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TOBACCO CRAVING QUESTIONNAIRE SHORT VERSION: TRANSLATION AND VALIDATION IN URDU

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ABSTRACT

Tobacco Craving Questionnaire is a very important measure and is widely used in many countries to measure tobacco craving among cigarette smokers. But unfortunately, most of the cigarette smokers in Pakistan do not know about English language and therefore it was a need to translate the Tobacco Craving Questionnaire into the Urdu language. Cross-Sectional survey design has been used. Forward and backward translation was conducted on a sample of 40 cigarette smokers. Both SPSS (Version-26) and AMOS (Version-10) have been used for data analysis. Descriptive statistics and alpha reliability analysis were conducted on the scale. To verify the validity of the scale, 500 smokers were included in a sample and subjected to Confirmatory Factor Analysis (CFA). The scale's Cronbach alpha reliability was 0.73 which indicated satisfactory reliability. 11 items from the translated Urdu version of the Tobacco Craving Questionnaire were validated by Confirmatory Factor Analysis. In CFA item number 9 was excluded from the model because it explained zero regression weight. Reliability and validity were confirmed in the findings of the study of the translated Urdu version of the questionnaire. Tobacco Craving Questionnaire Short Version (TCQ-SF) among Pakistani habitual smokers has been verified by translation and cross-lingual validation of the Pakistani version of the scale and confirmed its cross-cultural use. The findings have significant implications for Pakistan's indigenous population.

Keywords: Tobacco craving; Translation; Reliability analysis; Confirmatory factor analysis.

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INTRODUCTION

Previous literature has revealed the issue of tobacco desire in relation to its function as a sign of nicotine dependency and as a relapse trigger for continuing to use tobacco (Johnstone et al., 2022; Singh, 2022). People who are trying to stop smoking frequently describe having a strong need for cigarettes (Struik & Yang, 2021). According to laboratory and clinical research, the desire for tobacco increases during times of abstinence and predicts relapse in smokers trying to stop (Lespine et al., 2022). Although craving is crucial to the upkeep of nicotine dependency and the success of therapy, there hasn't been much study done on the creation of multidimensional tobacco craving measures or the evaluation of their psychometric qualities. By showing criterion-related, convergent, and discriminant validity and demonstrating internal consistency and one-dimensionality of the four components, Singleton et al. (2003) further established the reliability and validity of the 47-item TCQ. Additional studies have revealed that the TCQ is responsive to shifts in mood and appetite this is proven by the ordered rises in TCQ component scores that correlate to an increase in the severity of the smoking-urge content of visual scripts (Lee et al., 2007; Singleton et al., 2003). These trials had the drawback of only testing subjects when they were smoking ad libitum. According to Drobles and Tiffany (1997), tobacco withdrawal improved the self-report of cravings but did not improve reactions to smoking signals. To confirm the TCQ's ability to track changes in desiring states,

Heishman et al. (2008) evaluated the impact of tobacco deprivation vs no deprivation on response patterns in the current study.

The TCQ was made simpler to administer by limiting the questions with significant factor loadings, although even a 17-item measure could be too long for investigations using brain imaging or cue reactivity. Furthermore, in order to decrease variance owing to acquiescence, Expectancy and Purposefulness were two of the component scales that had negative writing on both editions. These scales may be a better indicator of participants' lack of attention to rating than their responses to the item content (Heinz et al., 2006). So, using three of the 17 questions that demonstrated the best within-factor internal consistency as indicators for each of the four TCQ components, we created a 12-item version of the short form of TCQ. All of the items were written favorably.

There was no evidence that any of the four factors scale responses changed when the TCQ-SF was administered once every minute for 15 minutes to 40 smokers, had been negatively impacted by assessment reactivity bias (Heishman et al., 2006). However, due to the limited sample size, it was unable to report on the TCQ-psychometric SF's characteristics. Unfortunately, most of the tobacco users in Pakistan are either illiterate or they only read Urdu language that is why there was the need to translate and validate this scale in the indigenous Pakistani context.

