Translation, Cross - Cultural Adaptation and Reliability of the Gujarati Version of Brief Questionnaire of Smoking Urges (QSU - Brief) and Validation

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Abstract: *Introduction: Brief questionnaire of smoking urges (QSU - brief) is one of the very widely used scales to measure of craving in smokers. It was originally developed in English and later was translated to Dutch and Malay languages. The QSU - brief is currently not available in Gujarati language so there is a need to develop a Gujarati version of QSU - brief which can be used by the Gujarati language speaking population, other researchers and even clinicians throughout Gujarat. Aim: To translate and cross - culturally adapt the QSU - brief into the Gujarati language and to test the validity and reliability of this version. Materials and Methods: A two - stage observational study was conducted. The QSU - brief was initially translated to Gujarati language through double forward and backward translation and then it was cross - culturally adapted. The translation and its comparative analysis with the original version was assessed and approved by the experts of the committee formed. The reliability and validity of finalized version of Gujarati QSU - brief was subsequently completed with the sample size of 50 male participants for chronic cigarette smokers. Results: The Gujarati version of the QSU - brief has high internal consistency (Cronbach's $\alpha=0.809$) and test - retest reliability (intra class correlation coefficient=0.896). Conclusion: The translation of the QSU - brief into a Gujarati version was successful in preserving the semantic and measurement properties of the original version and was shown to be valid and reliable in a Gujarati population.*

1. Introduction

Craving is often defined as a vital concept in smoking dependence and the maximum substantial and bothersome symptom experienced at some stage in the quitting strive [1]. In line with a professional institution meeting organized via the united international locations worldwide drug control program (UNDCP) and who, craving is defined as ''the desire to experience the effect (s) of a previously experienced psychoactive substance [2]. Several studies have proven that urge of smoke hinders successful smoking cessation and that it correlates with relapse after periods of abstinence [3–6]. Measurement of 'urge' for cigarettes is essential for a variety of reasons. One is that such measures may be used as a proxy for abstinence in initial trying out of interventions to useful resource smoking cessation. The ten items Questionnaire on Smoking Urges the QSU - brief (QSU) has become widely used in the measurement of craving (Cox et al.2001; Tiffany and Drobes 1991), but to our knowledge, no study has compared the QSU with simpler measures involving fewer items in terms of validity and reliability. Accordingly, the assessment of withdrawal symptoms with the urge to smoke make an integral part of assessing health and quality of life in people who smoke chronically so that you can predict relapse, recognize the character of nicotine dependence and enhance cessation

treatment. The choice to translate the brief questionnaire on smoking urge (QSU - Brief) made because there was no translated scale to assess craving to smoke in the Gujarati language for research and clinical practice. The objectives of this study were, to translate the brief questionnaire on smoking urge (QSU - Brief) scale from Original English to Gujarati language, to cross culturally adapt the QSU - Brief into Gujarati language and to create a reliable and valid Gujarati version of QSU - Brief by translation and adaptation for future use with the aid of using clinicians and researchers.

2. Materials and Methods

2.1 Study design and setting

A cross - sectional study design was adopted to conduct the study. It was carried out at the Harivandana Physiotherapy Clinic in Rajkot, Gujarat State, India. The study period was 3 months, from April 2021 to June 2021.

2.2 Participants

Smokers who attended the Harivandana Physiotherapy Clinic were included in the study subjects and were either

referred from other outpatient clinics and/or walk - in smokers.

Adult smokers (male) aged more than 18 years; (25 - 55 years) who were able to read/understand and complete the Gujarati and English language measurement tool independently were included.

The subjects were excluded if he had a past or present history of mental illness; suffer from alcohol or drug abuse taking antidepressant, anti anxiety medication or sedatives, subjects who were not willing to take part in the study.

2.3 Sample size

In general, it is highly recommended to use at least 10 subjects for each item of a questionnaire or an instrument scale for the validity evaluation. However, target sample sizes of 50 male smokers were estimated to give a better precision to the reliability and validity of the study.

2.4 Ethical approval

This study was conducted after it was approved by the Safe Search Open Ethical Committee, Ahmedabad. Before starting the interviews by an expert counselor, a written consent form was provided to all of the participants. All participants were assured that their personal information would be kept confidential. The counselor interview for each participant to explain the study aims and procedures took about 10–15 min.

2.5 Instruments

A structured questionnaire was used for the collection of data that was needed for the validation study and it consisted of three sections: (1) participant's socio - demographic information, patient's smoking status history, and Gujarati version of 10 - item QSU - Brief.

2.6 Linguistic validation process

In order to develop or translate any patient reported outcome measures such as QSU - Brief for cross - cultural adaptation, it was necessary to achieve ''conceptual equivalence'' between the original scale and the target language version of the scale [7, 8]. In the present study, the conceptual equivalence occurs when the differences in meaning and content of the context between the source language (English) of the QSU - brief and the translated version (Gujarati) are absent [7].

