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Knowledge, attitudes and practices among ischemic heart disease patients regarding their disease management

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ABSTRACT

Background: Ischemic heart disease (IHD) is the leading cause of death globally. Preventing and controlling modifiable risk factors can minimize incidence of IHD and/or improve outcomes. This study aims to assess the IHD-related knowledge, attitudes, and practices (KAP) of individuals in residential care centers in Jeddah, Kingdom of Saudi Arabia (KSA). *Materials and Methods:* A descriptive cross-sectional study was conducted among 264 individuals living in residential care centers in Jeddah, KSA, in July 2018. The data were collected by an interviewer-administered questionnaire. All data were entered into Microsoft Excel 2010 and were analyzed using Statistical Package for the Social Sciences (SPSS) version 21.0 for Windows. Frequencies and chi-square tests were used for analysis. *Results:* The survey showed that 243 (92%) of participants had sufficient knowledge of IHD, and 21 (8%) had an average level of knowledge. A total of 236 (89.4%) participants had good attitudes, and 28 (10.6%) had average attitudes toward IHD. Additionally, 227 (86.0%) showed positive practices toward lowering their risk of IHD, and 37 (14%) had neutral practices. When the KAP levels of the IHD patient group, which comprised only 35 participants, were assessed, 34 (97.1%) IHD patients were found to have sufficient knowledge of their condition, and 34 (97.1%) had good attitudes. Furthermore, 33 (94.3%) participants showed positive practices toward their condition. *Conclusion:* The findings at the end of the study showed that the majority of participants who live in residential care centers have sufficient knowledge of and demonstrate positive attitudes and practices toward IHD. However, advanced community-directed IHD prevention programs are recommended for those who live in residential homes, as they are considered a vulnerable group.

Keywords: Ischemic heart disease, knowledge, attitude, practice, residential home care.

1. INTRODUCTION

Ischemic heart disease (IHD) is the leading cause of death globally *(Basubrain et al., 2017)*. IHD is defined as a lack of blood supply and oxygen to the heart muscle caused by narrowed coronary arteries, and most people with IHD do not experience symptoms *(Institute of Medicine, 2010)*. Preventing and controlling the modifiable risk factors for IHD such as hypertension (HTN), diabetes mellitus (DM), smoking, obesity, dyslipidemia and an unhealthy lifestyle can minimize the incidence of IHD or/and improve outcomes with respect to non modifiable risk factors including gender, age, family history, and race *(Yusuf et al., 2004)*.

A study performed in Bangladesh and assessed the knowledge, attitudes, and practices (KAP) of patients with IHD showed that patients were more competent in attitudes than in knowledge and practices *(Mirza et al., 2016)*. Another study was conducted by Mohammad *et al.*(2018) to determine KAP regarding the risk of cardiovascular disease (CVD); the authors found that patients had sufficient knowledge and attitudes toward CVD risk factors. A systematic review conducted in sub-Saharan Africa concluded that the levels of knowledge and awareness of CVD and its risk factors were generally low. The researchers concluded that most studies reported less than half of their participants as having sufficient knowledge of CVD *(Boateng et al., 2017)*. In the Kingdom of Saudi Arabia (KSA), a study was conducted to determine and assess KAP of the population regarding a preventive medicine approach toward CVD; the results showed a lack of knowledge among both healthy participants and diabetic patients. Conversely, the remaining chronic illness patients had sufficient knowledge, but they did not transform this knowledge into good attitudes or practices *(Basubrain et al., 2017)*.

With regard to the literature, limited studies of KAP toward IHD have targeted those who live in residential care centers in Saudi Arabia. Therefore, this study focused on assessing KAP toward IHD among individuals in residential care centers in Jeddah, KSA, in 2018.

