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Health Related knowledge and Behaviours among Patients with Coronary Artery Disease

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Abstract

Background: Coronary artery disease (CAD) is growing as a significant public health problem, it is determined as one of major causes of death globally. It is a term given to heart problems caused by narrowing or blockage of coronary arteries which is usually caused by atherosclerosis. Objective: To explore the health-related knowledge and behaviors among patients with CAD. Design: an exploratory descriptive research design. Setting: The study was conducted at the outpatient cardiac clinic of Makkah hospitals, Saudi Arabia. Subjects: A convenient sample of 90 adult patients with coronary artery disease. Tools: Two tools were used for data collection. The first tool was Health Related Knowledge among Patients with Coronary Artery Disease Structured Interview Schedule; the second tool was Health Related Behaviors among Patients with Coronary Artery Disease (HRBs-CAD) Structured Interview Schedule. Results: Findings of the present study revealed that the studied patients had bad knowledge related to nature of coronary artery disease and had negative health behaviors regarding CAD. In addition, there was a significant statistical positive relation between socio-demographic characteristics and patients' score of overall knowledge and overall health related behaviors. Conclusion: The study concluded that patients demonstrated bad knowledge level and negative level of health related behaviors regarding CAD. Recommendations: Development and application of educational sessions for patients to improve their knowledge about the nature of coronary artery disease, as well as illustrated booklets, handouts, and audiovisual materials should be provided.

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Keywords: *Health related knowledge, health related behaviors, coronary artery disease.*

Introduction

Cardiovascular diseases (CVDs) remain a worldwide public health problem. Coronary artery disease (CAD) is the most common of cardiovascular diseases and it seems to be a significant threat to population's health and wellbeing worldwide, but yet the condition is largely preventable (Khayyal et al., 2016).

Coronary artery disease is considered a major cause of disease burden. In 2020, CAD was estimated about 126 million individuals (about 1.72%) of the world'spopulation and nine million of deaths globally were caused by CAD (Khan etal.,2020).

Coronary artery disease is defined as a condition develops when the coronary arteries become hardened and narrowed asa result of buildup of cholesterol or other materials (called plaque) on their inner walls, therefore, less blood can flow to the heart muscles which in turn can't get the blood or oxygen it needs (Ko et al.,2013).

Common symptoms of CAD usually arechest pain or discomfort which may radiateto the shoulder, arm, back, neck, or jaw, occasionally it may feel like heartburn. Usually symptoms occur with exercise or emotional stress, and sometimes it can be asymptomatic (Bullet et al., 2019).

There are many risk factors for CAD, most of them can be controlled or modifiedbut others are not. The modifiable risk factors can be high blood pressure, diabetes mellitus, high blood cholesterol levels, smoking, obesity, lack of physical activity, unhealthy diet, and emotional stress. On the other hand, the non- modifiable risk factors can be age, gender, family history, and race (Rachel, 2017).

Providing adequate knowledge aboutnature of CAD and treatment modalitiescontributes to understanding of the disease and promotes adherence to healthy behaviors. In recent decades, the harm effect of unhealthy behaviors on increasingdisease burden have been paid close attention of public health specialists to emphasize on the importance of healthybehaviors for control and prevention of the disease (Gaziano et al., 2010).

Finally, Nurses play an important role in treatment plan which includesassessing patient's knowledge about nature of disease, providing information regardingtreatment options. Nurses also should support patients to modify their unhealthy behaviors to decrease incidence of the disease complications (Rowlands et al., 2017).

Aims of the study

The aim of the study is to:

Assess health related knowledge and behaviors among patients with coronary artery disease.

Research questions:

What is the level of knowledge amongpatientswith coronary artery disease?

-What is health related behaviors amongpatientswith coronary artery disease?

Materials and Method:

Research design:

A descriptive research design was utilizedto accomplish the aim of the present study.

Settings:

The study was conducted in the outpatient cardiac clinic of Makkah hospitals, Saudi Arabia

Subjects:

A convenience sample of 90 adult patients with CAD, admitted to the above- mentioned setting was included in the study.

- Inclusion criteria:

- Both genders, age ranging from 20to 60 years old.
- Had coronary artery disease for atleast 6 months and more.
- Able to communicate effectively.
- Patients willing to participate in thestudy.
- Free from malignancies, rheumatoid -arthritis, and uncontrolled hypertension.

