Cultural and Linguistic Validation of Asian Diabetes Quality of Life Scale to Filipino

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Abstract

Introduction Diabetes mellitus is a serious health issue in every nation of the world. The quality of life of diabetic patients is sometimes compromised because of the numerous medications being taken and as a consequence of the diabetic complications. There is a need for a validated Filipino translated quality of life questionnaire that can be used by researchers in the Philippines.

Methods This is a linguistic validation study of the Filipino version of the Asian Diabetes Quality of Life Scale (ADQOL). The ADQOL was translated in Filipino, back translated to English, reviewed, tested on patients, revised, and finalized. Content validity, cognitive validity, and test stability using test-retest reliability were determined.

Results The item content validity index showed a score of 1.00 except for two numbers which scored 0.80 and 0.90 on clarity. The scale content validity index universal agreement and average also scored 1.00 for representativeness, relevance and appropriateness. The comprehension index average was 0.97 while the average clarity index was 0.96. The per item Cronbach’s alpha score ranged from 0.86 – 0.89 with no item lower than 0.70, while the overall Cronbach’s alpha was 0.88. The test retest reliability showed a Bland Altmann Plot repeatability correlation of 0.813 and a Pearson’s correlation of 0.820.

Conclusion The validity and reliability testing of the Filipino version of the Asian Diabetes Quality of Life questionnaire had a higher validity and reliability score as compared with the original English version making it a valid and reliable tool for researchers who would want to measure the quality of life of Filipino patients with type 2 diabetes.

Key words: Translation, surveys and questionnaires, validity

Diabetes mellitus (DM) is a serious health issue in every nation of the world. With a global prevalence of 8.8% in 2015, more than 415 million people in the world struggle to live daily with diabetes. It was the sixth most common cause of death among Filipinos in 2013. This made the Philippines one of the world’s emerging diabetes hotspots. Ranked 15th in the world for diabetes prevalence, Philippines is home to more than four million individuals diagnosed with the disease – and an alarmingly larger unknown number who are unaware they have diabetes.

Numerous studies on diabetes prevalence in the Philippines vary from as low as 4.8% in 2004 to as high as 28% in 2009. The latest Philippine National
Health and Nutrition Survey in 2018 reported a prevalence of 8.2%, which closely coincides with the 2019 IDF Diabetes Atlas prevalence of 6.3%. The National Health and Nutrition Survey clearly showed an increasing trend from 3.9% in 1998, 4.8% in 2008, 5.4% in 2013, to 8.2% in 2018.

The quality of life of diabetic patients may be compromised because of the numerous medications being taken and as a consequence of complications of the disease. A 2008 Philippine study showed that more respondents were afraid that their disease might get worse, afraid of experiencing hypoglycemic events, and felt tired of complying with their medications (65%). The Malaysian 2008 DiabCare study showed that about one third of patients had a poor quality of life. There was poor adherence to diet, exercise, and self-testing of blood glucose.

This study aims to provide a validated Filipino version of the Asian Diabetes Quality of Life (ADQOL) Scale that can be used by other researchers in the Philippines to determine the quality of life of type 2 DM patients.

Methods
This is a linguistic validation study done at the University of the East Ramon Magsaysay Memorial Medical Center utilizing the fundamentals and 10 steps as set forth in the Principles of Good Practice for the Translation and Cultural Adaptation Process for Patient-Reported Outcomes (PRO) Measures: Report of the ISPOR Task Force for Translation and Cultural Adaptation for Linguistic and Cultural Validation. A panel of experts including physicians, pharmacists, and social anthropologists performed cultural and content validity assessment. Thirty diabetic patients aged 18 to 65 years on maintenance medications performed comprehension validity and internal consistency assessment. The same patients were asked to answer the translated questionnaire after one week for test stability as measured by test-retest reliability.

Translation Process

Permission was sought from the author to translate the ADQOL to Filipino (preparation). The Komisyon ng Wikang Filipino, the official translator of any language to Filipino, translated the questionnaire and provided two translated versions (forward translation). The translated versions were reconciled into a single forward translation by a panel of professors in Filipino (reconciliation). This translated version was translated back to English by professors in English (back translation). The back-translated version was compared with the original ADQOL to identify discrepancies between the two versions (back translation review). Ten experts checked the Filipino translation for relevance and clarity after which this was administered to 30 diabetic patients to test alternative wording and to check understandability, interpretation, and cultural relevance (cognitive debriefing). The patients’ interpretation of the translation with the original was highlighted and any discrepancies were amended (review of cognitive debriefing results and finalization). The amended translation underwent a final review for any typographic, grammatical and other errors which were corrected (proofreading). At the end of the process, a report was written to document the development of each translation (final report). Additional steps were taken to assess the internal consistency and test stability of the translated questionnaire.

