



Risk Perception on Cardiovascular Disease Among Adults in Rural Population in Malaysia: A Pilot Study on Translation and Validation of the Risk and Health Behaviour Questionnaire.

KEYWORDS

risk perception, cardiovascular disease, rural Malaysia, Cronbach's alpha

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ABSTRACT

Introduction: Perception of cardiovascular disease among adults in Malaysia has not been studied until recently. Risk perception is an important component to bring about changes to unhealthy lifestyle practices. This study aims to translate, validate and measure the psychometric properties of the questionnaire.

Methods: A modified Risk and Health Behaviour Questionnaire was administered to 30 respondents aged between 30-70 years. The questionnaire had been back-to-back translated into Bahasa Malaysia by a local translator with advice from experts. Reliability was assessed using corrected item-total correlation and Cronbach's alpha coefficient.

Results: The scale has high value for Cronbach's alpha ($\alpha=0.972$). Each item correlates well with total scale since all the individual items have values of more than 0.3. Item no 12 has the lowest value for Corrected Item-Total Correlation but deletion of this item does not change the Alpha value.

Conclusion: The translated version of the Risk and Health Behaviour Questionnaire has high reliability and good internal consistency. This questionnaire is as reliable as its original version.

INTRODUCTION

The risk perception for cardiovascular disease is usually measured by questioning the patient on what is the probability or risk of getting CVD within the next 10 years or the probability of getting CVD compared to others. These questions are examples for absolute probability perception and relative probability perception respectively. A number of studies have been conducted on the general perception of health risks and there are several techniques on how inadequate risk perception could be moderated.^(1,2) Furthermore, there are only few studies that used a scale to measure the risk perception for CVD and the relationship between risk perception and health behaviours.⁽³⁾ Coronary Risk Individual Perception (CRIP) is a new scale that measures one's personal perception of CHD risk.⁽⁴⁾ Cockburn and Pit (1997)⁽⁵⁾ and Lewis et. al (2003)⁽⁶⁾ further stressed that by knowing patient's fears and risk perception status and then addressing them in the context of the actual risk are the preliminary step for effective risk management. These findings are supported by two common theories on health behavior; Health Belief Model and the Protection Motivation Theory. Both theories support the importance of risk perception or perceived susceptibility for health education and preventive medicine.^(7,8)

Younger adults often perceived themselves as being less at risk of developing disease compared with middle aged and older adults. As age increases, risk perception becomes a more important motivational drive even though the actual health status may not have changed.^(9,10,11) Measuring and identifying risk perception among CHD patient is important as it can be used to tailor counseling series and can serve as a platform for patient education.⁽⁴⁾ Currently in Malaysia published data regarding the risk perception for CVD is non-existent. For cardiovascular disease, one of the leading causes of death and disability worldwide, studies about knowledge of warning signs and risk factors have been conducted in-

volving different populations, but little is known about factors that influence the risk perception of CVD. This study aims to translate, validate and measure the psychometric properties of the questionnaire.

METHODS

Thirty respondents aged 30-70 years were selected from a rural area in Sungai Buloh. A modified 'Risk and Health Behaviour' questionnaire developed by Schwarzer and Renner (2005) was used to measure the risk perception. Back-to-back translation was done with a local translator and content validity was done according to expert opinion. The questionnaire consists of eleven headings. In measuring risk perception for CVD, several headings from Chapter Five (Health and Illness-Related Cognitions) were analyzed. The domains for the risk perception included; a) absolute risk perception for self and peers, b) relative vulnerability, c) perceived severity (general severity assessment, individual severity and perceived threat to one's own health) and d) perceived control. All domains used Likert Scale for scoring.

Statistical Analyses

Data was analyzed using SPSS Software version 16. Internal consistency of questionnaire was assessed using corrected item-total correlation and Cronbach's alpha coefficient.

RESULTS

A total of 30 respondents from a rural area in Sungai Buloh participated in this study. The mean age of respondents was 52 ± 10 years. Majority were males (46.7%), had secondary education (43.3%), worked as doctors, teachers or government servants (36.7%), married (83.3%), and had a monthly household income of RM2500 and above (56.7%). The mean of cardiovascular risk perception score was 110 ± 34 .

Table 1 shows the value of Cronbach's alpha which reflects

the overall reliability of the scale. In this study, the Cronbach's alpha is 0.972, thus indicating excellent reliability.