Tools: two tools were used:

Tool (I): Health related knowledge among patients with coronary artery disease structured interview schedule: which included two parts part I: Bio-socio-demographic data, partII: Assessment of patient's knowledge related to coronary artery disease which included one main item consists of 12 questions about nature of coronary artery disease. A scoringsystem used.

Each knowledge item was given a score; A score one was given to wrong answer or don't know, score twowas given to correct and incomplete, and score three was given to correct and complete answer. The total score calculated and classified as follows: 75% and more was considered good, from 50%to 74% of was considered fair, less than50% was considered bad knowledge level.

Tool (II): Health related behaviors among patients with coronary artery disease (HRBs-CAD) structuredinterview schedule: This tool included 53 closed ended questions to assess health-related behaviors related to six parameters: diet habits, compliance with therapeutic drugs, physical activity, smoking habits, stress management, follow up. Each behavior item was given a score; A score one was given to never, score two was given to sometimes, and score three was given to always. The total score calculated and classified as follows: 75% and more was considered positive, from 50% to 74% of was considered fair, less than 50% was considered negative behavior level.

Method:

Written approval was obtained and directed to the responsible authorities of the previously mentioned setting for taking permission to conduct the study after explaining the aim of the study.

The study tools were developed by the researcher after reviewing the recent relevant literature (Shrestha et al., 2020;Elsheikha, 2018; Walkern et al., 2011). It was validated by juries of 5 experts in the field. Their suggestions and comments were taken into consideration.

Cronbach Alpha Coefficient test was used to ascertain the reliability of the tools; it was 0.76

for tool one part two and 0.70 for tool two, in which both are acceptable.

A pilot study was carried out on 9 patients(excluded from the study subjects) to test the clarity, feasibility and applicability of the tools. After the pilot study, tools were revised and necessary modifications were done accordingly.

- The data was collected individually by the researcher before or after meeting the patient with the physician, in morning shift at the waiting area of the clinic.

- Each interview lasted about approximately 30-45 minutes for eachpatient; the data was collected over a period of four months in 2022.

- Statistical analysis:

- The collected data was categorized, coded, computerized, tabulated and analyzed using Statistical Package for Social Sciences (SPSS) version 20 program.

- Ethical considerations:

An informed consent was obtained fromeach study subject after explanation of the study purpose. Anonymity of the study subjects, confidentiality of the collected data, and the subject's right to withdraw at any time were maintained.

Results:

Table (1) represents frequency distributionof the studied patients according to their socio-demographic data. It was noticed that more than half (52.2%) of the studied patients were in the age group of 50- < 60 years. About two thirds (66.7%) of the studied patients were males. Also, it was found that secondary educated patients formed the half (50%), about one third (36.7%) of the studied patients were manual workers, more than half (57.8%) ofthe studied patients were coming from rural areas, more than half (60%) of them have not enough income from the patient' point of view.

Socio-demographic data	Studied patients	
	(n=90)	
	No.	%
1) Age in years		
• 20- < 30	0	0.0
• 30 - < 40	9	10.0
• 40- < 50	34	37.8
• 50- 60	47	52.2
2) Gender		
• Male	60	66.7
• Female	30	33.3
3) Level of education		
• Can’t read or write	18	20.0
• Primary	17	18.9

• Secondary	45	50.0
• University	10	11.1
4) Occupation		
• Official worker	25	27.8
• Manual	33	36.7
• House wife	22	24.4
• Retired	10	11.1
5) Area of residence		
• Urban	38	42.2
• Rural	52	57.8
6) Monthly income		
• Enough	36	40.0
• Not enough	54	60.0

Table (2) represents frequency distribution of the studied coronary artery disease patients according to their clinical data. Regarding the current symptoms of the studied patients; it was found that chestpain, discomfort in shoulders, arms, neck, and dyspnea formed 100%, 84.4%, 78.9% respectively; more than half (52.2%) of the studied patients usually ask for medical help when severity of these symptoms increased. In relation to past history; it was found that the minority (45.6%) of the studied patients had a history of associated diseases; 82.9% of them had medications, also it was found that non-smokers formed the highest percentage (43.3%) of the studied patients.