2. METHODOLOGY

This descriptive cross-sectional study was conducted among 264 participants in residential care centers in Jeddah, KSA, in July 2018. The study was approved by the Institutional Review Board (IRB) at King Abdulaziz University Hospital (KAUH). Participants who were living in residential home care were included, while mentally ill patients were excluded. The total number of residential home care facilities was 18, and the residents in each home care facility ranged in age from 10 to 40 years old. The data were collected by an interviewer-administered questionnaire, and verbal consent was obtained from the participants.

The questionnaire consists of two sections. The first section was used to obtain the demographic data. The second section evaluated KAP and included 23 questions answered with "yes", "no", and "I don't know". The second section is divided into three parts: the first part assesses knowledge with 10 questions, the second part addresses attitudes with 8 questions, and the last part addresses practices with 5 questions.

A scoring system was used to assess participants' KAP and to classify participants into categories. For all 23 KAP questions, scores were given for each answer. "Yes", which was the correct answer, was given a score of three; "I don't know" was given a score of two; and "no", which was the incorrect answer, was given a score of one. With regard to knowledge, the maximum score was 30 points. Patients with total scores ranging from 1 to 10 points were classified as having insufficient knowledge, while those with scores ranging from 11 to 20 points were classified as having average knowledge. Finally, a total score between 21 and 30 indicated sufficient knowledge about IHD. In terms of attitudes, the maximum score was 15 points. Patients with scores ranging from 1 to 5 were considered to have a poor attitude toward their condition. However, those with scores ranging from 6 to 10 were considered to have an average attitude, while those with scores ranging from 11 to 15 points were considered to have a good attitude. Moreover, 8 questions assessed the participants' practices. A score ranging from 1 to 8 indicated negative practices, while a score ranging from 9 to 18 indicated neutral practices. Scores ranging from 19 to 24 reflected positive practices. The KAP questionnaire and scores were adapted from a study in Malaysia *(Mohammad et al., 2018)* and were slightly modified to suit this study.

All data were collected and entered into Microsoft Excel 2010 and analyzed using the Statistical Package for the Social Sciences (SPSS) version 21.0 for Windows. Descriptive statistics included the frequencies of categorical variables, and chi-square tests demonstrated the relationships between the KAP categorical variables and age group, gender, educational level, and socioeconomic status (SES).

3. RESULTS

The study was performed on a sample of 264 participants (80.7% female, n=213). Participants were divided into three groups based on age: young adults (18-34 years old) comprised 25.6% (n=66) of the sample; middle-aged adults (35-55 years old) comprised 37.2% of the sample (n=96); and older adults (56 years old and above) comprised 37.3% (n=96) of the sample *(Petry, 2002)*. The mean participant age was 47.88±17.96 years. In terms of marital status, 50 (18.9%) of the participants were single, 82 (31.1%) were married, 73 (27.7%) were divorced, and 59 (22.3%) were widowed. Most of the survey respondents were unemployed (n=210, 79.5%), and only 54 (20.5%) were employed. One-third of the participants were illiterate (n=85, 32.2%), and only 21 (8%) had a bachelor's degree.

This survey showed that only 35 (13.3%) of the participants had known cases of IHD, while the remaining participants did not have IHD. Regarding the risk factors for IHD, the study revealed that 80 participants (30.3%) had HTN, 61 (23.1%) had high cholesterol, 70 (26.5%) had DM, and 87 (33.0%) had a family history of CVD. In terms of smoking behavior, 40 (15.2%) were current smokers, 27 (10.2%) were ex-smokers and 197 (74.6%) were nonsmokers.

The study examined KAP levels in all participants, regardless of their IHD diagnosis. The survey showed that 243 (92%) of all participants had sufficient knowledge about IHD, and 21 (8%) reflected an average level of knowledge. A total of 236 (89.4%) participants represented a good attitude, and 28 (10.6%) revealed an average attitude. A total of 227 (86.0%) participants showed positive practices and 37 (14%) had neutral practices toward lowering their risk of IHD.

