

ORIGINAL ARTICLE

The reliability and validity of Malay Version of Fear Avoidance Beliefs Questionnaires (FABQ) among low back pain sufferers: A Pilot Study

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Abstract:

Fear-avoidance beliefs is well known to affect disability, work loss and physical activities in back pain patient and become an important aspect to be assessed. The purposes of this study were to describe the process used to translate the Malay version of FABQ (MFABQ) and to determine the test-retest reliability and validity of the MFABQ among Malay-speaking low back pain (LBP) patients. The MFABQ was translated by using forward and back-translated method following WHO recommendation. The MFABQ was tested among 60 patients with LBP for the reliability and validity purposes. The test-retest within a two-day interval was performed by assessing the intraclass correlation coefficient. The construct validity was assessed with correlation between the MFABQ and the SF-36v2 by using Pearson correlation coefficients. The results showed the test-retest reliability was good with the intraclass correlation coefficient value 0.831 for the total score of MFABQ. The construct validity of MFABQ showed that this questionnaire was valid. The fear avoidance beliefs physical work test and retest were inversely correlated with the mental scales of the SF-36 ($r=0.407$) and ($r=-0.345$) respectively. The reliability and construct validity of the MFABQ were acceptable for assessing fear-avoidance beliefs of Malay speaking patients with LBP.

Keywords: Fear Avoidance Beliefs Questionnaire, Low Back Pain, Malay Version, Reliability, Validity

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1. INTRODUCTION

Low Back Pain (LBP) is a very common medical problem affecting all populations worldwide, contributing to disability and reduce quality of life among the sufferers. It is well known that LBP causes serious impacts on physical, social and psychological aspects. Samwel et al. [1] stated fear, anxiety, depression and the sense of helplessness are the psychological factors that contribute to chronic pain. Pain is the most powerful drives in humans and closely related with fear [2], and fear of pain is responsible for a progressive reduction of occupational and physical activities [3]. In addition, Larsson et al. [4] suggested fear avoidance beliefs play important roles in predicting future physical activities in older adults with chronic pain.

Pain is always thought in negative way among LBP subjects. The negative beliefs about pain cause catastrophizing response whereby they tend to imagine the worst effects of LBP to them [5]. Rainville et al. [6] revealed after experiences that stimulate LBP, anticipated or actual exposure to similar experiences may re- elicit a fear response, even when these experiences are not dangerous and painful. This behaviour is known as the fear-avoidance beliefs. The fear avoidance belief was closely related with fear avoidance model that described the importance of belief towards pain

that contributing to fear and avoidance. If the patient's perception of pain is threatening, they would experience excessive fear of pain and injury which later lead to avoidance behaviour and fear of movement [7]. Patients with extreme anticipated pain may avoid activity or execute tasks less vigorously, which later will cause physical deconditioning [8].

It is well-known that fear-avoidance beliefs have influences on disability, work loss and physical activities avoidance [9,10]. This have roses the important to assess on this problem, and the Fear Avoidance Beliefs Questionnaires (FABQ) has been addressed and widely use among practitioner to investigate fear avoidance belief among LBP patients. The original version of FABQ developed by Waddle [11]. According to the theories of fear and avoidance behaviour and focussed on patient's belief about the impact of work and physical activity on low back pain. This test was valid and reliable with internal consistency 0.88 and 0.77 for work and physical activity scale.

FABQ has been translated and validated in Arabic [12], Brazil [13], Chinese [14], Finnish [15], French [3], German [16], Greek [17], Hausa [18], Italian [19], Japanese [20], Norwegian [21], Persian [22], Spanish [23], and Turkish versions [24]. FABQ is an important psychosocial variable

in patients with chronic disability due to LBP [9]. A well validated questionnaire in diverse languages will allow the exchange of information in global studies [25]. In addition, it would be competent for comparison of different research discovery internationally.

In recent years, there has been an increase need to assess fear avoidance belief among Low Back Pain (LBP) patients in Malaysia. Currently, the health care practitioners in Malaysia are still using the English Version of FABQ to assess fear avoidance beliefs. However, this test seems not suitable for patients in this country due to some language barriers, as mostly Malaysian citizen are using Malay language daily. As we know, there is no Malay version of FABQ yet in Malaysia. Therefore, the objectives of this paper were:

- i) to describe the process used to translate the proposed version of the FABQ
- ii) to determine the test-retest reliability and validity of the Malay version among Malay speaking LBP patients.