Clinical data	Studied patients(n=90)	
	No.	%
Present history:		
1) Current symptoms #		
• Chest pain	90	100.0
• Dyspnea	71	78.9
• Discomfort in your shoulders, arms, neck, jaw, orback	76	84.4
• Palpitation	15	16.7
• Perspiration	33	36.7
• Dizziness	17	18.9
• Heartburn	41	45.6
2) Time of asking for medical help		

• At the onset of symptoms	19	21.1
• When the severity of symptoms increased	47	52.2
• When became unable to tolerate	24	26.7
Past history:		
3) Presence of associated disease(s)		
• Yes	41	45.6
• No	49	54.4
4) The type of associated disease(s) (n = 41) #		
• Diabetes mellitus	34	82.9
• Renal disease	3	7.3
• Chronic obstructive pulmonary diseases	4	9.8
• Hepatic disease	3	7.3
• Others	2	4.9
Medication history:		
5) Taking regular prescribed medications for CAD		
• Yes	90	100.0
• No	0	0.0
Smoking history:		
6) Smoker		
• Yes	30	33.3
• No	39	43.3
• Quitter	21	23.3
• Nausea	3	3.3

Table (3) represents frequency distributionof the studied patients according to their knowledge about nature of coronary arterydisease. Regarding the meaning and riskfactors of CAD; it was found that 65.6%,97.8% respectively of the studied patientsresponded with correct and incompleteanswer. Concerning different methods ofcoronary artery disease diagnosis andtreatments; the table revealed that 100%,58.9% respectively of the studied patientsresponded with correct and incompleteanswer. Furthermore, regardingcomplications of CAD; it was found thatthe majority (87.8%) of the studied patientsresponded with correct and incompleteanswer. Finally, in relation to adverseeffects of long-term use of antiplatelet.

patient's knowledge related to coronary artery disease	Studied patients (n=90)					
	Correct and complete		Correct and incomplete		Wrong answer/Do n't know	
	No.	%	No.	%	No.	%
Nature of coronary artery disease						
1) Meaning of coronary artery disease	28	31.1	59	65.6	3	3.3
2) Risk factors of coronary artery disease	1	1.1	88	97.8	1	1.1
3) Most common signs & symptoms of coronary artery disease	11	12.2	79	87.8	0	0.0
4) Types of coronary artery disease	25	27.8	65	72.2	0	0.0
5) Different methods of coronary artery disease diagnosis	0	0.0	90	100.0	0	0.0
6) Different methods of coronary artery disease treatment	36	40.0	53	58.9	1	1.1
7) Adverse effects of long-term use of Antiplatelet medications (aspocid \plavix)	0	0.0	31	34.4	59	65.6
8) Complications of coronary arterydisease	1	1.1	79	87.8	10	11.1

Table (4) illustrated frequency distributionof the studied patients according to totalpercent score of their health behaviorsregarding coronary artery disease. Themajority of the studied patients had fairhealth-behaviors related to stress management, diet habits, and compliancewith therapeutic drugs (86.7%, 68.9%, and53.3% respectively). On the other hand,the majority of the studied patients hadnegative health behaviors related tosmoking habits, physical activity, andfollow up with 90%, 72.2%, and 57.8% respectively.

Health related behaviors among patientswith coronary artery disease	Studied patients (n=90)					
	Negative		Fair		Positive	
	No.	%	No.	%	No.	%
1) Health behaviors related to diet habits	27	30.0	62	68.9	1	1.1

2) Health behaviors related to compliance with therapeutic regimen	23	25.6	48	53.3	19	21.1
3) Health behaviors related to physical activity	65	72.2	24	26.7	1	1.1
4) Health behaviors related to smokinghabits (n = 30)	27	90.0	3	10.0	0	0.0
5) Health behaviors related to stress management	11	12.2	78	86.7	1	1.1
6) Health behaviors related to follow up:	52	57.8	27	30.0	11	12.2

Table (5) showed the relation between overall knowledge level and the characteristics of the studied patients.There was a statistically significant relationbetween patients' knowledge level and age (p = 0.026), gender (p=<0.001), level of education (p=<0.001), occupation (p = <0.001), area of residence (p = 0.001), and monthly income (p =<0.001). diabetes mellitus. Furthermore, 100% of the studied patients were on regular prescribed 65.6% of them responded with wrong answer/don't know.