When KAP levels were assessed for the IHD patients in this study, which included 25 females and 10 males, 34 (97.1%) of IHD patients were found to have sufficient knowledge of their condition, and 34 (97.1%) reflected good attitudes. Furthermore, 33 (94.3%) of patients expressed positive practices toward their condition. Participants' responses regarding KAP related to IHD are summarized in Table 1. The survey showed that almost half of the participants (n=125, 47.3%) did not believe that a positive family history increased the risk of IHD, and 51 (19.3%) did not know. However, only 88 (33.3%) recognized that the chance of developing IHD increases with a positive family history. Regarding attitudes, 120 (45.5%) did not consider themselves at risk for IHD, while 61 (23.1%) answered "I don't know", and 83 (31.4%) answered "yes". On a practice-related question about exercising regularly 3 times/week, 153 (58%) participants answered "yes", while 111 (42%) participants were not willing to engage in regular exercise.

Table 1 KAP regarding IHD (n=264)

Knowledge	Answer choices		
	Yes	No	I don't know
IHD is a serious disease	214 (81.1%)	16 (6.1%)	34 (12.9%)
It is important to know the symptoms of IHD	179 (67.8%)	36 (13.6%)	49 (18.6%)
IHD is widespread in KSA	155 (58.7%)	23 (8.7%)	86 (32.6%)
Symptoms of IHD are shortness of breath and chest pain	175 (66.3%)	13 (4.9%)	76 (28.8%)
Positive family history increases the chance of having IHD	88 (33.3%)	125 (47.3%)	51 (19.3%)
Unhealthy diet and lack of exercise lead to IHD	205 (77.7%)	22 (8.3%)	37 (14%)
Aspirin can reduce the chance of IHD	129 (48.9%)	27 (10.2%)	108 (40.9%)
Controlling high BP minimizes the chance of IHD	157 (59.5%)	21 (8%)	86 (32.6%)
Eating a healthy diet and exercising can prevent IHD	230 (87.1%)	4 (1.5%)	30 (11.4%)
IHD can be controlled by medication	216 (81.8%)	9 (3.4 %)	39 (14.8%)
Attitudes			
I am at risk for IHD	83 (31.4%)	120 (45.5%)	61 (23.1%)
I want to change my lifestyle (activity, smoking, diet)	212 (80.3%)	33 (12.5%)	19 (7.2%)
I eat an excessive amount of food and would like to eat less	214 (81.1%)	41 (15.5%)	9 (3.4%)
Changing bad habits will reduce my risk of IHD	209 (79.2%)	10 (3.8%)	45 (17%)
Medical checkups are important	240 (90.9%)	16 (6.1%)	8 (3%)
Practices			
Changing unhealthy habits will improve health status	247 (93.6%)	17 (6.4%)	
High blood pressure can be controlled by decreased salt intake	213 (80.7%)	51 (19.3%)	
Taking cardiac medication regularly will improve health status	240 (90.9%)	24 (9.1%)	
Seeking medical helpif there are symptoms of cardiac disease	222 (84.1%)	42 (15.9%)	
Taking medication if there are symptom of cardio disease	135 (51.1%)	129 (48.9%)	
Exercising 3 times per week	153 (58%)	111 (42%)	
Refraining from smoking	252 (95.5%)	12 (4.5%)	
Following doctors' advice	252 (95.5%)	12 (4.5%)	

The results of this study showed that there were statistically significant differences in levels of knowledge by age groups (P=0.003) and educational levels (P=0.000) (Figures 2 and 3). However, there were no significant differences in levels of knowledge by gender (P=0.748) or SES (P = 0.091) (Table 2). Regarding attitudes, the study found a significant gender difference (P=0.010) (Figure 1). However, there were no significant differences in attitudes by age groups (P=0.09), educational levels (P=0.427), and SES (P=0.509) (Table 3). In terms of practices to prevent IHD, there was a statistically significant difference by age groups (P=0.028).

There were no significant differences in practices by gender, educational levels, or SES (P=0.291, 0.477, and 0.452, respectively) (Table 4 and Figure 4).

