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Degree and Correlates of Cardiac Knowledge and Awareness among Cardiac Inpatients

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Abstract

Objective—To investigate the degree of CHD awareness as well as symptom, risk factor, and treatment knowledge in a broad sample of cardiac inpatients, and to examine its sociodemographic, clinical and psychosocial correlates.

Methods—1308 CHD inpatients (351 [27.0%] female), recruited from 11 acute care sites in Ontario, participated in this cross-sectional study. Participants were provided with a survey which included a knowledge questionnaire among other measures, and clinical data were extracted from medical charts.

Results—855 (68.8%) respondents cited heart disease as the leading cause of death in men, versus only 458 (37.0%) in women. Participants with less than high school education ($p<.001$), an annual family income less than $50,000CAD ($p=.022$), low functional capacity ($p=.042$), who were currently smoking ($p=.022$), who had no family history of heart disease ($p<.001$), and who had a perception of low personal control ($p=.033$) had significantly lower CHD knowledge.

Conclusions—Awareness of CHD is not optimal, especially among women, South Asians, and those of low socioeconomic status. CHD patients have a moderate level of disease knowledge overall, but greater education is needed.

Practice implications—Tailored educational approaches may be necessary for those of low socioeconomic status, particularly with regard to the nature of CHD, tests and treatments.

Keywords

patient knowledge; awareness; heart disease

1. Introduction

Coronary heart disease (CHD) is the leading cause of morbidity and mortality worldwide, accounting for over one-quarter of all deaths in 2001 [1]. Although rates of CHD mortality are declining overall due to early detection strategies, advanced medical treatment, and risk factor reductions [2], this decline is not evident for certain subgroups such as women and those of low socioeconomic status (SES) [3–5]. Significant inequalities exist for these subgroups with respect to their risk factor prevalence, later diagnosis, access to evidence-based therapies, and treatment outcomes. Moreover, it is unknown whether these vulnerable subgroups are less knowledgeable about their disease, which may provide some explanation for their poorer morbidity and mortality outcomes.

Patients' knowledge about their disease can be comprised of their awareness about the general pathophysiology, risk factors, symptoms, prevention, and treatment associated with their condition. Knowledge of heart disease can strongly influence symptom recognition, advocacy for physician screening, attitudes towards the disease, and provide motivation for individual behaviour changes [6–8]. Likewise, inadequate understanding of the disease may cause unwarranted emotional distress, inappropriate coping behaviour, non-compliance with medical advice, and unnecessary disease progression [9]. For instance, studies have shown significant relationships between general knowledge about CHD risk factors and compliance to lifestyle changes such as weight management, diet, physical activity, attainment of lipid level goals, and medication compliance among CVD patients [10, 11]. As well, illness perceptions and beliefs regarding the causes, symptoms, and treatment of CHD are often influenced by one's knowledge of the disease. For instance, one study found that misconceived beliefs about angina, such as believing that the cure for angina is rest, were associated with reductions in functional and psychological status [12]. Illness perceptions can also influence one's willingness to utilize secondary prevention services [13, 14] or to make necessary lifestyle changes following a cardiac event [15, 16]. While knowledge does not necessarily translate into appropriate risk reduction behaviors in the general population or even in patients themselves, a lack of knowledge and awareness regarding one's disease can hinder possible lifestyle modifications and ultimately cardiac health. Clearly, it is essential to evaluate the level of CHD knowledge among patients with this disease.

Although literature exists on the degree of CHD knowledge and awareness in the general population, there is minimal research examining the level of knowledge among cardiac patients themselves [17–22]. Sociodemographic factors such as female sex, younger age, higher income, greater education, and mainstream ethnocultural background have been found to be significantly related to greater CHD knowledge in the general population [7, 23–26] and in CHD patients [17, 19, 20]. A recent study also found that women who were aware

that heart disease was the leading cause of death for women were more likely to increase physical activity and lose weight [27]. This finding is corroborated by previous studies reporting that those who engaged in regular physical activity and who were non-smokers were more knowledgeable about the modifiable risk factors for heart disease [7, 17]. It is also possible that disease severity, or undergoing cardiac procedures such as acute coronary bypass, can influence CHD knowledge, perceived personal risk and disease management behaviors. For example, those who have undergone a percutaneous coronary intervention (PCI) may be less likely to make lifestyle modifications because they feel "cured" from the relatively unintrusive intervention [28], putting them at a higher risk of further CHD progression. However, there are inconsistent findings regarding the degree and correlates of knowledge [17, 19, 20, 29].

