



Health-related quality of life and its predictors among outpatients with coronary heart disease in Singapore



Imran Muhammad S/O Roshan Muhammad, BSN (Honours), RN^a, Hong-Gu He, MSN, PhD, RN^b, Karen Koh, BSN, MSN, RN, APN^c, David R. Thompson, MN, PhD, RN^d, Yanika Kowitlawakul, MSN, PhD, RN^b, Wenru Wang, MSN, PhD, RN^{b,*}

^a General Medicine Department, Khoo Teck Phuat Hospital, Singapore

^b Alice Lee Centre for Nursing Studies, Yong Loo Lin School of Medicine, National University of Singapore, Singapore, 117597

^c National University Heart Centre, National University Hospital, Singapore

^d Cardiovascular Research Centre, Australian Catholic University, Melbourne, Australia

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ABSTRACT

Aims and Background: Coronary heart disease (CHD) is a major cause of death and disability and negatively impacts on patients' health-related quality of life (HRQoL). This study aimed to explore HRQoL and identify its predictors among outpatients with CHD in Singapore.

Methods: A correlational study was conducted with a convenience sample of 106 outpatients with CHD recruited from a public hospital. HRQoL outcomes were measured using the Short Form-12 Health Survey (SF-12), Medical Outcomes Study Social Support Survey (MOS-SSS) and Hospital Anxiety and Depression Scale (HADS).

Results: Patients reported a generally high level of HRQoL as assessed by SF-12. Those aged over 65 years reported significantly higher mental health and those who were married had higher levels of education or income reported significantly higher physical health. There were significant negative correlations between physical and mental health and anxiety and depression ($p < .05$). Perceived social support was negatively correlated with anxiety and depression and positively correlated with mental health. Education level and depression significantly predicted physical health, while age, anxiety and depression predicted mental health.

Conclusion: Anxiety, depression, age and education are significant predictors of HRQoL in this patient population and should be assessed routinely and, where appropriate, addressed through individually-tailored interventions.

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1. Introduction

Coronary heart disease (CHD) continues to be a leading cause of morbidity and mortality among adults worldwide (Gough, 2011). In Singapore, CHD is the second leading cause of death (Health Fact Singapore, 2013), though a steady decline in morbidity and mortality rates is attributed to improved treatment and preventive measures (Mak et al., 2003).

Over the past decade, health-related quality of life (HRQoL) has assumed increasing prominence as an important measure of health outcome (Cepeda-Valery, Cheong, Lee, & Yan, 2011). HRQoL is a multi-faceted concept that measures the impact of disease and treatment on the individual's physical, psychological and social well-being, such as changes in symptoms, physical functioning and social roles (Stafford, Berk, Reddy, & Jackson, 2007). Symptoms such as chest pain and

breathlessness and lifelong treatment regimes are contributing factors to poor HRQoL (Celano et al., 2012). Furthermore, outpatients with CHD report higher stress levels due to uncertainty in disease progression, and are at higher risk of experiencing anxiety and depression, which translates to poorer HRQoL (Celano et al., 2012). Patients with poor HRQoL, in turn report worsening disease progression and poorer health outcomes (Škodová et al., 2011).

Studies also identify several predictors of HRQoL in outpatients with CHD, such as demographic, clinical and psychosocial factors (Barry, Stanislav, Lichtman, Vaccarino, & Krumholz, 2006; Celano et al., 2012; Škodová et al., 2011; Rumsfeld et al., 2001). Individuals with higher socioeconomic status, higher education level, who are married and enjoy high levels of social support report better HRQoL (Barry et al., 2006; Barbareschi, Sanderman, Kempen, & Ranchor, 2009; Boersma, Maes, & Joeke, 2005). On the other hand, females, individuals with a high number of cardiac co-morbidities and those experiencing increased severity of disease, anxiety and depression report poorer HRQoL (Stafford, Soljak, Pledge, & Mindell, 2012; Wang, Thompson, Ski, & Liu, 2012). Age is an inverse predictor with elderly individuals reporting better mental health whilst younger individuals

* Corresponding author at: Alice Lee Centre for Nursing Studies, Yong Loo Lin School of Medicine, National University of Singapore, Level 2, Clinical Research Centre, Block MD 11,10 Medical Drive, Singapore 117597.

E-mail address: nurww@nus.edu.sg (W. Wang).

report better physical health (Ford et al., 2008; Kimble et al., 2011; Lee, Choi, Chair, Yu, & Lau, 2012). These predictors would assist healthcare professionals in identifying individuals at risk for poor HRQoL and introducing tailored interventions to mitigate the negative impact of diminished HRQoL (Xie et al., 2008).

Although much is known about HRQoL of CHD patients and its predictors, research findings were limited in terms of generalisability as studies predominantly investigated the western population. There is limited knowledge of how Asian CHD outpatients perceive what supports or undermines their HRQoL, the extent of anxiety and depression post CHD and the influence of social support on HRQoL. There may be varied impact on HRQoL amongst the different ethnic groups that warrants attention given the presence of ethnic differences in CHD in Asian countries such as Singapore; with Indian residents facing higher risk of acute myocardial infarction compared to Chinese and Malay residents (Wong et al., 2012). In addition, there are limited studies that clearly investigate the relationship of HRQoL, anxiety and depression, social support, sociodemographic and clinical factors to CHD. This study aims to understand the relationship between these factors, in an attempt to provide healthcare professionals with a holistic overview of the health status of outpatients with CHD. Such information would assist healthcare professionals to select appropriate interventions based on the patient's needs in this rapidly burgeoning population, to better manage CHD and reduce dependency on the healthcare system (Poh, 2009).

