Assessing Community Awareness of Ischemic Heart Disease Risk Factors in Nangarhar: A Comprehensive Study

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ABSTRACT

Background: Ischemic heart disease (IHD) is the impairment of the heart due to reduced blood flow to the heart. Usually, the reduced flow is the result of coronary artery disease, a condition in which the coronary artery is narrowed. The risk factors for IHD are classified into modifiable risk factors (age, sex, ethnicity, family history) and non-modifiable risk factors (hypertension, hyperlipidemia, diabetes mellitus, obesity, smoking, poor diet, sedentary lifestyle). The study aimed to evaluate the awareness of adults about IHD-related risk factors and to recognize demographic variables correlated with this knowledge level.

Materials and Methods: This descriptive cross-sectional study was conducted among a convenience sample of 114 adults taking part in a health awareness fair held in a shopping mall in Nangarhar, in January 2023. A modified version of the IHD Facts questionnaire was used to estimate awareness of IHD risk factors. The number of correct responses for each item, which ranged from 0 to 21, has been integrated up in order to calculate the score. A mean score of less than 70% indicated insufficient awareness. To determine correlated demographic variables and demonstrate the participants' knowledge level, descriptive and multivariate logistic regression analyses were carried out.

Findings: The study had a response rate of 87.7%, with 114 subjects participating in total. Of the participants, 69 individuals (60.5%) showed a mean IHD awareness score that was insufficient. It was found that there was a significant correlation between body mass index (odds ratio = 0.739; p = 0.023), marital status (OR = 0.057; p = 0.036), and education level (OR = 9.243; p = 0.006) and awareness of IHD risk factors.

Conclusion: The Nangarhar study population showed a low level of awareness regarding IHD risk factors. It appears that the participants' inability to engage in prevention is a result of their limited awareness. These results underline how important it is for Nangarhar to carry out educational initiatives to raise public awareness of IHD risk factors and prevention.

Keywords: Awareness, Ischemic Heart Disease, Risk factors, Nangarhar

INTRODUCTION

According to the World Health Organization (WHO), heart disease in 2012, there were 7,4 million deaths due to ischemic heart disease (IHD) in higher-income countries accounting 158 deaths per million, while the middle-income country accounted for 107 deaths per million (WHO, 2009). In developed countries, the prevalence of the IHD has remained constant, while in developing nations, it has increased as a result of changes

in lifestyles, urbanization, and longer life expectancy. Some Middle Eastern nations (including Oman, Kuwait, and the United Arab Emirates) are examples of regions that have experienced this type of epidemiological change (Yusuf et al., 2004).

The primary risk factor for coronary heart disease (CHD) is believed to be modifiable risk factors, such as diabetes mellitus, hypertension, dyslipidemia, obesity, a lack of physical activity, and smoking (WHO, 2015). In order to reduce the morbidity and mortality associated with CHD, national surveillance schemes must be strengthened in light of the growing trend of IHD and its risk factors. The majority of nations have developed primary prevention strategies, but these strategies' effectiveness mostly depends on how well-informed an individual is about a specific health problem (European Guidelines, 2012). Greater knowledge of people about IHD risk factors motivates them about risks (Claassen et al., 2012; Mosca et al., 2013). Estimating knowledge of traditional IHD risk factors in a population is therefore very important in the prevention and treatment of such conditions and continues to serve as the baseline for most of the screening programs (Wagner et al., 2006).

There are currently 40.1 million people living in Afghanistan, and the country's life expectancy has recently increased (from 64.96 years in 2020 to 65.63 years in 2023). The incidence of IHD has increased quickly as a result of changes in lifestyle, including increased calorie intake and a sedentary lifestyle (Forman and Bulwer, 2006). In 2013, the prevalence of high blood pressure, diabetes, and cholesterol was 28.4%, 11.8%, and 37.4%, respectively (Al Riyami et al., 2012). Other surveys reported that the prevalence rate of obesity, smoking and mouth snuff was 57.4%, 8.0%, and 69.8%, respectively in 2013. In spite of this threat, awareness about IHD and its associated risk factors is low in Nangarhar (EMR, 2016). Before developing appropriate and successful initiatives to raise awareness, it is imperative to evaluate the level of knowledge that the people of Nangarhar have regarding coronary heart disease (CHD). The objectives of the present study were to evaluate the knowledge of adults regarding conventional risk factors for IHD as well to identify demographic variables associated with the level of knowledge.