2. METHODOLOGY

The study was carried out in two phases. First, the translation of FABQ into the Malay version was conducted. Secondly, the test-retest measurement was applied to the LBP subjects.

2.1 Questionnaires

The FABQ was developed by Waddell et al. in 1998, to assess fear avoidance beliefs [26]. This questionnaires consists of 16 items which evaluate fear avoidance belief in Physical activity and work. The FABQ work (FABQw) consists of 7 questions, while FABQ physical activity (FABQpa) consists of 9 questions. In this questions, subjects are required to rate their agreement in every segment on a 7-point likert scale from 0= totally disagree to 6= totally agree. The total score for FABQw and FABQpa are 42 and 24 respectively, in which the higher score indicates more strongly fear avoidance beliefs. This questionnaire required approximately 10 minutes to complete.

2.2 Translation

The English version of FABQ was translated and edited into Malay by the researchers, whose first language is Malay. The questionnaire was then back translated into English by the independent English language lecturer, whose first language is English. There were very minor differences found in grammatical that did not interfere with the meaning of the English version of FABQ. The Malay version was then used for study. The translation process of the study followed the procedure described by Hasanah et al. [27] as proposed by World Health Organisation (WHO).

2.3 Subjects

The study was conducted in the Universiti Teknologi MARA, Puncak Alam Campus. The subjects were recruited among the volunteered students and the staff of the campus who sustained from LBP. All participants gave their informed consent after receiving oral and written information about the study. This study was approved by the Research Ethics Committee, University Teknologi MARA.

2.4 Procedure and measurements

Firstly, the comprehensive questionnaire consisted of demographic data questionnaire consisted two parts (part A: 14 personal details questions and part B: 10 health history questions), were given to all of the subjects participate in this study. Then, the FABQ was administered to all participants as part of the questionnaire used in the study. The SF-36 also was distributed to the subjects in order to validate the FABQ Malay version.

The SF-36 consists of 36 questions on the general health status of the subjects, and provides 8 specific categories of physical and emotional scores: physical functioning, role-physical, bodily pain, general health, vitality, social functioning, role-emotional and mental health [28]. The SF-36 is widely used as a standard measurement in various validation studies. In this study, the Malay version SF-36 translated and validated by [29] was used. Two sets of similar questionnaires were distributed to all participants. They were required to answer the first set immediately and returned it back to the researcher. The second set was asked to be completed after two days interval and returned it back to the researcher.

2.4.1 Reliability

For the test-retest reliability analyses, 60 subjects had completed the questionnaires after two days and returned it back to the researcher.

2.4.2 Validity

For the purpose of validity of FABQ in Malay version, this questionnaires aim to measure fear avoidance beliefs in work and physical activity among LBP subjects, it was supposed that the fear avoidance beliefs assessed by FABQ would be significantly correlated with limitations in physical activities according to the SF-36. Moreover, these questionnaires would provide information about a concept that was different from psychosocial concern. Thus, another hypothesis was that the sum scores of FABQ would show minimal correlations with mental and physical health scores of SF-36.

2.5 Data analysis

The SPSS software, version 17.0 was used to analyse the data.

2.5.1 Reliability

Homogeneity (Internal consistency): Internal consistency was assessed by Cronbach's α coefficients, corrected item-total correlations, and Cronbach's α if the item was deleted [30]. The closer the value of α is to 1.00, the greater the internal consistency of items in the instrument being assessed [31]. Cronbach's α greater than 0.7 is acceptable [32].

Reproducibility (Test-retest reliability): Intra-class correlation coefficients (ICCs) were used to quantify the reproducibility of test and retest. The ICC (1, 1) was calculated as the ratio of the variance between subjects and the total variance.

2.5.2 Validity

Content validity: Content validity was assessed during the questionnaire development stage (stage1: translation) by incorporating researchers and expert opinion.

Construct validity : Convergent validity of the FABQ was examined by calculating the correlations between FABQ and SF-36 using the Pearson’s r correlation coefficient. The FABQ was expected to be moderately to highly correlation with the SF-36 physical function and mental health subscales. A Pearson’s r correlation coefficient over 0.6 indicates high correlation [33].

3. RESULT AND DISCUSSION

There were 150 sets of questionnaires distributed for both test and re-test measurements. However, there were only 60 subjects had returned both sets of questionnaires and included for the study. Generally, the participants were able to fill in the questionnaire independently without assistance.