Table 2 Comparing knowledge levels between different genders, age groups, educational levels, and annual income (n = 264)

Variables	Category	Level of knowledge		p-value	Test value
		Sufficient knowledge	Average knowledge		
Genders	Female	195 (91.5%)	18 (8.5%)	0.748	0.103
	Male	48 (94.1%)	3 (5.9%)		
Age groups	Young adult (18-34 Y)	63 (95.5%)	3 (4.5%)	0.003	11.563
	Middle-aged adult (35-55 Y)	93 (96.9%)	3 (3.1%)		
	Older adult (56 Y and above)	81 (84.4%)	15 (15.6%)		
Educational levels	Illiterate	69 (81.2%)	16 (18.8%)	0.000	21.373
	Elementary school	46 (93.9%)	3 (6.1%)		
	Middle school	38 (97.45%)	1 (2.6%)		
	High school	69 (98.6%)	1(1.4%)		
	College	21 (100%)	0 (0.0%)		
Socioeconomic status	Good	19 (100%)	0 (0.0%)	0.091	6.463
	Moderate	81 (96.4%)	3 (3.6%)		
	Low	95 (88.0%)	13 (12.0%)		
	None	48 (90.6%)	5 (9.4%)		

Table 3 Comparing attitude levels between different genders, age groups, educational levels, and annual income (n = 264)

Variables	Category	Level of attitude		p-value	Test value
		Good attitude	Average attitude		
Genders	Female	196 (92.0%)	17 (8.0%)	0.748	0.103
	Male	40 (78.41%)	11 (21.6%)		
Age groups	Young adult (18-34 Y)	60 (90.9%)	6 (9.1%)	0.003	11.563
	Middle-aged adult (35-55 Y)	90 (93.8%)	6 (6.3%)		
	Older adult (56 Y and above)	81 (84.4%)	15 (15.6%)		
Educational levels	Illiterate	73 (85.9%)	12 (14.4%)	0.000	21.373
	Elementary school	44 (89.8%)	5 (10.2%)		
	Middle school	38 (97.45%)	1 (2.6%)		
	High school	62 (88.6%)	8 (11.4%)		
	College	19 (90.5%)	2 (9.5%)		
Socioeconomic status	Good	16 (84.2%)	3 (15.8%)	0.091	6.463
	Moderate	75 (89.3%)	9 (10.7%)		
	Low	95 (88.0%)	13 (12.0%)		
	None	50 (94.3%)	3 (5.7%)		

