

Content Validity, Face Validity and Reliability for Malay Version of The Stages of Change Readiness and Treatment Eagerness Scale for Smoking Cessation (M-SOCRATES-S) and Malay Version of Smoking Self-Efficacy (M-SSE)

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ABSTRACT

A set of questionnaires on smoking behaviour are required in order to conduct a full assessment of smoking issues in Malaysia. Therefore, this study was conducted to ensure that the Malay Version of The Stages of Change Readiness and Treatment Eagerness Scale for Smoking Cessation (M-SOCRATES-S) and Malay Version of Smoking Self-Efficacy (M-SSE) questionnaires can be used systematically in Malaysia. The permission to adapt these two questionnaires for the publishers was made and permission was obtained. This questionnaire has been translated into Malay using the direct translation method. Two experts were involved in the content validity process while eight lay adult smokers were involved in the face validity process while a total of 50 adult smokers were involved in the reliability assessment process. The results of the study found that the S-CVI/Ave and S-CVI/UA values for M-SOCRATES-S are 0.97 and 0.94 while the S-CVI/Ave values and S-CVI/UA values for M-SSE are 1.0 and 1.0. The S-FVI/Ave and S-FVI/UA values for M-SOCRATES-S are 0.99 and 0.95 while the S-FVI/Ave and S-FVI/UA values for M-SSE are 0.98 and 0.83. There are three domains in the M-SOCRATES-S questionnaire, namely the recognition domain, the ambivalent domain and the taking action domain, these three domains recorded Cronbach's alpha values of 0.85, 0.80 and 0.89. While there are two domains in the M-SSE, namely internal and external, which recorded Cronbach's alpha values of 0.81 and 0.77. The findings of this study show that the content validity, face validity, and reliability of these two questionnaires are acceptable and that they may be utilised among Malaysian adult smokers who can speak and write Malay.

Keywords: M-SOCRATES-S, M-SSE, Content Validity, Face Validity, Reliability

1. Introduction

Every year, the number of mortality and morbidity caused by tobacco smoking increases, which is concerning. Tobacco smoking is responsible for around 23,000 deaths in Malaysia each year (American Cancer Society 2019). According to the findings of a recent study, more than half of adult smokers in Malaysia require assistance in quitting smoking (Mohamed et al. 2023). According to Lund et al. (2021) the majority of smokers decided to quit smoking but do not receive the necessary assistance. As a result, in order to provide the best services to smokers, an efforts

are needed to understand the needs of smokers and help them quit smoking, one of the primary elements required is a questionnaire that may provide important information, particularly on the issue of smoking behaviour. This study has adapted two questionnaires namely Korean version of the Stages of Change Readiness and Treatment Eagerness Scale for Smoking Cessation (K-SOCRATES-S) by Park et al. (2012) and Smoking Self-Efficacy Questionnaire (SSE) by Etter et al. (2000). Readiness and motivation to quit smoking for example, can also be measured through a model of the level of change in smoking cessation behavior.

Assessing both readiness to quit smoking and smoking self-efficacy in individuals seeking help at a quit smoking clinic is essential. Understanding an individual's readiness to quit allows helping profession to tailor treatments to their client's specific stage of change (Mohamed et al. 2023). Similarly, assessing smoking self-efficacy provides insights into smoker's confidence in their ability to quit or to keep smoking (Rajani et al. 2021). Combined, these assessments enable personalized and targeted interventions for maximum effectiveness. Some individuals may express a desire to quit but harbor ambivalence or lack confidence in their ability to quit (Cooperman et al. 2016). Assessing both readiness and self-efficacy helps identify any discrepancies, allowing for interventions that address ambivalence and enhance confidence simultaneously. Readiness to quit smoking assessment guides the timing and content of treatment sessions, while self-efficacy assessment informs the strategies used (Catley et al. 2012). Combining these assessments allows therapists to strategically address motivational and confidence-related aspects during treatment, contributing to more effective support.

Assessing self-efficacy allows for the development of targeted strategies to build confidence, increasing the likelihood of successful smoking cessation. Smoking self-efficacy assessment can reveal specific situations or triggers where individuals doubt their ability to resist smoking (Ma et al 2020). This information helps tailor interventions to address these specific barriers, making the quit attempt more successful. Individuals with varying levels of self-efficacy may have different preferences and needs regarding nicotine replacement therapy (NRT) (Ma et al 2020). Assessing both readiness and self-efficacy allows for individualized recommendations on the type and dosage of NRT. Combining readiness and self-efficacy assessments provides a more comprehensive picture of an individual's likelihood of success in quitting smoking. Thus, assessing both readiness to quit smoking and smoking self-efficacy in individuals attending quit smoking clinics enables a more comprehensive and individualized approach to smoking cessation support. This approach considers both the individual's stage of change and their confidence in their ability to quit, enhancing the overall effectiveness of interventions and increasing the likelihood of successful smoking cessation. In conclusion, measuring readiness to quit smoking and smoking self-efficacy is important. Therefore, a sensitive questionnaire is needed in Malaysia in an effort to further improve the quality of the initial assessment of smokers in Malaysia.