Objectives

1. To translate the English version of the Tobacco Craving Questionnaire Short Version (TCQ-SF) scale into the Urdu language.
2. To test the validation of the final version of the Urdu translated scale by using Cronbach alpha and Confirmatory Factor Analysis.

METHODOLOGY

In the present research, Tobacco Craving Questionnaire Short Version (TCQ-SF) scale was selected for Urdu translation. It was also intended to determine cross-language validation of the scale. Pretesting was done on a limited number of subjects as part of a pilot testing procedure to determine the validity and reliability of the scales used in the present study. The second phase consisted of the main study designed to use the Confirmatory Factor Analysis (CFA) to confirm the validity of the translated scale.

Forward Translation

First, consent to use the scale was acquired from its creator. Two MPhil students from the English department, two from the Urdu language department, and one from the psychology department were chosen to participate in the expert panel. The Tobacco Craving Questionnaire Short Form (TCQ-SF) was translated from its original English version into the target dialect by these skilled and experienced translators (Urdu). In order to finalize the translation of the scale into Urdu version, the master panel for the committee method was composed of five Ph.D. holders in Clinical Psychology were contacted. The experts provided their comments and revisions after reviewing the translated version of the scales with the committee members. The previous Urdu version was created using the most relevant materials. A draught for the reverse translation was then built up.

Backward Translation

Five bilingual specialists with MPhil degrees, two from the psychology department, one from the Urdu department, and two from the English department, who had not recently noticed the primary form of the actions and translated the deciphered variant of the action into English, performed reverse interpretation. The advisory group approach's expert board consisted of five Ph.D. in Clinical Psychology who were brought together with the ultimate goal of completing the English interpretation. Five analysts compared the backward interpretation to the original text, judged their equivalence, and made necessary changes to the translated elements. The Tobacco Craving Questionnaire Short Version (TCQ-SF) scale's translated

version was compared to the original English version to check for errors in interpretation. The Tobacco Craving Questionnaire Short Version (TCQ-SF) scale's Urdu translation was created using the most pertinent items.

Sample

For the translation and cross-language validation of the measure, a sample of 40 regular smokers were selected ranging in age from 25 years to 40 years. The sample has been taken from different advertisements in newspapers, social media, and banners from Gujranwala city. The sample was split into two equally sized pieces (group 1 and group 2). Group 1 received scales in the original English form, while Group 2 received scales in the translated Urdu version. The same subjects were given second administration of the scales in a different way after 15 days. This time, group 1 was divided into groups 1a (n = 10), 1b (n = 10), 2a (n = 10), and 2b (n = 10). Groups 1b and 2b were given the Urdu versions of the scales, whereas Groups 1a and 2a were given the original English versions. Pearson correlation analysis has used the purpose of cross-language validation of the scale.

Finally, Confirmatory Factor Analysis (CFA) was applied to confirm the translated scale on the final translated version a sample of the Tobacco Craving Questionnaire Short Version (TCQ-SF) scale, 500 smokers were selected as a sample from different hospitals in Gujranwala. The sample was sufficient and representative based on Kline's (2011) procedure of data collection. Sample was collected by using a purposive sampling technique. Model fit indicators were used in CFA validations to assess the final scale's validation. Every item in the path model explained the various levels of variation and effect size estimations. SPSS (Version-26) and AMOS (Version-10) were used to analyze the gathered data.

Instrument

Tobacco Craving Questionnaire Short Version (TCQ-SF) scale confirmed its cross-cultural use in habitual smokers in Pakistan. This short version of the scale contains 12 items. Heishman et al. (2008) have developed the Tobacco Craving Questionnaire Short Version. It is a Likert-type scale with seven response options including "1" for "strongly disagree" to 7 for "strongly agree".

