Coronary Artery Disease Management in Ho Chi Minh City: The Role of Self-Care and Disease Knowledge in Reducing Health Risks

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ABSTRACT

In order to avoid cardiac complications, patients with coronary artery disease (CAD) should the effect of self-care agency on health risk behaviors. Coronary artery engage in heart-healthy behaviors. Therefore, it is presumed that individuals have acquired self-care agency and a thorough understanding of their disease. Therefore, we investigated the associations between healthy affect, Self-Care, Disease Knowledge to improve their Health Risks status of patient.

A descriptive-correlational design involving patients with having coronary artery disease (CAD) and being treated in Ho Chi Minh City. The participants (N =191) who living in Binh Chanh, Nha Be, Can Gio and answer questionnaires which included Exercise in Self-care Agency scale (ECSA), Health Behavior Scale (HBS) and the Baecke questionnaire. The Linear regression correlation coefficient analysis, and computed r was applied this study. Result showed significant predictive relationships between self-care agency, disease-related knowledge, and health risk behaviors. Higher levels of self-care agency and disease-related knowledge were associated with lower health risk behaviors. Gender, marital status, and specific health conditions like hypertension and stroke also played significant roles in influencing health risk behaviors. Mediation analysis further revealed that disease-related knowledge partially mediates disease, self-care, health knowledge, health behavior.

Keywords: Coronary artery disease, self-care, health knowledge, health behavior.

INTRODUCTION

An individual's behavior and understanding of their health condition play a pivotal role in the management and outcome of their disease. According to World Health Organization (WHO) statistics from 2019, an estimated 17.9 million people worldwide succumb to cardiovascular disease annually, with atherosclerotic cardiovascular diseases primarily accounting for these deaths (World Health Organization [1]. A recent literature review reported a 5–8% prevalence of CAD throughout the world [2]. According to the Global Burden of Diseases survey, the global prevalence of CAD in 2016 was 154 million, accounting for 32.7% of the global burden of cardiovascular (CV) disease

and 2.2% of the overall global burden of disease (GBD Disease and Injury Incidence and Prevalence Collaborators. CAD impose a significant medical and economic burden worldwide [2].

Cardiovascular disease (CVD) encompasses all disorders of the circulatory system, including cerebrovascular disease, hypertension, peripheral arterial disease, rheumatic heart disease, congenital disease, heart failure, deep vein thrombosis, pulmonary embolism, and coronary heart disease [3]. In Vietnam, cardiovascular disease is also a leading cause of death. In 2016, CVDs were responsible for 31% of total deaths in Vietnam, equivalent to more than 170,000 deaths [4]. Cardiovascular diseases (CVDs) are the number one cause of death globally, representing 31% of all deaths. In Vietnam, about 200,000 people die from cardiovascular diseases per year in Vietnam, accounting for about 33% of total deaths [5]. However, there is no conclusion indicating factors related to the quality of life of patients with ACS after coronary stentings. Futhermore, those studies were brought out in European countries, that have a different culture compare in Vietnam. Many studies have shown correlation and mediation health risk behaviors of patients with CAD. However, the main studies in Vietnam are still very limited, there are no studies on relationship Self-Care, Disease Knowledge and Health Risks of participants with CAD. Therefore, the objective of this study was to determine Coronary Artery Disease Management in Ho Chi Minh City: The Role of Self-Care and Disease Knowledge in Reducing Health Risks.

RESEARCH METHODOLOGY

A cross-sectional descriptive-correlational design study was conducted with multiple phase design. Research conducted at belonging to three districts Binh Chanh, Nha Be, Can Gio. The sample size in this study included 191 adult with CAD after stentings reexamination treatment at Out Department two private hospital.

Inclusive criteria Including in the study, participants with CAD must take examination and treatment at the hospital in Ho Chi Minh City. Potential participants also had finished with demographic characteristics, and self-care agency, disease related knowledge and health risk behavior. The poeple completely agreed to join the study. Data collection from February to May 2024 at Out Department of Cardiology.

The authors of the three questionnaires agreed to be used in this study. Participants were invited to participate in the study and they agreed to sign the consent form. They were then invited to complete the questionnaire in time from 40-50 minutes. After the questionnaire is completed and rechecked. The data were entered into Jamovi statistical software program version 2.5.

Questionnaire

The demographic profile

Age, sex, marital status, religion, highest educational attainment, employment status, and income level.

