Journal of Neonatal Surgery
ISSN(Online): 2226-0439
Vol. 14, Issue 27s (2025)
https://www.jneonatalsurg.com

OPEN ACCESS

Awareness of Angina And Its Associated Risk Factors Among The General Population In Jeddah City

Alaa Hafiz*[1], Elaf Alharbi[2], Sara Rabei[2], Faridah Ahmed[2], Nouran Essam Katooa[3], Areej Abunar[4]

[1]Faculty of Nursing, Maternity and Child Health Department, King Abdulaziz University, Jeddah, Saudi Arabia.

[2]Faculty of Nursing, King Abdulaziz University, Jeddah, Saudi Arabia

[3]Faculty of Nursing, Maternity and Child Health Department, King Abdulaziz University, Jeddah, Saudi Arabia.

[4Faculty] of Nursing, Maternity and Child Health Department, King Abdulaziz University, Jeddah, Saudi Arabia.

***Correspondence Author:**

Email ID: ahhafidh@kau.edu.sa

Cite this paper as: Alaa Hafiz, Elaf Alharbi, Sara Rabei, Faridah Ahmed, Nouran Essam Katooa,Areej Abunar, (2025) Awareness of Angina And Its Associated Risk Factors Among The General Population In Jeddah City. *Journal of Neonatal Surgery*, 14 (27s), 14-27.

ABSTRACT

Introduction: Angina, characterized by chest pain, is a common symptom of coronary artery disease (CAD) and occurs when there is inadequate blood flow to the heart muscle. Early recognition of angina and managing risk factors such as hypertension and smoking are vital for preventing cardiovascular complications. CAD contributes significantly to global cardiovascular disease deaths, especially in GCC countries. Despite global efforts, studies conducted in various nations, including Syria, Cameroon and Oman have consistently highlighted a lack of awareness regarding cardiovascular disease (CVD) risk factors and symptoms among populations. However, there is limited studies assessing the current level of awareness regarding angina and its associated risk among the general population in Jeddah. This information will be crucial in developing targeted interventions to improve overall awareness and prevention of cardiovascular diseases (CVDs) in Jeddah and the surrounding areas.

Aim: This research aims to investigate the current level of awareness regarding angina and its associated risk factors among the general population in Jeddah.

Methodology: A quantitative, cross-sectional, and descriptive research approach was applied.

Results: The study included 385 participants, predominantly single individuals from North Jeddah with at least a bachelor's degree. 59.9% demonstrated good awareness of (CVD) risk factors. Regarding clinical picture understanding, 42.2% showed good awareness, while 92.1% were knowledgeable about CVD prevention. Significant associations were observed between awareness levels, age, and gender, with males and younger participants exhibiting higher awareness levels.

Conclusion: The findings revealed a range of awareness levels, with some recognition of the risk factors associated with angina. Specifically, identified significant gaps in understanding the symptoms of angina. Ongoing efforts are needed to address knowledge gaps, especially among specific groups, through tailored public health strategies and education.

Keywords: *Cardiovascular Disease (CVD), Saudi Arabia, Risk factors, Signs and Symptoms, Prevention, Jeddah city.*

1. INTRODUCTION

Angina is a prevalent symptom of coronary artery disease (CAD), which is classified as a type of cardiovascular disease. It manifests as chest pain or discomfort resulting from insufficient blood flow to the heart muscle (Shao, Wang, Tain, & Da tang, 2020). These symptoms play a vital role as an early indicator of potential heart issues, and certain factors such as hypertension, diabetes, smoking, and high cholesterol levels can increase the risk of developing angina. Recognizing angina promptly and implementing appropriate management strategies are crucial in preventing adverse cardiovascular events (Shao et al., 2020).

According to the World Health Organization (WHO), cardiovascular diseases (CVD) accounted for approximately 17.9 million deaths in 2016, representing 31% of global deaths (WHO, 2018). Out of these CVD deaths, coronary artery disease (CAD) was responsible for 7.4 million deaths worldwide, making up 41.3% of the total (WHO, 2018). Among the Gulf

Cooperation Council (GCC) countries, Kuwait, the United Arab Emirates, Saudi Arabia, and Oman had the highest proportion of mortality attributed to CADs, with rates of 41%, 40%, 37%, and 36%, respectively (Traina, Almahmeed, Edris, & Tuzcu, 2017).

There is a significant global concern regarding cardiovascular disease (CVD), as evidenced by various studies conducted in different countries (Aminde , Takah , Ngwasiri , Noubiap , Tindong , Dzudie & Veerman , 2017), (Ammouri, Aburaddah, Tailakh, Kamanyire, Achora, & Isac, 2018), (Assiri , Alshyarba , Alammar ,Asiri , Dughayem & Asiri , 2020), (Swed , Alibrahim , Bohsas , Hafez, Rais , Shoib , Albazee , Elsayed , Sawaf , Farwati , Seijari , Battikh , Shaheen , Ibrahem , Alsaleh , Lee & Rakab , 2023). For instance, a cross-sectional study conducted in Syria, targeted Syrian citizens over the age of 18 residing in the country (Swed et al., 2023). The study included 1201 participants, with a response rate of 97.2%. The overall knowledge scores for CVD risk factors and warning signs were found to be 61.5%. The results indicated inadequate knowledge among the participants regarding these aspects of CVDs, suggesting a need for increased awareness and educational initiatives on CVD risk factors (Swed et al., 2023). These findings highlighted the importance of educating the public about CVD risk factors and symptoms to enable early recognition and prevention of complications. (Swed et al.,2023).