Procedure

The administrative authority of the District Head Quarter Teaching Hospital, Gujranwala, granted permission to collect data. Participants in the study were given brief information and an introduction before giving their approval to take part in the study. The participants were given questionnaires. All study participants, as well as the hospital medical superintendents (MS), provided informed consent. Participants were instructed to carefully read the instructions and respond to each item as accurately as possible, and they were assured that their responses would be kept confidential. Finally, the collected data were analyzed using statistical software.

RESULTS AND DISCUSSION

Table 1. Cross-Language Validation and Test-Retest Reliability of the Tobacco Craving Questionnaire Short Version (N = 40).

Groups	N	1st Administration	2nd Administration	r
I	10	Urdu	English	.90*
II	10	Urdu	Urdu	.85*
III	10	English	Urdu	.91*
IV	10	English	English	.87*

*p<.01

Table 1 shows the correlation between Tobacco Craving Questionnaire Short Version in the English version were significantly positively correlated ($p < .001$). The correlation value ranges from 0.85 to 0.81.

Table 2. Descriptive Statistics, Reliability and Estimates of the Tobacco Craving Questionnaire Short Version (N = 500).

Items	Estimates	SE	CR	p	Label	M	SD	Range	α
TCQ5	.86	.01	37.94	***	par_1	5.40	2.04	1-7	.73
TCQ12	.84	.04	35.11	***	par_2	2.80	1.34	1-7	
TCQ1	.55	.08	15.01	***	par_3	2.72	1.01	1-7	
TCQ4	.43	.02	10.75	***	par_4	3.09	1.68	1-7	
TCQ8	.39	.02	9.62	***	par_5	3.60	1.97	1-7	
TCQ2	.41	.02	10.16	***	par_6	5.75	1.51	1-7	
TCQ7	.40	.02	9.79	***	par_7	5.57	1.85	1-7	
TCQ10	.52	.01	13.62	***	par_8	2.92	2.08	1-7	
TCQ3	.43	.01	10.68	***	par_9	2.60	1.69	1-7	
TCQ6	.53	.02	13.99	***	par_10	2.71	1.08	1-7	
TCQ11	.49	.01	12.83	***	par_11	2.85	1.10	1-7	

Note. SE = Standard Error, CR = Critical Ratio, P = Significant Level, M = Mean, SD = Standard Deviation, α = Alpha Reliability; *** $p < .001$

Table 2 provides estimates of effect sizes, reliability, and descriptive data for each item on the translated scale in the confirmatory factor analysis (CFA). All of the items were had higher regression weights (i.e., $>.39$), indicating that the items loading is satisfactory. Additionally, the scale had an acceptable alpha reliability value (i.e., $>.70$) and was internally consistent.

Table 3. Model Fit Summary of the Modified Model in Confirmatory Factor Analysis (N = 500).

Model	AIC	BCC	NPAR	CMIN
Modified model	12394.74	12397.86	47	12300.74

Table 3 shows the model fit summary, which demonstrates that due to varying answer options in several scale items, the saturated model could not be fitted to the data of at least one group. Due to this, only the AIC, BCC, and "function of log probability" are provided. Other fit metrics, such as the likelihood ratio chi-square statistic, are not provided. The complete model indicated satisfactory model fit indices of the final model.

Eleven items in the model mentioned above provided adequate explanations for the effect size estimates. Since item number 9 provided an explanation for the model's zero regression weight, it was removed from the analysis. The translated version of the scale's item-wise scale validation is confirmed by the effect size estimates, which range from a minimum of 0.39 to a high of 0.86. Additionally, all of the items on individual level deviations were satisfactory.

