

Estimate patient's 10-years Cardiovascular risk using Arteriosclerotic cardiovascular disease tool a cross-sectional study in Al-Harja, Asser, Saudi Arabia,2021.

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Abstract

Introduction: Recently, the cases of arteriosclerotic cardiovascular disease (ASCVD) have been increasing in the rural areas of southwest Saudi Arabia. Therefore, this study sought to consider the relevant contributing factors, such as traditional dietary habits and a diet rich in cholesterol and fat, few opportunities for disease screening, false beliefs about chronic disease management medications, delays in diagnosis, and the great distances required for travel to cardiac specialist centers.

Methods: A cross-sectional study was conducted at 12 primary health care (PHC) centers. The total required sample was determined to be 440 participants after calculating based on the total population of Al-Harja. Systematic random sampling was performed using a list of PHC centers and fixed intervals. The study's outcome is ASCVD risk score divided into four categories: low risk < 5%, borderline risk 5%–7.5%, intermediate risk > 7.5%–20%, and high risk > 20%. Data were collected through interview questionnaires, measurements, and laboratory sample investigations.

Result: It was revealed that 16.59% of the participants were classified in the high-risk category for having ASCVD in the next ten years. There was a significant association between the ASCVD risk score and obesity ($p = 0.03$). Prior diagnoses for either hypertension and diabetes mellitus ($p = 0.00$) were significantly associated with an increased ASCVD risk score.

Conclusion: An alarmingly high prevalence of high-risk ASCVD scores was seen among males, with 54 male participants (22.78%) in the high-risk category, while 19 female participants (9.36%) were in the same category. Therefore, we can conclude that males are twice as likely to have a high ASCVD risk than females.

Introduction

Arteriosclerotic cardiovascular disease (ASCVD) has been increasing in the rural areas of southwest Saudi Arabia. Therefore, this study sought to consider the effects of the relevant contributing factors, such as traditional dietary habits and a diet rich in cholesterol and fat, few opportunities for disease screening, false beliefs about chronic disease management medications, delays in diagnosis, and the great distances required for travel to cardiac specialist centers

The study estimated ASCVD risk using assessment tools approved and validated by the American College of Cardiology. Assessing the 10-year cardiovascular risk of individuals is essential to the planning, budgeting, and resource allocations in the design of public health programs that specifically address a region's needs. According to a prior meta-analysis published in 2018, cardiovascular disease (CVD) is associated with significantly high morbidity and mortality rates. To minimize the burden of CVD, there is a significant interest in identifying the risk factors in the general population. Furthermore, those who are at increased risk for future cardiovascular events can be targeted for interventions. Although recognized cardiovascular risk factors such as age, male sex, and hypertension can predict 80 per cent of future CVD risk, smoking, and diabetes mellitus, the remaining 20% of risk determinants remain unclear (1).

Results

More than half of the participants (64.09%) participated in some regular physical activity. Most of them about one-third (33.64%) practiced outdoor walking. Regarding the statin medications taken by the participants, only 15.23% were taking drugs to lower cholesterol levels, while 28.64% were taking aspirin. Regarding the lifestyles and other characteristics of the participants, the mean height, regardless of gender, was 1.64 m ($SD = \pm 0.098$), and the mean weight, including both genders, was 74.49 kg ($SD = \pm 14.20$). Regarding BMI, most participants were overweight (41.91%), followed by the normal category, which included 31.14% of the participants. The obese category included 26.36% of the participants, while those who were underweight comprised only 1.59% of the participants in this study.

A total of 440 participants were enrolled in this study. Most of the sample was male (53.86%). The total mean age of the participants was 42.28 years, with a standard deviation (SD) of ± 15.23 . More than two-thirds of the participants (70.91%) were married. For education, 37.05% of the participants had gained a bachelor's degree or above, and 10.23% of the patients were illiterate. Regarding income, 37.50% of the participants earned 5,000 Saudi Riyals (SR) or less per month, 34.32% earned 5,000 SR to 10,000 SR during the same period, and about one-third of the total sample (28.18%) earned 10,000 SR or more per month.

the mean and standard deviation of the risk factors for ASCVD among all participants. The mean height was 1.64 m ($SD = \pm 0.09$), while for weight, the mean was 74.5 kg ($SD = \pm 14.20$). For BMI, the mean was 27.56 ($SD = \pm 5.17$). For diastolic pressure, the mean was 79.17 mmHg ($SD = 8.79$), while for systolic pressure, the mean was 121.72 mmHg ($SD = \pm 16.49$). For total cholesterol, the mean was 179.88 mmol/L ($SD = \pm 35.51$). The mean HDL was 46.81 mmol/L ($SD = \pm 10.51$), while for LDL, the mean was 111.90 mmol/L ($SD = \pm 33.08$). Also Figure 1 illustrates the Body Mass Index classification

