

01. Hidden Cardiovascular Risk Among University Students: Findings From a Preventive Cardiovascular Screening Initiative

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Background : Cardiovascular disease remains the leading cause of mortality worldwide, with cardiovascular risk factors increasingly appearing during young adulthood. Elevated blood pressure among university students frequently remains undetected due to limited preventive screening. Early identification of modifiable cardiovascular risk factors may support timely intervention and reduce long-term cardiovascular disease burden. This study aimed to assess the prevalence of abnormal blood pressure and associated lifestyle-related cardiovascular risk factors among university students participating in a preventive cardiovascular screening initiative. **Methods:** A cross-sectional observational study was conducted during a university-based cardiovascular awareness initiative among students. Participants from all academic years (1st–6th year) were recruited through voluntary pre-registration. All screening activities were performed under direct cardiologist supervision. Collected variables included demographics, blood pressure measurements, body mass index (BMI), smoking status, physical activity, sleep duration, stress level, and relevant medical history. Blood pressure categories were classified according to the American Heart Association (AHA) hypertension criteria. 12-lead electrocardiography (ECG) was performed in participants who were identified as higher risk during clinical assessment. Descriptive statistical analysis was performed to evaluate cardiovascular risk profiles within the study population. **Results:** A total of 89 university students participated in the screening (mean age 20.4 ± 1.7 years; 51.7% female). Abnormal blood pressure patterns were identified in 30.3% of participants, including elevated blood pressure in 16.9%, Stage 1 hypertension in 7.9%, and Stage 2 hypertension in 5.6%. Mean systolic and diastolic blood pressures were 120.8 mmHg and 78.7 mmHg, respectively. Regarding BMI distribution, 29.2% of participants were overweight or obese, while sleep deprivation (<6 hours/day) was reported in 49.4%. Additional cardiovascular risk factors included low or insufficient physical activity in 61.8% of participants, high or very high perceived stress in 14.6%, and active smoking in 5.6%. ECG was performed in 25.8% of participants based on clinical risk assessment, leading to identification of one previously undiagnosed Left Bundle Branch Block (LBBB) in an asymptomatic student requiring cardiology referral. Overall, specialist referrals were issued in 5.6% of cases following cardiovascular assessment. **Conclusion:** We found a substantial burden of previously unrecognised cardiovascular risk factors and abnormal blood pressure patterns among apparently healthy university students despite their young age. The coexistence of elevated blood pressure, overweight status, sleep deprivation, and reduced physical activity underscores the growing importance of early cardiovascular prevention in young adults. The incidental finding of clinically significant electrocardiographic abnormalities further highlights the value of structured cardiovascular screening initiatives in university populations. Screening programs at universities may serve as effective strategies for early detection, awareness, and lifestyle-focused intervention to mitigate future cardiovascular risk.

Figure or Table:

Variable
Value

Participants

89

Mean Age

20.4 ± 1.7 years

Female participants

51.7%

Male participants

48.3%

Abnormal Blood Pressure

30.3%

Elevated Blood Pressure

16.9%

Stage 1 hypertension

7.9%

Stage 2 hypertension

5.6%

Overweight/obese

29.2%

Sleep deprivation (<6 hours/day)

49.4%

Low/insufficient physical activity

61.8%

High/ Very high stress

14.6%

Active smokers

5.6%

ECG performed in need

25.8%

Specialist referrals for comorbidities association

5.6%

Table 1: Baseline Characteristics and Cardiometabolic Profile of Study Participants

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