Self-care agency question

Riesch and Hauck validated and modified the ESCA scale using pooled data from three studies (n=506) and principal components analysis [6]. The revised 35-item instrument comprised four factors: self-worth (12 items), motivation (12 items), knowledge and information seeking (5 items), and passivity (6 items)[6]. Cronbach's alpha coefficients ranged from 0.73 to 0.82, indicating acceptable reliability.

Disease-related knowledge question

Disease-related knowledge was assessed using the Leuven Knowledge Questionnaire [7]. Developed in Belgium, this questionnaire evaluates the understanding of adults with congenital heart disease regarding their condition, treatment, and preventive measures. The questionnaire consists of a total of 25 items comprising of four domains: knowledge and treatment of heart disease (10 items), prevention of complications (9 items), physical activities (3 items), and reproduction and contraception (3 items). With respect to the psychometric properties, the face validity and content validity of the instrument was tested. A Cronbach's alpha result of 0.7 or above is generally considered acceptable in most social science research situations.

Health risk behaviors question

Health risk behaviors was assessed using the Health

Behavior Scale (HBS) and the Baecke questionnaire. The HBS is a self-report instrument consisting of 16 questions that address 4 components of health risk behavior, focusing on: alcohol consumption (3 items), smoking (3 items), and dental hygiene (4 items) and physical activity (6 items). This scale has demonstrated robust psychometric properties with 86.3% of the items had a good to excellent content validity[8].

Psychometric properties of the instruments

The process of translating the 3 question sets Self-care agency (SCA), Disease related knowledge (DRK), and Health risk behavior (HRB) is carried out by 2 Experts are fluent in English and Vietnamese and use the back translation method. Then the two authors agreed and produced a translation. Finally, the English version back-translated from the Vietnamese version was checked by the 3 authors of the questionnaire and agreed on some issues and inappropriate topic. The reliability of the three sets of questions, SCA, DRK, and HRB, was 0.7.

Data Analysis

All results were checked the satisfied with the research's criteria and inputted into the Jamovi 25 and computed r to analyze the rate and relationships. The types of data were described as the following. The Mean and Standard Deviation method was used to describe basic demographic information, self-care, disease knowledge and risk behavior.

Associations variables and self-care, diseaser related knowledge, health behaviors used Computed r analysis. In addition, Linear regression reliability of .05 and Jamovi 25 were used to analyze the data to determine the predictors of SCA, DRK, HRB and demographic profile among adult in CAD.

RESULTS

***Table 1**. Clinico-Demographic Profile of Among Adult Residents with Coronary Artery Disease in selected in Ho Chi Minh City, Vietnam*

Profile	**Mean**	**SD**
Demographic Profile	Frequency	%
Age (year)	52	6.50
Sex (F – Percentage)		
Male	144	75.4
Female	47	24.6
Marital status (F – Percentage)		
Single	48	25.1
Married	113	59.2
Divorced	30	15.7
Religion		
Christian	49	25.7
Buddhist	96	50.3
Other (Catholic and Islam)	46	24.1
Highest education attainment		
Secondary school (from 6–9 years)	25	13.1
High school (from 10–12 years)	60	31.4
College/ University	106	55.5

Profile	Mean	SD
Employment status		
Employed	139	72.8
Unemployed	19	9.9
Retired	33	17.3
Income level (person/month) (VND)		
>10,000,000 VND	52	27.2
10,000,000-20,000,000 VND	87	45.5
21,000,000-30,000,000 VND	52	27.2
Clinical Profile (Comorbidities)		
Hypertension		
Yes	179	93.7
No	12	6.3
Diabetes Mellitus		
Yes	95	49.7
No	96	50.3
Dyslipidemia		
Yes	179	93.7
No	12	6.3
Chronic Kidney Disease (CKD)		
Yes	37	19.4
No	154	80.6
Stroke		
Yes	4	2.1
No	187	97.9

The study examined the clinico-demographic characteristics of 191 adults. The participants ranged in age from 40 to 75 years, with a mean age of 52 years (SD = 6.50). The majority of the participants were male (75.4%), while females constituted 24.6% of the sample. The age profile, with a mean of 52 years, underscores the presence of CAD in middle-aged adults, aligning with the global understanding that CAD risk increases with age. Regarding marital status, 59.2% were married, 25.1% were single, and 15.7% were divorced. In terms of religious affiliation, the most common was Buddhism (50.3%), followed by Christianity (25.7%), and other religions (Catholic and Islam) (24.1%). The educational attainment of the participants varied, with 55.4% having completed high school, 31.5% had attained a college or university degree, and 13.1% had finished secondary school (6–9 years).

