

A STUDY ON RISK ASSESSMENT OF CARDIOVASCULAR DISEASE AMONG CORPORATE EMPLOYEES

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INTRODUCTION

Cardiovascular Diseases (CVDs)

- The term "cardiovascular diseases" (CVDs) refers to a variety of heart and blood vessel conditions.
- Types of CVDs -
 - A condition affecting the blood arteries supplying the heart muscle is known as **coronary heart disease**.
 - A condition affecting the blood arteries supplying the brain known as **cerebrovascular disease**
 - **Peripheral arterial disease** affects the blood vessels that supply the arms and legs.
 - **Rheumatic heart disease** damages the heart muscle and heart valves as a result of rheumatic fever, which is brought on by streptococcal bacteria.
 - **Congenital heart disease** results from birth defects that affect the heart's normal development and function.

RISK FACTORS OF CVDs

An aspect of personal behavior/ lifestyle, an environmental exposure, or a hereditary characteristic that is associated with an increase in the occurrence of a particular disease, injury, or other health condition.

MODIFIABLE RISK FACTORS

Can be reduced or controlled by intervention, thereby reducing the probability of disease.

- Hypertension
- Diabetes
- Smoking
- Obesity
- High cholesterol levels
- Physical inactivity

NON - MODIFIABLE RISK FACTORS

Cannot be reduced or controlled by intervention

- Age
- Gender
- Race
- Family history (genetics)

KEY FACTS

As per WHO June 2021:-

- ✓ Cardiovascular diseases (CVDs) are the leading cause of death globally.
- ✓ An estimated 17.9 million people died from CVDs in 2019, representing 32% of all global deaths. Of these deaths, 85% were due to heart attack and stroke.
- ✓ Over three-quarters of CVD deaths take place in low- and middle-income countries.
- ✓ Out of the 17 million premature deaths (under the age of 70) due to non-communicable diseases in 2019, 38% were caused by CVDs.
- ✓ Most cardiovascular diseases can be prevented by addressing behavioral risk factors such as tobacco use, unhealthy diet and obesity, physical inactivity, and harmful use of alcohol.
- ✓ It is important to detect cardiovascular disease as early as possible so that management with counselling and medicines can begin.

LITERATURE REVIEW

TITLE	AUTHOR/S	YEAR	FEATURES
Study of cardiovascular risk factors among tertiary hospital employees and their families.	Divya Sharma , Manju Vatsa ,Ramakrishna Lakshmy , Rajiv Narang , Vinay Kumar Bahl , Sanjeev Kumar Gupta	2012	1. According to this study, cardiovascular risk factors are very prevalent, including hypertension, obesity, and being overweight. 2. The prevalence of diabetes in the family was highest (32%), followed by hypertension (28.7%) and CAD (17.4%).
A survey of non- communicable diseases and their risk factors among university employees.	Agaba Emmanuel	2017	1. This investigation assessed the frequency of NCDs and their contributing variables among students at a university. 2. This study found a significant prevalence of NCDs and associated modifiable risk factors in this group. Workplace policies are required to encourage the adoption of healthy lifestyles.
Cardiovascular Disease Risk Factor Profiling of Group C Employees in JIPMER, Puducherry	K Aswin, Arun G. Ghorpade, Sitanshu Sekhar Kar, and Ganesh Kumar	2014	1. 40% of people with documented hypertension had uncontrolled blood pressure. This may be because there is a lack of frequent screening programs, especially in tertiary care facilities, and because personnel have less knowledge of NCDs. Therefore, early detection and management can be improved by providing health education to employees and sensitizing doctors to support screening.