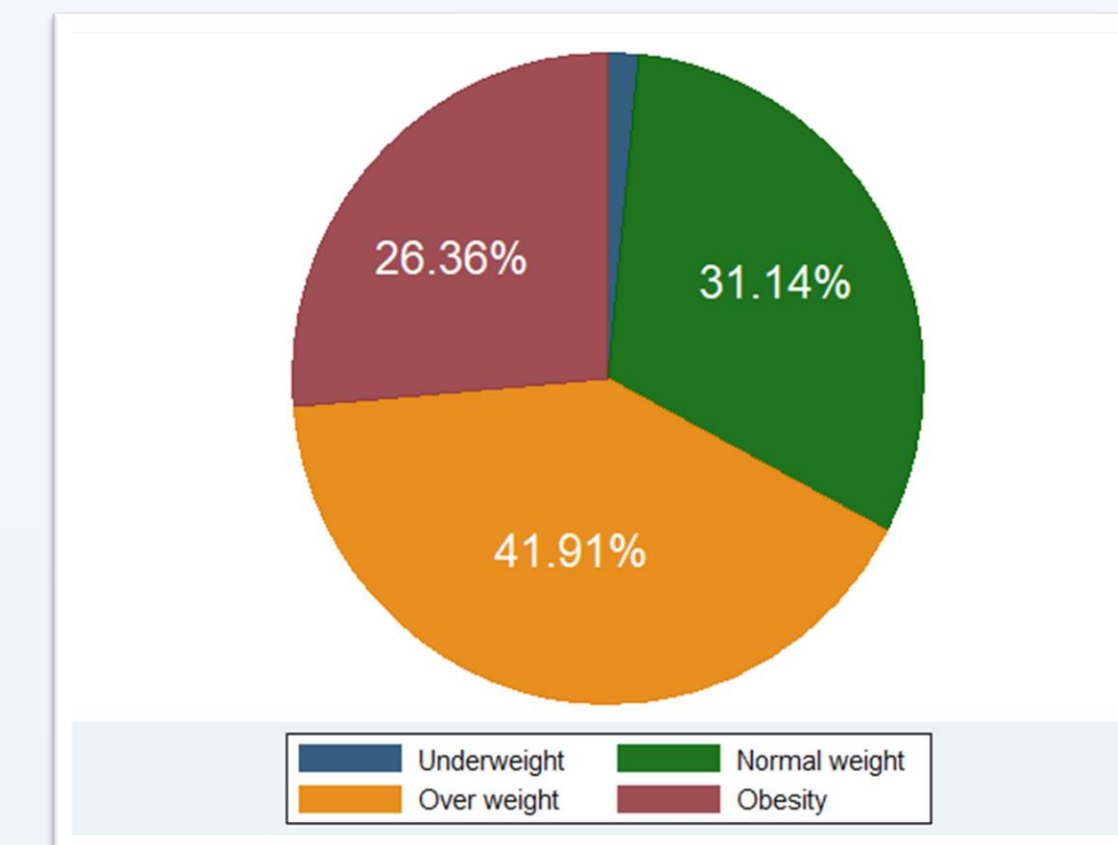


Figure 1: The Body Mass Index classification

Table 1: The distribution of ASCVD risk Score category among the participants by sex (n = 440)

ASCVD Category	Male	Female
Low risk	138 (58.23%)	141 (69.46%)
Borderline risk	11 (4.64%)	17 (8.37%)
Intermediate risk	34 (14.35%)	26 (12.81%)
High risk	54 (22.78%)	19 (9.36%)

both males and females had a higher percentage of participants in the low-risk category, which was 58.23% among males and 69.46% among females. The borderline-risk category included 4.64% of the male participants and 8.37% of the females. In the intermediate-risk category, there were 34 male participants, comprising 14.35% of the male participants, while there were 26 females, comprising 12.81% of the female participants. In the fourth category for ASCVD risk, which is the high-risk category, there were 54 male participants, representing 22.78% of the male participants, while females in the same category numbered only 19, representing 9.36% of the female participants.

Discussion

ASCVD is a multi-factorial disease, so knowing the prevalence and incidence rates of risk factors can help establish a structured plan for all PHC that helps patients minimize the risks. The prevention, or at least delay, of ASCVD events can occur if a proper risk factor minimization plan is followed. In 2019, Mohammed Abdullah Al-Mansour (2) conducted a study in a semi-urban area (Al-Majmah) in the Central north of Saudi Arabia, and the study's findings were interesting due to its semi-urban setting and the prevalence in the population of one of the most critical risk factors for CVD, diabetes mellitus, which was 39.6%. This is consistent with the results of our study, in which the prevalence of diabetes mellitus was 41.82%.

Summary

An alarmingly high prevalence of high-risk ASCVD scores was found among the participants from the Al-Harja governorate, with 73 (16.59%) having high-risk scores. Among the participants with a high-risk ASCVD score, the number of males was 54, comprising 22.78% of the males, while the number of females was 19, comprising 9.36% of the females. Therefore, we can conclude that males have a greater than double the risk of getting ASCVD as females.

Conclusion

participants' social demographic factors, including age, gender, education level and marital status. Furthermore, the 10-year ASCVD risk was also positively associated with ASCVD risk factors, including having been diagnosed with diabetes mellitus and hypertension and a family history of CVD. There was also an apparent impact of BMI on 10-year ASCVD risk. As the BMI of the participants increased, so did the ASCVD risk scores. According to the Centers for Disease Control and Prevention (CDC), high-fat and high-cholesterol diets may increase the risk of CVD, including atherosclerosis. (3) Therefore, we can conclude that both Musabab and mofatah, which are traditional meals that are high in fat and cholesterol, were positively associated with a high ASCVD risk score.

Reference :

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