This is achieved through a procedure called linguistic validation and cultural adaptation [8]. This process includes two essential and complementary steps: a translation step to achieve linguistic validity of the instrument in the desired language and to assess the underlying structure of the translated version. Permission was taken from the copyright owners of the original instrument to translate the questionnaires into Gujarati language. Moreover, the translation was done according to the standard guidelines as follows [7, 8]:

2.6.1. A forward translation: one - way translation into the target language was carried out by two qualified independent linguistic translators from the School of Education, Saurashtra University who are experts in linguistic validation procedure to create a version that was semantically and conceptually as close as possible to the original scale. They are both native Gujarati speakers and proficient in English.

Each translator formed a forward translation version without any mutual consultation. During this step, two translated Gujarati versions which contained words and sentences that cover both the medical and usual Gujarati speaking language with its culture nuances were generated. Comparison and reconciliation of the two forward translations was done by two native Gujarati researchers who resolved any existing ambiguities and discrepancies. Thereafter, a single preliminary initial translated version was evolved based on the two forward translations and reconciliation.

2.6.2. Blind back - translation: translation back of the first reconciled translated Gujarati version into the original language was undertaken by a third translator who is fluent in both the languages. The translator was completely blind to the original version of the instrument. This aimed to obtain a translation that was free of bias and expectation, but may have revealed unexpected but important meanings or interpretation in the final version. Subsequently, a back translation review was done by comparison of the back translated version with the original to highlight and investigate discrepancies between the original and the reconciled translation. Inconsistencies were resolved in a consensus meeting and a pre - final Gujarati version, ready for a pilot testing, was generated. (Appendix)

2.6.3. Pilot testing: the pre - final version of the instruments was pretested on 10 smokers who were native Gujarati speakers at the Harivandana Physiotherapy Clinic Rajkot. The participants were asked to complete the questionnaire and were interviewed by a counselor to identify if they had any difficulty in comprehending any question. Then, reviews of participant's feedback were discussed by the researchers.

2.6.4. The final form of the Gujarati version of the questionnaire was accomplished and prepared for the reliability and validity study. The measurement scales took approximately 10 min to complete.

2.7 Statistical analysis

All statistical analyses were conducted by using SPSS version 20.0. The significance level was set at a P value less than 0.05. Descriptive statistics were used to describe demographic and smoking - related characteristics of the subjects in the QSU - Brief sample separately.

Descriptive analyses were performed for quantitative (continuous) variables by calculating mean ±standard deviation (SD), while percentages and frequencies were determined for qualitative (categorical) variables.

Cronbach's alpha coefficient was used to measure the internal consistency and homogeneity of the items and the

total score for the questionnaire. Intra - class correlation (ICC) for each item and for the total score of the Gujarati version of QSU - Brief was estimated to evaluate test–retest reliability.

The internal consistency and test–retest reliability were used in order to assess the reliability of the scale.

In order to assess the validity of the scale, concurrent validity was employed to validate the psychometric properties of the scale. Concurrent validity was used to support the validation of the scale by administering the FTNDM with the translated QSU - Brief to assess the association between these two tools. Construct validity is established when there is a correlation between the results of a desired measure and the results of a validated measure that are obtained at approximately the same point in time [9, 10].

In addition, scale validation was assessed through the association of scale total score with several variables using Spearman Rank Correlation Coefficient test.

3. Results

The mean age of the participants was 43.53±9.80.

3.1. Reliability of the questionnaire

The internal consistency estimate for the total score of the QSU - Brief was 0.896. Therefore, the Gujarati version of the QSU - Brief has a good internal consistency [11, 12]. Item - to - total correlation for each item ranged from 0.29 to 0.71 (Table 1). The ICC value for each single item ranged from 0.87 to 0.91 and the questionnaire's total score was 0.896.

Reliability and test–retest analysis for the Gujarati version of QSU - Brief.			
Reliability	Cronbach's Alpha	ICC	P value
Total	0.809	0.896	<0.001

Table 1: ICC: intra - class correlation; The Cronbach's Alpha for the questionnaire was 0.89

3.2. Validation of the Gujarati version of QSU - Brief

The majority of the proposed relationships with the QSU - Brief total score showed moderate to good correlation with Fagerstrom Test for Nicotine Dependence (FTND). The QSU - Brief total score had a significant positive relationship with FTND total score ($r = 0.24$; $P = 0.005$) and number of cigarettes smoked per day ($r = 0.30$; $P < 0.001$). In addition, the QSU - Brief total score was not correlated with the duration of smoking ($P = 0.503$) and previous quit attempts ($P = 0.077$).