MATERIALS AND METHODS

The descriptive cross-sectional study was conducted on a sample of 114 adults who attended a nonprofit health awareness fair held at a large shopping mall in Nangarhar, Afghanistan, in January 2023. The aim of the fair, organized by members of the Nangarhar Medical Faculty, was to enhance public awareness about ischemic heart disease (IHD).

The study included adults who were 18 years of age or older, free from any diseases or impairments that would make it difficult for them to respond to questions, and who were not employed in the health care sector. Using a regression analysis for seven variables, Cohen's table was utilized to assess the sample size that enabled the detection of a medium effect with a power of 0.80 and an alpha of 0.05. In order to ensure that a variable was described in a single group and to enable researchers to control for type I errors, a sample of 107 participants was considered adequate. The effect size was evaluated to be medium to account the possibility that some of the participants had previously acquired CHD knowledge.

With a view to assessing, self-reported awareness of IHD related risk factors; participants were asked to fill out the modified version of the Heart Disease Fact Questionnaires (HDFQ). Wagner et al. (2005) created the HDFQ, which has great psychometric characteristics such as test-retest reliability (r=0.89), internal consistency (Kuder-Rechardson r=0.077), and very good discriminant validity. The HDFQ included 25 true/false

questionnaire items to measure IHD awareness among diabetic patients (Wagner et al., 2005). 21 items constitute part of the revised HDFQ, which assesses knowledge of IHD risk factors and strategies for lowering risk (Dalusung-Angosta, 2013). The modified HDFQ scale offers three possible responses for each item: true, false, or unknown. The sum of the right answers (ranging from 0 to 21) was used to calculate the score. It was assumed that dictum with% and ≥70% would denote inadequate and sufficient knowledge, respectively (Wagner et al., 2005). High internal consistency has also been demonstrated by the modified HDFQ instrument, which has a Cronbach's alpha of 0.84 and a coefficient of 0.86.

Both Pashto and English have been utilized to administer the questionnaire. Participants' age, gender, marital status, employment status, education level, and yearly earnings were noted, along with additional demographic data. Weight to height squared is used to calculate body mass index (BMI). With a portable digital scale, the participants' weight was measured to the nearest 0.01 kg, and a portable scale was used to measure their height to the nearest 0.01 cm.

Participants were instructed to take off their shoes and any heavy garments and to stand straight up during the measurement. According to WHO guidelines, participants were classified as underweight (<18.5 kg/m^2), normal weight (18.5–25 kg/m^2), overweight (25-29.9 kg/m2), or obese (≥ 30 kg/m^2) (Reiner et al., 2010). The Statistical Package for Social Science (SPSS), Version 19 (IBM Corp., Chicago, Illinois, USA), was used to analyze the data. Following descriptive analysis, the findings were given as means +/- standard deviation and percentages.

A multivariate logistic regression analysis has been used to determine the association between the dichotomous dependent variable (knowledge of CHD) and the predicative variables (age, gender, BMI, education level, marital status, monthly income, and employment). Odds ratios (ORs) and 95% confidence intervals are used to display the results. P-values less than 0.05 were considered statistically significant. Individuals who expressed interest in taking part in the study were given comprehensive details regarding the objectives and methodology of the research. Participants received assurances that no personal data would be captured. Before beginning their participation in the study, each individual provided written consent.