TITLE	AUTHOR/S	YEAR	FEATURES
Cardiovascular Risk Assessment and Profiling among Employees of Tertiary Care Rural Hospital: Central India	Anjalee Chiwhane, Gajendra Agrawal , Joel Joy Thomas , Saurbh Hadke	2021	1. In this study it was shown that there was a significant number of cardiovascular risk factors, which can increase morbidity and death. Routine health check-up camps should be held to reduce the disease load.
Cardiovascular disease risk factors among undergraduate medical students in a tertiary care center of eastern India: a pilot study	Somnath Mukhopadhyay, Anindya Mukherjee, Dibbendhu Khanra, Biaux Samanta, Avik Karak & Santanu Guha	2021	1. In the study, it was found that The high frequency of many modifiable cardiovascular disease risk factors found in this study's subjects is troubling and necessitates the introduction of screening programs, awareness initiatives, and monitoring operations. The medical core curriculum should be revised and modified in the direction of prevention and awareness.
High prevalence of coronary risk factors among bank employees in India	Vinay Rao, and Prasannalakshmi Rao	2014	1. In study it was found that Approximately half of the population had more than one coronary risk factor. 2. This study serves as a wake-up call to pursue proactive interventional measures to prevent the inevitable CHD from emerging in chair-bound employment.

RESEARCH QUESTION

How Heart Risk Assessment is helping in early diagnosis of risk of cardiovascular disease among corporate employees in India?

OBJECTIVES OF THE STUDY

1. To determine risk factors for CVDs among corporate employees.
2. Individualized risk profiling among corporate employees.
3. To proactively manage risk factors, promote heart-healthy behaviors, and improve the overall cardiovascular health of the workforce.



METHODOLOGY

STUDY DESIGN

Cross-sectional survey based Descriptive study design

STUDY POPULATION

Health checkup camps were held in various Corporate Offices in cities: Delhi NCR, Delhi, and Gurgaon.

- **Inclusion criteria**

The study population consists of Employees who participated in the health checkup camps, it included – Men, Women, and elderly people.

- **Exclusion criteria**

The employees who did not attend the health check-up camp were excluded from the study.

STUDY DURATION

The study was done from March 19th to May 17th, 2023 (60 days).

SAMPLE SIZE

180 participants

SAMPLING TECHNIQUE

Simple Random Sampling

STUDY SETTING

The study was conducted in the Corporate offices through the health checkup camps. The organization setting that organized these camps was “SEVA AT HOME INDIA PVT. LTD.”

- DATA COLLECTION TOOLS

Primary data were collected from employees who attended the health check-up camps through the online Heart risk assessment.

- DATA ANALYSIS

All the categorical variables were reported in counts and percentages, and the data was analyzed using excel.

