

**The Development and Testing of an Instrument for Measuring Awareness
of Coronary Heart Disease Risk Factors Reduction
in a Hong Kong Chinese Population**

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STATEMENT OF SOURCES

This thesis contains no material published elsewhere or extracted in whole or in part from a thesis by which I have qualified for or been awarded another degree or diploma.

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Abstract

Coronary heart disease (CHD) claims millions of lives every year worldwide. In the developed countries, a clear connection has been documented between a decline in CHD mortality and modifiable risk factor reductions. While raising awareness of CHD risk factors reduction is imperative, no valid instrument backed by robust psychometric data is available to measure people's awareness in this regard. In addition, especially among the Chinese population, despite many studies already conducted concerning awareness of CHD-related issues, inconsistency in how people define and measure this concept remains.

This study aimed to develop a valid instrument that measures Hong Kong Chinese people's awareness of CHD risk factors reduction. The study involved two phases. Phase I involved qualitative data collection through 18 focus group interviews (n=100). Participants in this phase included members from three groups: (1) the low risk general public, (2) people having multiple CHD risk factors either with or without CHD, and (3) people who have been diagnosed of myocardial infarction. The objective of this phase was to identify key elements and to clarify the concept inherent in awareness, from which served as a basis to generate items to form the awareness instrument. Upon completion of this phase, three main categories were generated including: CHD knowledge, perceptions of CHD, and risk control efficacy. Under these main categories, twelve subcategories emerged. Under the category of CHD knowledge, the subcategories were: pathological causes of CHD, external forces in causing CHD, modifiable and non-modifiable risk factors, CHD trends, symptoms of CHD, and knowledge of CHD prevention. Under the category of perceptions of CHD, the subcategories were: perceived seriousness of CHD and perceived risk. Under the category of risk control efficacy, the subcategories were: planning of health actions, control over risk reducing behaviour, perceived opportunities to understand CHD, and chest pain appraisal/perceptions.

A total of 70 items were generated to form the Awareness of Coronary heart disease Risk Factors Reduction (ACRFR) scale.

The second phase of this study focused on the evaluation of the psychometric properties of ACRFR scale. The objective of this phase was to establish the validity and reliability of the instrument. It commenced with determining the content validity by expert review, followed by identifying the factor structure, construct validity and reliability. A good content validity index (CVI) of 0.84 was achieved. The factor structure of ACRFR was identified through exploratory factor analysis (EFA) data collected from a sample (n=232) of the three groups as described in phase one. The final results revealed a seven-factor model with 43 items accounting 49.5% of the total explained variance. The seven factors were: (1) CHD knowledge, (2) planning of health actions, (3) perceived ability to monitor health-related behaviour, (4) perception of risk, (5) perceived opportunities to understand CHD, (6) perceived seriousness of CHD, and (7) chest pain appraisal/perceptions.

The factor structure of ACRFR was further cross-validated by confirmatory factor analysis (CFA) in another independent sample (n=225) of the three groups. Goodness of fit statistics fell within acceptable ranges: $\chi^2 / df = 1.6$, RMSEA = 0.053, NNFI = 0.92, IFI = 0.93, CFI = 0.93. The factor model was further supported by hypothesis testing and known-groups comparisons. The results of hypothesis testing demonstrated significant correlations between ACRFR and other measures. Known-groups comparisons among subjects with MI, those with CHD and without CHD provided satisfactory evidence for construct validity. Reliability of this developed instrument, as estimated by the internal consistency Cronbach's alphas, ranged from 0.60 to 0.90 for each sub-scale and for the total scale was 0.82, and the test-retest reliability was 0.89, suggesting good instrument reliability.

While current literature reveals no objectively devised conceptual definition of ACRFR and that no published instrument was made available for healthcare professions to enhance

people's awareness of reducing CHD, this study fills these gaps. It is envisaged that this developed instrument could assist healthcare professional in accurately estimating people's awareness of risk factors reduction that could provide valid and reliable data that could inform future directions in CHD prevention and cardiac health promotion.