The objective of this study was to investigate the degree of CHD knowledge among coronary artery disease (CAD) inpatients with respect to basic pathophysiology, risk factors, symptoms, and treatment, as well as awareness of the leading cause of death. The sociodemographic (e.g., sex, SES, ethnicity) and clinical (e.g., risk factors) correlates of this knowledge were examined to facilitate identification of sociodemographic groups with less knowledge, and to assess the association between knowledge and risk factor status. Considering that knowledge is related to patients' beliefs and perceptions about their disease, psychosocial correlates (i.e., illness perceptions) were also examined. No study has yet examined such a complete list of knowledge correlates, and very few have assessed level of knowledge in a cardiac inpatient population. Hence, little is known about disease knowledge in this population, and how such knowledge relates to illness perceptions and risk factor status.

2. Methods

2.1. Design and Procedure

This study represents a cross-sectional quantitative component of a larger prospective study (CRCARE [30]). Ethics approval was obtained from all participating institutions, which included 11 acute care hospitals in Ontario, Canada. Consecutive coronary artery disease (CAD) inpatients from each of the sites were approached for informed consent by a site recruiter when medically stable. Medical chart data was extracted, including nature of cardiac event or procedure, comorbid conditions, and risk factors. Patients were then provided with the self-report survey to complete.

2.2. Participants

One thousand three hundred and eight consecutive consenting CAD in-patients (N=351, 27.0% female; 66.0% response rate) were recruited from 11 acute care sites in Ontario. Participating patient characteristics are shown in Table 1. Their age ranged from 34 to 96.

CAD diagnosis was confirmed based on indication in patient chart of detailed history, focused physical examination, diagnostic ECG changes (i.e., Q waves, and/or ST-T segment changes), and/or troponin levels above the 99th percentile of normal. Inclusion criteria for the larger trial included confirmed acute coronary syndrome diagnosis or revascularization

procedure, eligibility for cardiac rehabilitation based on guidelines [31], and proficiency in English, French, Punjabi, Urdu, or Hindi. Exclusion criteria for the larger study included patients who had life-threatening comorbidities. Participants were more likely to be male, younger, and have at least high school education than non-participants (all ps <.05).

2.3. Measures

2.3.1. Dependent Variable—Since no robust knowledge questionnaire validated in cardiac samples is available, items from existing knowledge questionnaires and investigator-generated questions were integrated to assess CHD knowledge relating to risk factors, symptoms and treatment (see Appendix A – attach knowledge questionnaire).

The first item of the knowledge scale was an investigator-generated question with forced-choice response options assessing respondents' understanding of the basic pathophysiology of CHD. Two close-ended questions followed assessing awareness of the leading cause of death for both men and women, which paralleled Mosca et al.'s recent national study [27]. Next were a set of twenty true or false questions assessing general knowledge of CHD, including its causes, risk factors, symptoms, and treatment. Eleven of these questions were based on items in the Cardiac Knowledge Questionnaire [32] (Cronbach's α ranged from 0.69 to 0.86) and the Coronary Heart Disease Knowledge Test [33] (α = 0.84). The remaining nine true or false questions were investigator-generated. An overall knowledge score was computed by totaling the number of correct responses, with a possible range from 0–23, and higher scores indicating greater knowledge.

2.3.2. Sociodemographic Correlates of Knowledge—Self-reported sociodemographic characteristics assessed through forced-choice options included a patient's ethnocultural background (open and closed-ended), family income, education level, and work status. Subjective SES was assessed using the social status ladder included in the survey, where participants indicate how they would rank their SES relative to others in Canada [34]. Date of birth and sex were obtained from the medical chart.

