

Translation and Validation of Malay Version 5-Items Brief Illness Perception Questionnaire, BIP-Q5 towards COVID-19 among Malaysian Nurses

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Abstract

Introduction: Currently, own individual perception is recognized as one of the important factors in the prevention of disease, including coronavirus disease, COVID-19. Given the massive impact of COVID-19 on all population's life, including nurses as one of the main health services providers in the country, this study aims to translate and validate the Malay Version 5-Items Brief Illness Perception Questionnaire, BIP-Q5 towards COVID-19 among Malaysian nurses. **Materials and Methods:** Forward and backward translations and pretesting of the BIP-Q5 to Malay were conducted among nurses, subject matter experts, and language professionals. The validations process was elicited through an online cross-sectional study involving 56 nurses based on a ~10:1 subject-to-items ratio sample size estimations. **Results:** The principal component analysis (PCA) revealed one best component with eigenvalues more than one, confirming the questionnaire's original version. There are five items within the single component, and all are with weightage of over 43%. The scree plot supported the findings, which showed that at least one factors are suitable to be retained. The overall Cronbach's α coefficient was 0.7 and the intraclass correlation coefficient was 0.659. The Kaiser-Meyer-Olkin was 0.655, and Bartlett's test of sphericity p-value was <0.001. **Conclusion:** This study showed that the translated Malay Version 5-Items Brief Illness Perception Questionnaire, BIP-Q5 has a good psychometric property,

and is a valid and reliable tool to be used to measure illness perceptions towards COVID-19 among Malaysian nurses.

Keywords

Validation, Malay, BIP-Q5, COVID-19, Nurses

1. Introduction

The Current literature has recognized individual perception as one of the powerful factors that motivate individual prevention actions towards both non-infectious and infectious diseases. Illness perception (illness is a somatic reference to feeling unwell because of contracting or having a disease) refers to an individual's cognitive appraisal and understanding of a medical condition and its future consequences. It encompasses both positive and negative beliefs, which can affect an individual's ability to cope with the disease, depending on whether the disease is perceived as life-threatening or curable [1].

In the current context of the pandemic COVID-19, the world has witnessed its remarkable impact on public health. It can even be put on par with the pre-20th century infectious diseases, whereby at that time even the understanding and origin of germs were scarcely available. Even though the impacts of the COVID-19 pandemic occur across all levels and domains of the population's life, its most challenging impacts are undeniably on the main providers of health services in the country, which include, but are not limited to, nurses. As the front liners, they must face the stress and physical, mental, and social threats of this pandemic on a day-to-day basis [2] [3] [4] [5].

Focusing on Malaysia, even though the country is recognized globally as one of the countries that have successfully controlled the pandemic thanks to its efficient public health system, Malaysians still experience the same massive impacts of this pandemic. As a result, the number of job retractions and business losses keeps on rising day by day. The continuum of this scenario is the socioeconomic and health impacts on the population. With the increase in health and disease burden as a direct and indirect impact of the pandemic, the job expectations such as long hours of work, fewer days off, and shrinking staff numbers during each shift due to compulsory quarantine, especially when they are suspected to be in contact with a positive patient, unclear or administrative instructions which keep on changing, worrying about family members at home, aging parents, etc., have made the impacts even more pronounced among nurses [3] [5] [6] [7].

The Illness Perceptions Questionnaire is a tool developed to rapidly assess the emotional and cognitive representativeness of an illness. It was developed based on the Common Sense Model of illness representation, whereby the combination of personal knowledge, experience and knowledge gained from the outside social environment will create an interpretation of disease in individual life [8].

All the four versions of the questionnaire; the original 80-items, the revised 70-items, the brief revised 9-items and the brief- 5-items have been widely used by researchers to measure illness perceptions across a variety of diseases [1] [9] [10].