Similarly, in a cross-sectional study conducted in Buea, Cameroon, the population's awareness of CVD types and risk factors was assessed. Among the 1162 participants, it was found that 52.5% had poor knowledge regarding CVDs (Aminde et al., 2017). These findings further emphasize the lack of awareness among the general population regarding CVD risk factors and highlight the importance of addressing this issue.

In Oman, Ammouri et al. (2018) conducted a cross-sectional study to explore the relationship between individual characteristics and CHD awareness, and health promotion behaviors among adults' population. The results of the survey revealed a lack of awareness regarding risk factors for coronary heart disease specifically such a diabetes (86.6%), high blood pressure (75.2%), and high cholesterol (81.2%). The study found that older age was associated with higher awareness of CHD. However, interestingly, employed participants and those with knowledge of CHD risk factors had lower perceptions of their own health Regarding health promotion behaviors, the study found that only around half of the participants reported engaging in behaviors to maintain an ideal body weight (49.1%), consume a low-fat and low-cholesterol diet (41.2%), increase fruit and vegetable intake (58.8%), and perform regular exercise (42.4%). Importantly, the study identified a positive association between knowledge of CHD risk factors, awareness of CHD, and the adoption of health promotion behaviors. This suggests that improving education and awareness about CHD may lead to more favorable health behaviors among the population.

In Saudi Arabia Assiri et al. (2020) conducted a cross-sectional study involved 5,170 individuals above 18 years of age from various regions of Saudi Arabia. There were 30.5% of respondents from the southern region, 20.7% from the middle region, and 14% from the northern region. The study found that participants from the western region had the highest level of awareness (47.1% with good awareness), followed by those from the middle region (45.4%), and the lowest level of awareness was recorded among participants from the northern region (36%). In terms of gender, 44% of female participants demonstrated good awareness of signs and symptoms compared to 41% of males. In addition, good awareness was more prevalent among older participants (41.5%) compared to those below 18 years (32.2%). Education played a significant role, with 74.2% of university-educated participants displaying a good awareness level compared to 29.6% of illiterate individuals. Similarly, a higher social level corresponded to a higher level of awareness, with 43.8%.

A cross-sectional study conducted by (Basham, Aldubaikhi, Sulaiman, Alhaider, Alrasheed, Bahanan, Masuadi , & Alsaif, 2021) in Dawadmi, Saudi Arabia, aimed to evaluate the awareness and prevalence of coronary artery disease (CAD) risk factors among Saudi residents. The researchers found that 75% of the participants were able to recognize hypertension, cigarette smoking, and high cholesterol as causes of heart attacks. However, the study revealed significant gaps in knowledge, as only 25% mentioned excessive salt intake and a mere 12% reported alcoholism as risk factors for CAD. The researchers also examined the relationship between sociodemographic characteristics and knowledge about heart attacks. Their analysis revealed statistically significant associations with age, marital status, household income,

and region of residence. Interestingly, the 35-44 age group demonstrated higher knowledge compared to younger and older age groups. Additionally, married individuals showed more knowledge about heart attack causes than non-married participants, and those with higher incomes had higher knowledge scores than those with lower incomes. These findings suggest that while a majority of the Saudi general population recognized some major CAD risk factors, there were notable gaps in awareness, particularly around diet-related factors like excessive salt intake. The study also highlighted the importance of sociodemographic factors in influencing cardiovascular health knowledge. Targeted education campaigns may be necessary to address these knowledge gaps, especially among younger, unmarried, and lower-income individuals.

These two studies in Saudi Arabia also assessed the levels of awareness regarding the signs and symptoms of a heart attack. In Assiri et al.'s (2020) study, the most commonly recognized symptom was chest pain, identified by 85.9% of the participants, followed by dyspnea (85.1%), palpitations (82.5%), tiredness (71.6%), and fainting (66.9%). Nausea was the symptom least identified by the participants, with only 33.6%. In the study by Basham et al. (2021), between 79% and 90% of participants recognized shortness of breath and chest pain, respectively, as symptoms of a heart attack. Approximately

half of the participants identified arm or shoulder discomfort and jaw or neck pain as potential symptoms. Overall, these findings underscore the importance of ongoing education and awareness campaigns to enhance knowledge of heart attack symptoms and promote timely medical intervention.