2.3.3. Clinical Correlates—Cardiac condition and body mass index (BMI; kg/m^2) was extracted from patients' medical charts. From the self-report survey, CHD risk factors, comorbid conditions, functional capacity, and physical activity behavior were assessed. CHD risk factors included smoking status, family history of CHD, hypertension, and dyslipidemia. Participants reported 'yes' or 'no' if they suffered from any of a list of 13 comorbid conditions including diabetes, mental/emotional problems and muscle, bone, or joint problems. The total number of comorbidities was computed. Participants also self-reported whether or not they have had a previous cardiac event or procedure.

To assess functional capacity (i.e., disease severity), the Duke Activity Status Index (DASI) [35], a brief 12-item self-report instrument, was included in the survey. Participants were asked about their ability to perform common activities of daily living, such as personal care, ambulation, household tasks, sexual function, and recreational activities, which are each associated with specific metabolic equivalents (METs). This valid and common tool correlates with treadmill functional capacity measured in METs [36] and also correlates

highly with peak oxygen uptake [37]. The validity of the scale is demonstrated by such strong correlations with peak oxygen uptake.

The Physical Activity Scale for the Elderly (PASE) [38] was also incorporated in the self-report survey to assess physical activity behaviour. The total PASE score was computed by multiplying the amount of time spent in activities of various intensities (hr/week) by item weights and summing over all activities. Higher PASE scores indicate greater physical activity. The PASE has been shown to be highly correlated (r=.58) with energy expenditure using the doubly labelled water method [38].

2.3.4. Psychosocial Correlates—The Illness Perception Questionnaire (IPQ-R [39]) was administered to assess cognitive representations of CHD. Four subscales from the IPQ-R were included in the survey: time course (acute/chronic), perceived personal control, consequences, and treatment cure/controllability. All items are scored on a 5-point Likert-type scale which ranged from *'strongly disagree'* to *'strongly agree'*. Mean subscale scores were computed, with higher scores denoting greater endorsement of the given construct. Cronbach's alpha for the subscales were .89, .81, .84, and .80, respectively. The validity and reliability of this questionnaire have also been demonstrated and are quite encouraging [40].

2.4. Statistical Analyses

SPSS Version 14.0 [41] was used for all analyses. Sociodemographic variables with more than two response options were dichotomized using a median split where possible. The forced-choice ethnicity variable on the survey was dichotomized to distinguish between white (i.e., North American, French, British Isles, and European descent) and non-white (all other responses) participants. Also, given that South Asians represented the second largest ethnocultural group in this sample (6.0%), and have been identified as a high risk population [42], a dichotomous variable was created comparing South Asians to non-South Asians. Response rate was computed, and differences between participating and non-participating patients were tested by Pearson's chi-square and analyses of variance as appropriate. Characteristics of participants were described. A descriptive examination of awareness and CHD knowledge was performed.

The composite knowledge score was analyzed by the correlates under study using Pearson's Correlation, one-way ANOVA, or Student's t-test as appropriate. A multivariate analysis using linear regression was then conducted to identify which sociodemographic, clinical and psychosocial correlates were independently associated with the CHD knowledge composite score. To minimize multicollinearity, only significant variables in bivariate screening were included in the multivariate model.

3. Results

Eight hundred and fifty-five respondents (68.8%) cited CHD as the leading cause of death for men, versus 458 respondents (37.0%) who cited CHD as the leading cause of death for women. Eighty-seven (26.4%) females believed that breast cancer was their leading cause of death, versus 140 (42.4%) citing CHD. Men were significantly less aware than women of CHD as the leading cause of death for women (p=.029), and similarly women were

significantly less aware than men of CHD as the leading cause of death for men (p<.001). South Asian participants were significantly less likely than non-South Asians to identify heart attack as the leading cause of death for men (p=.010) and women (p=.045). White participants were significantly less aware regarding CHD as the leading cause of death for men than non-white participants (p=.018). Those who self-reported low SES were significantly less likely than their high SES counterparts to cite CHD as the leading cause of death for both men (p=.028) and women (p=.034).