RESULTS

The study had 114 participants in total, yielding an 87.7% response rate. These participants' demographic details are displayed in Table 1. The age of the participants ranged from 18 to 80 years. The majority of the participants were male (63.2%). The mean BMI was 27.47±4.12 kg/m^2, and the majority of participants were categorized as overweight (42.4%). Regarding education level, a large proportion of participants possessed a diploma or higher (59.6%). Sixty-nine participants (60.5%) had IHD knowledge scores of less than 70%, demonstrating a low level of knowledge. The mean IHD knowledge score was 13.52±4, and the correct answer mean percentage was 64.4%. The participants' knowledge was adequate regarding certain IHD-associated risk factors such as smoking (n=112; 98.3%), high blood pressure (n=100; 87.7%), overweight (n=100; 87.7%), high cholesterol levels (n=97; 85.1%), and age (n=81; 71.7%).

Table 1. General characteristics and Ischemic Heart Disease Risk Factor Knowledge in a Nangarhar Community Sample (N=114)

Characteristic	N (%)
Mean age	37.36(13.50)
BMI in kg/m2	
<18.5	2(2.0)
18.5-24.9	27(27.3)
25-29.9	42(42.4)
≥30	28(28.3)
Mean±SD	27.47±4.12
Gender	
Male	72(63.2)
Female	42(36.8)
Marital status	
single	32(28.1)
Married	82(71.9)
Education Level	
Primary school	10(8.8)
High school	36(31.6)
Diploma	26(22.8)
Baccalaureate degree	30(26.3)
Graduate degree	12(10.5)
Employment status	
unemployed	27(23.7)
employed	87(76.3)
Monthly income	
<$500	53(46.5)
>$500	61(53.5)

The majority of participants also had sufficient knowledge about several preventive measures for IHD, such as regular exercise (n=104; 91.2%), blood pressure control (n=101; 91.2%), and smoking cessation (n=100; 87.75%). However, a small number of participants had correct awareness about other risk factors associated with IHD, including diabetes (n=72, 63.2%), stress (n=72, 63.2%), IHD family history (n=68; 59.7%), and abdominal obesity (n=61; 53.5%). Fewer participants were aware of high-density lipoprotein (HDL) (n=39; 34.2%) and low-density lipoprotein (LDL) (n=59; 51.8%) as risk factors. Only 39 (34.2%) participants correctly answered that CHD patients may not be aware of their health status. While items in the questionnaire related to physical activity were responded correctly by over 80% of the cohort, 59.6% believed that gyms or classes were the only types of physical activity that could lower the risk of CHD (Table 2).

Table 2. Level of accurate knowledge of ischemic Heart Disease risk factors among a community sample in Nangarhar. (N = 114)

Questionnaire item	N (%)
A person always as having IHD	39(34.2)
Family history be known as risk factor	68(59.7)
As aging the risk is increasing	81(71.1)
Smoking as risk factor	112(98.3)

Cessation of smoking decreases risk	100(87.7)
High blood pressure as risk factor	100(87.7)
Control of high blood pressure reduce risk of attack	101(88.6)
High cholesterol as risk factor	97(85.1)
HDL as risk factor	39(34.2)
LDL as risk factor	59(51.8)
Fatty food not affecting cholesterol level in blood	86(75.4)
Obesity as risk factor	100(87.7)
Physical activity reduces risk of IHD	104(91.2)
Only exercise at gym or in an exercise class reduce the risk of IHD	46(40.4)
Walking and gardening considered as exercise	94(82.5)
Diabetes as risk factor	72(63.2)
High blood sugar as risk factor	66(57.9)
Keeping blood sugar under control reduce risk of IHD	77(67.5)
Abdominal obesity as risk factor	61(53.5)
Stress increases Blood pressure and glucose	72(63.2)

A multiple logistic regression analysis was conducted to predict knowledge of IHD. The model showed a good fit for the data (Chi-squared value = 23.42, p < 0.001; goodness of fit = 6.38, p = 0.609). A BMI of ≥25 kg/m^2 (OR = 0.739, p = 0.023) was the only modifiable risk factor significantly associated with knowledge of CHD risk. This indicates that participants with a BMI of ≥25 kg/m^2 had 73.9% less knowledge compared to those with a BMI of ≤25 kg/m^2. Demographic variables significantly associated with knowledge of IHD risk factors were being married (OR = 0.057, p = 0.036) and having a diploma, baccalaureate, or graduate educational qualification (OR = 9.243, p = 0.0006). This suggests that married participants had 5.7% less knowledge compared to unmarried individuals, and those with a diploma or higher education level had a 9.2% higher knowledge score than those with lower education levels (Table 3).