3.1 Demographic data

The demographic data of the subjects are presented in Table 1. Almost all participants were students with the mean age 20.4 years old who experienced low back pain. Out of all 81.7% were female. Majority of respondents reported having low back pain in less than one month and only 4 reported low back pain more than a year.

Table 1: Demographic data of the subjects

Age (mean=20.40)	n= 60 (%)
18	5 (8.3)
19	19 (31.7)
20	12 (20.0)
21	7 (11.7)
22	12 (20.0)
23	2 (3.3)
24	2 (3.3)
28	1 (1.7)
Gender	
Male	11 (18.3)
Female	49 (81.7)
Duration of LBP	
<1 month	32 (53.3)
1-3 months	6 (10.0)
3-6 months	5 (8.3)
6-12 months	5 (8.3)
>12 months	4 (6.7)
Occupation	
Clerk	2 (3.3)
Student	58 (96.7)

Table 2: Descriptive data and score distribution of the Malay FABQ and SF-36

Variables	Mean±SD
FABQ Physical T1	12.64±6.33
FABQ Physical T2	11.22±5.57
FABQ Work T1	13.89±8.41
FABQ Work T2	14.51±9.12
SF-36(Physical Health)	46.89±7.49
SF-36 (Mental Health)	46.89±7.49

3.2 Reliability properties

Table 3 summarizes the test-retest reliability between the first and second completion of FABQ showed by the ICC (0.831), 95% confidence interval (0.743, 0.893) and coefficient of variance (CV). Internal consistency by Cronbach’s alpha was 0.831.

Table 3: Intraclass Correlation (IC) Coefficient and 95% Confidence Interval (CI)

Intraclass Correlation Coefficient						
Intraclass	95% CI			F Test		
Correlation ^a	Lower	Upper	Value	df1	df2	Sig
Single Measures	.551 ^b	.420	.677	5.90	54	162 .000
Average Measures	.831 ^c	.743	.893	5.90	54	162 .000

3.3 Validity

Table 4 shows the associations between the summary scores of Malay FABQ and SF-36 used to construct validity of the questionnaires. The results of the FABQw test were not correlated with all the FABQ subscale. However, the FABQpa shows moderate to high correlation with all subscales of FABQ ranging from 0.593 to 0.711. For retest measurements, the FABQpa were correlated with all items of FABQ, with ranging scores 0.491 to 0.624. Besides, the FABQw retest shows moderate to high correlation with all FABQ scores (0.36≤r≤0.659). The SF36 Mental health were moderately correlated with FABQw test (r=0.407) and FABQw retest (r=-0.345). However, the SF36 Physical health was not correlated with all FABQ subscale. The result was calculated for only 46 participants who completed SF-36 questionnaires.

Table 4: Pearson's correlation coefficient of the FABQ and SF-36

		FAB Qpa T1	FAB Qw T1	FAB Qw T2	FAB Qpa T2	SF-36 PH	SF-36 MH
FAB Qpa T1	Pearson Correlation	1	.711	.491	.360	-	-.267
	p-value		.000	.000	.006	.153	.323
	Covariance	40.06	37.16	16.607	20.82	-	-
FAB Qw T1	Pearson Correlation	.711**	1	.593*	.659**	-	-
	p-value	.000		.000	.000	.403	.007
	Covariance	37.161	70.703	27.812	51.297	-	-
FAB Qpa T2	Pearson Correlation	.491**	.593*	1	.624**	-	-.072
	p-value	.00	.00		.000	.295	.636
	Covariance	16.607	27.812	31.022	31.946	-	.29429
FAB Qw T2	Pearson Correlation	.360**	.659*	.624*	1	.050	-.345*
	p-value	.006	.000	.000		.747	.020

	Covariance	20.8 2	51.29 7	31.94 6	83.1 85	2.85 2	- 24.71 8
SF-36	Pearson	-1.153	-1.31	-1.58	.050	1	.023
PH	Correlation						
	p-value	.323	.403	.295	.747		.881
	Covariance	- 6.14 9	7.004	-5.209	2.85 2	36.2 88	1.021
SF-36	Pearson	-2.67	-	-0.702	-	.023	1
MH	Correlation		.407*		.345		
	p-value	.080	.007	.636	.020	.881	
	Covariance	- 13.5 48	27.17 5	-2.942	- 24.7 18	1.02 1	56.14 3

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

3.4 Validity and Reliability of Malay version of FABQ

This study aimed to determine the validity and reliability of the Malay version of FABQ. As our study knew, this is the first study that translates the English version of FABQ into Malay language. The process of the translation of Malay version of FABQ was quite straight forward and followed the procedure recommended by WHO [27]. We used the forward translation of English version into Malay language and back translation of Malay version into English methods. This method is very cost-effective, rather than developing new questionnaire for the purpose of assessing fear avoidance beliefs among Malay speaking LBP patients. The Malay version of FABQ seemed to be clearly understood and easily used by the subjects involved in this study.