3.1 CHD Knowledge among Cardiac Inpatients

The mean composite knowledge score was 16.67 ± 2.59, ranging from 7 to 22. This mean corresponds to an average of approximately 72% correct responses. Over half (54.0%) of respondents correctly identified CHD as reduced blood flow to the heart. The four questions most often answered correctly (true/false) were as follows: daily aspirin is recommended to reduce heart disease risk (98.8% correct), lifestyle changes can reduce chances of dying from heart disease (98.6% correct), a heart attack is caused by blocking blood flow to part of the heart (97.4% correct), and the hardening of arteries begins with accumulation of fat deposits in the arterial wall (97.1% correct). The four questions most often answered incorrectly (true/false) were as follows: nitroglycerine is not of great help in a heart attack (89.7% incorrect), PCI is not used to diagnose CHD (69.2% incorrect), an angiogram cannot improve blood flow through narrow or blocked arteries (37.8% incorrect) and that coronary bypass surgery can improve blood flow through blocked arteries (33.7% incorrect).

3.2 Correlates of Composite Knowledge Score

Bivariate analyses of sociodemographic, clinical and psychosocial correlates of the composite knowledge score are shown in Table 2. Female sex, low subjective SES, white ethnicity, less than high school education, a family income of less than $50,000 CAD, and not engaging in full-time/part-time work were significant sociodemographic correlates of a lower knowledge score. Those who reported greater functional capacity, greater physical activity, not currently smoking, family history of heart disease and no diabetes also had significantly higher knowledge scores. Interestingly, with regard to psychosocial correlates, results revealed a significant correlation between higher knowledge scores and perception of greater negative illness consequences, greater personal control, and perception of CHD as a chronic condition.

Table 3 displays the results from the multivariate analysis using linear regression represented by the adjusted β coefficients (F=6.52, p<.001). No variables identified through bivariate screening were omitted from the model as multicollinearity was not evident. In this adjusted analysis, less than high school education, less than $50,000CAD family income, lower functional status, smoking, lack of a family history of heart disease, and perception of low personal control were significantly associated with a lower composite knowledge score.

4. Discussion and conclusion

4.1 Discussion

This study investigated awareness and degree of CHD knowledge, including an extensive list of potential correlates of such knowledge, in a broad sample of CHD inpatients. Results showed that even CHD patients themselves continue to perceive CHD as a man's disease, as demonstrated by the differences in awareness of the leading cause of death for men and women. This is disappointing given that CHD is also the leading cause of mortality in women [43, 44]. In fact, female inpatients in the current study had a lower level of awareness (42.4%) of CHD as women's leading cause of death than previously reported in a U.S. sample [27] wherein 55% of women from the general population correctly identified women's leading cause of death. See Figure 1 for a comparison between the current findings (females only shown, Canadian inpatient cardiac sample) and those reported by Mosca et al. (2006) in an American non-patient female population.

The South Asian inpatients in this study also demonstrated significantly poorer awareness about CHD as the leading cause of death for both men and women. This is novel, as no other study has assessed sex differences in awareness among the South Asian population to our knowledge. This finding is surprising, given increasing evidence of the greater burden of CHD in the South Asian population [42], particularly among women, [44, 45] and their poorer prognosis [46, 47].

To our knowledge, researchers have not examined SES differences in awareness. This study found that those who self reported low SES were significantly less aware of CHD as the leading cause of death for men and women. These findings may suggest the need for increased public health initiatives among areas of low SES to increase awareness, as low SES is associated with greater CHD morbidity and mortality [48, 49].

4.1.1. Degree of CHD Knowledge—The CAD inpatients in this study demonstrated a moderate level of CHD knowledge. One other Canadian study assessing risk factor knowledge among a small sample (N=71) of cardiac in-patients [19] reported a mean knowledge score of 85% correct, compared to the 72% broader knowledge score in our patient sample. Other studies have suggested a significant lack of CHD knowledge among the general population [50] and in patients themselves [17, 20, 29]. Our results suggest that cardiac inpatients do have general knowledge regarding their condition, but that continued efforts are necessary to fully educate patients, particularly with regard to diagnostic tests, treatment of symptoms and interventional procedures such as PCI and coronary bypass surgery.