Table 3. Multivariate logistic regression analysis of association between predictive variable and knowledge of coronary heart disease risk factors among community sample in Nangarhar Adults (N=114)

Variable	Beta estimate	P value	OR	95% CI
Intercept	9.460	0.010		
Age	0.041	0.304	1.041	0.964-1.130
BMI≥25kg/m2	-0.302	0.023	0.739	0.570-0.959
Gender	-0.621	0.506	0.537	0.086-3.353
Employment	-2.099	0.064	0.123	0.013-1.123
Diploma or higher education	2.224	0.006	9.243	1.872-45.632
Married	-2.871	0.036	0.057	0.004-0.825
Income	0.910	0.259	2.483	0.512-12.056

DISCUSSION

The objective of this study was to evaluate the knowledge of Ischemic Heart Disease (IHD) risk factors and identify the demographic variables associated with the level of knowledge among a community sample of adults in Nangarhar. The findings showed that adults in Nangarhar had little understanding about IHD risk factors, as demonstrated by the mean score on the HDFQ scale. Studies carried out over the world have shown similar results, reflecting the absence of awareness regarding IHD risk factors. Similar results were obtained from a study conducted in Kuwait to assess the public's understanding of cardiovascular disease risk factors, but a study conducted in Jordan revealed a greater level of knowledge (Awad & Al-Nafisi, 2014; Mukattash et al., 2012).

It had already been determined that smoking, high blood pressure, and high cholesterol were among the primary causes of IHD (Mosca et al., 2013). The study conducted by Pereira et al. (2009) showed that developing countries have begun to reach developed ones in regards to risk factor prevalence, awareness, treatment, and prevention. Due to the aggressive nature and consequences of these risk factors, healthcare providers are now more likely to highlight these risks while providing patient counseling (Abdullah & Husten, 2004). The majority of research participants were well informed on common risk factors for IHD, including high blood pressure, smoking, and high cholesterol. Awad et al. (2014) also found that the Kuwaiti Cohort was adequately aware of the risks related to obesity, smoking, eating an unhealthy diet, and not getting enough physical activity. These findings may be explained by the broad and thorough information that different forms of media around the world have been spreading about the negative effects of these factors (Mosca et al., 2004).

Hypertension, hypercholesterolemia, diabetes mellitus, stress and a family history of IHD were less persistent point out as CHD risk factors among the Kuwaiti cohort (Awad & Al-Nafisi, 2014). This may be because of inter-country variation in information provision through mass media Health education and guidance are mandatory to let the public population to get sufficient knowledge from reliable sources (Van Bekkum & Hilton, 2013). The level of knowledge regarding age as an IHD risk factor in this study was almost at the required level for sufficient awareness, indicating a limited understanding of age as a non-modifiable risk factor for IHD.

While fewer individuals were aware that central obesity carries a higher risk, the majority of participants were aware that being overweight raises the risk of IHD (Ford, Li, Zhao, & Tsai, 2011). According to Ford et al. (2011) there has been a rise in central obesity in the United States, which suggests that intra-personal inhibitory factors are preventing people from taking action to address this IHD risk factor. There was a poor level of awareness regarding LDL and HDL in this study. These results were comparable to those of an Indian sample (Saeed et al., 2009).

Furthermore, the current study's participant's knowledge of stress, diabetes, and a family history of IHD as risk factors was low. It had been determined that among Middle Easterners resident in Sweden, type 2 diabetes assembled a separate risk factor for cardiovascular disease (Bennet et al., 2013). Only 46% of the Australian group studied by Fernandez et al. (2008) identified diabetes as a risk factor for heart disease. According to the research, there is little information in the literature on family history as a risk factor for IHD (Karthik et al., 2006). As a result, the cohort of the present research may not be as aware of the risk factors, which could be contributing to the high incidence of IHD in Nangarhar. This suggests that health education and public awareness programs are necessary to address these problems.