Content Validation

A panel of experts consisting of physicians, pharmacists, and social anthropologists were asked to evaluate each item in the questionnaire in order to establish that individual survey items were relevant to the construct being measured and that key items or indicators have not been omitted. A panel of 10 experts were chosen to evaluate the questionnaire. They were asked to evaluate each item for representativeness, clarity, relevance and distribution. Representativeness is defined as how completely the items (as a whole) encompass the construct, clarity is how clearly the items are worded and relevance refers to the extent each item actually relates to specific aspects of the construct. This were done using a Content Validation Form. The content validity index (CVI) was used to measure the content validity by the expert panel. Items which failed the content validation were revised and validated.

Cognitive Interview

After the content validation of the experts, the questionnaire were validated by those to whom the
The translated questionnaire was intended to be used. The cognitive interview done on 30 diabetic patients to identify possible mistakes in the interpretation of the items or choices thereof. Both think aloud technique and verbal probing were used for the cognitive interview. Comprehension index was used to determine the validity of the questionnaire. Items which failed the comprehension index were revised and validated.

Statistical Analysis

The data was encoded using Microsoft Excel and analyzed using Graph Pad Prism 9. Item Content Validity Index (ICVI), Item Content Validity Index Universal Agreement (SCVI UA), and Scale Validity Content Index (SCVI) Average were computed for the content validity and cultural validity. Comprehension Index (CI) was computed for comprehension. Bland Altman’s Plot was generated together with the computation of intraclass correlation using Pearson’s correlation for the test-retest reliability.

The study was approved by the University of the East Ramon Magsaysay Memorial Medical Center Research Institute for Health Sciences Ethics Review Committee.

Results

The translated questionnaire obtained a very high SCVI average and SCVI UA of 1.0 for representativeness, relevance and appropriateness. The SCVI average for clarity was 0.98 and the SCVI UA was 0.90, both which are above the cut off of 0.70. The ICVI for items 19 and 20 were 0.80 and 0.90, respectively which are above the cut off thus no revisions were made. The item comprehension and clarity scores were all 0.97 except for questions 13 and 14 which scored 0.93, which is above the cut off so no revisions were made. The average comprehension index was 0.97 while the average clarity index was 0.96. The Cronbach’s alpha ranged from 0.86 to 0.89 with no item lower than 0.70. The overall Cronbach’s alpha was 0.88, indicating a good internal consistency. Pearson’s correlation was used to measure the test stability and a Bland Altman plot was generated. Results showed a Pearson’s r = 0.820 (p < 0.001, 95% CI 0.649, 0.912). The Bland Altman plot in Figure 1 shows a repeatability correlation of 0.813.

Discussion

Although there are several questionnaires about the quality of life of patients including the WHO QOL, there is only one validated questionnaire that was not only developed for diabetic patients but specifically for Asian diabetics, the Asian Diabetes Quality of Life Scale. The ADQOL showed an exploratory factor analysis with eigenvalues (> 1) and factor loadings (≥ 0.3) demonstrated 21 items (five components), confirmatory factor analysis (CFA) confirmed the model (minimum discrepancy (Cmin) = 201.08, p = 0.071, goodness of fit index (GFI) = 0.88, root mean square error of approximation (RMSEA) = 0.036, comparative fit index (CFI) = 0.978). The Cronbach’s alpha scores were 0.917, 0.818, 0.816, 0.749, and 0.719, respectively. Test-retest reliability showed Pearson correlation of 0.600.  

The Translated Asian Diabetes Quality of Life Questionnaire showed good reliability and validity scores. The ICVI showed a score of 1.00 except for two numbers which showed a score of 0.80 and 0.90 on clarity. The SCVI universal agreement and average also showed a score of 1.00 for representativeness, relevance and appropriateness. The comprehension index average is also high 0.97 while the average clarity index is 0.96. This means that the average Filipino patient with type 2 diabetes will easily comprehend and answer the questionnaire.
The per item Cronbach’s alpha ranged from 0.86 to 0.89 with no item lower than 0.70 while the overall Cronbach’s alpha was 0.88. This score is higher than the validation of the original questionnaire. The test-retest reliability is also higher than the original validation with a Bland Altmann Plot repeatability correlation of 0.813 and a Pearson’s r = 0.820. This means that the questionnaire is stable and will produce the same result when used repeatedly.

The Filipino version of the Asian Diabetes Quality of Life Questionnaire will be a valid and reliable tool for researchers who would want to measure the quality of life of Filipino patients with type 2 diabetes.

References