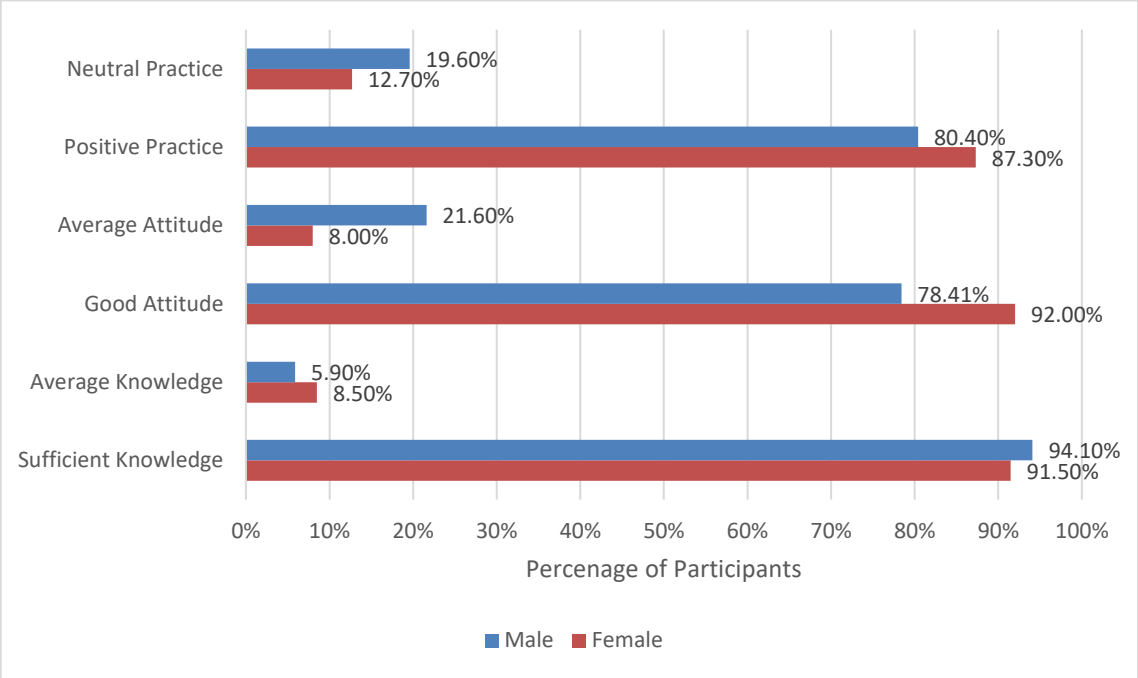

Figure 1 Comparison between Male and Female Participants in KAP Levels

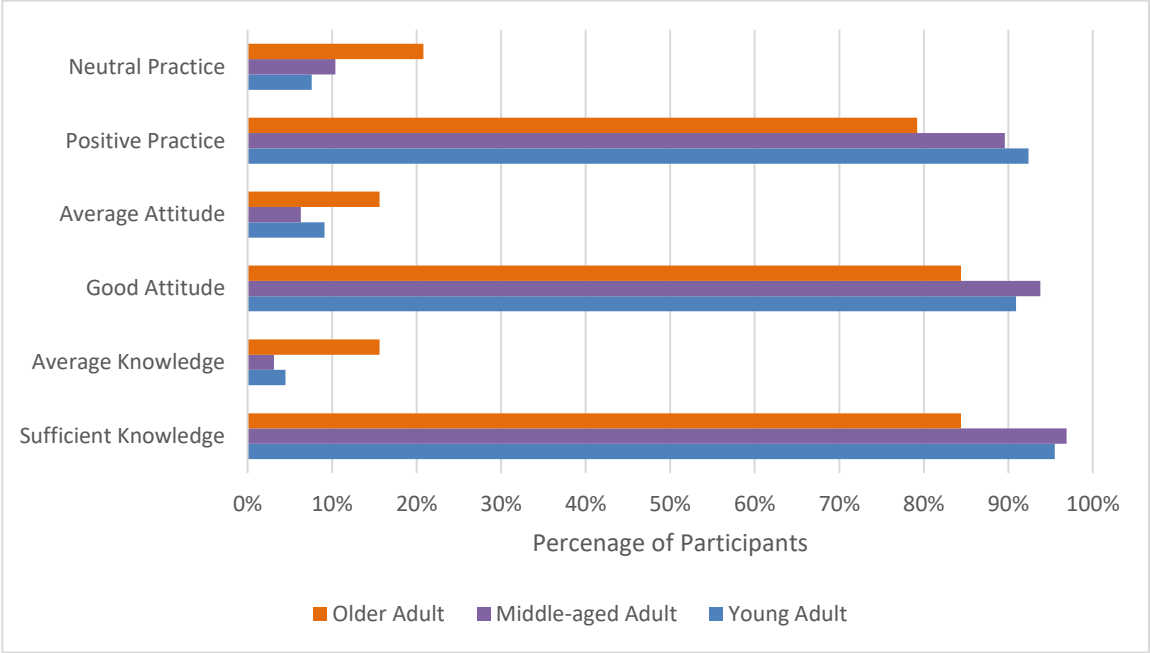

Figure 2 Comparison between Participants' Age Groups in KAP Levels

Table 4 Comparing practice levels between different genders, age groups, educational levels, and annual income (n = 264)