The Brief Illness Perceptions Questionnaire has been translated into Malay for several specific diseases among patients in Malaysia. These specific diseases include type-2 diabetes mellitus, hypertension, and cancer [11] [12] [13] [14]. Additionally, regarding COVID-19, most of the studies in Malaysia are focusing on the clinical aspects of the disease and the knowledge, attitude, and practices of the population towards this disease, rather than on individual disease perceptions. To date, this current study is the groundbreaker in translating and testing the psychometric properties of the BIP-Q5 on COVID-19 disease in Malay in Malaysia. Thus, this study aims to translate and validate the Malay Version 5-Items Brief Illness Perception Questionnaire, BIP-Q5 towards COVID-19 for use among Malaysian nurses.

2. Material and Methods

2.1. The Instrument: 5-Items Brief Illness Perception Questionnaire, BIP-Q5

The 5-Item Brief Illness Perception Questionnaire, BIP-Q5, used in this study is based on the nine-item Brief Illness Perceptions Questionnaire, BIPQ [1]. Items 3, 4, and 7 were eliminated from the original brief version, and Item 9 was an open-ended question in the five-item versions. Previous literature shows that this shorter version has adequate psychometric properties with justifiable reliability values among populations of a few countries [10] [15] [16] [17] [18] [19]. The BIP-Q5 was adapted to COVID-19 infections to explore the psychometric properties of the instrument for COVID-19 in a general adult population by Pérez-Fuentes *et al.* in 2020. In this version, the word illness in the questionnaire was replaced by coronavirus (COVID-19); for example, “How much are you worried about being infected by the coronavirus (COVID-19)?” or “How much does infection by the coronavirus (COVID-19) affect you emotionally?” (That is, does it make you feel furious, afraid, angry, or depressed?).

The BIP-Q5 comprises five items plus one causal scale. All the items except for the causal question are rated using a 10-point Likert scale (0 to 10), with a higher score indicating a stronger perception of illness threat for each dimension. Three items were used to assess the cognitive illness representativeness: consequences (Item 1), timeline (Item 2), and identity (Item 3). Two of the items were assessing the emotional representations, which were concerned (Item 4) and emotional response (Item 5). Assessment of the causal representation is by an open-ended response whereby respondents were asked to list the three most important causal factors related to COVID-19 that they believe have affected their lives. In terms of scoring, the interpretation is based on the overall score of the questions, with a higher score indicating a higher risk perception of the disease.

2.2. Forward Translations

The initial translations of the questionnaire from English to Malay were done by two translators. The first translator was a bilingual public health physician who was aware of the objective of the questionnaire to ensure that the concept and target language were maintained. The second translator was a certified professional translator who was naive and unaware of the objective of the questionnaire. The discrepancies between the two translators were discussed, and the final forward version of the questionnaire was agreed upon by both translators.

2.3. Backward Translations

The back-translations of the initial translated questionnaire were performed by two other bilingual translators who were not aware of the concept and purposes of the questionnaire. Unclear wording from the initial translations, for example, the word... “how much are you worried...” which can be translated into Malay as either... “serisau manakah anda...” or... “sebanyak manakah kerisauan anda...” was also discussed and resolved by the two translators.

2.4. Content Expert

The content experts of the questionnaire are comprised of epidemiologists, family health specialists, family medicine specialists, and clinical psychologists. The subject matter was familiar and well-known to all the content experts. All the discrepancies between the forward and backward versions were resolved, and a prefinal version of the translated questionnaire was produced for the next steps of the validation process.

2.5. Pretesting

The prefinal version of the translated questionnaire was pretested on 15 nurses who were mutually exclusive of the intended respondents. All the respondents for the pretesting process were instructed to highlight and elaborate on any confusing or unclear words, either by writing them down on the copy of the prefinal questionnaire or verbally to any of the researchers. This is to ensure the readability and face validity of the questionnaire. The prefinal versions of the translated questionnaire were then finalized after taking into consideration all the inputs from the pretesting process and were ready for data collection.

