Translation, Validity, and Reliability of the Brief Questionnaire on Smoking Urges (QSU-Brief) in Indonesian

Tribowo Tuahta Ginting[1,2*], Martina Wiwie Setiawan Nasrun[3], Kristiana Siste[3], Jacub Pandelaki[4], Aria Kekalih[5], Melva Louisa[6], Agus Dwi Susanto[7], Diah Setia Utami[8], Wresti Indriatmi[9], Immanuel Natanael Tarigan[10], Ricky Nathaniel[11]

[1] Doctoral Program in Medical Sciences Faculty of Medicine Universitas Indonesia

[2] Department of Psychiatry, Persahabatan Hospital, Jakarta, Indonesia - Faculty of Medicine Universitas Indonesia, Jakarta, Indonesia

[3] Department of Psychiatry, Faculty of Medicine, Universitas Indonesia - Dr. Cipto Mangunkusumo National Central General Hospital, Jakarta, Indonesia

[4] Department of Radiology, Faculty of Medicine, Universitas Indonesia - Dr. Cipto Mangunkusumo National Central General Hospital, Jakarta, Indonesia

[5] Community Medicine Department, Faculty of Medicine Universitas Indonesia, Jakarta, Indonesia

[6] Department of Pharmacology, Faculty of Medicine Universitas Indonesia, Jakarta, Indonesia

[7] Department of Pulmonology and Respiration Medicine, Faculty of Medicine, Universitas Indonesia - Persahabatan Hospital, Jakarta, Indonesia

[8] Indonesia National Narcotics Board, Jakarta, Indonesia

[9] Department of Dermatovenereology, Faculty of Medicine, Universitas Indonesia - Dr. Cipto Mangunkusumo National Central General Hospital, Jakarta, Indonesia

[10] Dr. Cipto Mangunkusumo National Central General Hospital, Jakarta, Indonesia

[11] Persahabatan Hospital, Jakarta, Indonesia

Corresponding author: Tribowo Tuahta Ginting

Doctoral Program in Medical Sciences Faculty of Medicine Universitas Indonesia Department of Psychiatry, Persahabatan Hospital, Jakarta, Indonesia - Faculty of Medicine Universitas Indonesia, Jakarta, Indonesia

ABSTRACT:

In smoking cessation programs, identifying and monitoring patients' symptoms, including cravings, is essential. The widely used questionnaire for assessing craving symptoms is the QSU-B questionnaire. However, there has been no Indonesian translation of the QSU-B questionnaire to date. This study aimed to translate and assess the validity and reliability of the QSU-B questionnaire in Indonesian. This was a cross-sectional study involving in-depth interview with five expert panels and filling out a questionnaire by102 smokers. The translation was conducted independently by a certified translator. Validity was assessed using the Item-Level Content Validity Index (I-CVI), Scale-Level Content Validity Index (S-CVI), and correlation tests. Internal consistency reliability was measured using Cronbach's alpha. The QSU-B questionnaire, translated by an independent translator, was retranslated into English, and discussed by experts in a panel. The final questionnaire formulation was then used for further testing. Content validity assessment found that the QSU-B questionnaire was valid with I-CVI scores of 0.9-1 and S-SCVI of 0.98. Construct validity assessment found that the questionnaire was valid, with correlation values greater than the referral value. Reliability testing results showed that the QSU-B questionnaire was reliable, with a Cronbach's alpha value of 0.954. The Indonesian version of the QSU-B questionnaire was found to be valid and reliable, making it suitable for clinical use in patient management.