Patients' characteristics	Knowledge				Test of significance	
	Bad (n = 49)		Fair (n = 41)			
	No.	%	No.	%	χ^2	P
1) Age in years					7.634*	$MC_{p=}$0.026*
20- < 30	0	0.0	0	0.0		
30 - < 40	8	16.3	1	2.4		
40- < 50	21	42.9	13	31.7		
50- 60	20	40.8	27	65.9		
2) Gender					32.344*	<0.001*
Male	20	40.8	40	97.6		
Female	29	59.2	1	2.4		
3) Level of education					34.837*	<0.001*
Can't read or write	18	36.7	0	0.0		

Primary		14	28.6	3	7.3		
Secondary		16	32.7	29	70.7		
University		1	2.0	9	22.0		
4) Occupation							
Official worker		5	10.2	20	48.8	19.266*	MCp
Manual		23	46.9	10	24.4		

Table (6) represents the relation between health- related behaviors level and the characteristics of the studied patients. There was a statistically significantpositive relation between patients' health- related- behaviors level and age (p = 0.017), gender (p = <0.001), level of education (p = <0.001), occupation (p =0.001), and monthly income (p = 0.004).

Patients' characteristics	Health related behavior level				Test of significance	
	Negative (n = 54)		Fair (n = 36)			
	No.	%	No.	%	χ^2	P
1) Age in years						
20- < 30	0	0.0	0	0.0		
30 - < 40	8	14.8	1	2.8	8.126*	0.017*
40- < 50	24	44.4	10	27.8		
50- 60	22	40.7	25	69.4		
2) Gender						
Male	25	46.3	35	97.2	25.208*	<0.001*
Female	29	53.7	1	2.8		
4) Level of education						
Can't read or write	18	33.3	0	0.0		
Primary	16	29.6	1	2.8	33.254*	<0.001*
Secondary	17	31.5	28	77.8		
University	3	5.6	7	19.4		
5) Occupation						
Official worker	9	16.7	16	44.4		
Manual	28	51.9	5	13.9	16.833*	

House wife	12	22.2	10	27.8		$MC_{p=}$
Retired	0	0.0	1	2.8		0.001*
Not working	5	9.3	4	11.1		
6) Monthly income (from the patient's pointof view)						
Enough	15	27.8	21	58.3		
Not enough	39	72.2	15	41.7	8.403*	0.004*

Figure (1) reveals the correlation between overall knowledge and overall behavior levels of the studied patients which expounded that there was a statistically significant positive correlation between overall knowledge level and overall health related behavior scores ofthe studied patients with coronary arterydisease; r = 0.353 and (p =0.001).

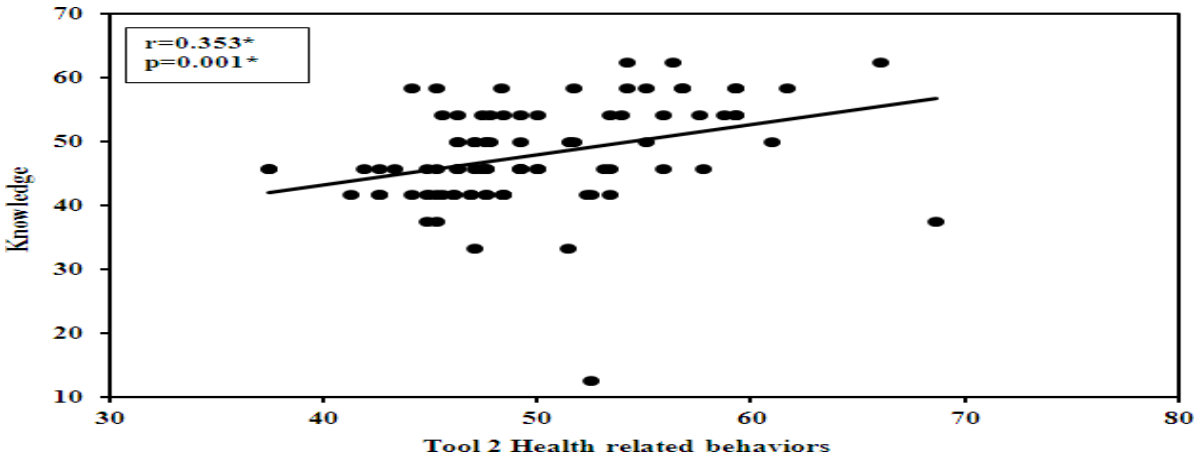


Figure (2) represents frequencydistribution of the studied patientsaccording to their total score of knowledge regarding CAD, itwas found that more thanhalf (54.4%) of the studied patients hadbad knowledge level, while 45.6% had fair knowledge level related to CAD.