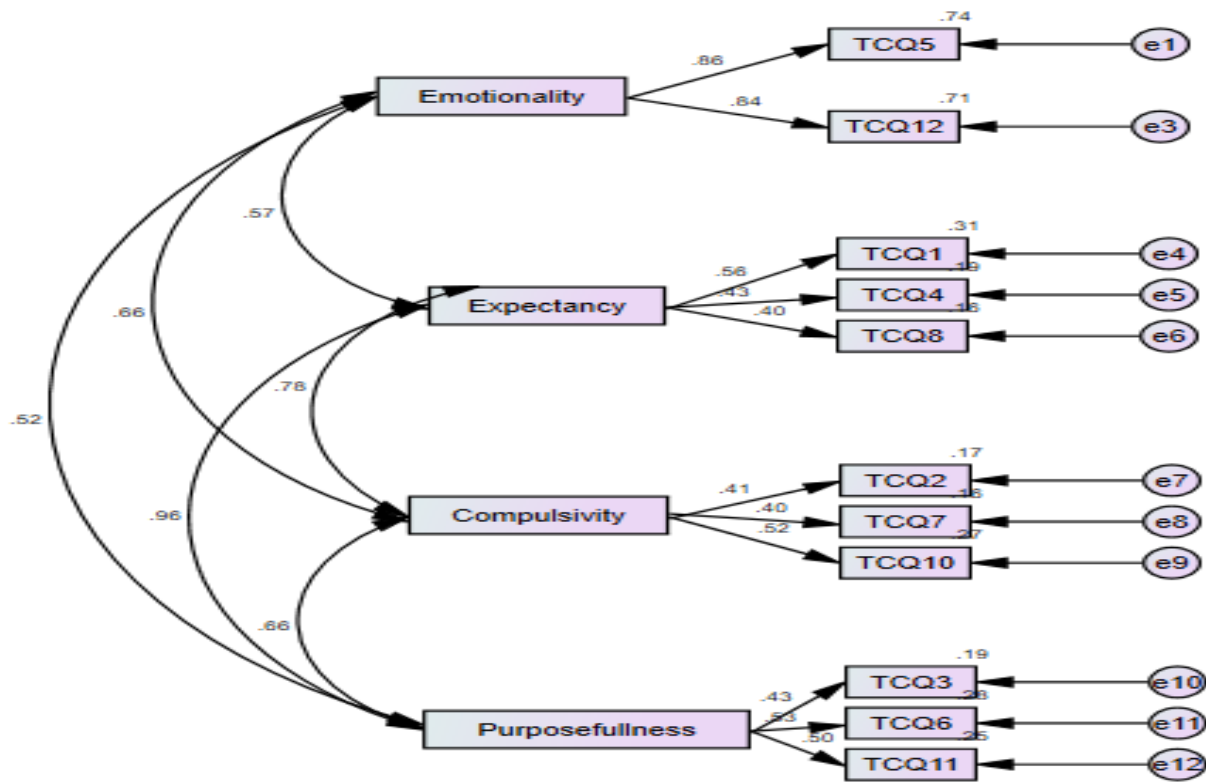


Figure 1. Estimates of Effect Sizes of Each Item in the CFA Model (N = 500).

Table 4. English and Urdu Version of Tobacco Craving Questionnaire Short Version.