Since there is no previous studies assessing the current level of awareness among the general population in Jeddah regarding angina and its associated risk factors, our research aims to address this gab. By assessing the knowledge and understanding of angina among the Jeddah population, our study can provide valuable insights into the existing gaps in public awareness. This information will be crucial in developing targeted interventions to improve overall awareness and prevention of cardiovascular diseases (CVDs) in Jeddah and the surrounding areas. This targeted approach can lead to improved prevention, early detection, and management of angina, ultimately reducing the impact of CVDs on individuals and the healthcare system.

Researcher problem:

According to the literature, several studies highlighted that cardiovascular diseases are one of the major health problems and the leading cause of mortality and disability globally (Alshurtan , Alazmmy , Alasiri , Alrwaytie , Alshammari , Alonazi , Alanazi , Alswadian , Alamri & Altarjami , 2022). In Saudi Arabia, CVD is estimated to account for 42% of the total mortalities and CHDs are ranked as the second leading cause of death (Mujamammi, Alluhaymid, Alshibani, Alotaibi, Alzahrani, Alotaibi, Almasabi, & Sabi, 2020). Jeddah residents might be at a higher risk for cardiovascular diseases, including CAD due to their lifestyle. Lack of understanding about angina risk factors, such as high blood pressure, high cholesterol, smoking, diabetes, or obesity, can lead to the development of angina. However, there is a no research available on the awareness of angina in Jeddah city. Therefore, this study aims to evaluate the level of awareness and the risk factors associated with angina among the residents of Jeddah city.

Researcher purpose:

This research aims to investigate the current level of awareness regarding angina and its associated risk factors among the general population in Jeddah. By examining the knowledge gaps and identifying the factors contributing to limited awareness, this study seeks to provide valuable insights that can inform public health strategies, educational campaigns, and interventions aimed at improving angina awareness and prevention efforts.

Research Question:

- What is the level of awareness of angina and its risk factors in the population of Jeddah city?
- What are the risk factors associated with angina among the population of Jeddah?

2. METHODOLOGY

Design:

In this study, a quantitative, cross-sectional, and descriptive research approach was applied. This design was help in collecting thorough information to answer the research question in a short period. Design involves collecting data at a single point in time from a representative sample of the population (Doe & Smith, 2019) . This design allows you to capture a snapshot of the level of awareness and risk factors associated with angina at that particular time.

Sampling:

A convenience sampling technique was used to select the sample. Convenience sampling involves selecting participants based on their easy accessibility and willingness to participate. In this case, the general population residing in Jeddah city, Saudi Arabia, who agreed to participate in the study were included in the sample. The inclusion criteria for the study specified that participants must be residents of Jeddah city and aged 18 years or above. This criterion ensures that the sample consists of individuals who are legally capable of providing informed consent and have the necessary maturity to respond to the survey questions. Participants under the age of 18 and non-Saudi residents were excluded from the study. This decision may have been made to ensure that the study focuses specifically on the population of Jeddah city and to maintain cultural and contextual relevance in the findings.

Sample size:

Data was collected via an online questionnaire (survey). The sample was calculated with a 5% margin of error and a 95% confidence level by Calculator Net Link. The study conveniently sampled 384 Saudi those who agreed to engage in the study.

Measurement tool:

The researchers used an electronic questionnaire that was modified from the one originally developed by (Khalifa , Alotaibi , Albahlal , Alotaibi , Alkurdi , Atef , Almurhraj , Alkhateeb , Alsoos , Alzaben & Alenazi , 2019). The questionnaire consisted of 4 main sections:

1. Demographic Factors:

This section collected information on the participants' age, gender, employment status, marital status, area of residence, education level, and income.

2. Cardiovascular Disease Risk Factors:

This section included 3 items related to awareness of risk factors for cardiovascular diseases.

3. Awareness of Cardiovascular Disease Symptoms:

This section included 3 items assessing the participants' awareness regarding the clinical presentation of cardiovascular diseases.

4. Awareness of Cardiovascular Disease Prevention:

This section included 5 items related to the participants' awareness of measures to prevent cardiovascular diseases.

For the questions in sections 2-4, the response options were "Yes", "No", or "I don't know".

This comprehensive questionnaire allowed the researchers to assess the general population's knowledge and awareness levels across various aspects of cardiovascular health, including risk factors, disease symptoms, and prevention strategies. The inclusion of demographic factors also enabled the analysis of how awareness varied based on different socioeconomic and personal characteristics.

Procedure:

Data was collected from participants through an online questionnaire survey. The survey was distributed via social media platforms such as WhatsApp and Twitter. The participants were likely reached through messages explaining the aim of the study and the inclusion criteria for participation. Additionally, the inclusion criteria would have been communicated to potential participants, specifying the characteristics or requirements they needed to meet in order to participate in the study. By completing the survey, participants were considered to have given their permission to participate in the research.

Analysis:

Data collected from participants were organized in Excel sheet. SPSS software was used to analyze the data. The categorical variables were presented in frequency and percentages. Chi square test and fisher exact test were conducted to test the association between study variables. A p-value of less than or equal to 0.05 considered significant.

