

Assessment of Preventable Risk Factors of Cardiovascular Diseases Among Young Population

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ABSTRACT

Background and Aim: Cardiovascular disease (CVD) might begin with lifestyle-associated risk factors from childhood and grow to adulthood. High blood pressure, older age, male gender, diabetes mellitus, abnormal cholesterol levels, current smoking, physical inactivity, and obesity are all associated with an increased risk of CVD events. To classify a person's risk for a CVD event, risk factors can be combined in a variety of ways. The present study's aim was to assess the preventable risk factors of cardiovascular diseases among the young population.

Materials and Methods: This cross-sectional study was carried out on 208 young participants of age between 15 to 20 years at the department Medicine, Holy Family Hospital, Rawalpindi during the period from February 2021 to June 2021. Ethical approval was taken from the institutional ethical committee. Informed consent was obtained from each participant. Two steps procedures were followed for data collection. The first step was a questionnaire-based interview for demographic details and modifiable determinants. Secondly, Anthropometry parameters such as blood pressure and pulse were measured. SPSS version 24 was used for data analysis.

Results: Of the total 208 participants, 110 (52.9%) were boys and 98 (47.1%) were girls. The overall mean age \pm S.D was 17.2 ± 1.8 years with an age range of 15 and 20 years. The incidence of hypertension and prehypertension was 28 (13.5%) and 57 (27.6%) respectively. The occurrence of obesity, tobacco consumption, unhealthy diet, and physical inactivity were 31 (14.7%), 16 (7.7%), 108 (51.9%), and 159 (76.4%) respectively. About 70 (33.7%) of the students were found to be malnourished.

Conclusion: The present study found that poor diet, obesity, tobacco usage, and physical inactivity were the various risk factors for cardiovascular disease in the young age population. These risk factors have long-term consequences. Appropriate counseling and preventive strategies should be implied to mitigate the ravages of cardiovascular disease among the young generation.

Keywords: Cardiovascular Disease; Preventable Risk factors; Young generation

INTRODUCTION

Cardiovascular diseases (CVDs), particularly ischemic heart disease (IHD) and stroke, are the leading cause of death worldwide and a major cause of disability [1]. Cardiovascular disease is amongst four types of non-communicable diseases classified by World Health Organization (WHO) besides chronic respiratory diseases, diabetes, and cancer [2, 3]. Cardiovascular disease (CVD) might begin with lifestyle-associated risk factors from childhood and grow to adulthood. High blood pressure, older age, male gender, diabetes mellitus, abnormal cholesterol levels, current smoking, physical inactivity, and obesity are all associated with an increased risk of CVD events [4, 5]. Accurate identification of people at high risk for CVD events, particularly nonfatal myocardial infarction or stroke, and CVD death, allows for more intensive risk factor management to reduce the likelihood of such an event occurring. Furthermore, identifying low-risk individuals may allow for a reduction in interventions with a low benefit-to-risk ratio for those who are unlikely to benefit [6]. As per WHO statistics, unhealthy behavioral patterns that begin at a young age cause 67% of premature deaths and 33% of disease burden among adults [7]. According to a recent study, an increase in tobacco usage among Pakistani beginning at the early age of 15 years account for 14.7% of total mortality by 2020 [8]. Other risk factors associated with poor diet and insufficient physical activity may start in childhood and become difficult to change as adulthood approaches. Obesity is the primary cause of problems such as diabetes, coronary heart disease, and hypertension as evidenced by an increase in body mass index (BMI) [9].

Although the prevalence of CVD risk factors is increasing globally, they are largely modifiable. Most CVDs can be avoided by addressing risk factors such as poor diet, tobacco use, obesity, high blood pressure, physical inactivity, diabetes, and elevated lipids [10]. The WHO estimated that addressing the

mentioned risk factors could prevent 80% of CVD and stroke cases [11]. Physical activity, for example, lowers the risk of CVD and type 2 diabetes by improving glucose metabolism, lowering blood pressure, and reducing body fat [12]. The present study was conducted on a young population of the urban area shown stressful life increases potential risk factors for cardiovascular disease. However, because it is still not too late to improve one's lifestyle and reverse the negative effects of these risk factors at this age, this study was conducted among the young age people in order to devise specific strategies to prevent the risk factors of cardiovascular diseases that occur later in life.