Items	English Version	Urdu Version
1	I would enjoy smoking a cigarette at the moment.	میں اس وقت سگریٹ پینے سے لطف اندوز ہوں گا۔
2	If I smoked presently, then I wouldn't refrain myself.	اگر میں اس وقت سگریٹ پیتا تو میں مزید پینے سے رک نہ پاتا۔
3	I would probably smoke if I had a burning cigarette in my hand.	اگر میرے ہاتھ میں جلتی ہوئی سگریٹ ہوتی تو ممکنہ طور پر میں اسے پیتا۔
4	Smoking a cigarette might be a pleasant experience at the moment.	ابھی ایک سگریٹ پینے کا مزہ آنے گا۔
5	If I could smoke at the present moment, I would be less jittery.	اگر اس وقت میں سگریٹ پی سکتا تو میں کم چڑچڑا ہوتا۔
6	It would be difficult to miss the opportunity of smoking.	سگریٹ نوشی کا موقع ضائع کرنا مشکل ہو گا۔
7	If I had few cigarettes at the moment, I wouldn't be able to control myself from smoking.	اگر میرے پاس یہاں کچھ سگریٹ ہوتے تو میں خود کو سگریٹ پینے سے روک نہ پاتا۔
8	It would be a pleasure to smoke.	سگریٹ پینا خوشگوار ہو گا۔
9	If I would be smoking at this moment, I could think comprehensively.	اگر میں ابھی سگریٹ پی رہا ہوتا تو زیادہ واضح طور پر سوچ سکتا۔
10	It wouldn't possible for me to limit my smoking if I had few cigarettes at the moment.	اگر میرے پاس یہاں کچھ سگریٹ ہوتے تو میں سگریٹ پینے کی تعداد پر قابو نہ پاسکتا۔
11	I had difficulty in limiting smoking quantity at the moment.	خود پر آسانی سے قابو نہ کر پاتا کہ ابھی کتنے سگریٹ پیوں۔
12	If it would be possible for me to smoke then I could handle the matters in a better way.	اپنے معاملات پر اچھے سے قابو پا سکتا اگر میں سگریٹ پی سکتا۔

Discussion

The TCQ's original design was for it to include categories of desire based on clinical studies. However, four factors measure was found to be the best characterized by the desire for cigarettes. Numerous researches have shown that the TCQ is valid and reliable (Heishman et al., 2003; Lee et al., 2007; Singleton et al., 2003). The present study's findings imply that the TCQ-SF is a reliable, practical, trustworthy and useful tool for assessing tobacco desire as well.

Confirmatory factor analysis (CFA) of the TCQ-SF revealed both in the tobacco-deprived and non-deprived circumstances an adequate model fit to the TCQ. Visual inspection revealed that factor loading for significant items ($>.30$) for both circumstances was identical across the target (TCQ) and comparison (TCQ-SF) factors, indicating convergent validity (Kline, 2005). In the deprived scenario, however, the usual method of allocating things to the component with the largest loading would have led to the wrong assignment of items 1 and 11 to factors 4 and 3, respectively. Item 8 would have been incorrectly assigned to factor 4 in the nondeprived scenario. These three items probably had significant cross-loadings because they were all negatively keyed on the TCQ but positively keyed to help with scoring on the TCQ-SF.

The factor loadings and structural similarities of TCQ-SF under each scenario and in the intervals between TCQ-SF administrations that are repeated were high to extremely high, according to correlation coefficients. Average administration correlations and Cronbach's alpha coefficients were similar in both scenarios and agreed with reliability values found during the TCQ-SF first validation (Heishman et al., 2003). The test-retest correlation coefficients of the English and Urdu versions were matched (Singleton et al., 2003). Together, these results show that the Urdu version of TCQ-SF, when evaluated repeatedly and under various experimental situations, consistently evaluates the same multidimensional features of tobacco desire as the TCQ. Furthermore, the reproducible factor structure across many samples as well as manipulations supports a multidimensional view of tobacco addiction, in line with other studies.

Although the often-used indicator of a questionnaire's reliability is the value of Cronbach's alpha, which shows that how well the several questions on an instrument are internally consistent, one-dimensionality is a crucial component as well. An unambiguous, straightforward interpretation of the concept is provided by a unidimensional questionnaire, which evaluates distinctive components of the construct being evaluated (Schmitt, 1996). Results demonstrated no significant deviation from one-dimensionality and implied that each factor consistently accessed a different feature of tobacco desire in the Pakistani population.

CONCLUSIONS

The objective of the study was to perform translation and validation of the original English version of the Tobacco Craving Questionnaire (TCQ). Therefore, psychometric properties were conducted including descriptive statistics, reliability, and confirmatory factor analysis. It was found that translated Urdu short version is a reliable and valid measure for the Pakistani population and it can be used for the assessment of tobacco craving in the Pakistani context.

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