Variables	Category	Level of practice		p-value	Test value
		Positive practice	Neutral practice		
Genders	Female	186 (87.3%)	27 (12.7%)	0.291	1.116
	Male	41 (80.4%)	10 (19.6%)		
Age groups	Young adult (18-34 Y)	61(92.4%)	5 (7.6%)	0.028	7.156
	Middle-aged adult (35-55 Y)	86 (89.6%)	10 (10.4%)		

	Older adult (56 Y and above)	76 (79.2%)	20 (20.8%)		
Educational levels	Illiterate	70 (82.4%)	15 (17.6%)	0.477	3.507
	Elementary school	42 (85.7%)	7 (14.3%)		
	Middle school	32 (82.1%)	7 (17.9%)		
	High school	64 (91.4%)	6 (8.6%)		
	College	19 (90.5%)	2 (9.5%)		
Socioeconomic status	Good	15 (100%)	4 (21.1%)	0.452	2.631
	Moderate	71 (84.5%)	13 (15.5%)		
	Low	97 (89.8%)	11 (10.2%)		
	None	44 (83.0%)	9 (17.0%)		

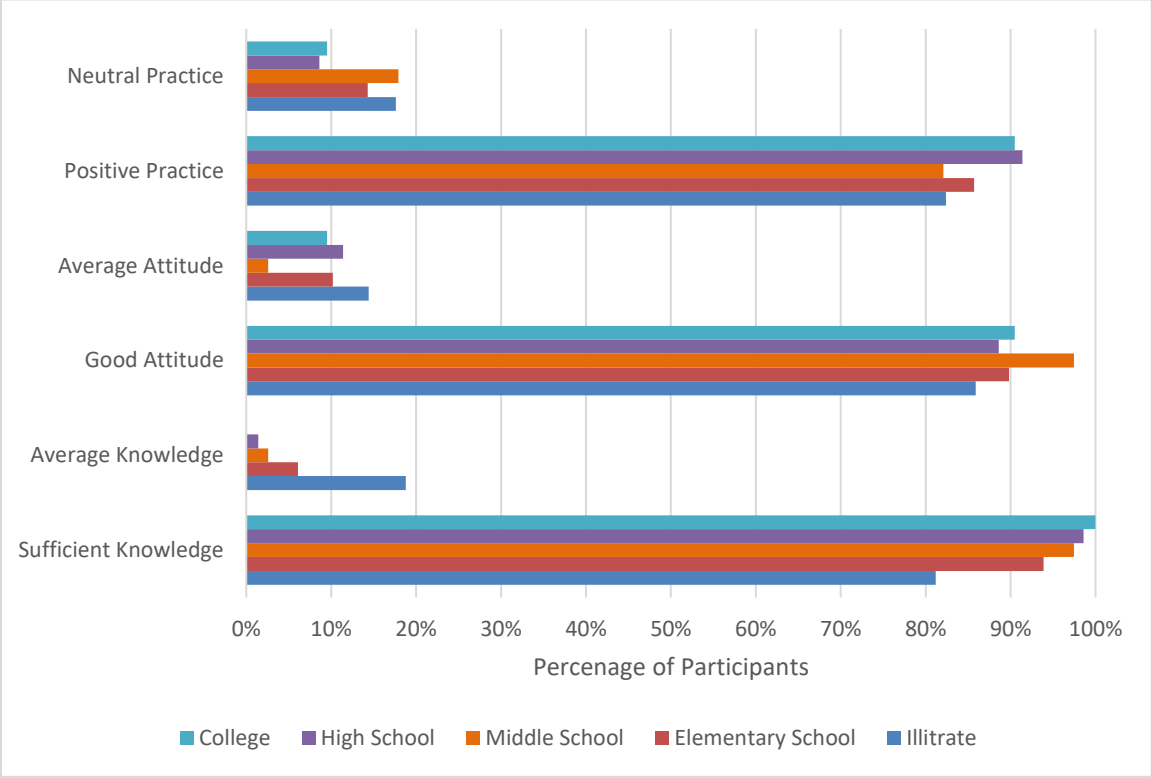

Figure 3 Comparison between Participants' Education in KAP Levels

4. DISCUSSION

The aim of this study was to assess KAP of adults in residential homes toward IHD. The study demonstrated that most of the participants had good KAP toward IHD (92%, 89.4%, and 86.0%, respectively). Similarly, previous studies conducted in Malaysia and China found that participants had generally sufficient knowledge and attitudes regarding CVD; however, participants' practices in both studies were relatively low *(Mohammad et al., 2018; Shen et al., 2017)*. A systematic review of 20 studies conducted in sub-Saharan Africa concluded that the levels of knowledge and awareness of CVD and its risk factors were generally low *(Boateng et al., 2017)*. The perceived differences in knowledge may be due to the different socioeconomic factors between the studies' populations.