In the original study, the reliability of FABQ was measured by repeating the questionnaires in the two days intervals [11]. Changing of the fear avoidance may be possible in a period of time, such as during acute phase to chronic phase. In fact, Linton et al. [34] suggested the pain related fear and catastrophizing is important to be monitored during first week of treatment. This may explain on the fear avoidance beliefs may be change across time. Therefore, for the purpose of evaluating the reliability of the Malay FABQ, the time intervals between the two sets of similar questionnaires had to be short as possible, to avoid the actual changes in beliefs which will affect the reliability results. For that reason, our study also repeated the questionnaires in two days' time as in the English version.

The results from this study indicate that the Malay version of the FABQ was reliable and valid instruments for the purpose of assessing fear avoidance beliefs in Malay speaking subjects with LBP. In the present study, the Malay version of FABQ demonstrated good internal consistency as the Cronbach's α value was high, 0.831. The results were consistent with the previous study in other languages [3,14,23]. The value of ICC (0.831) for test-retest reliability of the Malay version FABQ showed excellent test-retest agreement which was similar to the original (English version) of FABQ with good development processes [11].

We examined the validity of translated Malay FABQ by the correlation analysis with SF-36 subscales (physical function and mental health). In general, the FABQw subscale was strongly correlated with mental score in SF-36. However, the FABQpa was not correlated with SF-36 physical health. Our study findings was similar to the Arab version of FABQ by Laufer at al. [12] that revealed the FABQw was not correlated with physical health score of SF-36. The score of FABQw and FABQpa indicates that the LBP has no impacts on their physical activity and work. The possible factors are because of mostly the subjects are educated regarding health, thus they tend to manage the condition appropriately and continue physical activities and work efficiently.

Our study also demonstrates that a self-directed FABQ is reliable to be translated into Malay language with proper maintenance of its original (English) version properties. It is significant to translate the current existing questionnaires rather than to develop the new one. Global accepting of the translated and validated questionnaires is essential when to be used in different population especially with different culture and background. This view is supported by the good understanding of the well-known SF-36 questionnaire which has been translated into numerous different languages. This will enhance the comparability of the research findings globally when the similar questionnaires are used in different population.

In general, the validity and reliability of Malay version of FABQ was proven and similar to other languages such as Arabic [12], Brazil [13], Chinese [14], Finnish [15], French [3], German [16], Greek [35], Hausa [18], Italian [19], Japanese [20], Norwegian [2], Persian [22], Spanish [23], and Turkish versions [24] of FABQ. Therefore, the Malay version of FABQ may be used in future for the comparative study in the global.

3.5 Limitations

Several limitations of this study were noted. One of them was that this study had been conducted in a single centred institution where majority of the populations were tertiary education students, and the age group mostly young age group. Furthermore, most of them were studying in health education including Physiotherapy, Occupational Therapy, Nursing, Environmental Health, Medical Lab Technology, and others. Somehow, these students had ideas or experiences of how to cope with their pain, and the fear avoidance beliefs may not significant to them as they are well-educated about health. Another potential limitation is that, the numbers of participant for the study were small and these might influence the outcome of the study.

3.6 Recommendations

In future, we would recommend multicentre studies to improve the generalization of the results. The study also could be conducted in cross-culturally with more groups of low back pain patients for comparison. Probably with variety and greater number of cases will reflect a better outcome.

4. CONCLUSION

In conclusion, the present study showed that the translation of the Malay version of revised FABQ seems to be reliable and valid questionnaire for the assessment of fear avoidance beliefs among LBP subjects. Therefore, we recommend the use of Malay version of revised FABQ in future in both clinical settings and research purposes in Malay speaking populations with LBP. The efficiency of the Malay version of revised FABQ in evaluating longitudinal change in an individual or a group seems to be promising and we believe should be the subject for further research.

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