2.6. Participants

The data collections were elicited through an online cross-sectional study involving 56 nurses based on a ~10:1 subject-to-items ratio sample size estimation. All registered nurses aged at least 18 years old and able to understand and converse in Malay were consecutively recruited to be the participants of this study. The link to the online questionnaire was shared through the respective participants' preferable platforms-either through email or WhatsApp messaging.

2.7. Ethical Consideration

The study was approved by the university research committee and permission was sought to translate and validate the 5-item Brief Illness Perception Questionnaire, BIP-Q5, towards COVID-19 into the Malay language. A general description, including an informed consent form, was posted through email and WhatsApp messaging. Respondents had been assured that all the information would be kept confidential.

2.8. Statistical Analysis

The descriptive analysis of the respondents' demographic variables was conducted by using the IBM SPSS Statistics for Window, Version 26.0. The validity of the 5-item Brief Illness Perception Questionnaire, BIP-Q5, was examined by using Principal Component Analysis (PCA), while Cronbach's alpha and total item correlation were used to determine the reliability of the translated questionnaire.

3. Results

All 56 nurses participated and completed the online questionnaire. All the participants were Malay Muslim, and the majority were female (94.6%).

3.1. Principal Component Analysis

The adequacy of the items within the translated BIPQ-5 was confirmed as the result of the principal component analysis (PCA) revealed one best component with eigenvalues more than one, which confirmed the original version of the questionnaire. There are five items within the single component, and all are with weightage of over 43%. The scree plot (**Figure 1**) supported the findings, which showed that at least one factors are suitable to be retained. The rotated component matrix with Varimax rotation revealed that all the factor loadings have a value of more than 0.4 set for this study (**Table 1**). The item with the lowest

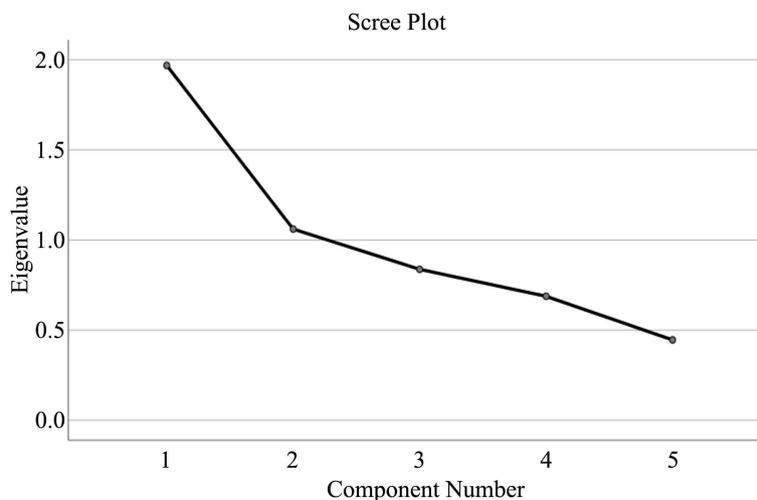


Figure 1. Scree plot of Malay version BIP-Q5.

Table 1. Factor loading values and item mean score of Malay version BIP-Q5.

No	Item	Factor loading values	Mean score (SD)
1	Sejauh manakah pandemik COVID-19 mempengaruhi hidup anda? [How much does COVID19 pandemic affect your life?]	0.616	7.96 (1.96)
2	Berapa lamakah pada pendapat anda pandemik COVID-19 ini akan berterusan? [How long do you think the COVID-19 pandemic will continue?]	0.967	7.79 (1.68)
3	Sebanyak manakah gejala jangkitan yang anda alami akibat virus korona (COVID-19)? [How much do you feel symptoms of infection by a coronavirus (COVID-19)?]	0.691	2.84 (2.45)
4	Apakah tahap kebimbangan anda tentang kebarangkalian dijangkiti oleh virus korona (COVID-19)? [How much are you worried about being infected by the coronavirus (COVID-19)?]	0.711	7.50 (1.92)
5	Seteruk manakah pandemik virus korona (COVID-19) mempengaruhi emosi anda? “(Iaitu, adakah ia membuat anda rasa berang, takut, marah atau tertekan?)” [How much does pandemic coronavirus (COVID-19) affect you emotionally? (That is, does it make you feel furious, afraid, angry, or depressed?)”]	0.826	6.64 (2.28)
6	Sila senaraikan mengikut kepentingan, tiga faktor paling penting berkaitan pandemik COVID-19 yang anda percaya telah mempengaruhi hidup anda. Faktor paling penting bagi saya adalah: [Please list in rank-order the three most important factors related to COVID19 pandemic that you believe affecting your life. The most important factors for me:]	No analysis was conducted. Open-ended response for causal representation of the questionnaire.	