3. RESULTS

The study included a total of 385 participants. The majority of the individuals were single, came from North Jeddah, and had at least a bachelor's degree of education. Overall, the study found that 59.9% of the participants had a good level of awareness about the risk factors for cardiovascular disease (CVD), and only 2.9% had a poor level of awareness. Regarding awareness of the clinical presentation of CVD, 42.2% of the participants had a good level of awareness, while less than 10% had a poor level of awareness. Most participants (92.1%) had a good level of awareness when it came to the prevention of CVD, and only 3.1% had a poor level of awareness. The study also found a significant association between age, gender, and the level of CVD awareness. Male participants were more aware of CVD compared to female participants. Younger participants also demonstrated a better level of CVD awareness compared to older participants. These findings suggest that while the general population in Jeddah had relatively good awareness about CVD risk factors, symptoms, and prevention, there is still room for improvement, particularly among females and older individuals. Targeted educational campaigns may be needed to address these gaps and further enhance cardiovascular health knowledge in the community.

Table 1. The Demographic Characteristics of Participants (N = 384)

Variable	Category	Frequency	Percent
Age	**18–25**	**245**	**63.8%**
	26–35	**45**	**11.7%**
	36–45	**5**	**1.3%**
	46–55	**52**	**13.5%**
	More than 55	**37**	**9.6%**
	Total	**384**	**100.0%**

Gender	**Male**	**59**	**15.4%**
	Female	**325**	**84.6%**
	Total	**384**	**100.0%**
Employment	**Employed**	**87**	**22.5%**
	Unemployed	**69**	**18.0%**
	Freelancer	**18**	**4.7%**
	Student	**210**	**54.7%**
	Total	**384**	**100.0%**
Marital Status	**Married**	**110**	**28.6%**
	Single	**257**	**66.9%**
	Divorced	**14**	**3.6%**
	Widowed	**3**	**0.8%**
	Total	**384**	**100.0%**
Area	**South**	**74**	**19.3%**
	North	**164**	**42.7%**
	West	**98**	**25.5%**
	East	**48**	**12.5%**
	Total	**384**	**100.0%**
Education	**Secondary**	**149**	**38.8%**
	Diploma	**16**	**4.2%**
	Bachelor	**185**	**48.2%**
	Postgraduate	**34**	**8.9%**
	Total	**384**	**100.0%**
Income	**500–2000**	**224**	**58.3%**
	3000–5000	**42**	**10.9%**
	>5000	**118**	**34.7%**
	Total	**384**	**100.0%**

Table 1 shows total of 384 individuals were participated in the study, most of them were females (84.6%). Around 64% of participants aged 18-25 years, more than half of the study sample were students. Most individuals included in the study were single, come from North Jeddah, and had at least a bachelor's degree of education The distribution of incomed showed that 58.3% of participants had monthly income between 500 and 2000 SR and 34.7% had income more than 5000 SR per month.

Table 2 Awareness regarding Risk factors of CVD:

Variable	Frequency	Percent
Which of the following is a risk factor of CVD?		
HTN	15	3.9

Overweight	10	2.6
Diabetes	15	3.9
Family History	5	1.3
All	339	88.3
Do you think lack of exercise is a risk factor of CVD?		
Yes	111	28.9
No	271	70.6
I don't know	2	0.5
Do you think stress is a risk factor of CVD		
Yes	349	90.9
No	15	3.9
I don't know	20	5.2

N=384

Table 2 reports the frequency and percentage distribution of participants by their awareness regarding the risk factors of CVD. Most participants (88.3%) mentioned that all HTN, overweight, diabetes, and family history are the risk factors of CVD. The answer of the question about lack of exercise showed that (70.6%) were not consider lack of exercise as a risk factor related to CVD. Most participants (90.9%) stated that stress is a risk factor of CVD.

Table 3 Level of awareness regarding the risk factors of CVD:

Level	**Poor**	**Moderate**	**Good**
Frequency	11	143	230
Percent	2.9	37.2	59.9

Table 3 presents that the overall distribution of CVD risk factors awareness level indicated 59.9% of individuals included in the study had a good level of awareness, and only 2.9% had a poor level of awareness about risk factors of CVD.

Table 4 Awareness regarding clinical picture of CVD:

Variable	**Frequency**	**Percent**
Feeling weak, lightheaded, or faint is common symptoms of having heart attack?		
Yes	168	43.8
No	173	45.1
I don't know	43	11.1
Which of the following is a clinical picture of CVD?		
Shortness of breath	40	10.5
Pain in chest, shoulder, jaw, neck, or back	131	34.2
All	212	55.3
Do you think the swelling of your lower extremities can be clinical picture of heart failure?		

Yes	156	40.6
No	197	51.3
I don't know	31	8.1

N=384

Table 4 shows participants awareness regarding the clinical picture of CVD showed that 45.1% did not feel weak, lightheaded, or faint. More than have of participants reported shortness of breath, pain in chest, shoulder, jaw, neck, or back are the clinical picture of CVD. About 40% thought that swelling lower extremities can be clinical picture of heart failure.