MATERIAL AND METHODS

This cross-sectional study was carried out on 208 young participants of age between 15 to 20 years at the department of Medicine, Holy Family Hospital, Rawalpindi during the period from February 2021 to June 2021. Ethical approval was taken from the institutional ethical committee. Informed consent was obtained from each participant. Two steps procedures were followed for data collection. The first step was a questionnaire-based interview for demographic details and modifiable determinants. Secondly, Anthropometry parameters such as blood pressure and pulse were measured. Initially, a questionnaire-based interview was conducted for modifiable determinants and socio-demographic details. Smoking habits, unhealthy diets, and physical inactivity were the different modifiable determinants. The blood pressure and pulse of each individual were measured. Height, weight, and body mass index were also measured and recorded. A Mercury sphygmomanometer was utilized for measuring three-time blood pressure at intervals of 10 minutes. SPSS version 20 was used for data analysis. Descriptive statistics and analytical parameters were calculated in terms of proportion, frequencies, and percentage.

People who had used tobacco products at some point in their lives [13] were referred as tobacco users. Physical inactivity is defined as sedentary activity (sitting or resting) for more than 6 hours per day [14]. Outside meals (fast food) consumption on more than three days per week has been labelled as an unhealthy dietary habit [14]. Systolic blood pressure greater than 140 mm Hg and diastolic blood pressure greater than 90 mm Hg was considered as hypertension [15]. Prehypertension is defined as systolic blood pressure greater than 120 mm Hg but less than 139 mm Hg and diastolic blood pressure greater than 80 mm Hg in young age [16].

RESULTS

Of the total 208 participants, 110 (52.9%) were boys and 98 (47.1%) were girls. The overall mean age ± S.D was 17.2±1.8 years with an age range of 15 and 20 years. The incidence of hypertension and prehypertension was 28 (13.5%) and 57 (27.6%) respectively as shown in Figure-3. The occurrence of obesity, tobacco consumption, unhealthy diet, and physical inactivity were 31 (14.7%), 16 (7.7%), 108 (51.9%), and 159 (76.4%) respectively as shown in Figure-2. About 70 (33.7%) of the participants were found to be malnourished. The Chi-square test was used for data analysis. Hypertension history, gender, unhealthy diet, physical inactivity were substantially related to the participant's blood pressure as per the chi-square test whereas other determinants were not important as shown in Table-1. Gender distribution is shown in Figure-1.

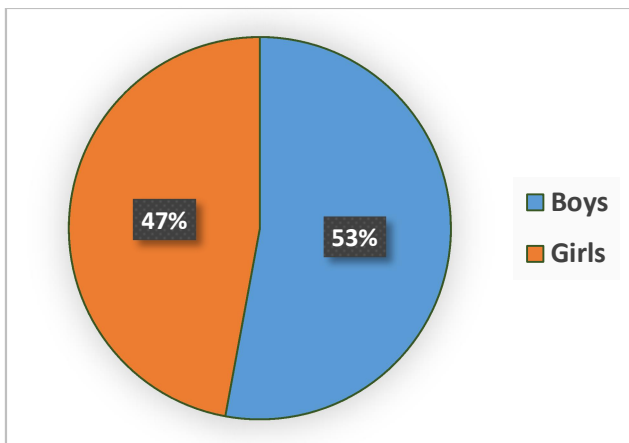


Figure-1 Gender distribution (n=208)