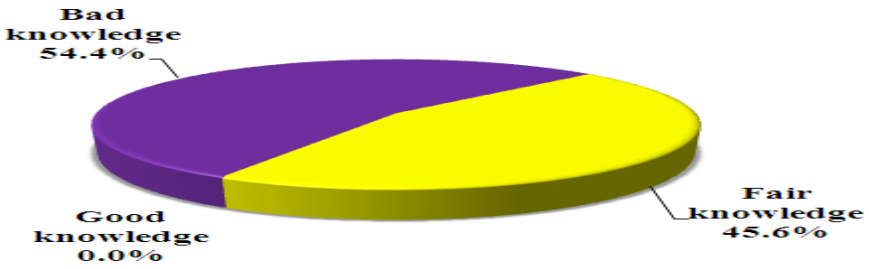
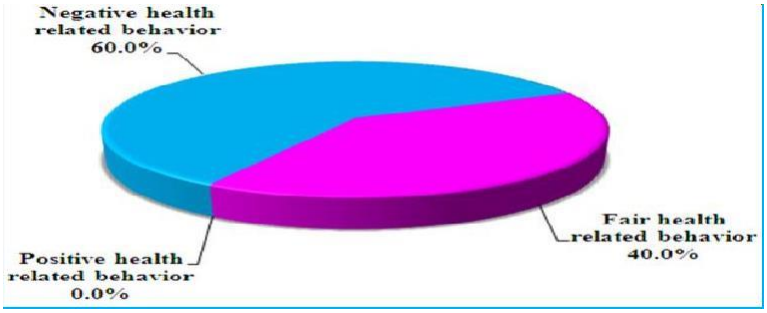


Figure (3) demonstrated frequencydistribution of the studied patients according to their total score of overallhealth related behaviors regarding CAD. Itwas revealed that more than half (60%) ofthe studied patients had negative healthbehavior, while 40% of them had fairhealth behaviors regarding CAD.



Discussion

Coronary artery disease is one of CVDs that has high prevalence rate worldwideand are becoming a major cause of mortality in most of developing countries (Gheorghe et al., 2014). Lack of knowledge about nature of the disease as well as performing various unhealthy behaviors related to diet habits, compliancewith therapeutic drugs, physical activity,smoking habits, stress management and follow up are becoming major causes for developing CAD which affectpatient' quality of life (Zheng et al., 2020).

The results of the current studydemonstrated that more than half ofthe studied patients had bad knowledge level regarding nature of CAD. This result may be referred to that the majority of studied patients were living in rural areas where public health resources needed for health education about the disease were lacking. Moreover,they don't turn to the internet forthe information available online about theirdisease for adequate awarenessof the disease and its management.

The present finding fits with a study ofAthbi& Hassan, (2019) who assured in their study that most of the studied patientshad bad knowledge level regarding secondary prevention of CAD.

On assessing total score of healthbehaviours regarding CAD, the results of the current study revealed that more than half of the studied patients had negativehealth behavior regarding CAD. This couldbe due to lack of patients' knowledge aboutnature of CAD which can lead to performing unhealthy behaviors.

The present study is in a harmony with a study of Mahmoud, & Elderiny, (2018) which represented that the majority of study participants were adhered to unhealthy life-style practices regarding CAD.

On assessing correlation between total score of patients 'knowledge and total score of health behaviors regarding CAD, it was found that there was a statistically significant positive correlation betweenoverall knowledge level and overall health related behavior scores (p =0.001). This may be due to knowledge is animportant factor to increase patient awareness, allowing them to perform healthy behaviors regarding CAD, and therefore decrease susceptibility for further complications, so patients who had good levels of knowledge will perform positive healthy behaviors which enhance patienthealth and wellbeing.

The present finding is consistent with Jung & Yang, (2021); El Geneidy et al., (2016) and Rahmati et al., (2015) who reported that there was significant positivecorrelation between patient knowledge level and overall behavior levels.

Conclusion:

Based on the results of the current study, it was illustrated that more than half of the studied patients had bad knowledge level and approximately about two thirds had negative health related behaviors regarding CAD. Their lack of knowledge about CAD was statistically significant associated with their socio-demographic characteristics such as advanced age, female gender, secondary education, manual working, rural residence, as well as low income.

The study also presented that patients' negative health behaviors regarding CAD was statistically significant associated with socio- demographic characteristics such as advanced age, female gender, secondary education, manual working, and low income.

Recommendations

- Educational sessions should be developed and implemented as well as illustrated booklets and audiovisual materials should be provided for patients and their families for teaching about knowledge and healthy behaviorsregarding CAD.

- Nurses should receive updated educational programs to improve their knowledge level about nature of CAD as well as healthy behaviors regarding patients with coronary artery diseases.

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