

Validation of a Yoruba version of the arthritis self-efficacy scale

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Abstract

Background: The Arthritis Self Efficacy Scale (ASES) measures a patient's perceived efficacy to cope with the consequences of chronic arthritis. The aim of this study was to translate ASES in to Yoruba, one of the indigenous Nigerian languages, and to investigate the validity and reliability of the translated version.

Methods: Forty one (21 males; 20 females) patients diagnosed with arthritis participated in this cross sectional survey, although only thirty seven (87.8%) were available for the reliability study. The ASES was translated to Yoruba language using forward-backward translations. Participants completed both English and Yoruba version of ASES on the first day while the second administration of the two versions of ASES was completed at one week after the first administrations. Data was analyzed using descriptive statistics, Spearman correlation and intra-class correlation (at $p=0.05$).

Results: There was a significant direct correlation ($p<0.0001$) between the scores obtained on the English and Yoruba versions ($r=0.933$). Also there was a significant direct correlation ($p<0.0001$) between the scores obtained on the first and second administrations of the English and Yoruba version of the ASES.

Conclusion: The Yoruba version of the ASES is a valid and reliable outcome measure for health outcomes assessment in Yoruba-speaking populations.

Keywords: *Arthritis; self-efficacy; validation; Yoruba*

Résumé

Contexte: Echelle Auto-Efficacité d'arthrite (ASES) mesure l'efficacité perçue d'un patient pour faire face aux conséquences de l'arthrite chronique. Le but de cette étude était de traduire ASES en Yoruba, l'une des langues indigènes du Nigeria, et d'enquêter sur la validité et la fiabilité de la version traduite.

Méthodes: Quarante et un (21 mâles, 20 femelles) patients diagnostiqués avec l'arthrite ont participé à

cette étude transversale, bien que seulement trente-sept (87,8%) étaient disponibles pour l'étude de fiabilité. L'ASES a été traduite en langue Yoruba en utilisant les traductions avant-arrière. Les participants ont rempli les deux versions, Anglaise et Yoruba de l'ASES le premier jour tandis que la seconde administration des deux versions de l'ASES a été achevée à une semaine après les premières administrations. Les données ont été analysées à l'aide de statistiques descriptives, corrélation de Spearman et de corrélation d'intra-classe ($p = 0,05$).

Résultats: Il y avait une corrélation directe significative ($p < 0,0001$) entre les scores obtenus sur les versions en anglais et en yoruba ($r = 0,933$). Aussi il y avait une corrélation directe significative ($p < 0,0001$) entre les scores obtenus sur les première et deuxième administrations de la version Anglaise et Yoruba de l'ASES.

Conclusion: La version Yoruba de l'ASES est une mesure de résultat valide et fiable pour l'évaluation des résultats de santé dans les populations Yoruba-phones.

Mots-clés: *Arthrite; auto-efficacité; validation; Yoruba*

Introduction

Arthritis is a chronic condition which affects 10 % of the world population, and is the second major reason after cardiovascular diseases why people over 50 years old give up their jobs [1]. The most common forms of arthritis are osteoarthritis (OA), rheumatoid arthritis (RA), fibromyalgia (FM), and gout [1]. Arthritis defined as joint inflammation is not a single disease as there are over 100 different forms of arthritis; the two most common types being osteoarthritis and rheumatoid arthritis [2]. Arthritis-related problems include pain, stiffness, inflammation and damage to joint cartilage [3]. Significant chronic pain problems are common in individuals with arthritis and their pain coping ability can influence their performance of daily activities and societal participation.

Self-efficacy is the confidence an individual has to perform a task [4], or belief in one's capabilities to organize and execute the course of action required to

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produce given attainments [5]. The level of self-efficacy may influence how much effort patients invest in their rehabilitation, their perseverance despite difficulties encountered, whether they are able to maintain a positive attitude towards their rehabilitation goals, and the amount of stress experienced on the rehabilitation journey [5]. Hence, it has been suggested that therapy utilizing training at sub-maximal levels in mild to moderate arthritis should focus on strategies for enhancing self-efficacy [6].