2. Research methods

2.1. Study design and sample

A correlational study was conducted among a convenience sample of 106 outpatients with CHD recruited from a heart clinic in a public hospital in Singapore during October 2012 to January 2013. Patients were clinically diagnosed with CHD including non-ST segment elevation myocardial infarction (NSTEMI), ST segment elevation MI (STEMI) and stable or unstable angina, aged 21 years and above and able to communicate in English and/or Mandarin. Individuals with a known history of major psychiatric illness, stroke or cerebrovascular disease, chronic kidney disease or an ejection fraction (EF) below 40% were excluded.

2.2. Research instruments

2.2.1. Twelve-Item Short Form Health Survey (SF-12)

The SF-12 consists of eight subscales: physical functioning (PF), role-physical (RP), bodily pain (BP), general health (GH), vitality (VT), social functioning (SF), role-emotion (RE) and mental health (MH), which are grouped into two dimensions: physical component summary (PCS) and mental component summary (MCS) scores (Failde, Medina, Ramirez, & Arana, 2010). PCS measures presence of physical disability, while MCS identifies psychological distress and measures emotional well-being (Failde et al., 2010). Scores for each component are converted to a range of 0–100, with higher scores indicating better functioning and well-being. The standard SF-12 PCS and MCS are norm-based on the American general population with mean scores of 50 (Failde et al., 2010). The SF-12 is a valid tool in assessing HRQoL in cardiac patients demonstrating good reliability and validity with a Cronbach alpha greater than 0.70 for all subscales (Luo et al., 2003).

2.2.2. Hospital Anxiety and Depression Scale (HADS)

The HADS is a 14-item (7 items for anxiety and 7 items for depression) questionnaire designed for physically ill patients (Zigmond & Snaith, 1983), including cardiac patients (Strik, Honig, Lousberg, & Denollet, 2001). There are two subscales—HADS-Anxiety and HADS-

Depression—each with a score of 7 and below indicating normal psychological status, while a score of 8–10 and 11 and above would be indicative of borderline or severe case of psychological morbidity respectively (Zigmond & Snaith, 1983). The HADS has a high internal consistency with a Cronbach alpha ranging from 0.77 to 0.86 (Zigmond & Snaith, 1983; Strik et al., 2001). In the present study, the Cronbach alpha for the anxiety and depression subscales was 0.66 and 0.67 respectively.

2.2.3. Medical Outcomes Study Social Support Survey (MOS-SSS)

The MOS-SSS measures self-perceived adequacy of functional social support (Sherbourne & Stewart, 1991). It consists of 19 items, which are divided into four subscales: tangible support, informational and emotional support, positive social interaction and affectionate support (Sherbourne & Stewart, 1991). Each item is rated using a 5-point Likert scale, ranging from 1 (= none of the time) to 5 (= all of the time), for how often each kind of social support was available when required. Responses for each subscale are totaled and rescaled to a 0 to 100 range for each subscale, with higher score representing better perceived support (Sherbourne & Stewart, 1991). The reliability of the scale has been established with a Cronbach alpha greater than 0.91 for all subscales (Phillips, Burker, & White, 2011). The present study also showed that the MOS-SSS has acceptable internal consistency, with Cronbach alpha ranged from 0.90 to 0.95 for the four subscales and total scale.

2.2.4. Demographic and Clinical Data

Data, such as age, gender, educational level, employment and clinical status, such as time of diagnosis, CHD family history, smoking status, alcohol consumption, documented cardiac co-morbidities and treatment modalities, were collected from a review of patient records and through patient interview using a structured proforma. Outpatients who did not receive revascularisation therapy (percutaneous coronary intervention/coronary artery bypass graft) were categorized as receiving medical therapy, in view of their conservative management.

2.3. Data Collection Procedure

Ethical approval was obtained from the relevant ethics board in Singapore. Recruitment took place during patients' visits to the heart clinic in a public hospital in Singapore. Patients who met the study criteria were identified and provided with a copy of the participant information sheet which explained the purpose of the study, procedure, information obtained, instruments used and the potential risks and benefits of the study. Those who agreed to participate were required to read and sign a consent form. The patients were informed that their participation in this study was completely voluntary and they could withdraw from the study at any time. Their personal information such as name and identification number was not recorded to maintain their privacy and anonymity. Patients who consented were given the questionnaires and were asked to complete them during their waiting time. The data collection process at the clinic took an estimated of 20 minutes.

2.4. Data Analysis

Data were analysed using SPSS version 20. Descriptive statistics were used to summarize and describe the demographic and clinical characteristics of the sample. Independent sample t-test, ANOVA and Pearson product-moment correlation were used to compare scale means and correlations of the SF-12, MOS-SSS and HADS scores. SF-12 mean scores were generated from QualityMetric Health Outcomes™ Scoring Software 4.5 provided by the distributors of the instrument. Stepwise multiple linear regression analysis was used to identify predictors of HRQoL. All the independent variables which

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