Table 5 Level of awareness regarding the clinical picture of CVD:

Level	**Poor**	**Moderate**	**Good**
Frequency	37	185	162
Percent	9.6	48.2	42.2

Overall awareness regarding the clinical picture of CVD showed 42.2% had a good level of awareness, and less than 10% had a poor level of awareness regarding the clinical picture of CVD.

Table 6 Awareness regarding Prevention of CVD:

Variable	**Frequency**	**Percent**
Do you think eating healthy food can prevent CVD?		
Yes	332	86.5
No	25	6.5
I don't know	27	7.0
Walking is considered as a type of exercise that can lower CVD?		
Yes	361	94.0
No	8	2.1
I don't know	15	3.9
How many times do you think is recommended as a regular check-up for serum lipid?		
Once per year	238	62.0
Three per year	82	21.4
Once in two years	46	12.0
No need	15	3.9
Other	3	0.8
Do you think a good control of hypertension can reduce the risk of CVD?		
Yes	368	95.8
No	4	1.0
I don't know	12	3.1
Do you think keeping your blood sugar normal can reduce the risk of CVD?		

Yes	353	91.9
No	10	2.6
I don't know	21	5.5

N=384

Table 6 shows The distribution of awareness regarding prevention of CVD reported most participants were consider healthy food and walking can prevent CVD. About 62% recommended one time per year for a regular check-up for serum lipid. Most participants indicated good control of hypertension and blood sugar reduce the risk of CVD.

Table 7 Level of awareness regarding prevention of CVD:

Level	**Poor**	**Moderate**	**Good**
Frequency	12	19	354
Percent	3.1	4.9	92.1

Table 7 shows most participants (92.1%) had a good level of awareness regarding prevention of CVD, while only 3.1% had a poor level of awareness regarding prevention of CVD.

Table 8 Relationship between demographic data and level of awareness regarding CVD:

Variable	**Poor**	**Moderate**	**Good**	**P-value**
Gender				0.050*
Male	1 (1.7)	12 (20.3)	46 (78.0)	
Female	21 (6.5)	101 (31.1)	203 (62.5)	
Age				0.001*
18-25	16 (6.5)	63 (25.7)	166 (67.8)	
26-35	3 (6.7)	8 (17.8)	34 (75.6)	
36-45	3 (60.0)	2 (0)	0 (0)	
46-55	0 (0)	23 (44.2)	29 (55.8)	
>55	0 (0)	17 (45.9)	20 (54.1)	
Employment status				0.549
Employed	3 (3.4)	31 (35.6)	53 (60.9)	
Unemployed	2 (2.9)	21 (30.4)	46 (66.7)	
Freelancer	2 (11.1)	5 (27.8)	11 (61.1)	
Student	15 (7.1)	56 (26.7)	139 (66.2)	
Marital status				0.133
Married	5 (4.5)	35 (31.8)	70 (63.6)	
Single	17 (6.6)	68 (26.5)	172 (66.9)	
Divorced	0 (0)	9 (64.3)	5 (35.7)	
Widowed	0 (0)	1 (33.3)	2 (66.7)	
Area in Jeddah				0.229

South	7 (9.5)	17 (23.0)	50 (67.6)	
North	5 (3.0)	48 (29.3)	111 (67.7)	
West	7 (7.1)	29 (29.6)	62 (63.3)	
East	3 (6.3)	19 (39.6)	26 (54.2)	
Educational level				0.185
Secondary	9 (6.0)	39 (26.2)	101 (67.8)	
Diploma	1 (6.3)	1 (6.3)	14 (87.5)	
Bachelor	11 (5.9)	64 (34.6)	110 (59.5)	
Postgraduate	1 (2.9)	9 (26.5)	24 (70.6)	
Income				0.372
500-2000	14 (6.3)	58 (25.9)	152 (67.9)	
3000-5000	2 (4.8)	12 (28.6)	28 (66.7)	
>5000	6 (5.1)	43 (36.4)	69 (58.5)	

**Significant association*

Table 8 shows the results of Chi square test and fisher exact test reported significant association between age and gender with the level of awareness regarding CVD ($P < 0.05$). Male participants were more aware of CVD compared to female participants. Young participants had a good level of CVD awareness compared to older participants.

4. DISCUSSION

The present study aimed to investigate the level of awareness regarding angina and its associated risk factors among the general population in Jeddah, Saudi Arabia. The findings provide valuable insights into the current state of knowledge and understanding about angina, a common symptom of coronary artery disease (CAD), and cardiovascular diseases (CVDs) more broadly within this population. Awareness of Risk Factors for Angina and CVDs: A remarkable 59.9% of participants demonstrated a good level of awareness regarding the major risk factors for CVDs, including hypertension, overweight/obesity, diabetes, and family history. This finding is consistent with the study by Swed et al. (2023) conducted in Syria, where the overall knowledge score for risk factors and warning signs of CVDs was 61.5%. However, it is important to note that the current study specifically focused on awareness levels in Jeddah, whereas the Syrian study involved a broader national sample.The high level of awareness observed in the present study contrasts with the findings reported by Mujamammi et al. (2020) in Riyadh, Saudi Arabia, where only 47.1% of respondents exhibited a good overall awareness of CVDs and their associated risk factors. This discrepancy may be attributed to regional variations in educational efforts, socioeconomic factors, and the effectiveness of public health campaigns within different regions of Saudi Arabia.