RESULTS

AGE DISTRIBUTION OF STUDY POPULATION

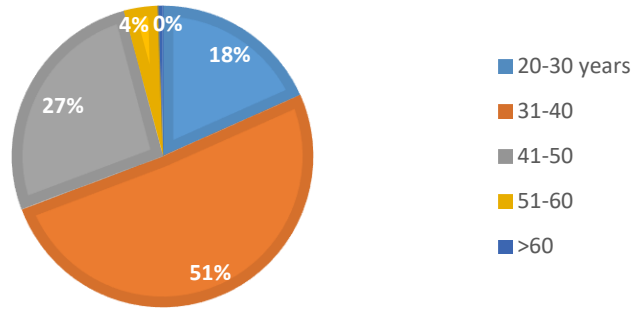


Figure – Age distribution

GENDER DISTRIBUTION IN THE STUDY POPULATION

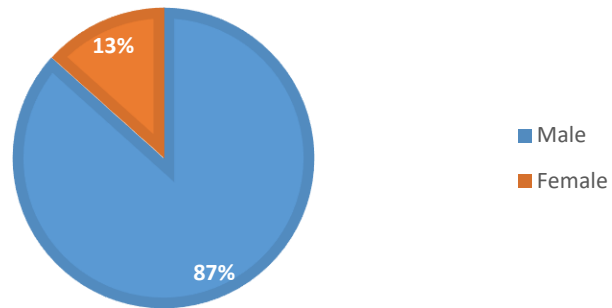


Figure – Gender distribution

RISK FACTORS FOR CVD

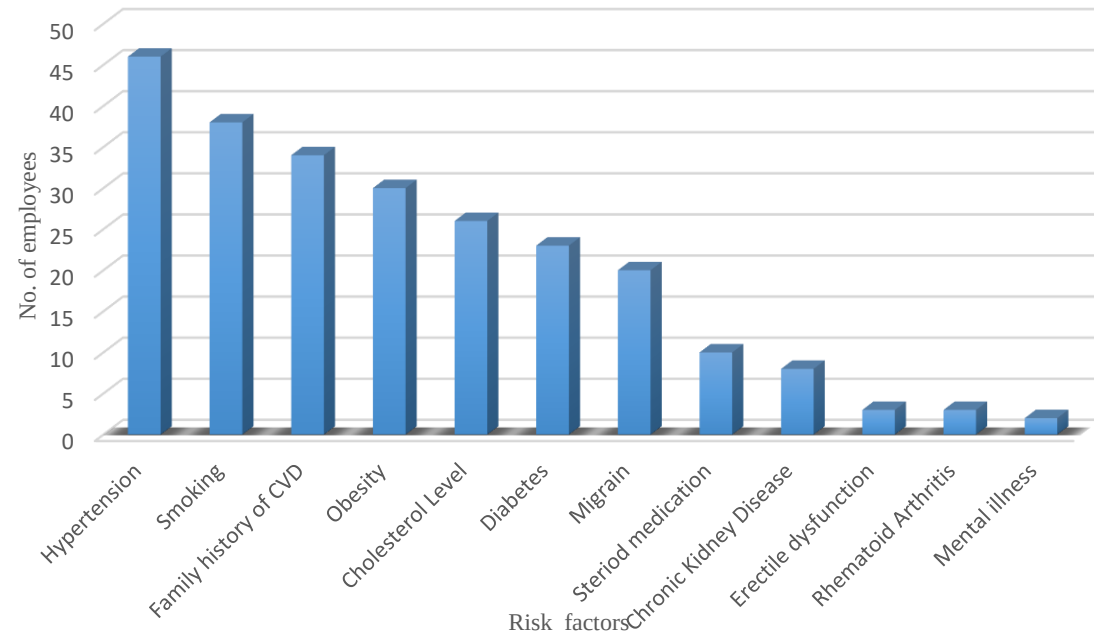


Figure- Overall analysis of risk factors for CVDs

