

Translation and cross-cultural adaptation of brief resilience scale among Hausa patients with non-specific chronic low back pain

Rukayya Akib Ahmad¹, Muhammad Aliyu Abba¹, Mukadas Oyeniran Akindele^{*1,2,3}, Sabina Ampon-Wireko^{2,3}, Gabriel Owusu-Ansah⁴

Abstract

Background: Globally, chronic low back pain (CLBP) is a leading cause of disability and resilience plays a significant role as a psychological factor in influencing pain outcomes. The Brief Resilience Scale (BRS) is a questionnaire used for the measurement of resilience of a wide range of health conditions, which necessitates its existence and adaptation in different languages. Despite the high prevalence of CLBP among the Hausa speakers, there is no Hausa version of BRS. This study was conducted to translate, cross-culturally adapt, and validate the BRS for Hausa-speaking patients with CLBP.

Methods: This was a cross-sectional study in which Beaton's et al (2000) guidelines were employed to translate and cross culturally adapt BRS English version into BRF Hausa version. Cognitive debriefing was performed with 10 CLBP patients, and psychometric testing was conducted among 30 patients at Aminu Kano Teaching Hospital, Nigeria. Test-retest reliability and concurrent validity with the English version were assessed using Pearson's correlation coefficients and the alpha level was set at 0.05.

Results: The outcome of this study showed that the BRS Hausa version is a stable and culturally sensitive outcome measure to assess resilience among Hausa speaking population as depicted an excellent test re-test reliability correlation coefficient of 0.983 ($p < 0.001$) and excellent concurrent validity of 0.985 ($p < 0.001$). The unidimensional factor structure was retained, consistent with the original English version.

Conclusion: The BRS Hausa version was widely acceptable, reliable and culturally sensitive to assess resilience among Hausa speaking patients. Its strong reliability supports its use in routine clinical practice to identify coping capacity, guide personalized treatment plans, and integrate resilience-building strategies into pain management programs.

Keywords: Brief Resilience Scale, Hausa Translation, Chronic Low Back Pain, Cross-Cultural Adaptation, Psychometric Validation, Resilience, Nigeria

Correspondence: Mukadas Oyeniran Akindele
(moakindele.pth@buk.edu.ng)

¹Department of Physiotherapy, Faculty of Allied Health Sciences, Bayero University, Kano, Nigeria.

How to cite: Ahmad RK, Abba MA, Akindele MO, Ampon-Wireko S, Owusu-Ansah G. Translation and cross -cultural adaptation of brief resilience scale among Hausa patients with non-specific chronic low back pain. *J Ideas Health*. 2026 June. 30;9(3):1446-1451
doi: 10.47108/jidhealth.Vol9.Iss3.459

Article Info: (Original Research)

Received: 11 May 2026

Revised: 15 June 2026

Accepted: 21 June 2026

Published: 30 June 2026

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Journal Home Page: <https://www.jidhealth.com>

e ISSN: 2645-9248

Background

Low back pain (LBP) is the leading cause of disability globally as reported by according to Global Burden of Diseases, injuries, and risk factors study [1]. Some studies have shown that up to 23% of the world's adults suffer from chronic low back pain. This population has also shown a one-year recurrence rate of 24% to 80. Low back was a major contributor to the Disability Adjusted Life Years and incidence rates in 2021 as reported by [2]. Between 1990 and 2017, an increase in years lived with disability (YLDs) was observed globally [3]. It has also been reported that 11-12% of the population being disabled by low back pain [4]. Low back pain is usually categorized in three (3) subtypes: acute, sub-acute and chronic low back pain. These subdivisions are based on the duration of the back pain. Acute low back pain is an episode of low back pain for less than 6 weeks, sub-acute low back pain between 6 and 12 weeks and chronic low back pain for 12 weeks or more [5]. Low back pain that has been present for longer than three months is considered chronic. More than 80% of all health care costs can be attributed to chronic LBP. Nearly a third of people seeking treatment for low back pain will have persistent moderate pain for one year after an acute episode [6, 7]. It is estimated that seven million adults in the United States (US) have activity limitations because of chronic low back pain [7]. People react differently to tough situations – some stay calm, even in intense moments, while others might feel really stressed about minor health issues. These