Notably, 88.3% of participants in the current study correctly identified hypertension, overweight/obesity, diabetes, and family history as significant risk factors for CVDs. This finding aligns with the results of Ammouri et al. (2018) in Oman, where knowledge of CVD risk factors was positively associated with health promotion behaviors. It suggests that the general population in Jeddah has a relatively strong understanding of the major modifiable and non-modifiable risk factors contributing to the development of CVDs, including angina.

Awareness of Clinical Picture and Symptoms of Angina and CVDs: Regarding the awareness of the clinical picture and symptoms of CVDs, 42.2% of participants reported a good level of understanding. This finding is comparable to the study by Assiri et al. (2020), which found that 42.9% of participants exhibited a good awareness level regarding heart attack symptoms among the Saudi population. However, it is noteworthy that a substantial proportion (48.2%) of participants in the present study had only a moderate level of awareness about the clinical manifestations of CVDs.The relatively lower levels of awareness regarding the clinical picture and symptoms of angina and CVDs compared to the awareness of risk factors highlight the need for targeted educational efforts. Early recognition of symptoms is crucial for prompt medical intervention and the prevention of adverse cardiovascular events, such as myocardial infarction (heart attack). Initiatives aimed at improving public understanding of the various presentations of angina, including

chest pain, shortness of breath, arm or shoulder discomfort, and other associated symptoms, could significantly enhance timely care-seeking behaviors and improve patient outcomes.

Awareness of Prevention Strategies for CVDs: A striking 92.1% of participants demonstrated a good level of awareness

regarding prevention strategies for CVDs. This finding aligns with the study by Ammouri et al. (2018), which reported a positive association between knowledge of CVD risk factors and health promotion behaviors in Oman. The high level of awareness observed in the present study suggests that the general population in Jeddah has a strong understanding of the importance of healthy lifestyle choices, such as regular exercise, a balanced diet, and maintaining optimal blood pressure and cholesterol levels, in preventing the development and progression of CVDs.This finding presents an opportunity for public health initiatives to leverage the existing awareness and knowledge to promote the adoption of preventive behaviors and lifestyle modifications. By reinforcing the connection between awareness and action, these efforts can potentially contribute to reducing the burden of CVDs, including angina, in the region.

Factors Influencing Awareness Levels: The study identified significant associations between age, gender, and the level of awareness regarding CVDs. Specifically, older age groups and female participants exhibited higher levels of awareness compared to their younger and male counterparts .This finding aligns with previous research, such as the study by Swed et al. (2023), which reported that participants aged 45-54 had a higher probability of good knowledge of CVD risk factors and warning signs compared to younger age groups (18-24 years old).

Similarly ,Assiri et al. (2020) found that factors like Saudi nationality, female gender, older age, and higher education level were significantly associated with better awareness levels regarding heart attack symptoms among the Saudi population. These associations may be attributed to various factors, including increased exposure to health education campaigns, greater health consciousness among older individuals, and the influence of sociocultural factors on gender roles and health-seeking behaviors. Comparison with Previous Studies: The findings of the current study are generally consistent with previous research conducted in Saudi Arabia and other Middle Eastern countries, while also highlighting some notable differences. For instance, the study by Basham et al. (2021) in Dawadmi ,Riyadh province, reported a low level of awareness about CVDs and their associated risk factors among the participants. In contrast, the present study found relatively higher levels of awareness regarding these aspects in Jeddah.

These regional variations within Saudi Arabia may be influenced by factors such as socioeconomic status, educational attainment, and the effectiveness of public health campaigns and educational initiatives in specific areas. Additionally, cultural and demographic differences between different regions of the country could contribute to disparities in awareness levels.

It is essential to consider the broader context of the Middle Eastern region when interpreting the findings. The study by Traina et al. (2017) highlighted that among the Gulf Cooperation Council (GCC) countries, Kuwait, the United Arab Emirates, Saudi Arabia, and Oman had the highest proportion of mortality attributed to CADs, underscoring the significant burden of these conditions in the region.While the present study focused specifically on Jeddah, its findings contribute to the understanding of awareness levels within the broader Saudi Arabian context, which has been identified as a high-risk area for CVDs and CADs. By comparing the results with previous studies conducted in other regions of the country and neighboring countries, researchers and public health officials can gain insights into the strengths and weaknesses of existing educational efforts and tailor future interventions accordingly.

Implications and Recommendations:

The findings of the present study have several implications for public health strategies and educational initiatives aimed at improving awareness and prevention of angina and CVDs in Jeddah and potentially other regions of Saudi Arabia.

Implications for Public Health Strategies and Educational Initiatives:

1. Address knowledge gaps in clinical presentation and symptoms of angina and CVDs:

- Targeted educational campaigns to enhance public understanding of various, including atypical, symptoms.
- Improving symptom recognition can lead to timely medical intervention and prevent complications.