The values in the column Corrected Item-Total Correlation (Table 2) are the correlations between each item and the total score from the questionnaire. To get a reliable scale, all items must correlate with the total scale. If any of these values is less than about 0.3, it means that a particular item does not correlate with the scale overall. Items with low correlations may have to be dropped. For these data, all data have item-total correlations above 0.3 which means all particular items correlate well with the overall scale. Meanwhile, the values in the column Alpha if Item Deleted are the values of the overall alpha if that item is not included in the calculation. If the values of alpha greater than the overall alpha, those items should be deleted because the deletion of that items improves reliability. In this study, none of the alpha is greater than overall alpha. Thus no any particular items had been deleted from the scale.

DISCUSSION

Reliability can be expressed in terms of stability, equivalence and consistency. Consistency check which is commonly expressed in the form of Cronbach's Coefficient Alpha is the most commonly used index.⁽¹²⁾ It is a measure of squared correlation between observed scores and true scores. In other words, reliability is measured in terms of the ratio of true score variance to observed score variance. Cronbach's alpha is a test of reliability technique which requires only a single test administration to provide an estimation of the reliability of a test. It is different with test-retest for stability and alternate form for equivalence which require more than one test.⁽¹³⁾

In this study, the Cronbach's alpha was 0.972 which indicates excellent reliability. Our Cronbach's alpha was higher compared to other risk perception scale. Borrelli et al. (2010)⁽¹⁴⁾ found that Cronbach's alpha for Future Perceived Vulnerability was 0.82 while Renner et al. (2000)⁽⁹⁾ found that Cronbach's alpha for Positive Outcome Expectancies was 0.84. The higher the alpha is, the more reliable the test is and indicates that the test has good internal consistency. The Cronbach's alpha value of 0.7 and above is acceptable.⁽¹⁵⁾ Yu (2001)⁽¹⁶⁾ suggested that reliable test should minimize the measurement error so that the error is not highly correlated with the true score. Moreover, the relationship between true score and observed score should be strong. Zimmerman & Zumbo (1993)⁽¹⁷⁾ found that violations of these assumptions will lead to over-estimation and under-estimation of Cronbach's Alpha.

Table II shows how each item is correlated with the total score and what will happen to the Alpha value if that item was deleted. For example, Question 6 has the highest value for Corrected Item-Total Correlation. It indicates that this item has the strongest relationship with the entire test. If this item is removed, the Alpha value will drop to 0.970. Meanwhile, Question 12 has lowest value for Corrected Item-Total Correlation. This question has lowest relationship with the total score. Although it has the lowest value, deletion of this item will not increase the Alpha value.

Low reliability is a sign of high measurement error which reflects a gap between what respondents actually know and what scores they receive. To minimize the gap, we should include "I don't know" as an option in the multiple choices. Another misconception about Cronbach's alpha is that if someone adopts a validated instrument, they do not need to check the reliability and validity with their own data. A responsible evaluator should check the instrument's reliability and validity with their own population and make any modifications if necessary.⁽¹⁶⁾

CONCLUSION

The Bahasa Malaysia version of 'Risk and Health Behavior' questionnaire has good reliability. The Cronbach's alpha value is 0.972 which indicate that the scale has good internal consistency. Each items correlate well with each other and overall scale.

Conflict of Interest Statement

The authors declare that there are no conflicts of interest.

Table 1 : The value for Cronbach's alpha

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.972	.971	28

Table 2 : Value for Corrected Item-Total Correlation and Cronbach's Alpha if Item Deleted

	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Q1	.817	.970
Q2	.828	.970
Q3	.784	.970
Q4	.778	.970
Q5	.811	.970
Q6	.875	.970
Q7	.823	.970
Q8	.818	.970
Q9	.802	.970
Q10	.821	.970
Q11	.599	.971
Q12	.477	.972
Q13	.484	.972
Q14	.499	.972
Q15	.619	.971
Q16	.602	.971
Q17	.532	.972
Q18	.643	.971
Q19	.643	.971
Q20	.736	.971
Q21	.742	.970
Q22	.788	.970
Q23	.806	.970
Q24	.831	.970
Q25	.818	.970
Q26	.786	.970
Q27	.812	.970
Q28	.825	.970

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