2. Literature Review

According to Maier et al. (2020) the readiness to quit smoking can be measured through three initial stages in the model of the level of change in behavior to quit smoking, namely at the precontemplation stage, the contemplation stage and the preparation stage. Therefore, in order to measure readiness and motivation for smoking cessation treatment, this study has adapted the test tool Korean version of the Stages of Change Readiness and Treatment Eagerness Scale for Smoking Cessation (K-SOCRATES-S) by (Park et al., 2012). According to Park et al. (2012) this questionnaire contains three level subscales namely recognition, ambivalence, and taking action. A low recognition subscale score means the smoker is still in the pre-contemplation stage, and if the recognition subscale score is high then the smoker is starting to enter the contemplation stage.

Likewise, a high ambivalence subscale score indicates that the smoker is at the level of contemplation and taking action, which is in line with the level of preparation and action in the Transtheoretical model. Through these three levels, the first two levels, which are the levels of recognition and doubt, are the preparation process that occurs psychologically, while the level of taking action is the readiness that occurs behaviorally. The SOCRATES test tool (Stages of Change Readiness and Treatment Eagerness Scale for Smoking) basically was built by Miller & Tonigan, (1996) to measure readiness to change or change in behavior towards the issue of drug and alcohol use practices (Mancini 2013). According to Miller and Tonigan (1996), the SOCRATES questionnaire, which contains 19 items, does not have reverse evaluation items. The following is a score calculation manual for the SOCRATES questionnaire according to the Center on Alcoholism, Substance Abuse, and Addictions, University of New Mexico, however this study only takes three levels, namely low, medium and high. For the level of recognition, the low score is 7 to 30, medium 31 to 33 and high 34 and above, for the level of doubt the low score is 4 to 13, medium 14 to 15 and high 16 and above, while for the level of taking action the low score is 8 to 30, medium is 31 to 33, and high is 34 and above. That being said, this study did not examine how the ratings for these three areas were calculated.

According to Etter et al. (2000) this Smoking Self-Efficacy Questionnaire test tool was built as a result of qualitative data that was analyzed among 115 smokers and then a survey regarding this test tool was conducted on 529 smokers. This test tool is used to measure smokers' confidence in their ability to resist the temptation to smoke when faced with internal situations (items 1, 2, 3, 4, 5 and 6) and external situations (items 7, 8, 9, 10, 11, 12). The internal consistency for the internal situation is 0.95 while for the external situation it is 0.94 in other words Etter et al. (2000) reported the validity and reliability of this test tool for research and clinical use is high. Leung et al. (2008) reported that this test tool uses a likert scale to see the score of each item, it starts with a score of 1 = very uncertain to 5 = very, very certain.

Malaysia, like many other countries, faces significant public health challenges related to smoking (Yusoff et al. 2022). Budreviciute et al. (2020) reported that tobacco use is a major contributor to preventable diseases, including cardiovascular diseases, respiratory diseases, and various cancers. Thus, implementing effective tools to measure readiness to quit smoking and assessing the psychological aspects among smokers is crucial for several reasons (Hersi et al. 2019). Having a good instrument to measure the readiness to quit smoking in Malaysia is important for understanding the readiness of smokers to quit smoking allows healthcare professionals to tailor intervention programs based on individual needs (Mohamed et al. 2023). Different smokers may require different approaches, such as consultation, behavioural modification, nicotine replacement therapy, or a combination of treatments. Tailoring interventions increases the likelihood of success in smoking cessation. Furthermore, by identifying individuals who are more psychologically ready to quit, healthcare providers can focus resources on those who are likely to benefit the most from intervention (Mohamed et al. 2023). This targeted approach can lead to better outcomes and cost-effectiveness.

Smoking is often linked to psychological factors (El-Sherbiny & Elsary 2022). Taylor et al. (2021) reported that assessing the psychological aspects of smoking helps healthcare professionals understand the underlying issues and provide appropriate support. Addressing these psychological aspects is crucial for the success of smoking cessation efforts because quitting smoking is a challenging process that often requires ongoing support (Cooley et al. 2009). Understanding the psychological aspects of smoking addiction helps in developing strategies to prevent relapse and ensure long-term success in smoking cessation Elshatarat et al. (2016). Furthermore, smoking cessation has a direct impact on public health by reducing the burden of smoking-related diseases

and healthcare costs. Effective tools for assessing readiness to quit and psychological aspects can contribute to the overall success of national tobacco control programs, leading to a healthier population (Golechha 2016).