2. Leverage high awareness of CVD prevention strategies:

- Promote adoption of healthy lifestyle behaviors (exercise, diet, managing risk factors).
- Encourage regular medical check-ups and screenings, particularly for high-risk individuals.

3. Tailor approaches based on demographic factors:

- Targeted efforts for younger age groups and those with lower educational attainment:
- Address potential gender-based disparities in awareness, potentially through engagement with community leaders and stakeholders.

Recommendations for Future Research:

- Acknowledge limitations of self-reported data and cross-sectional design.
- Evaluate the effectiveness of educational interventions and public health campaigns.

- Explore long-term impact of increased awareness on incidence and management of angina and CVDs.
- Expand research to other regions of Saudi Arabia and neighboring countries.
- Investigate the role of healthcare professionals and the healthcare system in promoting awareness and education.
- Employ qualitative methods to gain deeper insights into perceptions, beliefs, and barriers related to angina and CVD awareness.

Limitations:

While the present study provides valuable insights, it is important to acknowledge its limitations and exercise caution in interpreting and generalizing the findings. As mentioned earlier, the study relied on self-reported data, which may be subject to recall bias or social desirability bias. Participants may have over-reported or under-reported their knowledge and awareness levels, potentially affecting the accuracy of the results. Additionally, the cross-sectional nature of the study precludes the establishment of causal relationships between the variables examined. While associations between demographic factors (age and gender) and awareness levels were observed, it is not possible to determine the underlying reasons or mechanisms driving these associations based on the current study design. Furthermore, the study focused specifically on the general population in Jeddah, potentially limiting the generalizability of the findings to other regions of Saudi Arabia or neighboring countries. Regional variations in socioeconomic status, educational attainment, and cultural factors may influence awareness levels and require tailored approaches.It is also important to note that the study did not delve into the specific sources of information or educational campaigns that contributed to the observed levels of awareness. Understanding the effectiveness and reach of existing public health initiatives could provide valuable insights for future efforts. Lastly, while the study assessed awareness levels, it did not directly measure the translation of this awareness into actual health behaviors or the impact on clinical outcomes. Future research is needed to explore the relationship between awareness, health-seeking behaviors, and the incidence and management of angina and CVDs.

Conclusion:

The present study contributes to the understanding of the current awareness levels regarding angina and CVDs in Jeddah, Saudi Arabia. The findings reveal a relatively high level of awareness regarding risk factors for CVDs, with a majority of participants correctly identifying hypertension, overweight/obesity, diabetes, and family history as significant risk factors. Additionally, a substantial proportion of participants demonstrated a good level of awareness regarding prevention strategies for CVDs. However, the study also highlighted areas that require further attention, particularly in enhancing awareness about the clinical picture and symptoms of angina and CVDs. Early recognition of these symptoms is crucial for timely medical intervention and the prevention of adverse cardiovascular events. The significant associations observed between demographic factors (age and gender) and awareness levels underscore the need for tailored approaches to reach specific population segments effectively. Educational initiatives targeting younger age groups or individuals with lower educational attainment may be necessary to improve overall awareness and promote early recognition of risk factors and symptoms. While the findings are generally encouraging, there is a need for continued efforts to address knowledge gaps and promote early recognition of risk factors and symptoms, particularly among specific population segments. Effective public health strategies, educational campaigns, and interventions tailored to the needs of the local community can play a crucial role in improving overall awareness and prevention efforts related to angina and cardiovascular diseases.

Ethical considerations :

Ethical approval obtained from the Faculty of Nursing, Nursing Research Ethical Committee, at King Abdul-Aziz University Participants was prompted to reply to a question as to whether they consented to completion of survey or not. Only those who replied “yes” moved on to the questions of the survey. Those who replied “no” did not complete the survey. Completion of the survey was completely voluntary. No personal data that could reveal the participants’ identity during data collection. Data was strictly protect for confidentiality.

Appendix A (Electronic questionnaire Awareness of angina and their associated risk factors among the general population in Jeddah city) :

1-الجنس :

- ذكر
- أنثى

2-العمر :

- 18-25
- 26-35
- 36-44
- اكثر من 55

3-الحالة الوظيفية :

- موظف
- غير موظف
- ذو مهنة حرة
- طالب

4-الحالة الاجتماعية :

- متزوج
- اعزب
- مطلق
- ارمل

5-منطقتك داخل جده :

- الجنوبية
- الشمالية
- الغربية
- الشرقية

6-المستوى التعليمي :

- الشهاده الثانوية
- شهادة دبلوم
- بكالوريوس
- الدراسات العلية و التعليم العالي

7-الدخل :

- 500-2000
- 3000-5000
- اكثر من 5000

8-ماهي عوامل الإصابة بامراض القلب و الاوعية الدموية ؟

التدخين

ارتفاع ضغط الدم

ارتفاع نسبة الكوليسترول

الوزن الزائد

مرض السكري

تاريخ عائلي (إصابة احد افراد العائلة

جميع الخيارات

9- هل تعتقد ان قلة التمارين الرياضية تزيد من نسبة الإصابة بامراض القلب و الاوعية الدموية ؟