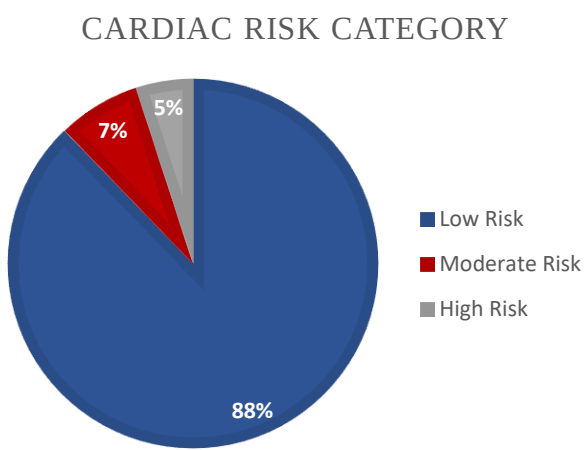


Figure. Cardiac risk category

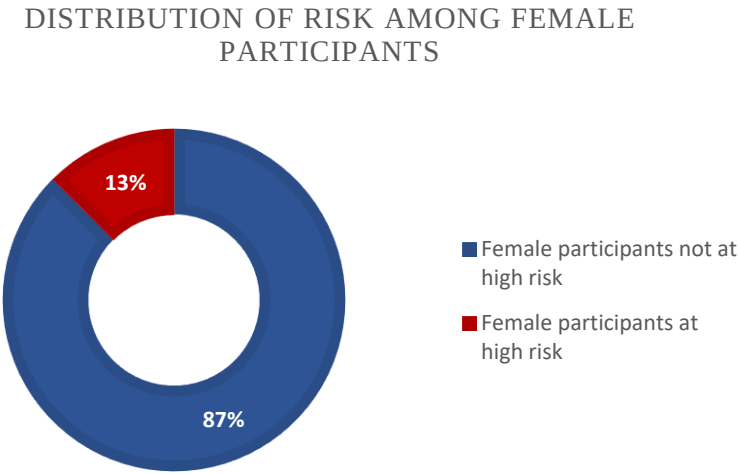
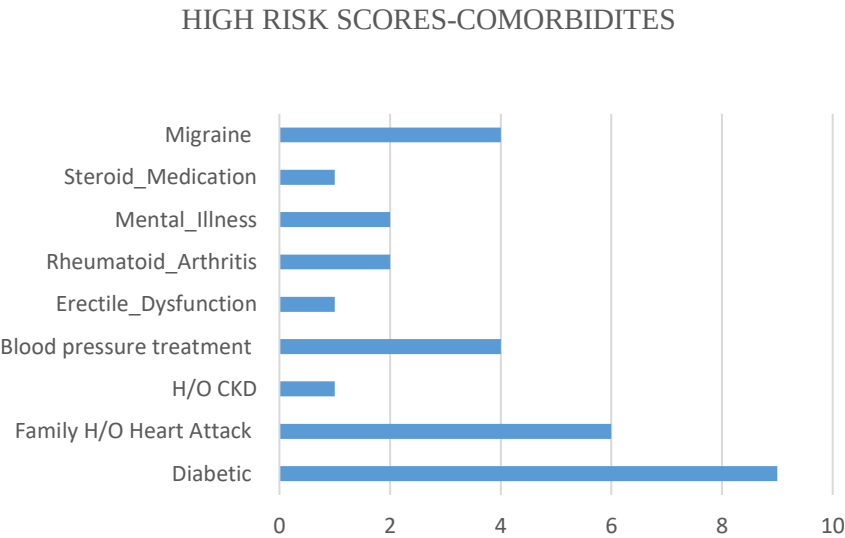
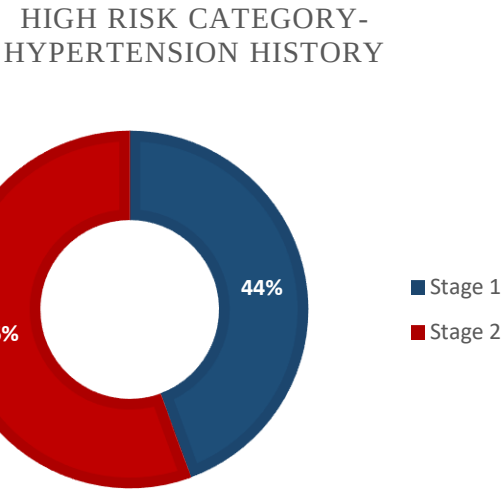
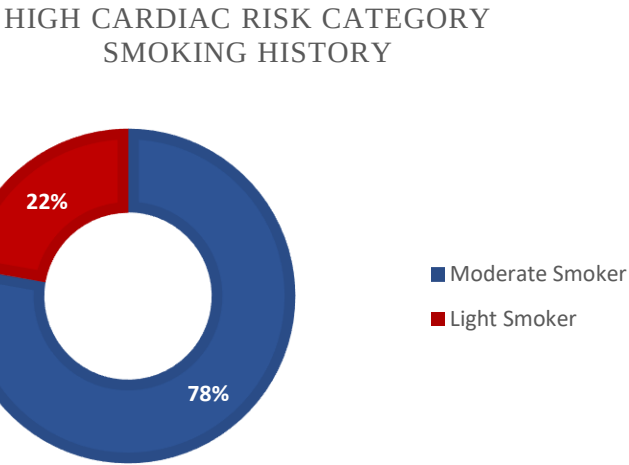
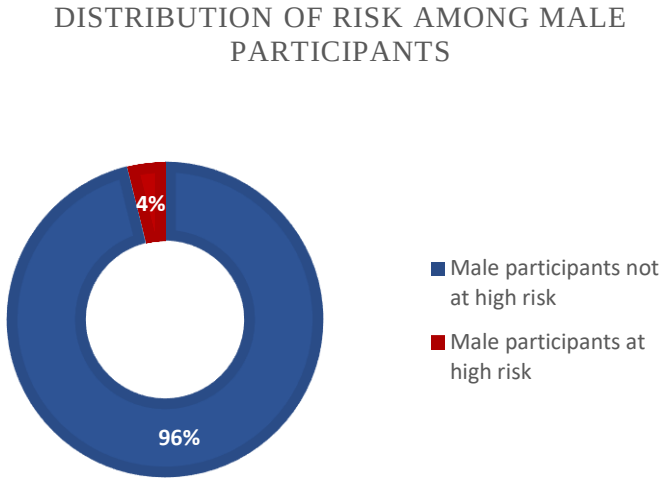
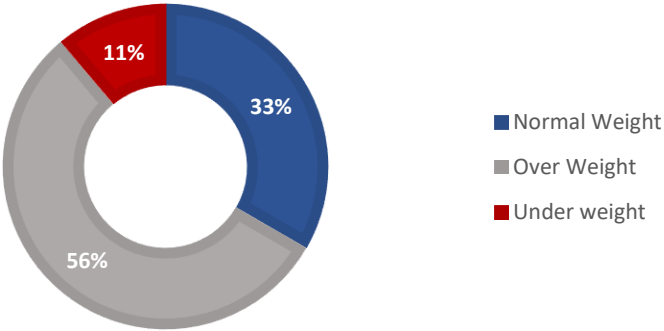