In summary, having good tools to measure readiness to quit and assess psychological aspects among smokers is essential for developing effective and targeted smoking cessation programs. By addressing the unique needs of individuals, healthcare professionals and policymakers can make significant strides in reducing the prevalence of smoking and improving public health outcomes in Malaysia.

3. Research Method

This study using direct translation method because according to Harkness and Schoua-Glusberg (1998) direct or one-to-one translation is one of the widely used translation processes. It is carried out by directly translating the original test tool into the language commonly practiced by the respondents or communities involved in the study. Furthermore, according to Kamaluddin & Nasir, (2019) if a researcher wants to use an existing test tool, the researcher still needs to do content validity for the measurement test tool even though the content validity has been made by the original author of the measurement tool. This study conducts content validity first where all the items in the questionnaire in this study are reviewed by selected experts while face validity is conducted among public adult smokers. This validation process or sequence is adapted through Kamaluddin and Nasir (2019) which is preceded by a content validity process among expert assessors and followed by face validity among the respondent population. Therefore, in order to carry out content validity, this study has used the method carried out by Yusof, (2019a) who identified the best practice in conducting feedback on the content validity process and calculating the content validity index.

The definition of formula of I-CVI, S-CVI/Ave, S-CVI/UA and formula of I-FVI, S-FVI/Ave, S-FVI/UA:

In addition to carrying out content validity, this study has also carried out face validity because according to Lam et al. (2018), content validity and face validity of test tools need to be checked first by two experts and eight adult smoker aged 18 years old and above involved in this study. Apart from that according to Connell et al. (2018) face validity was conducted to ensure that the set of items and test tools were sensitive, appropriate, and clear to the respondents who filled out the test tools. According to Memon et al. (2017) there is no specific number to conduct a pre-test (face validity) but it is necessary to involve individuals from the study sample group. This study involved eight smokers to carry out face validity, this number is seen as appropriate because Willis (2005) recommends a sample size of between 5 and 15 individuals for a large-scale survey suitable for cognitively evaluating the sample's understanding of the items in this study. Each evaluator was provided with all sets of questionnaires in this study to assess their understanding of each item involved in this study. The value or scale given by each smoker to each item and each set of test tools in the study is the same as content validity which should only be acceptable on a scale of 3 (quite clear) and 4 (very clear) only because this value represents a value of 1, while scale 1 (unclear) and 2 (somewhat clear) represent a value of 0. Therefore, to carry out face validity, this study has used the same method and sequence in Yusoff, (2019a) but the calculation method for this face validity process uses the same method as Yusoff, (2019b).

After going through the process of face validity and content validity, a pilot test of 50 sample people among public smokers aged above 18 years old in Malaysia was conducted to conduct reliability tests. The pilot study is not intended to test the hypothesis; therefore, it does not require the involvement of a large number of respondents. Julious (2002) suggested 12 respondents were sufficient for a pilot study while Halpern et al. (2005) stated that 30 respondents were sufficient for a pilot study (In 2017). Kumar et al. (2013) also mentioned that at least 50 people should be asked to participate. According to Hassan et al. (2006) pilot studies are necessary and very useful in providing a basic framework for a research.

4. Results

The results of this study found that the S-CVI/Ave and S-CVI/UA values for M-SOCRATES-S are 0.97 and 0.94 while the S-CVI/Ave values and S-CVI/UA values for M-SSE are 1.0 and 1.0. The S-FVI/Ave and S-FVI/UA values for M-SOCRATES-S are 0.99 and 0.95 while the S-FVI/Ave and S-FVI/UA values for M-SSE are 0.98 and 0.83. There are three domains in the M-SOCRATES-S questionnaire, namely the recognition domain, the ambivalent domain and the taking action domain, these three domains recorded Cronbach's alpha values of 0.85, 0.80 and 0.89. While there are two domains in the M-SSE, namely internal and external, which recorded Cronbach's alpha values of 0.81 and 0.77.