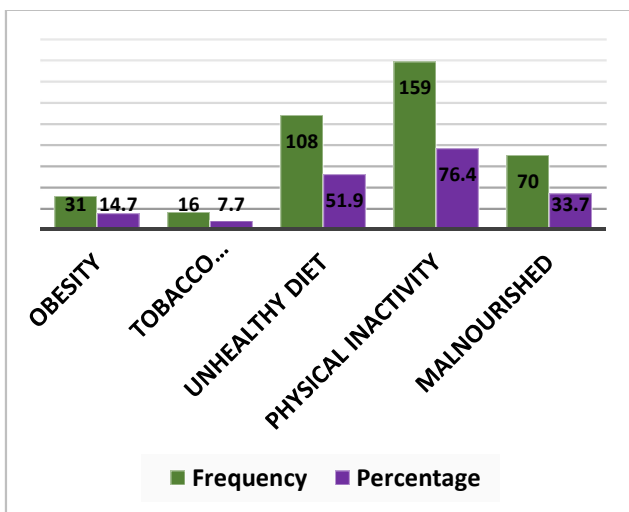


Figure-2 Prevalence of various preventable risk factors for CVD

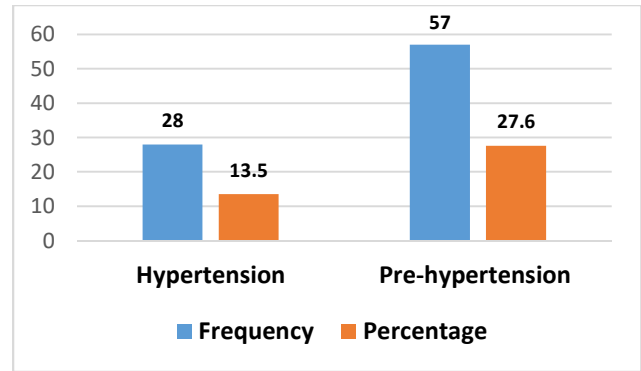


Figure-3 Prevalence of hypertension and pre-hypertension

Table-1 Association of participant's blood pressure and risk factors (n=208)

Factors	Normal BP n (%)	Pre-Hypertension n (%)	Hypertension n (%)	p-value
Age (years) 15-20	123 (59.1)	57 (27.6)	28 (13.5)	>0.05
Gender				
Boys	52 (47.3)	39 (35.5)	19 (17.3)	<0.0001
Girls	71 (72.4)	18 (18.4)	9 (9.2)	14.791
Unhealthy diet	136 (65.4)	49 (23.6)	23 (11.1)	<0.0001
Physical Inactivity	126 (60.6)	55 (26.4)	27 (13)	<0.001
Tobacco consumption	192 (92.3)	12 (5.8)	4 (1.9)	0.321

DISCUSSION

According to the current study, 7% of the participants had ever used tobacco. This could be due to peer pressure, as adolescents are prone to developing such habits. The studies conducted yielded similar results. [17, 18]. About 76.4% of the participants in the current study were physically inactive. This could be because of social media and electronic devices addiction, and they place little value on physical activity and sports. This was consistent with the findings of the Balaji et. al. study [19]. According to our findings, approximately 51.9% of people had poor dietary habits. This could be because most parents work and do not have enough time to prepare home-cooked meals for their children. Similarly, in a study conducted by Bukel et al. [20], 56% of the participants had unhealthy dietary habits.

In the current study, 14.7% of the total participants were obese. These findings were similar to those of a study conducted by Sarkar et al. [21]. According to the current study, 57.3% of the total population had normal blood pressure. At least 27.6% of the total participants were pre-hypertensive, with 52.9% being boys, and 13.5% being hypertensive. Adhikari et al. [22] and Manita et al. [23] steered studies that found hypertension to be more prevalent in men than in women. Similar results were found in a study [24], where 10.6% of study participants were found to be hypertensive.

The study's most striking finding was the high prevalence of under nutrition among the participants (33.7%). Though undernutrition is not a risk factor for cardiovascular disease, it must be addressed because a large number of students in the study were underweight. This could be because participants of this age are concerned about their body image and may starve themselves, resulting in malnutrition. Similar findings were found in a study conducted by Evageline Mary et al. [25], where 23% of the participants were found to be underweight.

In the current study, the relationship between participants' BP and their age was insignificant (P = 0.676). However, Bute et al [26] and Sutradhar et al [27] discovered that the risk of high blood pressure increased significantly with age (P 0.0001). In the current

study, it was discovered that the majority of participants who had unhealthy dietary habits and were physically inactive had prehypertension or hypertension. It could be because the outside meals contain a high amount of saturated fats, which can lead to dyslipidemia, which can lead to high blood pressure. Both of these relationships were found to be statistically significant ($P < 0.001$). These findings were consistent with another study [28], which found that frequent junk food consumption and physical inactivity both increased the likelihood of having high blood pressure.

As a result, it can be concluded that risk factors such as tobacco use, physical inactivity, and unhealthy dietary habits begin during adolescence and have long-term consequences. As a result, concrete strategies for preventing the development of such risk factors must be developed. The appropriate counselling sessions should be organized by the relevant authorities in order to raise awareness among young population about the importance of living a healthy lifestyle. These measures can shield today's youth from the ravages of cardiovascular disease and assist them in living a healthy, stress-free life.

CONCLUSION

The present study found that poor diet, obesity, tobacco usage, and physical inactivity were the various risk factors for cardiovascular disease in the young age population. These risk factors have long-term consequences. Appropriate counseling and preventive strategies should be implied to mitigate the ravages of cardiovascular disease among the young generation.

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