INTRODUCTION

Craving, also known as the urge or desire, is defined as the subjective experience of wanting to use a substance, which directs someone to use that substance. Classical conditioning models posit that cravings are specific to situations and persistent, thus triggered by stimuli previously associated with substance use and potentially reoccurring years after cessation.[1] Craving is a key feature of tobacco use disorder and a significant predictor of smoking relapse. Smoking craving is defined as a continuous urge, thoughts, or desires to smoke. It is considered a key feature of tobacco use disorder in the recent DSM-V and is one of the most consistent predictors of relapse among former smokers.[2]

To assess smoking craving, an instrument was developed known as the Questionnaire on Smoking Urges (QSU). The QSU is a self-report questionnaire consisting of 32 items. The questionnaire items were designed to represent four different theoretical and clinical conceptualizations of smoking urges, including: (1) desire to smoke; (2) anticipation of positive effects of smoking; (3) anticipation of relief from nicotine withdrawal symptoms or from negative effects associated with withdrawal symptoms; (4) intention to smoke.[3] Due to its length, the QSU is not practical for use in laboratory settings when multiple assessments of craving are needed or in clinical settings where craving assessments are combined with additional measures. Therefore, the Brief Questionnaire on Smoking Urges (QSU-Brief) was developed. The resulting QSU-Brief form contains 10 items and can be completed in less than 2 minutes.[4] Each question is answered on a Likert scale from 1 (strongly disagree) to 7 (strongly agree), yielding a score range of 10-70, with higher numbers indicating higher levels of smoking craving.[5]

In Indonesia, smoking remains a significant issue. According to the 2018 Basic Health Research (Riskesdas) report, the prevalence of smokers aged above 10 years is 29.3%, with the 30-39 age group having the highest prevalence. The trend in the number of smokers aged 10-18 years has also increased, reaching 7.2% in 2013 and 9.1% in 2018.[6] To date, there has been no validated instrument for assessing smoking craving in the Indonesian language. As an instrument for assessing smoking craving, the QSU-Brief has been translated into several languages, such as Dutch and Chinese. The objective of this study was to validate the QSU-Brief in the Indonesian language.

METHODS

Research Design

This study employed a cross-sectional approach. The study was conducted from August to December 2022 using an online questionnaire through Google Forms. Ethical approval for the study was obtained from the Research Ethics Committee of the Faculty of Medicine, University of Indonesia (NO: KET-727/UN2.F1/ETIK/PPM.00.02/2022).

Subjects

The subjects of this study were adult active smokers in Indonesia. The required sample size for the study was 102 subjects, following the rule of thumb. Subjects were collected using consecutive sampling. Inclusion criteria were adult smokers (above 18 years old), actively smoking for at least 6 months, and using only tobacco cigarettes. Exclusion criteria included subjects with medical or psychiatric limitations that hindered communication and the ability to complete the questionnaire.

Translation

After obtaining approval, the QSU-B questionnaire was independently translated into the Indonesian language by two different certified translators. The questionnaire translated into Indonesian was then combined by the researcher for retranslation into English by two different certified translators. The English translators were different individuals from those who translated it into Indonesian.

Validity

Content Validity

Content validation was carried out through a panel discussion, calculating the Scale-Level Content Validity Index (S-CVI). Experts were asked to rate each question on a scale of 1-4, with a score of 1 indicating "not relevant" and a score of 4 indicating "relevant." Scores of 1-2 were categorized as not relevant, while scores of 3-4 were categorized as relevant. The S-CVI/Ave calculation compared the sum of I-CVI scores with the total number of items assessed. S-CVI/Ave results above 0.9 indicated good content validity.

Construct Validity

Construct validity assessment involved calculating the correlation between individual items and the overall

questionnaire. The construct validity test compared the correlation values between questionnaire items and the critical value. If the correlation value from the analysis was greater than the critical value, the questionnaire item was considered valid. Construct validity assessment was conducted using IBM SPSS Statistics 25.

Reliability Testing

Reliability testing involved calculating Cronbach's alpha (α) to assess internal consistency. Cronbach's alpha values above 0.6 indicate good results. Data analysis was performed using IBM SPSS Statistics 25.