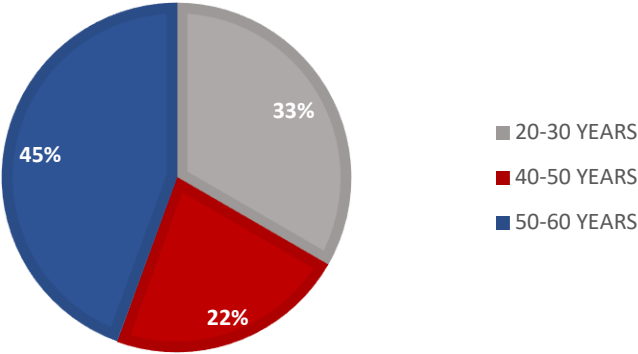
Figure. Gender distribution for High risk



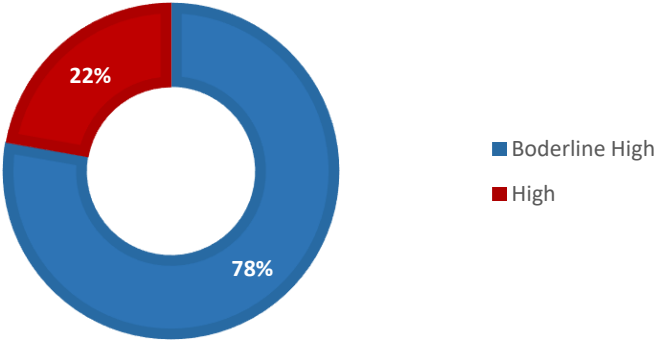
HIGH CARDIAC RISK CATEGORY- BMI
RESULT



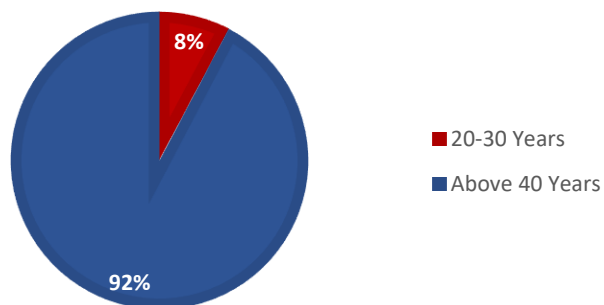
AGE DISTRIBUTION FOR HIGH RISK
CATEGORY



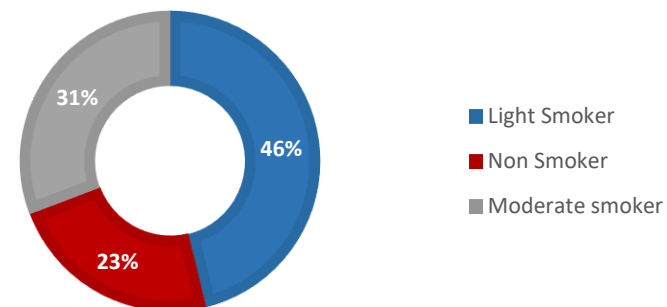
HIGH CARDIAC RISK CATEGORY-
CHOLESTEROL LEVEL