4. Discussion

This is the first study that systematically translates and validates the 10 items of the QSU - Brief into the Gujarati language. The translated questionnaire showed a good reliability (internal consistency estimate for the total score of

the QSU - Brief was 0.806) according to rule of thumb by George and Mallery [11].

As expected, the total score of the Gujarati version of the QSU - Brief was significantly correlated with the number of cigarettes smoked per day and the total score of one questionnaire, i. e., cigarette dependence (FTND). Similarly, significant correlations between the total score of the Dutch version of the QSU - Brief and the total score of FTND, $r = 0.14$, $P < 0.05$ and number of cigarettes smoked/day, ($r = 0.14$, $P < 0.05$ and $r = 0.25$, $P < 0.01$, respectively) were found [13].

There were a few limitations to the study. First, there was only male gender in the cohort. This limitation might be related to different reasons, such as social and cultural restriction issues. Numerous studies reported that while cigarette smoking remains acceptable for males, smoking by women is not socially much prevalent in Gujarat state, India and other Asian countries in general.

Another limitation is that all the participants were male smokers. Therefore, the generalizability of these results with other Gujarati speaking females cannot be possible.

5. Conclusion

The Gujarati QSU - Brief is a good tool for evaluating the urge to smoke in male smokers in both clinical practice and clinical trials.

6. Conflict of interest

There was no conflict of interest to be declared.

7. Acknowledgment

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Appendix

QSU BRIEF (GUJARATI VERSION)

Name of Subject: _____

Date of Assessment: _____

નીચે આપેલા વિધાનો માટે આપ કેટલા સહમત અથવા અસહમત છો તે અંગે સંપૂર્ણ અસહમત થી સંપૂર્ણ સહમત વચ્ચે દરેક લીટી માટે ટિક માર્ક (ચેક માર્ક) દર્શાવો. એક છેડા ની અથવા અન્ય છેડા ની આપની સહમતી કે અસહમતી ની મજબૂતાઇ દર્શાવે છે. આપ પ્રશ્નાવલી ભરતી વખતે કેવું અનુભવો છો અને કેવું વિચારો છો તે જાણવામાં એમને રસ છે. (૧=સંપૂર્ણ અસહમત થી ૭=સંપૂર્ણ સહમત)

૧. મને અત્યારે હાલ સિગારેટ પીવાની ઈચ્છા છે.

સંપૂર્ણ અસહમત ___: ___: ___: ___: ___: ___: ___ સંપૂર્ણ સહમત

૨. અત્યારે હાલ સિગારેટ પીવા કરતાં વધુ સારું કાંઈ નહિ હોય.

સંપૂર્ણ અસહમત ___: ___: ___: ___: ___: ___: ___ સંપૂર્ણ સહમત

૩. જો શક્ય હોત તો મેં કદાચ અત્યારે ધૂમ્રપાન કર્યું હોત.

સંપૂર્ણ અસહમત ___: ___: ___: ___: ___: ___: ___ સંપૂર્ણ સહમત

૪. અત્યારે હાલ હું વસ્તુઓને વધારે સારી રીતે નિયંત્રીત કરી શક્યો હોત જો હું ધૂમ્રપાન કરી શક્યો હોત.

સંપૂર્ણ અસહમત ___: ___: ___: ___: ___: ___: ___ સંપૂર્ણ સહમત

૫. જે બધું મને અત્યારે હાલ જોઈએ એ સિગારેટ છે.

સંપૂર્ણ અસહમત ___: ___: ___: ___: ___: ___: ___ સંપૂર્ણ સહમત

૬. મને સિગારેટ માટે ની તલપ છે.

સંપૂર્ણ અસહમત ___: ___: ___: ___: ___: ___: ___ સંપૂર્ણ સહમત

૭. સિગારેટ અત્યારે સ્વાદ માં સારી લાગી હોત.

સંપૂર્ણ અસહમત ___: ___: ___: ___: ___: ___: ___ સંપૂર્ણ સહમત

૮. મેં અત્યારે સિગારેટ માટે લગભગ કંઈ પણ કર્યું હોત.

સંપૂર્ણ અસહમત ___: ___: ___: ___: ___: ___: ___ સંપૂર્ણ સહમત

૯. ધૂમ્રપાને મને ઓછો હતાશ બનાવ્યો હોત.

સંપૂર્ણ અસહમત ___: ___: ___: ___: ___: ___: ___ સંપૂર્ણ સહમત

૧૦. હું જેટલું શક્ય બને તેટલું વહેલું ધૂમ્રપાન કરવા જઈ રહ્યો છું.

સંપૂર્ણ અસહમત ___: ___: ___: ___: ___: ___: ___ સંપૂર્ણ સહમત

સંપૂર્ણ અસહમત			તટસ્થ			સંપૂર્ણ સહમત
૧	૨	3	૪	૫	૬	૭