RESULTS

A total of 102 subjects participated in this study, predominantly male (93.1%). Of the subjects, 76.5% used filtered tobacco cigarettes, with an average smoking duration of 16.72 years. About 81.4% had attempted to quit smoking, but only 4.9% had successfully quit with the assistance of a doctor. Demographic data of the subjects are presented in Table 1.

Table 1. Demographic Characteristics of Subjects

Characteristic	N (%)
Age (mean ± standard deviation) in years	40,05 ± 8,94
Sex	
- Male	95 (93,1)
- Female	7 (6,9)
Education	
- Junior high school	2 (2,0)
- Senior high school	36 (35,3)
- Bachelor's Degree (S1)	54 (52,9)
- Postgraduate	10 (9,8)
Residence	
- Jakarta	37 (36,3)
- Java (excluding Jakarta)	43 (42,2)
- Sumatera	11 (10,8)
- Bali-Nusa Tenggara	6 (5,9)
- Kalimantan	3 (2,9)
- Sulawesi	1 (1,0)
- Maluku dan Papua	1 (1,0)
Type of Cigarette	
- Filtered Tobacco Cigarette	78 (76,5)
- Unfiltered Tobacco Cigarette	16 (15,7)
- Both	8 (7,8)
Smoking Duration (mean ± standard deviation) in years	16,72 ± 10,05
Daily Cigarette Consumption (mean ± standard deviation) in sticks	15,90 ± 21,81
Quit Smoking Attempts	
- Yes	83 (81,4)
- No	19 (18,6)
Quit Smoking with Doctor's Assistance	
- Yes	5 (4,9)
- No	97 (95,1)

After the translation process into Indonesian and the subsequent retranslation into English, three experts engaged in a panel discussion to conclude the translation results of the questionnaire for use in the validation

phase. The translated QSU-Brief questionnaire is presented in Table 2.

Tabel 2. Translation Results of the QSU-Brief Questionnaire in Indonesian

Question	English	Indonesia
1	I have a desire for a cigarette right now	Saya sangat ingin merokok sekarang juga
2	Nothing would be better than smoking a cigarette right now	Tidak ada yang lebih baik dibandingkan merokok saat ini juga
3	If it were possible, I probably would smoke now.	Bila memungkinkan, saya akan merokok saat ini juga
4	I could control things better right now if I could smoke.	Saya dapat mengendalikan hal-hal dengan lebih baik saat ini juga jika saya bisa merokok
5	All I want right now is a cigarette.	Hal yang saya inginkan saat ini juga hanyalah sebatang rokok
6	I have an urge for a cigarette.	Saya memiliki keinginan yang kuat untuk mendapatkan sebatang rokok
7	A cigarette would taste good now.	Sebatang rokok akan terasa nikmat saat ini
8	I would do almost anything for a cigarette now.	Saya akan melakukan hampir segalanya untuk mendapatkan sebatang rokok saat ini juga
9	Smoking would make me less depressed	Merokok akan mengurangi perasaan depresi saya
10	I am going to smoke as soon as possible	Saya akan merokok sesegera mungkin

Content validity assessment found I-CVI scores ranging from 1 to 0.8, with an S-CVI/Ave of 0.98. An S-CVI/Ave score above 0.9 indicates good content validity (Table 3). Construct validity testing involved comparing the calculated correlation values with the critical table value.

If the analysis correlation value was greater than the critical value, the questionnaire item was considered valid. The study found that all questions showed calculated correlation values greater than the referral table value, indicating the good validity of all questions.