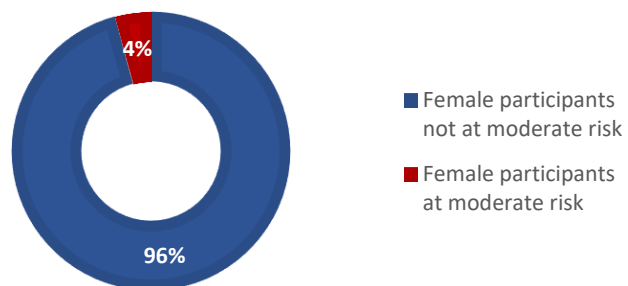
AGE DISTRIBUTION IN MODERATE RISK CATEGORY



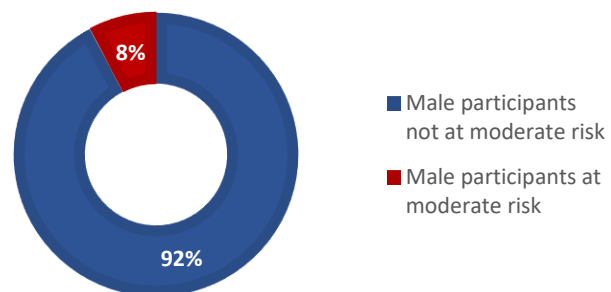
MODERATE RISK CATEGORY- SMOKING HISTORY



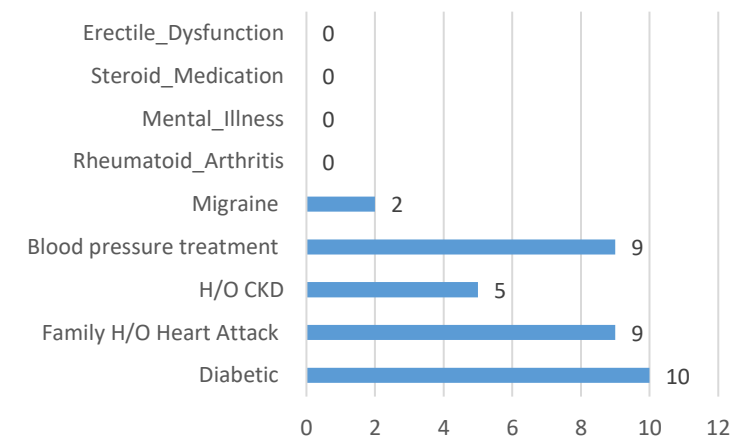
DISTRIBUTION OF RISK AMONG FEMALE PARTICIPANTS



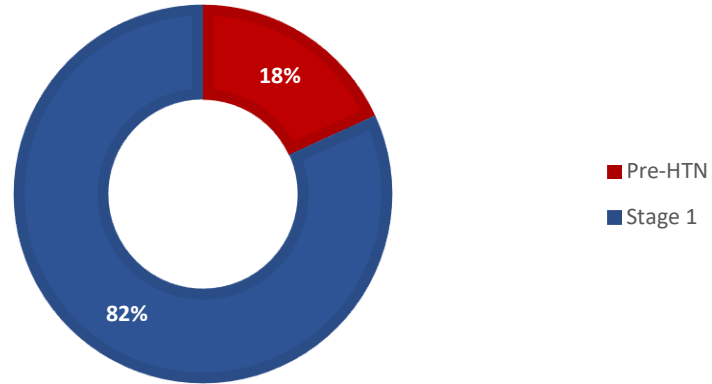
DISTRIBUTION OF RISK AMONG MALE PARTICIPANTS