نعم

لا

لا اعرف

10-هل تعتقد ان التوتر يزيد من نسبة الإصابة بامراض القلب و الاوعية الدموية ؟

نعم

لا

لا اعرف

11- هل تعتقد ان الشعور بالضعف , الدوار , الاغماء من اعراض الاصابة بامراض القلب و الاوعية الدموية

- نعم
- لا
- لا اعرف

12- ماهي اعراض الاكلينيكية السريريه لأمراض القلب والأوعية الدموية؟

- ضيق في التنفس
- الم في الصدر, الكتف, الفك, الرقبة, والظهر
- الم في اعلى المعدة
- جميع الخيارات

13-هل تعتقد ان انتفاخ الاطراف السفلية (الرجل) من اعراض الاصابة بأمراض القلب والأوعية الدموية؟

- نعم
- لا
- لا اعرف

14-هل تعتقد أن تناول الطعام الصحي يمكن أن يمنع الإصابة بأمراض القلب والأوعية الدموية؟

- نعم
- لا
- لا اعرف

15- هل يعتبر المشي أحد أنواع التمارين الرياضية التي يمكن أن تقلل من الإصابة بأمراض القلب والأوعية الدموية ؟

- نعم
- لا
- لا اعرف

16- كم عدد المرات التي تعتقد أنه يوصى بها كفحص دوري للدهون في الدم؟

- مرة كل عام
- ثلاث مرات في السنة
- مرة كل سنتين
- لا حاجة لاجراء فحص سنوي

غير ذلك ○

17-هل تعتقد السيطرة الجيدة على مستوى الضغط في الدم يمكن أن يقلل من الإصابة بأمراض القلب والأوعية الدموية ؟

نعم ○

لا ○

لا اعرف ○

18- هل تعتقد السيطرة الجيدة على مستوى السكر في الدم يمكن أن يقلل من الإصابة بأمراض القلب والأوعية الدموية ؟

نعم ○

لا ○

لا اعرف ○

REFERENCES

[1] Alshurtan, K.S. et al. (2022) 'Awareness of cardiovascular diseases and their associated risk factors among the general population in Hail City, Saudi Arabia', *World Family Medicine Journal /Middle East Journal of Family Medicine*, 20(12). doi:10.5742/mewfm.2022.95251411.

[2] Aminde, L.N. et al. (2017) Population awareness of cardiovascular disease and its risk factors in Buea, Cameroon - *BMC Public Health, BioMed Central.* Available at: https://doi.org/10.1186/s12889-017-4477-3

[3] Ammouri, A.A. et al. (2018) *Risk knowledge and awareness of coronary heart disease, and health promotion behaviors among adults in Oman, Research and Theory for Nursing Practice.* Available at: https://connect.springerpub.com/content/sgrrtnp/32/1/46

[4] Assiri, A. et al. (2020) 'Public awareness of ischemic heart disease symptoms among the Saudi population', *International Journal of Medicine in Developing Countries*, pp. 2305–2309. doi:10.24911/ijmdc.51-1605162086.

[5] Basham, K. et al. (2021) 'Public awareness of early symptoms of acute myocardial infarction among Saudi population', *Journal of Family Medicine and Primary Care*, 10(10), p. 3785. doi:10.4103/jfmpc.jfmpc_449_21.

[6] Greenville Avenue Dallas, A.H.A. (2023) *Angina (chest pain)*, www.heart.org. Available at: https://www.heart.org/en/health-topics/heart-attack/angina-chest-pain

[7] Khalifa, A. et al. (2019) 'General public awareness about symptoms and risk factors of cardiovascular diseases in Riyadh City, Saudi Arabia', *International Journal of Medicine in Developing Countries*, pp. 1014–1021. doi:10.24911/ijmdc.51-1563109418.

[8] Maria, D.N. (2002) World health report : 2002, *World Health Organization*. Available at: https://www.who.int/publications/i/item/9241562072

[9] Mujamammi, A. et al. (2020) 'Awareness of cardiovascular disease associated risk factors among Saudis in Riyadh City', *Journal of Family Medicine and Primary Care*, 9(6), p. 3100. doi:10.4103/jfmpc.jfmpc_458_20.

[10] Shao, C. et al. (1970*) Coronary artery disease: From mechanism to clinical practice*, SpringerLink. Available at: https://link.springer.com/chapter/10.1007/978-981-15-2517-9_1

[11] Swed, S. et al. (2023) *Syrians' awareness of cardiovascular disease risk factors and warning indicators: A descriptive cross-sectional study, Scientific reports.* Available at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10130054/

[12] Traina, M.I. et al. (2017) 'Coronary heart disease in the Middle East and North Africa: *Current status and future goals', Current Atherosclerosis Reports*, 19(5). doi:10.1007/s11883-017-0659-9

[13] Unicef, A. (1970) *Noncommunicable Diseases Country Profiles 2018, World Health Organization.* Available at: https://iris.who.int/handle/10665/274512