The Arthritis Self Efficacy Scale (ASES) was designed to measure perceived ability to control various aspects of arthritis [7]. It measures a patient's perceived self-efficacy to cope with the consequences of chronic arthritis [8]. Lorig *et al* [9] designed the original ASES to measure self-efficacy in relation to exercise and treatment behaviour in people with arthritis. However, a shorter ASES containing eight questions was designed to measure confidence that individuals have in performing specific arthritis self-management activities. It is less burdensome for subjects than the original 3 scales with 20 total items and now in use [9]. This 8-item scale has internal consistency reliability of 0.94 and it is available in English, Swedish, Chinese, German and Spanish [8, 10-13].

Validity and reliability of the ASES has been tested around the world and its translation into an indigenous Nigerian language (Yoruba) may encourage its use in the Nigerian clinical setting. Yoruba is one of the major three indigenous Nigerian languages and is the predominant language spoken in South-West, Nigeria. However, the translation process usually introduces a subtle form of distortion into a scale, thereby altering its psychometric properties. It is therefore necessary to re-validate the instrument, as if it were a new one. The validity and reliability of the Arthritis Self Efficacy Scale as well as its Yoruba translation in Nigeria were investigated in this study.

Materials and methods

The instrument for data collection was the Arthritis Self Efficacy Scale (ASES). This is a self-administered, disease-specific questionnaire. The ASES is in two versions (the original and short forms) The original version consists of 20 questions divided into three subscales: physical function (9 questions), other symptoms (6 questions) and pain (5 questions). Clients are instructed to circle a number to indicate their level of certainty that they can perform each task. The short version has 8 items which includes questions from each

of these areas was used for the study. Groups tested with this measure include those with chronic arthritis and fibromyalgia.

Scoring/interpretation

Each question is scored on a 9 cm numeric rating scale ranging from 1 = very uncertain, 5 - 6 = moderately uncertain, and 10 = very certain. Each subscale is scored separately by taking the mean score of the items. Higher scores indicate higher self-efficacy. For the shorter 8-item scale, the score is the mean of the eight items.

The Arthritis Self Efficacy Scale (ASES) was translated into Yoruba through a forward-back translation process. The ASES (English version) was forward-translated into Yoruba by a Yoruba language expert in the Department of Linguistics and African Languages, University of Ibadan. The forward-Yoruba translation of the instrument was then back-translated into English by another language expert who was knowledgeable about the content area. This was to ensure that the original meaning has not been lost. A final Yoruba version was then produced which was used for data collection (Appendix 1).

This cross-sectional correlational study was approved by University of Ibadan and University College Hospital (UI/UCH) Health Research Ethics Committee (UI/EC/11/0077). Approval was also obtained from the heads of department of the three selected public hospitals in Ibadan. All participants gave their informed consent. Participants comprised a purposive sample of 41 individuals that had been diagnosed of arthritis and were receiving treatment in the physiotherapy outpatient department of the selected hospitals. The participants were literate in English and Yoruba languages and had no major health problem such as stroke, cancer or diabetes that might affect self-efficacy.

Socio-demographic data on age, sex, occupation, marital status, educational attainment, onset of problem and type of arthritis and joint affected were obtained from the participants. Participants were randomly assigned in the order of administration of the English and Yoruba versions of ASES. The first individual to be recruited chose between two tightly wrapped papers which indicated English or Yoruba. The other participants were thereafter alternately assigned into either of both groups in terms of the questionnaire to complete first. Twenty-one (21) of the participants completed the English version before the Yoruba version

while 20 completed the Yoruba version before the English version. An interval of about one hour was observed between completions of the two versions. The two versions of the ASES were then administered again to the same participants after a one-week interval to determine the test-retest reliability of the scales. However, only 36 of the initial 41 participants were available for the retest of the study.