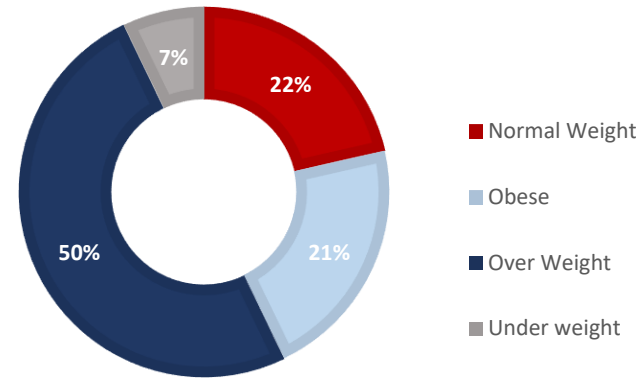
MODERATE RISK CATEGORY- COMORBIDITIES



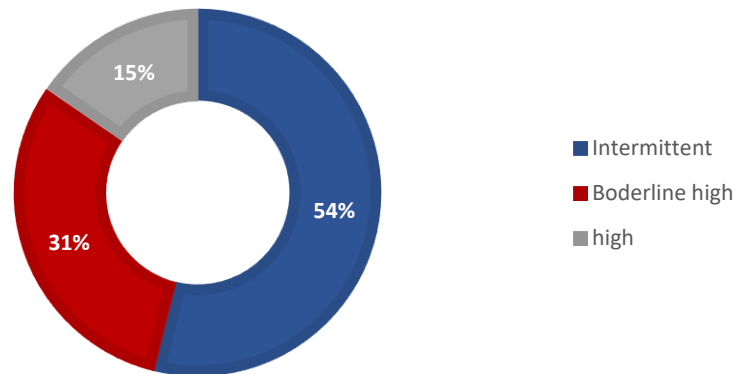
MODERATE RISK CATEGORY-HYPERTENSION HISTORY



MODERATE RISK CATEGORY- BMI RESULTS



MODERATE RISK SCORE- CHOLESTEROL LEVEL



DISCUSSION

- The current study found a significant prevalence of cardiovascular risk factors, including hypertension (25%), smoking (21%), CVD family history (18%), obesity (16%), hyperlipidemia (14%), diabetes (12.7%), migraine (11%), and chronic kidney disease (4%) among employees.
- In this study, data acquired through heart risk assessment assisted in categorizing personnel as high-risk, moderate-risk, or low-risk based on cardiac risk scores. In this survey, 180 employees participated, with 87% being male and 13% being female. The majority of participants (51%) are between the ages of 31 and 40.
- According to the findings of this study, 5% of 180 employees were at high risk of getting CVDs, 7% of employees were at moderate risk, and 88% of employees were at low risk.
- In this study it was found that, 13% of females are in high-risk category whereas 4% of males are at high-risk category and the majority of high-risk employees are between the ages of 50 and 60 yrs.

- The majority of high-risk employees were moderate smokers, and 56% of high-risk employees had stage 2 hypertension (SBP 140-150 mmHg DBP 90-99 mmHg). Diabetes (5%), a family history of heart attack (3.3%), and 56% of employees being overweight were also risk factors in the high-risk category..
- According to this survey, 4% of females are in the moderate risk category and 8% of male are in the moderate risk category. The majority of employees (92%) were above the age of 40, and the majority of employees were light smokers. Comorbidities seen in the moderate risk category included 5% of employees on blood pressure medication, 5.5% of employees with diabetes, 5% of employees with a family history of CVDs, and 2.7% of employees with a family history of CKD.
- The majority of employees (82%) had stage 1 hypertension, whereas 18% had pre-hypertension. The majority of employees had a cholesterol level in the intermediate range, 31% had a borderline high level of cholesterol, and 15% had a high level of cholesterol.

CONCLUSION

The study found that individuals had a significant prevalence of cardiovascular risk factors such as hypertension, smoking, a family history of CVD, obesity, hyperlipidemia, diabetes, migraine, and chronic kidney disease. These risk factors have an important role in the development of cardiovascular illnesses.

A significant risk factor is hypertension. The classification of cardiovascular disease risk into high, low, and moderate risk provides a useful framework for identifying individuals with various levels of vulnerability. This classification aids in the implementation of targeted preventive programs, early treatments, and effective management plans to lower the burden of cardiovascular disease and enhance overall health outcomes.

RECOMMENDATIONS

The following recommendation can be made to reduce the risk of CVDs in employees :-

1. **Smoking Cessation Programs:** Smoking cessation programs must be implemented in order to lower the prevalence of smoking.
2. **Blood Pressure Control:** Given the prevalence of hypertension, it is critical to prioritize blood pressure control.
3. **Diabetes Management:** Diabetes patients should receive medical care that includes blood sugar monitoring, medication, and lifestyle changes such as diet and exercise.
4. **Conduct health education programs** to raise awareness about cardiovascular risk factors, their implications, and preventive strategies.
5. **Encourage staff to have frequent health check-ups** to evaluate their cardiovascular health
6. **Establish workplace wellness programs** that encourage physical activity, good nutrition, stress management, and overall well-being

THANK - YOU