reactions to pain are not the same for everyone and are not tied to culture [8]. Ways to reduce pain often focus on improving mental health, like tackling fear, dealing with pain, managing anxiety, and handling sadness [9]. Even though feeling down can affect how pain can be experienced, the study conducted by [10] how being resilient (being able to bounce back from tough times) affects our experience of pain. Resilience, which means dealing with challenges well, might help us understand why some people handle injuries better than others [8]. Negative psychological states including anxiety, sadness, pain extinction, and fear avoidance have all been the focus of behavioral therapies to lessen the burden of pain [9]. While the correlation between pain outcomes and negative psychological functioning is widely recognized, Darnall et al., [10] study have adopted a more comprehensive approach by investigating the impact of resilience on experiences related to pain. Behavioral therapies aim to reduce pain by addressing negative feelings like anxiety, sadness, pain extinction, and fear avoidance [9]. Although we know there's a link between how we feel mentally and our experience of pain, recent studies are looking at a bigger picture. Resilience is a term that explains why some people are better at handling stress than others [8]. Resilience, as described by the American Psychological Association, is the ability to adapt well when facing tough situations or stress [11]. To measure this ability, the Brief Resilience Scale (BRS) was created. It evaluates how well someone can bounce back from stress and includes both positive and negative questions [12]. The BRS showed better psychometric properties than the Brief resilience coping scale among Chinese population [13]. The Brief Resilience Scale is a brief, single-factor instrument with 3 positively worded items and 3 negatively worded items to minimize response bias [12]. According to [14], the Brief Resilience Scale was among the scales with the most satisfactory psychometric properties. Moreover, it was also evaluated as one of the most frequently used resilience scales in a total of 25 scales [15]. In the original study, the unidimensional factor of BRS explained 55% - 67% of the variance over the 4 samples tested with PCA. Internal consistency reliability was satisfactory $\alpha = .80 - .91$ [12]. Consequently, BRS was validated in many different samples in Malaysia [16], Brazil [17], Spain [18], Germany [19] and Holland [20]. Summing up BRS factor structure of the versions adapted for different cultures, BRS in a Malaysian sample and in a Brazilian sample was reported to be one-dimensional, while the Spanish and German versions reported having a two-factor structure to account for method effects. There is also a Dutch BRS version carried out by Costen, [20] and validated in a special population of a rehabilitation facility. Thus, BRS has been validated in collectivistic and individualistic cultural contexts [21], and special populations like cardiac rehabilitation patients and women with fibromyalgia chronic pain [12], HIV-positive diagnosed, cancer outpatients, parents with children either with intellectual disabilities, development disorders or parents of oncological outpatient children [18], or members of a rehabilitation facility [22]. Brief resilience scale is a reliable resilience measure for adults of the general population in the Greek cultural context [23]. Hausa is one of the most widely spoken language in Africa, primarily in Nigeria. Hausa is the native language of the Hausa people, who are predominantly found in Northern Nigeria. It serves as the lingua franca in this region and is the most widely spoken language in Nigeria after

English. While most Hausa speakers are in Nigeria, you can also find Hausa-speaking communities in neighboring West African countries, such as Niger, Chad, Ghana, Cameroon, and Benin. These communities have been established through historical migrations and trade. The city of Kano in Nigeria, with its predominantly Hausa population, has a long history as a major trading hub. Hausa traders have been influential in commerce, not just in Nigeria but throughout West Africa. Hausa is a diverse and vibrant language with deep historical and cultural roots in Africa, particularly in the Sahel and Saharan regions. It plays a crucial role in facilitating communication and trade across the West African region. Considering the significant prevalence of chronic low back pain among Hausa-speaking populations and the recognized impact of resilience on pain experiences, this study translated and cross-culturally adapted the Brief Resilience Scale for use among Hausa speaking population.