Descriptive statistics of mean and standard deviation were used to summarize participants' age and onset of arthritis. Frequency distribution table was used to present age, sex, marital status, occupational status, and educational attainment, onset of arthritis, joint affected and type of arthritis of the participants. Spearman Correlation and Intra-Class Correlation methods were used to investigate the correlation between the scores obtained by subjects on the English and Yoruba versions of the ASES on two different occasions (test-retest reliability). Spearman correlation was used to investigate the relationship between scores obtained on the English and Yoruba versions of the ASES by bilingual patients (Construct validity). Level of significance was $p \leq 0.05$.

Results

Forty-one patients diagnosed to have arthritis participated in the construct validation of the Yoruba ASES. They comprised 21 (51.2%) males and 20 (48.8%) females (table 1). The mean age of the participants was 58.59 ± 14.60 years, the range being 32 to 90 years. The most frequently affected age group was 61 to 70 years (Fig. 1). Out of 41 subjects, 36 (19 males, 17 females) were available at one week to complete the test-retest aspect of the study. Nineteen (46.3%) of the participants were employed while over half were retired from active service. Majority of the participants (35 or 85.4%) had education up to the tertiary level. Thirty-two (78%) of the participants were married (table 1). Forty (97.6%) of the participants had osteoarthritis while only 1 (2.4%) had rheumatoid arthritis. Sixteen (39%) of the participants were diagnosed of arthritis in less than six months before the study, while 13 (31.7%) had their arthritis diagnosed more than 24 months before the study. The most frequently affected joint was the knee with 17 (41.5%) participants, followed by the lumbar spine with 16 (39%) participants and then the cervical spine with 11 (26.8%) (table 2).

Significant positive correlations were obtained between the two administrations of the English version

Table 1: Socio-demographic characteristics of participants

Variable	Frequency
<i>Age group</i>	
30-40	6
41-50	6
51-60	8
61-70	15
71-80	4
81-90	2
<i>SEX</i>	
Male	21
Female	20
<i>Occupational status</i>	
Employed	19
Unemployed	1
Retired	21
<i>Marital status</i>	
Single	1
Married	32
Divorced	2
Widowed	6
<i>Educational attainment</i>	
Primary School Leaving Certificate	3
Certificate Secondary School Leaving Certificate	3
Tertiary Education	35

Table 2: Clinical profile of participants

Variables	Frequency
<i>Onset of arthritis</i>	
< 6 months	16
6-11 months	2
12-17 months	9
18-23 months	1
24 months and above	13
<i>Type of arthritis</i>	
Osteoarthritis	40
Rheumatoid Arthritis	1
<i>Joint affected*</i>	
Cervical Spine	11
Shoulder	3
Wrist	1
Knee	17
Lumbar spine	16
Ankle	1
Hip	2

* Some patients had multiple joint affectati

of ASES ($r=0.895$, $p<0.0001$) and also the two administrations of the Yoruba version of the ASES ($r=0.831$, $p<0.0001$). Using the Intra-Class Correlation, significant positive correlations were also obtained between two administrations of the English version of ASES ($r=0.962$, $p<0.0001$) as well as the two administrations of the Yoruba version of the ASES ($r=0.907$, $p<0.0001$). Both English and Yoruba versions of ASES hence had significant test-retest reliability (Table 3). A significant positive correlation of $r=0.933$ ($p<0.0001$) was obtained between the scores on the English and Yoruba versions of ASES.

Table 3: Test-retest reliability of the English and Yoruba Versions of the Arthritis Self efficacy Scale

	ICC	SPEARMAN
English ASES	0.961 ($p<0.0001$)*	0.895 ($p<0.0001$)*
Yoruba ASES	0.907 ($P<0.0001$)*	0.831 ($P<0.0001$)*

ICC: Intra- Class Correlation

ASES: Arthritis Self Efficacy Scale

* Indicating significant correlation at $p = 0.05$

Discussion

Out of 75 patients with arthritis who were invited to participate in this study, only 41 (54.7%) were literate in both English and Yoruba languages which was a requirement for participation in the study. This finding underlines the need for translation of ASES into Yoruba and corroborates the submission of Okunade [14] that translation of software clinical instruments into indigenous language is necessary for the promotion of their use in particular clinical settings.

