Original Article

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# Translating and Validating a Bahasa Version of the Hand Hygiene Questionnaire

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## ABSTRACT

**Background:** Translating questionnaire into a different language might be challenging. It involves a systematic process in ensuring reliability and validity of the translated questionnaire. **Purpose:** This study is aimed to test the reliability and validity of a hand hygiene questionnaire in Malaysian context. **Methods**: A self-administered questionnaire of socio-demographic data, level of knowledge on hand hygiene, and attitude towards hand hygiene practice in English version was translated to Bahasa Malaysia using forward and backward translation procedure and a test and re-test study. A total of 30 samples recruited for the study. **Results:** The translated questionnaire was validated by a panel of three content experts. The intra-class correlation coefficient (ICC) values of test and re-test for knowledge (0.949) and attitude (0.859) scales indicating an excellent internal reliability of the questionnaire. **Conclusion:** The translated questionnaire has met the validity and reliability of Bahasa version of the hand hygiene scales which support the use of the instrument among Malaysian community.

***Keywords: Translation; Validation; Test-Retest; Hand Hygiene Practice***

## INTRODUCTION

Effective hand hygiene practice is fundamental to prevent transmission of infections. Hand hygiene is defined as the action of washing hands with soap and water or rubbing hand using hand-sanitizer without water (WHO, 2020). The Centre for Disease Control and Prevention (CDC, 2020) and World Health Organization (WHO, 2020) stress on the importance in performing regular and effective hand hygiene by every individual. Applying hand hygiene using handwashing technique or alcohol-based hand rub are the focus during COVID-19 pandemic outbreak (Alzyood *et al.*, 2020). Community plays a critical role in applying proper hand hygiene, particularly during the outbreak. The compliance and awareness of community on hand hygiene practices as well as using protective measures significantly reduce prevalence of COVID-19 disease (Meith *et al.*, 2021).

Based on literature review, there are many studies related to hand hygiene. However, the past studies show inconsistent findings in different context. Most of the studies were focused on healthcare providers or students, and much less is among residents in the community. Garba & Uche (2019) reported that most of the healthcare professionals have good level of knowledge on hand hygiene. However, Yousif, Tancred & Abuzaid (2020) revealed that only 35.6% of the healthcare providers achieved a satisfactory knowledge level on hand hygiene. Besides, a majority of the students (80.4%) found having a poor knowledge on hand hygiene and they are not able to perform all the essential steps (Nuwagaba *et al.*, 2020). This finding is contradicting with Hussain (2018) who discovered that participants had a high level of knowledge but poor in hand hygiene practice.

In relation to hand hygiene attitude, Garba & Uche (2017) found that 62% of the participants had a positive attitude. While Yousif, Tancred & Abuzaid, (2020) reported that majority of the healthcare providers show a negative attitude towards hand hygiene practice due to lack of time. On the other hand, Eshetu, Kifle & Hirigo

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(2020) reported that more than half of the school children exhibited a positive attitude towards hand hygiene practice. The findings of the study did not show a significant association between demographic factors and attitude towards hand hygiene. In contrast, Nuwagaba *et al.,* (2020) study shows a significant relationship between attitude and knowledge of hand hygiene among university students. Their findings are in line with study by Engdaw, Gebrehiwot & Andualem (2019).

Many self-administered questionnaires were adopted for research in different context. According to Bricout (2017), translating and validating a developed questionnaire is good choice for study. This reduces the time and process in developing and validating a new questionnaire. Most of the validated questionnaires on hand hygiene's knowledge, attitude and practice are in English version. They may not be suitable for Malaysians who do not have literacy in English. Hence, there is a need to translate the questionnaire into Bahasa Malaysia language to suit the local context.

**Objective**

The purpose of this study was to translate, test and re-test the reliability, and validate the Bahasa version of a questionnaire on hand hygiene practice. Using instruments adapted from Suen & Rana (2020) and Rosen *et al*., (2009), respectively, may therefore of high relevance in determining the level of knowledge and attitude on hand hygiene practice among public adults in Penang, Malaysia after the translation procedure and reliability analysis were tested.

## METHODOLOGY

**Participants**

A total of 30 local residents who are based at Chowrasta Market, Penang were invited to participate in the test-retest study. The sample population from the market may represent the local community at Georgetown, Penang with various socio backgrounds and Malaysian ethnic groups. Data was collected in October 2020 with permission granted by Operation Executive of the market and the Assistant Officer of Environmental Health of Penang Town. Informed consent was obtained from participants prior to conduct the study.

**Instruments**

The hand hygiene questionnaire consists of three sections. Section A is about socio-demographic data which includes gender, age, race, ducation level and employment status. Section B is a scale adapted from Suen & Rana (2020) to measure level of knowledge on hand hygiene. The tool consists of 12 items using "true" and "false" scale ranging from a minimal score of zero to a maximum score of twelve. One mark will be awarded to each correct response, while no mark will be given for incorrect response. The overall score in percentage (%) will be computed by dividing the total score obtained with 12 (total number of items) and then multiplied by 100. An overall score of more than 75% is considered good level of knowledge, 50-74% is moderate level of knowledge, and less than 50% indicating a poor knowledge level on hand hygiene.

Section C is a 5-points Likert scale adapted from Rosen *et al.*, (2009) measuring respondent's attitude on hand hygiene practice. The scale consists of seven items ranging from strongly disagree (1) to strongly agree (5) with a minimum score of 7 to a maximum score of 35. An overall score in percentage will be calculated by dividing the total score obtained by 35 and then multiply with 100. A score of 75% and above demonstrates a good attitude, 50-74% is at moderate level of attitude, and below 50% indicates a poor attitude towards hand hygiene practice.