Table 3. Content Validity

Question	Relevance
1	1
2	1
3	1
4	1
5	1
6	1
7	1
8	0,8
9	1
10	1
Total I-CVI	9,8
S-CVI/Ave	0,98

Table 4. Construct Validity

Question	Calculated r Value	Critical r Value	Conclusion
1	0,822	0,161	Valid
2	0,768	0,161	Valid
3	0,862	0,161	Valid
4	0,840	0,161	Valid
5	0,865	0,161	Valid
6	0,868	0,161	Valid
7	0,838	0,161	Valid
8	0,816	0,161	Valid
9	0,826	0,161	Valid
10	0,914	0,161	Valid

All questions of the Indonesian version of the QSU-Brief were analysed to determine the structure of this questionnaire using EFA. The test found that the data in this study were adequate for testing with a KMO of 0.928 (which indicates adequate sample size) and Bartlett's test of sphericity showed a result of $p<0.001$ (which indicates the data is suitable for factorial analysis). This study found that there was only 1 factor formed from the entire questionnaire with an eigenvalue of 7.101 (above cut-off 1). The fit index parameters in this study are quite good with CFI values: 0.921; SRMR: 0.048 and RMSEA: 0.139 (90% CI: 0.110-0.172).

Reliability testing was conducted by calculating Cronbach's alpha (α). The analysis found a Cronbach's alpha value of 0.954, indicating good reliability for the entire questionnaire. Reliability testing for all QSU-Brief questions also showed good results, with Cronbach's alpha values above 0.9 for each question.

Table 5. Reliability Test Results

Question	Cronbach's alpha	Conclusion
1	0.950	Reliable
2	0.953	Reliable
3	0.948	Reliable
4	0.950	Reliable
5	0.948	Reliable
6	0.948	Reliable
7	0.950	Reliable
8	0.951	Reliable
9	0.951	Reliable
10	0.946	Reliable

DISCUSSION

This study aimed to evaluate the validity and reliability of the translated Indonesian version of the QSU-Brief questionnaire. The QSU-Brief is a concise form of the QSU, which was deemed impractical for daily use. Previous studies have found that the QSU-Brief questionnaire exhibits a consistent structure with the QSU questionnaire, consisting of 2 factors. The first factor represents a strong desire and intention to smoke, where smoking is perceived as a reward for active smokers. The second factor represents the anticipation of relief from negative effects with an immediate desire to smoke.[7]

The QSU-Brief questionnaire is used to assess craving in smokers. Understanding the craving experienced by smokers during the smoking cessation process is essential. Previous studies have found that the intensity of craving in the first few days of quitting smoking is associated with an increased risk of relapse in the future. Several biological agents have been identified as related

to craving in smokers, such as cortisol and adrenocorticotropin. The clinical implication is that in patients quitting smoking, identifying the intensity of craving is important during therapy to predict the likelihood of relapse and maintain therapy continuity.[8]

The QSU-Brief questionnaire has been translated into several languages. Translations of the QSU-Brief into Gujarati, Bengali, and Malay have shown good validity and reliability.[9–11] This study demonstrated good content validity with an S-CVI of 0.98. Additionally, the study found that the construct validity results were valid for all questions. Cronbach's alpha analysis for assessing the reliability of the QSU-Brief questionnaire showed a value of 0.954 for the entire questionnaire and values above 0.9 for each question, indicating good reliability.

To date, there has been no validated craving questionnaire for smokers translated and tested for validity and reliability in Indonesia. This would greatly assist clinicians in Indonesia, including psychiatrists and other healthcare professionals, in managing patients. The number of active smokers in Indonesia is estimated to be around 40.3% of the population, making it a target for smoking cessation programs.[12] This study is expected to contribute to smoking cessation programs across Indonesia.

Limitations of this study include the use of snowball sampling in the population, therefor it cannot describe the entire population of smokers in Indonesia. Clinical settings should be tested to determine validity and reliability in a population undergoing smoking cessation. Additionally, repeated testing can be conducted to determine the test-retest reliability of the QSU-Brief questionnaire.

CONCLUSION

Craving is one of the common symptoms experienced during the smoking cessation process. Identifying craving symptoms is crucial to predicting relapse in the future. This study is the first to translate and assess the validity and reliability of the Brief Questionnaire on Smoking Urges (QSU-Brief) into the Indonesian language. The study found that the QSU-Brief questionnaire in Indonesian is a valid and reliable instrument, suitable for daily use.

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