BMI of ≥ 25 kg/m^2 was found to be significantly associated with a lower level of awareness of CHD in the present study. This result correlates with a study of obese and overweight people in Romania that revealed most of the participants were unaware of their substandard health (Cornelia, 2012). Afghanistan's obesity rate has alarmingly climbed over the last three decades, as has the case with many other developing nations. This increase is mostly due to growing industrialization, urbanization, the adoption of a sedentary lifestyle, and changes in socioeconomic level (Badran & Laher, 2011). Unfortunately, a lack of awareness regarding the cardiovascular consequences of obesity has left the majority of people unaware of the importance of changing their lifestyle (Andersson et al., 2006). This supports the need for educational programs to increase awareness of IHD risk factors and the need for dietary and physical activity alterations in an individual's lifestyle (Mooney & Franks, 2009).

Crucially, a significant number of participants in the current study thought that the only way to prevent CHD was to engage in physical activity in a gym or in a fitness program (Mooney & Franks, 2009). In similar Indian study, female participants believed reducing weight and increasing physical activity were essential changes to lifestyle needed to avoid IHD. According to a US study, college students who frequently exercised rated their chance of developing CHD as being lower than those who didn't; this suggests that lifestyle choice is influenced by understanding the risk factors linked with IHD (Green et al., 2003).

In the current study, education level was also found to have a significant association with awareness of CHD. The finding is in line with that reported by Wagner et al. and highlights the need for multilateral strategy to increase public awareness of CHD. The majority of these interventions are in the health sector, but some are necessary for society as a whole to raise the community's general education standards. Compared to their married counterparts, those who were single participants in this study knew more about the risk factors associated with IHD. The results of our research and the study carried out in Egypt were comparable (Seef et al., 2013). Certain variables related to marriage, like family obligations, have been shown to hamper married people from participating in preventative measures because they lack the time and information necessary to understand the risk factors for IHD (Haidinger et al., 2012).

The results of the current study, however, indicate that there is no meaningful correlation between gender and CHD. This finding challenged study by Jensen et al., which demonstrated that women were more aware of IHD risk factors than men. The disparity may result from sampling bias and the current study's higher percentage of male participants (Jensen & Moser, 2008).

Health policy maker as designing should consider the result of current study and executing interventions to increase awareness and prevention of IHD in Nangarhar. This finding could also be used to identify individuals with low knowledge level in order to be targeted with tailored education strategies. However, additional studies with larger sample sizes and a longitudinal study design is needed for proving the current study's findings. In order to establish psycho-cognitive elements affecting lifestyle habits, healthcare providers and researchers needed to explore the knowledge gap found in this study further. Research identifying IHD risk factors usually focuses on rural regions and different ethnic and cultural collectives (Artac et al., 2013; Kandula et al., 2013).

The results of the current study were affected by several limitations. The current study's cross-sectional design made it difficult to make judgments or apply the findings to a larger group of people. Biases may result from the inadequate sample size, lower percentage of female participants, and self-reported data. It is also important to remember that the original HDFQ was designed to assess diabetes awareness and overall health

awareness, not the general public's knowledge of IHD risk factors. As a result, the current study's findings could underestimate or overestimate Nangarhar population's awareness of risk variables associated with IHD.

CONCLUSION

The level of knowledge regarding Ischemic Heart Disease (IHD) risk factors was reported to be low among the studied group. While only a small number of respondents were aware of additional risk variables like diabetes mellitus, stress, abdominal adiposity, family history of IHD, and LDL, their awareness of other IHD risk factors was sufficient. BMI and education level were found to be significantly associated with knowledge level. As a result, health policymakers should consider these findings and develop educational programs to increase awareness of IHD-associated risk factors and prevention. In order to determine the underlying causes of the knowledge gap, additional study is recommended. Likewise, for validation of the results of this study, higher sample numbers and longitudinal studies must be conducted.

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