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Awareness, knowledge and healthy lifestyle behaviors related to coronary heart disease among women: An integrative review

Hadassah Joann Ramachandran, BSc, RN, Vivien Xi Wu, MScN, RN, Yanika Kowitlawakul, PhD, RN, Wenru Wang, PhD, RN *

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

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ABSTRACT

The purpose of this review is to examine recent literature on the awareness, knowledge, and healthy lifestyle behaviors related to Coronary Heart Disease (CHD) among women. Literature published in the English language from 2004 to 2015 was reviewed. Of the 684 articles retrieved, 21 were deemed relevant. Being aware that CHD is the leading cause of death in women and knowledge of the risk factors of CHD were found to be generally suboptimal in the women studied. Awareness was seen to be positively associated with healthy lifestyle behaviors, though findings on the predictive relationship of knowledge of risk factors on healthy lifestyle behaviors in women seem to be divided. Diabetes was the prominent risk factor that most women did not associate with CHD. Translating these findings into clinical practice can help health care providers be more attuned when discussing CHD with their female patients so as to provide targeted education on CHD prevention.

Introduction

The fact that the majority of risk factors associated with coronary heart disease (CHD) are controllable and avoidable at best makes this disease one of the most preventable causes of death in the world.[1,2] Yet, CHD is the leading cause of death in women globally, claiming the lives of 8.6 million women annually.[3] The gravity of this situation is emphasized by the fact that most women are not aware of the magnitude of CHD.[4] The false belief among women that CHD is predominantly a men's disease is reflected in literature.[5,6] This misperception, coupled with women's atypical symptomology and the fact that women tend to be diagnosed at a later age,[1,7] has led to inferior outcomes and increased disability in women with CHD.[8,9] Though evidence-based guidelines for CHD detection and management in women have emerged in literature,[10,11] an under-investigated area in CHD prevention is the state of women's awareness, knowledge of risk factors, and healthy lifestyle behavior related to the disease.

Being primarily a lifestyle disease, modification of the risk factors requires recognizing these risk factors, then making an informed purposeful change in lifestyle behaviors, otherwise lowering one's risk for CHD is unachievable.[4,12] It has been postulated that personal risk perception for a disease such as cardiovascular disease is necessary for women to adopt preventative behaviors and prevent serious illness.[13–15] Especially so for women with a strong family history of CHD, in which a shared genetic background predisposes women and increases their risk for getting CHD by approximately 70% in parental history and approximately 50% in sibling history.[16] Awareness of the prevalence and knowledge of CHD has been related to risk perceptions of CHD, and may be a fundamental prerequisite for health lifestyle and behavior change.[17–19] Accordingly, much research has been focused on investigating the awareness of CHD prevalence and knowledge of its risk factors in women, and its relation to health-lifestyle behaviors. Awareness of the prevalence of CHD has been quantified as a factual recognition of CHD being the leading cause of death (LCOD) in women,[19] and knowledge as the identification and understanding of a risk factor in relation to CHD development.[19] This

Abbreviations: CHD, Coronary Heart Disease; LCOD, leading cause of death; PRISMA, Preferred Reporting Items for Systematic Reviews and Meta-Analyses; AHA, American Heart Association.

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* Corresponding author. Alice Lee Centre for Nursing Studies, Yong Loo Lin School of Medicine, Level 2, Clinical Research Centre, Block MD 11,10 Medical Drive, 117597, Singapore. Tel.: +65 6601 1761; fax: +65 6776 7135.

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

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includes major risk factors that are either non-modifiable, which includes increasing age, gender (male sex), race, and family history, or modifiable, like tobacco smoke, high blood pressure, high blood cholesterol, physical inactivity, obesity, and diabetes.[19] Although studies have shown that awareness of CHD prevalence and knowledge of CHD risk factors are associated with health-lifestyle behaviors,[13,14,17] the strength of these reported association has varied considerably between studies.

Furthermore, there is growing evidence substantiating the impact of socio-demographic factors in influencing how individuals assess health care, make health-related decisions, and adhere to medical guidelines.[20,21] These factors do not exist in isolation and warrant further investigation if we are to overcome this misconception.[4] Understanding women's awareness of heart disease and their knowledge of risk factors, and health-promoting strategies may provide valuable insights necessary for the development of gender-specific health messages, and is crucial if heart disease is to be prevented in women. The purpose of this integrative review was therefore to examine the recent literature regarding women's awareness and knowledge of risk factors associated with CHD, and the relationship of this awareness and knowledge to healthy lifestyle behaviors. In this review, awareness of the prevalence of CHD is defined as the factual recognition of CHD being the leading cause of death (LCOD) in women and knowledge as the identification of a risk factor and an understanding of its relation to CHD development. Healthy lifestyle behaviors are defined as self-reported behaviors related to CHD detection and prevention, as well as biophysiological measurements related to the process of CHD.

