showed good reliability (ICC=0.869, 95%CI 0.808, 0.909) and internal consistency (cronbach's  $\alpha$ = 0.822).convergent validity showed moderate correlation with Tampa scale of kinesio phobia (TSK-I) ( $r=0.440$ )<sup>29</sup>. In German version although in 29 days time interval the test retest showed good reliability (ICC=0.87, 95% CI) and internal consistency (cronbach's  $\alpha$ = 0.91)<sup>14</sup>. In Chinese version with time interval of 14 days test retest showed good reliability (ICC= 0.86, 95%CI) and internal consistency (cronbach's  $\alpha$ =0.82)<sup>19</sup>.

It was found that FABQ-KA items were equivalent to those in the original version, which is intended by two native English speakers and clinical experts involved in the study and the scores of the groups were similar to that obtained from subjects using other versions of the same scale supports our findings. Study findings were limited only due to CLBP and it is doubtful whether our results can be generalized to acute or sub acute low back pain. Another limitation was the use of non-random sampling method of recruitment, purpose sampling might have led to some degree of selection bias.

The result showed that it was possible to translate this functional status questionnaire into other languages without losing psychometric properties of the original English version.

## Conclusion

The FABQ-KA was cross-culturally adapted and validated for use among the Kannada-speaking populations. The translated version has acceptable reliability and internal consistency.

## Author contributions

Kumar A and Pithadia K conceived and designed the study, conducted research, provided research materials, collected and organized data and wrote initial draft of article. Kumar D and Rajasekar S provided the logistic support. All the four authors approved the final draft.

## Competing interests

No financial, legal or political competing interests with third parties (government, commercial, private foundation, etc.) were disclosed for any aspect of the submitted work (including but not limited to grants, data monitoring board, study design, manuscript preparation, statistical analysis, etc.).

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