factor loading was item number 1 with a value of 0.616, while the highest was item number 2 with a value of 0.967. Additionally, the Kaiser-Meyer-Olkin was 0.655, and Bartlett’s test of sphericity showed a significant p -value < 0.001 .

3.2. Internal Consistency Reliability Analysis

The overall Cronbach’s α coefficient of the Malay version questionnaire was 0.7 and the intraclass correlation coefficient was 0.659. Item with the highest mean score value was item 1 (“Sejauh manakah pandemik COVID-19 mempengaruhi hidup anda?”) with 7.96 (SD 1.96) and the lowest was item 3 (“Sebanyak manakah gejala jangkitan yang anda alami akibat virus korona (COVID-19)?”) with value of 2.84 (SD 2.45) (Table 1).

4. Discussion

The Principal Factor Analysis conducted on the collected data showed that the Malay version BIP-Q5 towards COVID-19 has good construct validity. Like the original version [10], all the five items of the Malay version BIP-Q5 fit perfectly within the single component extracted with all items having a weightage of over 43%. The Kaiser’s criterion and Cattell’s rule to obtain all factors with eigenvalues equal to or more than 1 and to pick all factors prior to where the plot levels

off [20] in the Scree plot were also fulfilled by this questionnaire's version. Regarding the Kaiser-Meyer-Olkin test, even though the value is less than 0.8, the value of 0.655 together with a significant p-value of less than 0.001 by Bartlett's test of sphericity showed the adequacy of the data for the Principal Factor Analysis [21] [22]. Therefore, these study findings bring forth the evidence that the Malay version BIP-Q5 is a valid tool and able to fulfil its intended purpose.

The reliability analysis performed showed a satisfactory overall Cronbach's α coefficient of 0.7 with the moderate agreement of intraclass correlation coefficient of 0.659. These findings are found to be comparable to Malay and other language-translated BIPQ questionnaires conducted by previous researchers [11] [12] [13] [14] [23] [24], whereby the α coefficient range between 0.6 to 0.9 and intraclass correlation coefficient between 0.6 to 0.9. Thus, supports the evidence that it is a reliable and consistent tool to measure respondents' risk perceptions toward COVID-19.

In overall, the findings of this current study's principal factor analysis and internal consistency reliability analysis, together with the good content and face validity have successfully proffered the evidence that the translated Malay version of BIP-Q5 is a validated tool to measure the risk perceptions of Malaysian nurses towards COVID-19.

It is worth mentioning a few of the limitations faced by this current study. Firstly, as the target populations were nurses, there are huge gender biases as a large majority of the participants are female, which is the standard composition of gender in this profession in Malaysia. Secondly, due to the design of this study, whereby the main tools of data collection are self-filled questionnaires, information bias could be another issue. And lastly, just as in any other translations study, the variability in the translations word for each respective language (English versus Malay) may give rise to different interpretations. Therefore, further improvement will still be necessary, and future studies should put into consideration all the limitations, especially if the questionnaire is to be used by different populations' backgrounds.

5. Conclusion

This study showed that the translated Malay Version 5-Items Brief Illness Perception Questionnaire, BIP-Q5 has a good psychometric property, and is a valid and reliable tool to be used to measure illness perceptions towards COVID-19 among Malaysian nurses.

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Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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