**Procedure**

This study involved a forward and backward translations of the hand hygiene questionnaire. An expert committee was established for translation process. Forward translation from English to Bahasa Malaysia version was done by two bilingual translators who are expert in Bahasa Malaysia. The translated questionnaire (Bahasa) was further compared with the original questionnaire (English) to ascertain its veracity of language translation. Backward translation from Bahasa to English version was carried out by another two expert translators whose first language was in English. Three content experts validated the questionnaire in Bahasa version. No changes to item were made to the translated questionnaire. The validated questionnaire was distributed to 30 participants at Chowrasta Market for test and re-test at one-week interval.

A pilot study was conducted on another 30 participants visited to the market in ensuring internal consistency of the instrument in both versions (Bahasa and English). A flow of the translation process for

questionnaire is depicted in Figure 1.

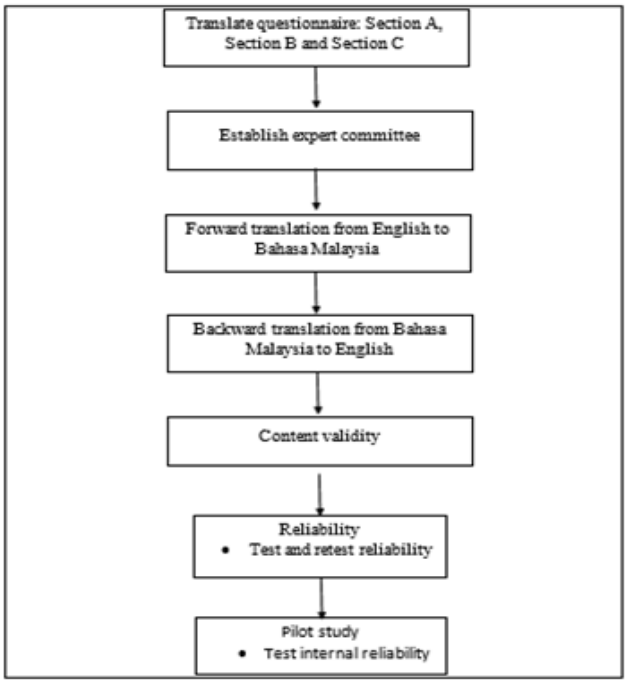


***Figure 1: Translation Process for Questionnaire***

## RESULTS

The reliability of the translated questionnaire was tested using Intra-class Correlation Coefficient (ICC) statistic. ICC is a desirable reliability test that is widely used for test-retest analysis to reflect a degree of correlation and agreement between measurements (Koo & Li, 2016). The purpose of this study in assessing validity and reliability of the Bahasa translated questionnaire is achieved. Cronbach's Alpha values of 0.949 and 0.859 for section B and C, respectively (Refer to Table 1) for test and re-test indicating a good to excellent reliability of the translated instrument for the study (Perinetti, 2018)

***Table 1: Test and Retest Measures (N=30)***

| Section | Cronbach's Alpha | |
|---|---|---|
| | Test | Retest |
| Section B | 0.949 | 0.949 |
| Section C | 0.859 | 0.859 |

Table 2 shows the reliability results of the pilot study on 30 participants visited to the Chowrasta Market. The findings indicate an excellent internal consistency of reliability of the hand washing instrument for the study. These results support on the test-retest reliability of the translated version that allow the researchers to proceed for main study in near future.

***Table 2: Reliability Test of the Pilot Study (N=30)***

| Section | Cronbach's Alpha |
|---|---|
| Section B | 0.956 |
| Section C | 0.979 |

## DISCUSSION

The consistent results obtained from test and re-test assessments suggest a preliminary evidence of sound psychometric properties of the hand hygiene questionnaire. This is in line with a recent study by Birgili *et al.*, (2019) who reported an acceptable to excellent Cronbach Alpha results in both test and re-test measures regarding hand hygiene.

It is important to consider the time interval between test and re-test procedures to avoid carryover effects and recall effects (Zanudin *et al.*, 2021). Many researchers of the past studies employed one to two weeks interval in their test and re-test assessments. The one-week timeframe is considered reasonable in preventing bias for recollection and from actual changes in the measured variables. Therefore, re-test assessment of present study is performed one week after the test assessment to strengthen the reliability of measurement.

The findings of the internal consistency of reliability of the hand washing instrument support on the test-retest reliability of the translated version. This allows the researchers to proceed to utilise the instrument for main study. Nevertheless, the current study has its limitation on small sample size for test-retest analysis. Although Hellmark & Bäck (2017) supported that a minimum sample size of 26 is sufficient for an acceptable ICC score of 0.75. Future study may consider a larger sample size to further analyse the reliability and validity testing of the translated questionnaire for hand hygiene in different contexts.

## CONCLUSION

Hand hygiene is one of the important measures to prevent transmission of microorganism, particularly during COVID-19 pandemic. This study suggests the usefulness of the Bahasa version of hand hygiene questionnaire in assessing public adult's knowledge and attitude on hand hygiene practice. The findings from the test and re-test method show a good to excellent validity and reliability of the instrument in a local community. Future studies are recommended to

determine the internal consistency reliability of the translated instrument among Malaysians in different context.

**Conflict of Interests**

The authors declare that they have no conflict of interest.

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