4.1.2. Correlates of CHD Knowledge—Although some studies have reported significantly less knowledge among men [19, 23], in the current study there were no sex differences in knowledge after adjusting for covariates. As well, contrary to previous studies which found that South Asians are significantly lacking in CHD knowledge [17, 29, 50], we were unable to find a difference between South Asians and non-South Asians. The lack of a significant effect may have been due to insufficient power considering the small number of South Asian patients in this study, or due to the fact that other studies examined South

Asians alone and did not make comparisons to other ethnic groups. Another possible explanation for this could be that the South Asian participants were significantly more likely to have greater than high school education than non South Asians ($p<.001$). Therefore, the greater level of education seen among the South Asian participants in this study may have contributed to their higher level of CHD knowledge. However, examining the level of knowledge among South Asians is of particular importance given that they are the fastest growing visible minority in Canada [51] and also have one of the highest risks of CHD in the world [17, 52]. Further, we did not find any other significant ethnic differences in CHD knowledge. While we found no sex or ethnic differences in overall CHD knowledge, it is interesting to note that female and South Asian inpatients incorrectly perceive other conditions as the leading cause of death.

This study incorporated several indicators of SES, namely subjective SES, education, income, and work status. Results showed that those with less than high school education and with an annual income of less than $50,000 CAD had significantly lower CHD knowledge. This is consistent with what has been reported in the literature [7, 17, 19, 23, 26, 29], whereby those with advanced education and income were more knowledgeable about CHD. These findings are problematic because low SES is strongly associated with an increased prevalence of CHD risk factors [4, 53, 54] and with greater morbidity and mortality among CHD patients [48, 49, 55, 56]. It is likely that those with less education have inadequate health literacy, as measured by their reading fluency. Baker et al. (2007) found that subjects who were older, non-white, with a lower annual income and lower education level had poor health literacy which resulted in less health knowledge, worse disease management, and lower use of preventive services. Baker et al. also found that inadequate health literacy increased the risk of cardiovascular mortality [57]. Given that the majority of Canadian adults do not have the skills to understand information about their own health or make daily decisions about their health [58], this highlights the urgent need for improvements in health care communication and education to reduce the association between SES and poorer cardiovascular outcomes. Although health literacy itself was not addressed in this current study, future studies should include a measure of this key variable to examine its relationship with CHD knowledge.

As expected, having a family history of heart disease was significantly associated with greater CHD knowledge. It is likely that these individuals have had greater exposure to CHD information and education than those with no family history of the disease. However, having a previous cardiac event was not significantly associated with CHD knowledge. Other studies have failed to report consistent findings regarding this association [19, 24]. Although it is somewhat expected that patients who have had a previous cardiac event would have greater knowledge about their disease, our results may suggest that patients are being provided with insufficient information at the time of their event. However, it may also indicate that health care providers are not doing an adequate job educating patients throughout their continuum of care. Clearly, additional efforts to improve the quantity and quality of patient education are essential.

Contrary to previous studies which found that those with greater CHD knowledge had better risk factor profiles and engaged in physical activity [7, 10, 11, 17], we did not find an

association between knowledge and risk factor status, such as increased physical activity, lower blood pressure, lower cholesterol, or lower BMI. However, similar to our findings, Khan et al. (2006) also found that non-smokers had significantly greater CHD knowledge, possibly because they are more aware of the consequences of unhealthy habits and risk factors. In addition, we found that those with greater functional capacity (i.e., less disease severity) had greater CHD knowledge. This is in contrast to a study by Zerwic et al. (1997), which found that angiography patients were more likely to be unsure of the causes of their disease than MI patients. Numerous studies have also found that patients with less disease severity, such as those who undergo a PCI, do not perceive a need to make behavioural changes following their procedure [28, 59, 60]. These patients may feel that the relatively simple and non-invasive procedure 'fixed' or 'cured' their condition [28]. Knowledge regarding diagnostic tests and interventional procedures can allow patients to clearly understand their condition and will enable them to make educated decisions regarding their health and healthcare. Therefore, adequate and comprehensive patient education, including the nature of tests and procedures, during the rehabilitative phase is essential to ensure that patients are aware of the need for lifelong lifestyle modifications to minimize disease progression and improve quality of life.