In the current study, knowledge among IHD patients was generally sufficient. In contrast, studies in Oman, Namibia, and Iran have shown an insufficient level of knowledge among IHD patients *(Al-Tamimi et al., 2017; De Klerk, 2018; Ranjbar et al., 2018)*. The availability of high-quality health services in Saudi Arabia could explain these conflicting findings.

This study showed that most participants (approximately 175; 66.36%) knew that shortness of breath and chest pain were symptoms of IHD, while another study in Nigeria showed that only 1.3% of participants identified chest pain as a symptom for IHD *(Ajayi and Ojo, 2007)*. In this study, 230 (87.1%) participants believed that IHD can be prevented by a healthy diet and exercise, compared to 22% of participants in the Bangladeshi study *(Mirza et al., 2016)*. Regarding aspirin usage, 129 (48.9%) participants in

this study knew that aspirin could reduce the chance of IHD. However, only 35% of the sample in the Bangladeshi study believed that aspirin reduced IHD risk *(Mirza et al., 2016)*. Regarding an unhealthy diet and lack of exercise, 205 (77.7%) of participants in this study knew that these factors led to IHD. Approximately 1.2% of the participants in a rural community study knew that a lack of exercise leads to IHD *(Oladapo et al., 2013)*. In our study, 222 (84.1%) participants sought medical help when they had symptoms of IHD, while a similar study found that 92.1% of the sample would go to a hospital if they experienced clinical signs of IHD *(Mirza et al., 2016)*.