Table 1: Content validity values (S-CVI/AVE and S-CVI/UA values) of the M-SOCRATES-S

Item	I-CVI		Expert Agreement	Item S-CVI
	Expert 1	Expert 2		
1	1	1	2	1.0
2	1	1	2	1.0
3	1	1	2	1.0
4	1	1	2	1.0
5	1	0	1	0.5
6	1	1	2	1.0
7	1	1	2	1.0
8	1	1	2	1.0
9	1	1	2	1.0
10	1	1	2	1.0
11	1	1	2	1.0
12	1	1	2	1.0
13	1	1	2	1.0
14	1	1	2	1.0
15	1	1	2	1.0
16	1	1	2	1.0
17	1	1	2	1.0
18	1	1	2	1.0
19	1	1	2	1.0
I-CVI	1.0	0.95	18/19	18.5/19
			S-CVI/Ave	0.97
			S-CVI/UA	0.94
CVI		Expert 1	Expert 2	
I-CVI		1.0	0.95	

S-CVI/Ave	0.97
S-CVI/UA	0.94

Table 2: Content validity values (S-CVI/AVE and S-CVI/UA values) of the M-SSE

Item	I-CVI		Expert Agreement	Item S-CVI
	Expert 1	Expert 2		
1	1	1	2	1.0
2	1	1	2	1.0
3	1	1	2	1.0
4	1	1	2	1.0
5	1	1	2	1.0
6	1	1	2	1.0
7	1	1	2	1.0
8	1	1	2	1.0
9	1	1	2	1.0
10	1	1	2	1.0
11	1	1	2	1.0
12	1	1	2	1.0
I-CVI	1.0	1.0	12/12	12/12
			S-CVI/Ave	1.0
			S-CVI/UA	1.0

CVI	Expert 1	Expert 2
I-CVI	1.0	1.0
S-CVI/Ave	1.0	
S-CVI/UA	1.0	

Table 3: Face validity values (S-FVI/AVE and S-FVI/UA values) for M-SOCRATES-S

Item	R-1	R-2	R-3	R-4	R-5	R-6	R-7	R-8		Agreement	I-FVI	UA
1	1	1	1	1	1	1	1	1		8	1	1
2	1	1	1	1	1	1	1	1		8	1	1
3	1	1	1	1	1	1	1	1		8	1	1
4	1	1	1	1	1	1	1	1		8	1	1
5	0	1	1	1	1	1	1	1		7	0.88	0
6	1	1	1	1	1	1	1	1		8	1	1
7	1	1	1	1	1	1	1	1		8	1	1
8	1	1	1	1	1	1	1	1		8	1	1
9	1	1	1	1	1	1	1	1		8	1	1
10	1	1	1	1	1	1	1	1		8	1	1
11	1	1	1	1	1	1	1	1		8	1	1
12	1	1	1	1	1	1	1	1		8	1	1
13	1	1	1	1	1	1	1	1		8	1	1
14	1	1	1	1	1	1	1	1		8	1	1
15	1	1	1	1	1	1	1	1		8	1	1
16	1	1	1	1	1	1	1	1		8	1	1
17	1	1	1	1	1	1	1	1		8	1	1
18	1	1	1	1	1	1	1	1	Comprehension ratio of face validity	8	1	1
19	1	1	1	1	1	1	1	1		8	1	1
Average	0.95	1	1	1	1	1	1	1		S-FVI/Ave	0.99	
									0.99	S-FVI/UA		0.95

R= respondent

Table 4: Face validity values (S-FVI/AVE and S-FVI/UA values) for M-SSE

Item	R-1	R-2	R-3	R-4	R-5	R-6	R-7	R-8		Agreement	I-FVI	UA
1	1	1	1	1	1	1	1	1		8	1	1
2	1	1	1	1	1	1	1	1		8	1	1
3	1	1	1	1	1	1	1	1		8	1	1
4	1	1	1	1	1	1	1	1		8	1	1
5	1	1	1	1	1	1	1	1		8	1	1
6	1	1	1	1	1	1	1	1		8	1	1
7	1	1	1	1	1	1	1	1		8	1	1
8	1	1	0	1	1	1	1	1		7	0.88	0
9	1	1	0	1	1	1	1	1		7	0.88	0
10	1	1	1	1	1	1	1	1		8	1	1
11	1	1	1	1	1	1	1	1	Comprehension ratio of face validity	8	1	1
12	1	1	1	1	1	1	1	1		8	1	1
Average	1	1	0.83	1	1	1	1	1		S-FVI/Ave	0.98	
									0.98	S-FVI/UA		0.83

R= respondent

Table 5: Cronbach's alpha value for each sub-scale involved in this study

Domain	No. of item	Cronbach's value	alpha
Recognition	7	0.85	
Ambivalent	4	0.80	
Taking Action	8	0.89	
Internal Smoking Self-Efficacy	6	0.81	
External Smoking Self-Efficacy	6	0.77	