Methods

Study design and Dataset

This was a cross-sectional study approved by the Health Research Committee, Kano State Ministry of Health, Nigeria (NHREC/17/03/2018). The translation was done in two stages: translation and cross-cultural adaptation of BRS into Hausa language and assessment of the psychometric properties of the translated Hausa version of BRS. We obtained a written permission from the original developers of the English version of BRS and written informed consent was also obtained from all the participants before they were recruited to participate in the study. The first stage of the data collection followed the guidelines of Beaton et al., [24] which consists of six stages:

Stage 1: Initial Translation

This involved forward translation of BRS questionnaire into Hausa language by bilingual translators who are Hausa and English speakers. These forward translations were done independently by the bilingual translators one of whom was aware of the study concept while the other translator unaware of the study concept and without medical or clinical backgrounds. The translator with the knowledge of the study concept was called Translator 1 (T1) while the translator without the study concept was called Translator 2 (T2). At the end of this stage, the two translators provided written reports of the translation they completed. These two translators had different profiles and or backgrounds.

Stage 2: Synthesis of the Translations

A meeting of the primary researcher and the two translators was convened to synthesize the results of the translations to come up with the synthesized translation (T12). The synthesized translation (T12) was arrived at from each of the original questionnaires and the translations from T1 and T2. A fully documented report regarding the synthesis process, issues and concerns that arose during the meeting and these issues were resolved.

Stage 3: Back Translation

At this stage, two independent blind translators who were not part of the stages 1 and 2 were invited to translate T12 back to the original versions (English language versions). Each of these independent blind back translators (BT1 and BT2) then wrote

reports regarding the translations. The primary researcher then compared the translations from BT1 and BT2 for anomalies, misunderstanding and deficits with the original versions of each of the questionnaires. The BT1 and BT2 were renowned linguistics in English and Hausa languages and were aware of the study concepts, and without clinical or medical knowledge or background. The essence of this stage was to confer a minimum validity on each of the questionnaires.

Stage 4: Expert Committee Meeting:

The members of this committee were the primary researcher, healthcare providers, language/linguistic professionals, and the translators (forward and backward translators). This committee reviewed all the translations and arrived at a consensus on any discrepancy. The original questionnaire, and each translation (T1, T2, T12, BT1, BT2) together with corresponding written reports (which explain the rationale of each decision at earlier stages) were the materials reviewed. Members of this committee were to achieve equivalence between the original questionnaires and the new version in semantic equivalence, idiomatic equivalence, experimental equivalence, and conceptual equivalence. This committee came up with the pre-final version.

Stage 5: Cognitive debriefing

Linguistic validation was achieved through a series of individual, face-to-face interviews with a mix of 10 participants who have chronic low back pain. During the interview, each respondent was asked to complete a copy of the Questionnaire and then asked a series of open-ended questions about each instruction, question, and response option, as follows:

- I. Do you understand this instruction/item/response scale?
- II. If there are any difficulties, how would you reword this instruction/item/response scale.
- III. What does this item mean to you? (Respondents were asked to rephrase the wording in their own words).
- IV. Are the response options consistent with this item?

Summary of all responses was produced in a single report along with any recommendations or comments they had regarding the translation, including suggestions for changes to the wording where appropriate. The cognitive debriefing report was submitted to BRS reviewer reviewed the decisions made thus far in the translation process, and any comments or questions arising from this review were discussed until a satisfactory resolution was found.

Stage 6: Proofreading

The translation was sent for proofreading to an independent proofreader, who had not previously worked on the translation project. The linguist was a native speaker of Hausa and fluent in English. The linguist was asked to check the translation for errors of spelling, grammar, punctuation, and typography, and was asked to check the translation against the source English to ensure that no text had been erroneously omitted or repeated.

Assessment of the reliability of the Hausa Version of BRS

This was carried out by administering the Hausa version of BRS on the same individuals with low back pain over a period of one week interval and then determined its test-retest reliability and concurrent validity. The participants (n=30) for this phase were recruited from Physiotherapy Department of Aminu Kano

Teaching Hospital, Zaria Road Kano, Nigeria. The demographic information of the participants was collected after the details of the study were explained to them.