Methods

Search strategy

A comprehensive search following the flowchart described by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) Statement[22] was utilized to identify all relevant studies. Firstly, a comprehensive search in the databases PubMed, CINAHL, ScienceDirect, and Web of Science was undertaken. The Boolean operator 'OR' and 'AND' were applied separately and in combination to the following keywords: 'coronary heart disease,' 'coronary artery disease,' 'awareness,' 'knowledge,' 'health behavior,' 'lifestyle,' 'health-seeking behavior,' 'risk-reduction behavior,' 'women.' Searches were limited to focus on studies where they were in the title or abstract.

To supplement the computerized electronic search, the reference lists of key studies were examined to identify relevant studies not included in the initial electronic database search. This was performed to ensure the maximum chance of identifying the greatest amount of relevant studies.[23,24] The title and abstract of the identified studies were read to verify compatibility with the study purpose.

Inclusion and exclusion criteria

This review was not limited by study design and considered qualitative, quantitative, experimental, and mixed-methods studies in all internal journals. The following inclusion criteria were studies that: (1) were published in English between January 2004 and January 2015, and (2) examined aspects of awareness, knowledge, and healthy lifestyle behavior related to CHD in women. Studies that also included men were examined to determine if the results were presented separately for the male participants in the study (i.e. if the results were specific to women), and only results of the female participants will be described. Studies were excluded from this review if they: (1) were written in languages other than English, (2) were conducted solely on men or individuals under the age of 18, and/or (3) were case reports, commentaries, and editorials.

The initial electronic search from the four databases using the aforementioned keywords, as well as hand searching, generated 997 studies for consideration. Following the removal of duplicate articles ($n = 310$), the titles and abstracts of the 684 studies were screened. Of these, 62 studies appeared to meet the inclusion criteria. Full texts of these studies were retrieved and assessed for eligibility. Subsequently, 41 studies were excluded with reasons (see Fig. 1 for the PRISMA Flowchart used to document the progression of this review). In particular, as dissertations are unpublished and not subjected to peer-reviews, methodological quality of such literature is difficult to assess and cannot be guaranteed, and were hence excluded. Consequently, this review is comprised of 21 studies, of which four are qualitative and 17 are quantitative in study design. Table 1 lists the selected studies by study design, purpose, sample characteristics, study findings, and strengths and limitations.

Results

Women's awareness of coronary heart disease

Awareness of CHD being the leading cause of death (LCOD) in women was investigated in 10 of the 21 studies included in this review, all of which were cross-sectional studies. Level of awareness of CHD being the LCOD in women was found to be suboptimal in several studies.[25–32] A study of 55 immigrant women in Australia found low levels of awareness among respondents – only 23% were aware that CHD was the LCOD in Australia.[25] Mochari et al[26] found that only 39% of the women in their study were able to identify CHD correctly. Between 2004 and 2013, the American Heart Association (AHA) published five national cross-sectional studies assessing American women's awareness of CHD as the LCOD using telephone surveys on five nationally representative samples of women 25 years old or older. The samples of women matched the composition of the US population based on age and ethnic strata based on the US Census Bureau's data in the respective year the study was undertaken.[27–31] In examining responses to the open-ended question, "What is the leading cause of death for all women?" an upward and plateauing trend in awareness can be observed. In 2004,[27] 46% of study participants were able to correctly identify CHD as the LCOD, with 55% in 2006,[28] 57% in 2007,[29] 54% in 2010,[30] and 56 in 2013.[31] Although this trend appears promising, it should be acknowledged that heart disease received increased media attention in America in the light of national educational programs. Thus, generalizing these results to women not exposed to such educational efforts outside of America is of limited value.

Additionally, three of the aforementioned studies found a disconnection between women's awareness of CHD being the LCOD and their perception of their vulnerability to the disease.[27,29,30] Mosca et al[27] observed that while 46% were able to identify heart disease correctly, only 13% acknowledged CHD as their biggest health problem, with 51% perceiving cancer as their biggest health problem. Similarly, Christian et al[29] noted that while 57% of the women surveyed were able to identify CHD as the LCOD, only 21% of respondents believed it to be the greatest health problem facing women. Likewise, although 54% of respondents cited CHD as the LCOD in the 2010 survey by Mosca et al,[30] only 16% perceived CHD to be their greatest health problem.

Collectively, study findings indicate that women under the age of 45 were more likely to cite breast cancer as the LCOD, compared to older women who were more likely to associate heart disease as the LCOD.[29–31] Improvements in awareness levels among ethnic