5. Discussion

This study demonstrates a meticulous and well-designed methodology in ensuring the reliability and validity of the questionnaires. Content validity is a critical aspect of research and assessment design, ensuring that the content of a measure or instrument adequately represents the construct it is intended to measure (Haradhan 2017). According to Boateng et al. (2018) content validity is important is because content validity ensures that the items included in a measure or assessment accurately represent the entire scope of the construct being measured. This means that the content is comprehensive and relevant to the concept under investigation. A questionnaire with high content validity is more likely to be perceived as credible and trustworthy by stakeholders, including researchers, practitioners, and participants (Taherdoost 2018). This enhances the overall quality and reputation of the research or assessment. Content validity contributes to the reliability of a measure which has been proven in this study where the cronbah alpha value for all the domains involved recorded a good value. When the content is representative of the construct, it improves the consistency and stability of the measurements over time and across different situations. Content validity ensures that the items in a measure align with the specific objectives or goals of the study (Shrotryia & Dhanda 2019). This alignment is crucial for drawing accurate conclusions and making meaningful recommendations. In summary, content validity is essential for ensuring that a measure or assessment accurately captures the construct it intends to measure. This is crucial for making informed decisions, drawing valid conclusions, and ensuring the credibility and applicability of research findings or assessment results.

Face validation involves obtaining feedback from individuals who are representative of the target population or end-users to ensure that a measure appears to measure what it is intended to measure (Zamanzadeh et al. 2015). Face validation from the subjects that we want to study is important because subject input ensures that the content of the measure is relevant and meaningful to the individuals who will be using it (Cocchi et al. 2023). This helps guarantee that the measure is aligned with their experiences, perspectives, and language. When individuals from the target population participate in face validation, they are more likely to accept and feel comfortable with the measure. This acceptance can positively impact response rates and overall engagement with the assessment. Subjects can provide valuable insights into the clarity and understandability of the measure (Zamanzadeh et al. 2015). If the language or wording is confusing or ambiguous to the target population, face validation allows for necessary adjustments to enhance clarity. Face validation confirms that the measure appears to measure what it is intended to measure. This aspect of validity is important for establishing initial credibility and trustworthiness, especially

among the individuals who will be participating in the study. Subjects can provide feedback on the cultural sensitivity of the measure. This is particularly important in diverse populations to ensure that the items are appropriate and respectful across different cultural contexts. In summary, face validation from the subjects you want to study is crucial for ensuring that your measure is relevant, clear, culturally sensitive, and acceptable to the individuals who will be participating in your research.

This study successfully formed good content validity, face validity and reliability values for both questionnaires M-SOCRATES-S and M-SSE. Therefore, this questionnaire can be used not only for research purposes but can also be used as a formal assessment at the quit smoking clinic services in Malaysia. M-SOCRATES-S for an example is very useful in assessing a smoker's readiness to quit smoking for tailoring interventions to smoker specific stage of change. Understanding smoker's readiness to quit smoking allows for the implementation of targeted strategies that align with their current mindset (Mohamed et al. 2022; Coles 2019). It helps identify the most effective approach, whether it involves providing information, building motivation, or supporting concrete steps toward quitting. This personalized approach increases the likelihood of successful smoking cessation, as interventions can address individual needs and challenges at different stages of readiness. Meanwhile M-SSE is important in helping researcher or practitioner to undertake assessing a smoker's smoking self-efficacy, or their belief in their ability to smoking, it is crucial because self-efficacy plays a significant role in behavior change. Report from Elshatarat et al. (2016) reported that a person with high self-efficacy is more likely to not persevere through challenges and setbacks during the quit-smoking process. Understanding their readiness levels allows for tailored interventions. If someone has high smoking self-efficacy, interventions can focus on building their belief in their ability to quit by providing support, coping strategies, and positive reinforcement. On the other hand, for individuals with low smoking self-efficacy, interventions may concentrate on maintaining motivation and reinforcing their confidence. Incorporating smoking self-efficacy assessments into cessation programs enhances their effectiveness by addressing individual psychological factors that influence the likelihood of successful quitting.

6. Conclusion

The findings of this study show that the content validity, face validity, and reliability of these two questionnaires M-SOCRATES-S and M-SSE are acceptable and that they may be utilised among Malaysian adult smokers who can speak and write Malay.

Ethical Approval

Under code JKEtika 5/20 (3), the Medical Research Ethics Committee Universiti Malaysia Sabah has consented this study.

Informed Consent

Informed consent was obtained from all subjects involved in the study.

Conflicts of Interest

The authors declare no conflict of interest towards the publication of this paper.

Authors Contribution

In this manuscript, each author contributes equally to the ideas and writing.

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