This study is novel in approach by also examining illness perceptions and its relation to knowledge. The results demonstrated that more knowledgeable patients feel more in control regarding disease management, symptom recognition and lifestyle modifications, or alternatively that they seek out CHD information to better manage their illness. Identifying specific illness perceptions which may influence the effectiveness of patient education is essential. Future studies should assess the efficacy of interventions which modify patients' illness perceptions, particularly perceptions of personal control, on CHD knowledge. For instance, education regarding modifiable risk factors for CHD and tools to modify them may promulgate improved perceptions of control. At the same time, the effect of improved CHD knowledge in altering patients' illness perceptions should also be examined.

4.1.2. Strengths and Limitations—Some major strengths of this study are the large sample size and participation rate, as well as the thorough list of correlates examined. However, caution is warranted when interpreting the results. A key limitation of this study is that knowledge was not measured using a validated questionnaire. Existing questionnaires in the literature have rarely been tested on patients with established heart disease [32, 33, 61–63], and only two of these studies examined the psychometric properties of their instrument [33, 62]. Therefore, we were unable to adequately compare our results with findings from other studies investigating knowledge. An attempt was made, however, to incorporate items from previously tested knowledge questionnaires, and therefore some degree of confidence can be made in the results. Finally, due to the cross-sectional design, no causal conclusions can be drawn.

4.2. Conclusion

CHD patients, in particular women and South Asians, still do not have optimal awareness regarding CHD as their leading cause of death. Although CHD patients do have a moderate level of disease knowledge overall, greater education regarding CHD pathophysiology and

treatments is needed. Cardiac patients with lower socioeconomic status, lower functional status, who were current smokers, who did not have a family history of CHD and who perceived less personal control over their disease had lower overall CHD knowledge. Given the established benefits of secondary prevention, clearly improving health knowledge among CHD patients may have beneficial effects on their cardiac prognosis.

4.3. Practice Implications

This current study suggests that although CHD patients have a moderate level of knowledge regarding their condition, there are disparities in knowledge among certain vulnerable groups. Tailored educational approaches may be necessary for those of low socioeconomic status, particularly with regard to CHD pathophysiology, tests and treatments. Possible formal testing for inadequate health literacy may be necessary, as it impacts adherence to diet, exercise, and medication instructions [64]. In addition, cardiac knowledge interventions must ensure that they are sensitive to the perceptions and capabilities of targeted individuals. It is also necessary to consider developing culturally appropriate interventions for those in different ethnic groups. Future studies should determine where in the continuum of care CHD education is most effective (i.e. community level, physician level, pre-event rehab level or post-event rehab level). Essentially, educational initiatives at any level need to be continually evaluated to ensure that they minimize disparities between vulnerable groups and that they truly do impact a patient's ability to improve their cardiac health.