Statistical analysis

Demographic variables were analyzed using descriptive statistics such as frequency, percentages, and a correlation matrix. The Cronbach's alpha was calculated to assess the internal consistency of the six-item Hausa version of the BRS scale, with a value of ≥ 0.60 considered acceptable. Test-retest reliability was evaluated by administering the BRS Hausa version questionnaire to the same respondents after a 7-day interval. The intra-class correlation coefficient (ICC) was estimated using a two-way mixed-effects model, where an ICC value greater than 0.70 was considered indicative of satisfactory reliability. In addition, concurrent reliability was assessed by examining the level of agreement between the Hausa and English versions of the BRS scale using the ICC. All these Analysis carried out using the Microsoft Excel and Statistical Package for Social Science (SPSS) Version 22 with a significance level set at 0.05.

Results

Socio-demographic variables of participants with chronic low back pain

The socio-demographic variables of the respondents are presented in Table 1. The table summarizes the frequencies and percentages of respondents across different categories for variables including age category, gender, and marital status.

Test-retest reliability and Concurrent validity

A total of 30 participants completed the BRS Hausa scale twice, with a 7-day interval between the two assessments, to evaluate the test-retest reliability of the instrument. The mean BRS Hausa score showed minimal variation between the two measurement points, increasing slightly from 3.28 (SD = 0.17) at day 1 to 3.29 (SD = 0.18) at day 7. The intraclass correlation coefficient (ICC) demonstrated excellent agreement between the two assessments, with a value of 0.983 (95% CI: 0.965–0.992, $p < 0.001$). These findings indicate a high level of consistency and stability of the BRS Hausa scale over time, suggesting that the instrument produces reliable measurements when administered repeatedly within a short interval. The concurrent reliability analysis demonstrated strong consistency between the Hausa and English versions of the BRSE scale. Both versions showed minimal variation in mean scores across the two assessment periods from 3.28 (SD = 0.17) at day 1 to 3.29 (SD = 0.18) at day 7, indicating consistency of the scales. The ICC demonstrated excellent agreement between the two assessments, with a value of 0.985 (95% CI: 0.968–0.993, $p < 0.001$). These findings indicate that the Hausa adaptation of the BRSE scale is reliable and culturally appropriate, with performance comparable to the English version, supporting its use among Hausa-speaking populations. All these are shown in the Table 2 below.

Discussion

This study was aimed at cross-culturally adapted and determined the validity and reliability of the Hausa version of the BRS questionnaire. From the result of this study, the BRS Hausa version had a high rate of data completion, with good data obtained.

Table 1: Socio-demographic variables of participants with chronic low back pain.

Variables	Categories	N (%)
Age	18-27yeqrs	4(13.3)
	28-37years	8(26.6)
	38-47years	7(23.3)
	48->years	7(23.3)
Gender	Male	13(43.3)
	Female	17(56.7)
Marital status	Single	11(36.7)
	Married	19(63.3)

Table 2: Reliability and Validity of Hausa version of BRS

Measure	Mean \pm SD (Day 1)	Mean \pm SD (Day 7)	ICC (95% CI)	p-value	Interpretation
Test-retest Reliability	3.28 \pm 0.17	3.29 \pm 0.18	0.983(0.965-0.992)	<0.001	Excellent reliability
Concurrent reliability	3.28 \pm 0.17	3.29 \pm 0.18	0.985(0.968-0.993)	<0.001	Excellent agreement

The high response rate among the respondents in the study suggests that the BRS-Hausa version was an acceptable tool for measuring health perceptions in the general Hausa speaking population. This finding showed that the BRS-Hausa version compares well with the original version of the BRS English version. Thus, the BRS-Hausa is a valid tool for the measurement of health status among Hausa speaking populations. Beaton et al., [24] guidelines were followed to translate the BRS questionnaire into Hausa language. This was to ensure semantic, idiomatic, experiential, and conceptual equivalence between the original English version and the translated version. We received positive feedback and high completion rate at end of the cognitive debriefing which showed that BRS can be used to assess psychological construct among the Hausa speakers. The findings align with previous adaptations in Malaysia, Brazil, Spain, Germany, and Holland, where the BRS was successfully validated across diverse cultural contexts [12,14]. The outcome of this study showed that the BRS Hausa version is a stable and culturally sensitive outcome measure to assess resilience among Hausa speaking population as depicted an excellent test re-test reliability correlation coefficient of 0.983 ($p < 0.001$) and excellent concurrent validity of 0.985 ($p < 0.001$). These findings are consistent with previous findings that reported satisfactory psychometry properties of BRS among populations of different extractions [16,18, 19]. Furthermore, a recent study reported the importance of resilience measures in chronic pain research, noting that resilience is increasingly studied as a multidimensional construct influenced by social context and broader health outcomes [25]. The translation and cross-culturally adaptation of BRS into Hausa language, most widely spoken language in West Africa, positions the BRS as a valuable outcome measure and instrument for clinical and research uses especially among the Hausa speakers with reported high burden of chronic low back pain. The outcome of this study enables one to have a clear understanding of pain experiences, moving beyond the traditional focus on negative psychological states such as anxiety, depression, and fear avoidance [26]. Furthermore, recent reviews reported that resilience-focused interventions and approaches are now being employed in chronic pain management strategies in combination with neuromodulation and personalized treatments [27,9].