Employment status revealed that 72.8% of the participants were employed, 17.3% were retired, and 9.9% were unemployed. Most participants were employed and earned between 10,000,000 to 20,000,000 VND (45.5%), Income levels were distributed across three categories: 27.2% earned less than 10,000,000 Vietnamese Dong (VND) per month, 45.5% earned between 10,000,000 to 20,000,000 VND, and 27.2% earned between 21,000,000 to 30,000,000 VND. Comorbidities were prevalent among the participants, with 93.7% reporting hypertension, 49.7% had diabetes mellitus, and 93.7% had dyslipidemia. Chronic kidney disease (CKD) was present in 19.4% of the participants. Stroke had affected 2.1% of the sample.

***Table 2**. Relationship between the assessed self-care agency, disease-related knowledge, health risk behaviors among adult residents with coronary artery disease in selected in Ho Chi Minh City, Vietnam*

Mediation Estimates				
Effect	**Estimate**	**SE**	**Z**	**P**
Indirect	-0.139	0.0707	-1.97	0.049
direct	-0.351	0.2064	-1.70	0.089
Total	-0.490	0.1989	-2.46	0.014

Path Estimates					
		Estimate	**SE**	**Z**	**P**
Self Care Agency →	Disease Related Knowledge	0.527	0.118	4.47	< .001 (Sig.)
Disease Related Knowledge →	Health Risk behaviour	-0.264	0.120	-2.19	0.029 (Sig.)
Self Care Agency →	Health Risk behaviour	-0.351	0.206	-1.70	0.089(Sig.)

Mediation Estimates:

Indirect Effect: The indirect effect of self-care agency on health risk behavior through disease-related knowledge is estimated at -0.139, significant ($p = 0.049$). **Direct Effect:** The direct effect of self-care agency on health risk behavior, after accounting for disease-related knowledge, is estimated at -0.351 ($p = 0.089$). **Total Effect:** The combined direct and indirect effects of self-care agency on health risk behavior amount to -0.490, significant ($p = 0.014$).

DISCUSSION

This sex distribution aligns with global research indicating that men are generally at a higher risk of developing CAD compared to women, particularly before the age of 60 [9]. The age profile, with a mean of 52 years, underscores the presence of CAD in middle-aged adults, aligning with the global understanding that CAD risk increases with age [10]. Regarding marital status, 59.2% were married, 25.1% were single, and 15.7% were divorced. Literature suggests that married individuals often have better health outcomes due to social and emotional support, which can mitigate stress a known risk factor for CAD. In terms of religious affiliation, the most common was Buddhism (50.3%), followed by Christianity (25.7%), and other religions (Catholic and Islam) (24.1%). This diverse religious distribution reflects the multicultural and multi-religious context of Ho Chi Minh City. Comorbidities were prevalent among the participants, with 93.7% reporting hypertension, 49.7% had diabetes mellitus, and 93.7% had dyslipidemia. Chronic kidney disease (CKD) was present in 19.4% of the participants, while chronic obstructive pulmonary disease (COPD) was not reported by any participant. Stroke had affected 2.1% of the sample. These high comorbidity rates reflect the complex interplay of CAD with other chronic conditions that can exacerbate.

The path analysis shows that the beta value of 0.351 between self care and heatlh risk behaviors is lower than the beta value of 0.791 which is the combination of selfcare with knowledge and knowledge with health risk behavior. This shows that knowledge is really important factor in determining health risk behavior among patients with CAD. However, the findings also show that knowledge is a significant factor that could heighten the reduction of health risk behaviors and will not likely engage in activities such alcohol consumption, smoking, poor dental hygiene and physical activity. Aligning with the findings by Taylor et al. (2022), who observed that enhanced self-care agency and disease-related knowledge significantly mitigate health risk behaviors in cardiovascular patients, our

results reinforce the need for targeted educational interventions that focus on both self-care competencies and comprehensive health literacy[11]. Taylor et al. (2022), highlighted the potential for improved patient outcomes through structured support systems that enhance both knowledge and self-directed care practices. The overall combined effect of self-care capacity on health-risk behaviors is statistically significant, emphasizing the importance of enhancing self-care capacity as a key strategy to reduce health-risk behaviors in patients with coronary artery disease.

CONCLUSION AND RECOMMENDATIONS

The study results suggest that increasing self-care and disease-related knowledge can significantly reduce health risk behaviors in adults with coronary artery disease.

Establishing a community-based cardiac rehabilitation facility that offers exercise training, educational campaigns, and emotional support services, with a culturally sensitive approach to reach diverse populations effectively.

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