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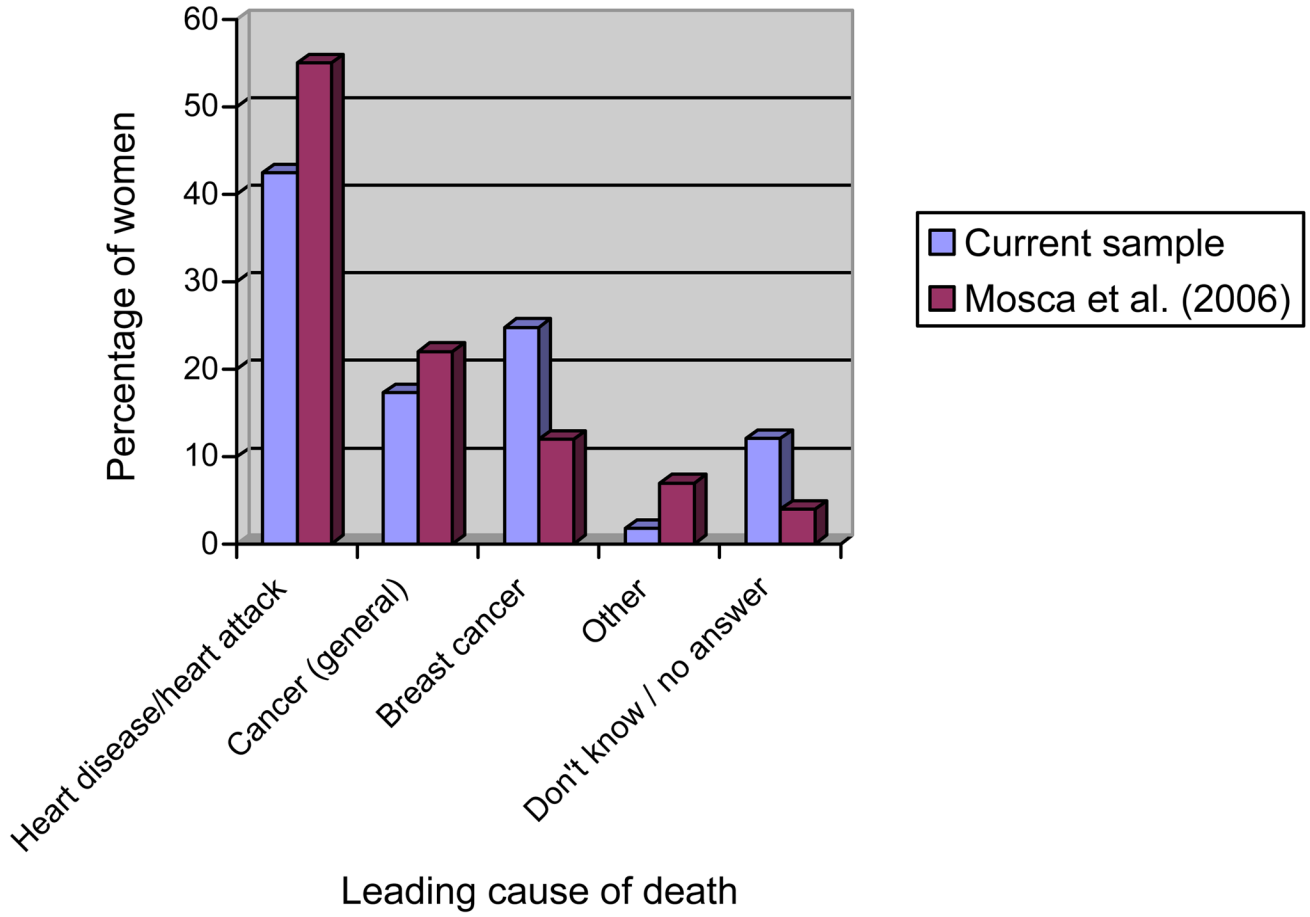

Figure 1.
A comparison between current study and Mosca et al.'s study (2006) examining women's awareness of their leading cause of death.

Table 1

Descriptive characteristics of study sample (N=1308)

Characteristic	Mean ± SD/n (%)[a]
Sex (% female)	351 (27.0)
Age (mean ± SD)	65.20 ± 11.07
Education (% <high school)	323 (26.1)
Family income (% <$50,000CAD)	525 (51.4)
Subjective SES (% low SES)	520 (46.4)
Marital status (%married/common law)	938 (73.5)
Ethnocultural background (% white)	1023 (85.3)
Ethnocultural background (% South Asian)	77 (6.0)
Work status (% full-time/part-time)	443 (36.6)
Body Mass Index (mean ± SD)	29.03 ± 5.59
Previous cardiac event† (%yes)	667 (56.4)
Smoking status† (%current)	95 (7.8)
Current Myocardial Infarction† (%)	378 (29.4)
Current Unstable Angina† (%)	213 (16.6)
Current Percutaneous Coronary Intervention† (%)	371 (28.8)
Current Acute Coronay Bypass† (%)	552 (43.0)
Family history of heart disease (%yes)	862 (72.0)
Duke Activity Status Index (mean ± SD)	25.59 ± 16.61
Hypertension (%yes)	708 (58.4)
Systolic blood pressure mm Hg† (mean ± SD)	128.05 ± 20.35
Diastolic blood pressure mm Hg† (mean ± SD)	70.91 ± 11.96
Dyslipidemia (%yes)	709 (59.7)
Total Cholesterol/HDL Ratio†	4.41 ± 2.27
HDL[b] mmol/L† (mean ± SD)	1.04 ± .37
LDL[c] mmol/L† (mean ± SD)	2.45 ± 1.06
Diabetes (%yes)	393 (31.2)
NYHA[d] Class II-IV † (%)	95 (32.9)
CCS[e] angina class 2–4 † (%)	357 (85.8)

[a] Percentages take into account missing data for some variables.