Studies on translation, cultural adaptation and psychometric properties determination of BRS have been carried out in different climes. Post cross-cultural adaptation, the BRS Hausa version retains a strong unidimensional structure in terms of measuring a single, underlying latent construct and trait which the English BRS version was designed for. This is unlike Spanish and German versions that reported two factor structures to account for method effects [18,28]. This unidimensionality makes BRS Hausa version a vital outcome measure in clinical and research settings for routine assessment of resilience among the Hausa speaking population of West Africa with low back pain. The BRS questionnaire Hausa version avails the clinicians and researchers a practical means of assessing and evaluating coping capacity of their patients and participants. Furthermore, since the BRS Hausa version has been culturally tailored towards Hausa speaking population, the users' responses might reflect genuine responses about their everyday coping capacity. Also, resilience assessment can stimulate personalized treatment plans, integrating psychosocial support to improve patient outcomes at the healthcare level while resilience-building programmes could be incorporated into community-based interventions to reduce the burden of chronic pain. The importance of BRS Hausa version cannot be over flogged because resilience is now recently recognized as one of the key factors to understand chronic pain of diverse aetiology [29].

Conclusion

The BRS Questionnaire was successfully translated into Hausa Language and was found to be reliable, can be used to assess health status among the Hausa-speaking population. One of the limitations of this study was the small sample size ($n=30$) recruited which may restrict the generalizability of our findings. It thus suggested that future study should recruit large and more diverse Hausa speakers beyond the shores of Nigeria. Furthermore, a deeper insight into the association between resilience and other psychosocial variables (depression, anxiety and quality of life) might reveal the roles of resilience in chronic pain management. In order to establish the predictive validity of the Hausa version of BRS, longitudinal studies are advised to determine whether resilience scores can forecast long-term pain outcomes and recovery trajectories.

Abbreviation

CLBP: Chronic Low Back Pain; BRS: Brief Resilience Scale; LBP: Low Back Pain; YLDs: Years Lived with Disability.

Declaration

Acknowledgment

None.

Funding

None.

Availability of data and materials

Data will be available by emailing moakindele.pth@buk.edu.ng

Authors' contributions

RAA-collected data for this study, MAA-co-supervised and analyzed data for this study, MOA-supervised data collection, conceptualized and prepared this manuscript, SAW-reviewed and critiqued the manuscript, GOA-reviewed and edited the manuscript. The authors read and approved the final manuscript.

Ethics approval and consent to participate

We conducted the research in accordance with the Declaration of Helsinki. Ethical approval for this study was granted by Health Research Committee, Kano State Ministry of Health, Nigeria (NHREC/17/03/2018). Written informed consent was obtained from each participant prior to enrollment. All data were anonymized and stored securely, ensuring confidentiality.

Consent for publication

Not applicable

Competing interest

The author declares that he has no competing interests.

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Author Details

¹Department of Physiotherapy, Faculty of Allied Health Sciences, Bayero University, Kano, Nigeria.

²Lifestyle Diseases Research Entity, Faculty of Health Sciences, North West University, Mahikeng Campus, North West Province, South Africa.

³School of Public Health and Allied Sciences, Catholic University of Ghana, Fiapre-Sunyani, Bono Region, Ghana.

⁴Department of Languages and General Studies, University of Energy and Natural Resources, Sunyani, Ghana.

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