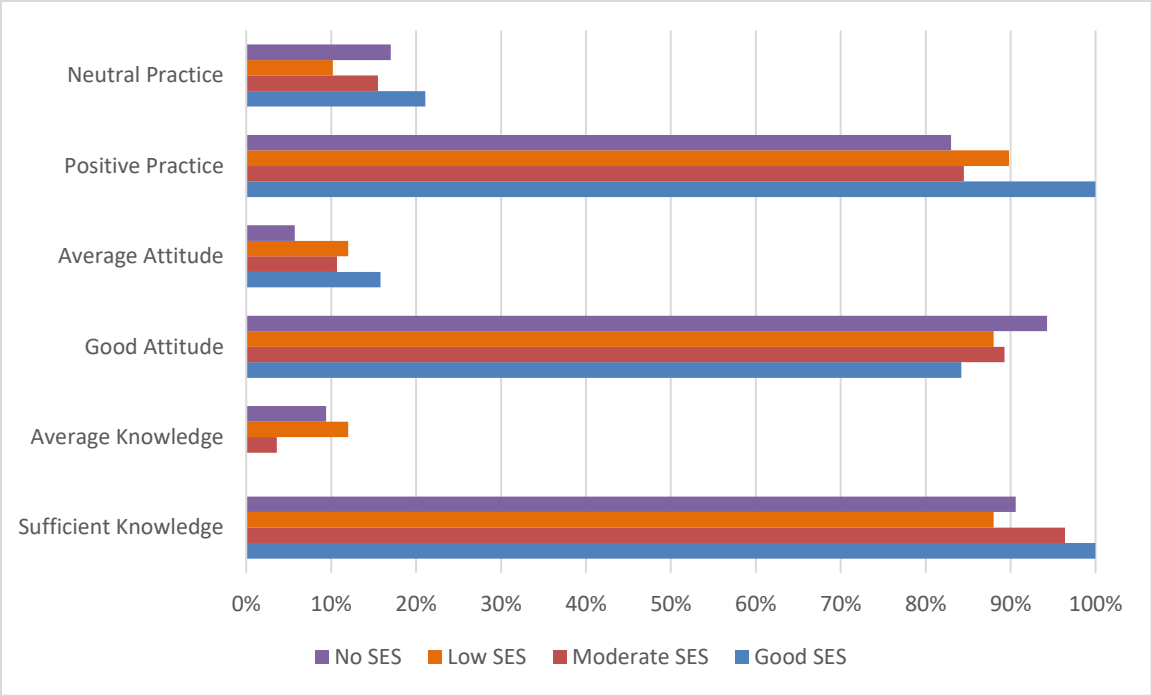

Figure 4 Comparison between Participants' Socioeconomic Status in KAP Levels

This study reported that females have better attitudes toward IHD compared to males. This result may be due to the higher number of female participants in the study. Most individuals in the residential care centers were widowed or divorced women. A similar study showed that males had lower levels of knowledge and attitudes but higher levels of practices than females *(Shen et al., 2017)*. Furthermore, a study revealed that males had more knowledge regarding many IHD risk factors compared to females *(Winham and Jones, 2011)*. According to the results of this study, there was an association between knowledge and practices and age groups (P= 0.003 and P=0.028, respectively). The middle-aged adults were more competent in terms of knowledge compared to young and older adults, while practices of young adults were much better than those of adults in other age groups. Correspondingly, a study conducted in Nepal found that KAP scores decreased by approximately 4% from the youngest to the oldest age groups *(Vaidya et al., 2013)*. However, a study in Bangladesh reported a lack of knowledge in younger adults compared with that in middle-aged and older adults *(Mirza et al., 2016)*. This finding was elucidated by the fact that young adults use social media more than adults in other age groups *(Perrin, 2015)*. Thus, social media could be a rich source of health information; however, information usually is not authenticated by healthcare professionals.

This study found that there was a significant difference in knowledge among participants with different educational levels. The level of knowledge was directly proportional to educational levels, such that all participants with bachelor's degrees had sufficient levels of knowledge (Table 2). However, attitude and practice levels did not differ significantly. This finding is consistent with those of a study from Bangladesh, which concluded that uneducated participants had a low level of knowledge about CVD *(Mirza et al., 2016)*. Another Iranian study showed that participants with higher educational levels had significantly greater knowledge of CVD than those with lower educational levels *(Ranjbar et al., 2018)*. This finding is logical and predictable because one's level of education reflects the depth of his or her knowledge.

The results revealed that there was no significant difference in KAP between participants of different SESs. However, Nepalese and Bangladeshi studies have reported that low KAP scores are associated with nations of low SES *(Mirza et al., 2016; Vaidya et al.,*

2013). These inconsistent results could be due to variations in the standard income assessments used in each society. For example, the definition of low-income status in the Saudi society may be considered high in other countries with generally low socioeconomic levels. Moreover, low SES is correlated with lower educational levels, less access to health services, and therefore, lower levels of knowledge and practices.

Study Limitations

Although the study was conducted through structured interviews, one limitation could be that most of individuals in residential care centers were females. Therefore, there were more female than male respondents.

5. CONCLUSION

This study finding showed that the majority of participants who live in residential care centers have sufficient knowledge and positive attitudes and practices regarding IHD. Despite these findings, participants still could not answer several questions correctly. Therefore, advanced community-directed IHD prevention programs are recommended for those who live in residential homes, as they are considered a vulnerable group.

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Authors' Contributions

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7. Manar A. Mashat, MBBS (Co-Author)
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Conflicts of Interest

The authors have no conflict of interest to declare.

Financial Resources

There are no financial resources to fund this study.

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