[b] HDL, high-density lipoprotein.

[c] LDL, low-density lipoprotein.

[d] NYHA, New York Heart Association.

[e] CCS, Canadian Cardiovascular Society.

† denotes medical chart data.

Table 2

Results of bivariate analyses of correlates associated with composite knowledge score, N=1253

Type of Correlate	Correlate		Mean ± SD/r	p
Sociodemographic	Sex	Female	16.27 ± 2.71	.001
		Male	16.82 ± 2.53	
	Subjective SES[a]	Low SES	16.50 ± 2.55	<.001
		High SES	17.13 ± 2.40	
	White	Yes	16.82 ± 2.49	.043
		No	16.40 ± 2.88	
	South Asian	Yes	16.61 ± 2.89	.822
		No	16.68 ± 2.57	
	Age		−.046	.107
	Marital status	Married/Common law	16.75 ± 2.58	.057
		Other	16.43 ± 2.63	
	Education	< High school	15.80 ± 2.62	<.001
		≥ High school	16.97 ± 2.53	
	Family income	<$50,000 CAD	16.20 ± 2.64	<.001
		>= $50,000 CAD	17.50 ± 2.20	
	Work status	Full-time/part-time	17.17 ± 2.43	<.001
		Other	16.50 ± 2.57	
Clinical	DASI[b]		.140	<.001
	# comorbid conditions		−.032	.264
	PASE[c]		.063	.040
	Smoking status	Current	15.98 ± 2.71	<.001
		Past	16.94 ± 2.38	
		Never	16.52 ± 2.79	
	Hypertension	Yes	16.69 ± 2.52	.514
		No	16.79 ± 2.61	
	Dyslipidemia	Yes	16.78 ± 2.55	.846
		No	16.75 ± 2.53	
	Family history of CHD	Yes	16.89 ± 2.50	<.001
		No	16.25 ± 2.68	
	Previous cardiac event	Yes	16.80 ± 2.59	.139
		No	16.57 ± 2.64	
	BMI[d]		−.009	.815
	Cardiac condition[†]	PCI[e]	16.84 ± 2.49	.161
		Other	16.61 ± 2.64	
	Diabetes[†]	Yes	16.47 ± 2.65	.046
		No	16.79 ± 2.55	
Psychosocial	IPQ[f]–timeline		.127	<.001

Type of Correlate	Correlate	Mean ± SD/r	p
	IPQ[f]–consequences	.105	<.001
	IPQ[f]–personal control	.187	<.001
	IPQ[f]–treatment control	.050	.083

[a] SES, Socioeconomic status.

[b] DASI, Duke Activity Status Index.

[c] PASE, Physical Activity Scale for the Elderly.

[d] BMI, body mass index.

[e] PCI, Percutaneous Coronary Intervention.

[f] IPQ, Illness Perceptions Questionnaire.

[†] Chart reported data

Table 3

Linear regression analysis of correlates associated with composite knowledge score

	Adjusted β (95% CI)	p value
Female sex	−.04 (−.46, .38)	.845
Low Subjective SES[a]	−.07 (−.44, .31)	.723
White ethnicity	−.04 (−.54, .47)	.883
Less than High School Education	−.85 (−1.28, −.42)	<.001
< $50,000 CAD Family income	−.63 (−1.03, −.24)	.002
Full-time/part-time Work status	.09 (−.29, .47)	.636
DASI[b]	.01 (.00, .02)	.042
PASE[c]	.00 (−.003, .002)	.863
Smoking status		
Current Smoker vs. non-smoker	−.83 (−1.54, −.12)	.022
Former Smoker vs. non-smoker	.10 (−.27, .48)	.587
No Family History of CHD	−.68 (−1.06, −.30)	<.001
Diabetes	.02 (−.36, .40)	.917
IPQ[d]– timeline	.03 (−.01, .06)	.161
IPQ[d]- consequences	.03 (−.02, .07)	.203
IPQ[d]– personal control	.06 (.01, .11)	.033

[a]SES, Socioeconomic status.

[b]DASI, Duke Activity Status Index.

[c]PASE, Physical Activity Scale for the Elderly.

[d]IPQ, Illness Perceptions Questionnaire.