The mean age of participants was 58.59 ± 14.6 years and the most frequently affected age group was 61 to 70 years. This is in conformity with the finding of Adegoke [15] that the mean age of patients with osteoarthritis was 59.03 years. Our finding in this study is that a slightly greater percentage of patients with arthritis were males as compared to females. The percentage of males was 51.2% while that of females was 48.8% which translated to a 1.05:1 male-to-female ratio. This finding does not agree with the finding of Lineker *et al* [16], and Akinpelu *et al* [17] that reported a higher prevalence of arthritis in women than in men. A plausible reason for our finding is the delimitation that participants should be literate in both the English and Yoruba languages, a factor that could have excluded

a number of women from participating in this study since literacy level is traditionally lower among females especially among the Yoruba speaking population in Nigeria.

Osteoarthritis and rheumatoid arthritis have been reported as the two most common types of arthritis [2] with osteoarthritis being the more common of the two [18,19]. Forty (97.6%) of the participants in this study had osteoarthritis while only one (2.4%) had rheumatoid arthritis. This finding suggests that rheumatoid arthritis and other forms of arthritis may not be of serious concern in Ibadan and by extension; Nigeria. The joint most commonly affected by arthritis in this study was the knee (41.5%). This is in agreement with the finding of Akinpelu *et al* [17], that the knee was the joint most frequently affected by osteoarthritis. This finding can also be explained by the fact that majority of the participants had osteoarthritis which has been reported to most commonly affect the knee joint.

As hypothesized, there was a significant direct correlation between the scores obtained on the English and Yoruba versions of ASES. The observed correlation ($r=0.933$) was also high [20]. This suggests that the Yoruba translated version of the ASES is a valid translation of the English version. The Yoruba translation of the Arthritis Self Efficacy Scale is therefore a valid instrument in Yoruba-speaking patients with arthritis. The Arthritis Self-Efficacy Scale has also been translated into German language (ASES-D). The ASES-D instrument met good psychometric properties and evidence for its construct validity was provided [11]. These results are in line with earlier studies on validity of translated versions of ASES [10-13]. Evidence for construct validity was adequately provided by Mueller *et al*. [11] on validation of the German version of the Arthritis Self-efficacy short-form scale in a sample of 43 patients with fibromyalgia. The sample size in their study is comparable to the sample size of 41 patients with arthritis in our study. Lomi and Nordholm [13] also sampled two groups of 25 patients with chronic pain and 24 rheumatology patients and reported evidence for the discriminant validity of the Swedish version of the Arthritis Self Efficacy Scale.

Researchers are now inclined to the use of two or more reliability measures because a correlation coefficient is not a good measure of reliability [21] hence we made use of the Intra-Class and Spearman Correlations in this study. The results obtained in this study showed that there was a significant direct correlation ($p<0.0001$) between the scores obtained on the first and second administrations of the English version of the Arthritis

Self Efficacy Scale using both the Intra-class and Spearman correlations.

It can be inferred from this result that the English version of the Arthritis Self Efficacy Scale is a reliable instrument as the reliability of a research instrument concerns the extent to which the instrument yields the same results on repeated trials [22].

The results obtained in this study showed that there was a significant direct correlation ($p < 0.0001$) between the scores obtained on the first and second administrations of the Yoruba version of the Arthritis Self Efficacy Scale using both the Intra-Class and Spearman correlations. It can be inferred from this result that the Yoruba version of the Arthritis Self Efficacy Scale is a reliable instrument as reliability refers to the consistency of assessment scores [23]. Previous authors [10-13] have also reported high correlation coefficients on the translated versions of the Arthritis Self Efficacy Scale.

Conclusion

Both English and Yoruba-translated versions of the Arthritis Self Efficacy Scale are valid and reliable among Yoruba-speaking patients with arthritis. The Yoruba translated version of the Arthritis Self Efficacy Scale should hence be incorporated for use in the management of Yoruba-speaking patients with arthritis. There is also a need to translate the instrument into other major Nigerian indigenous languages so as to promote its use in other parts of the country and similar populations since many of our patients with arthritis are not English-literate.

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