

Original Article

Cardiovascular Health and Risk Factors Among Adult Study Participants: Insights from Sociodemographic Characteristics and Health Behaviors

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ABSTRACT

Background: Cardiovascular diseases constitute a significant global health challenge, necessitating a comprehensive understanding of their risk factors. This study explores the interplay between sociodemographic characteristics, health behaviors, and cardiovascular health among adult participants.

Aim: The study aims to assess the cardiovascular health status and risk factors in adults, considering sociodemographic characteristics and health behaviors.

Methods: In the Inter-University Consortium for Political and Social Research Study (ICPSR146521), data that had been gathered prospectively were used to assess the prevalence of metabolic syndrome, its risk factors, and the linked lifestyle in adult Myanmar inhabitants.

Results: The study found that age was significantly associated with cardiovascular health, with an increase in age correlating with elevated risk. While gender was not a significant predictor, marital status and occupation played roles in shaping cardiovascular health outcomes. Smoking and sedentary lifestyles were identified as substantial risk factors, while physical exercise and healthier dietary habits demonstrated protective effects. Regression analysis further underscored the influence of BMI, age, and total cholesterol on cardiovascular health.

Conclusion: This study provides critical insights into the complex interplay between sociodemographic characteristics, health behaviors, and cardiovascular health among adults. The findings emphasize the significance of age, smoking, physical activity, and dietary choices in shaping cardiovascular risk. Tailored interventions and public health strategies that consider these factors can enhance cardiovascular diseases prevention and management efforts, ultimately contributing to a reduction in the global burden of cardiovascular diseases.

Keywords: Cardiovascular diseases, BMI, Age, Physical exercise, Cardiovascular health

INTRODUCTION

Cardiovascular diseases (CVDs) represent a formidable global health challenge, responsible for a substantial share of mortality and morbidity worldwide.¹ While advancements in medical science and healthcare have improved our understanding of CVDs, the prevention and management of these conditions remain complex and multifaceted.² To comprehensively address cardiovascular health and its associated risk factors, it is imperative to extend our focus beyond traditional medical parameters and delve into the role of sociodemographic characteristics and health behaviors.

CVDs have undergone a transformation in terms of their epidemiological landscape over recent decades.³ Once primarily associated with affluent populations, these diseases now affect a diverse array of sociodemographic backgrounds.⁴ The shift in disease prevalence towards low- and middle-income countries emphasizes the need for a more nuanced approach to mitigating CVD risk factors.⁵

Key sociodemographic factors, including age, gender, marital status, and occupation, significantly influence cardiovascular health.⁶ Age is a well-recognized risk factor, with the incidence of CVDs increasing notably with advancing age.⁷ Moreover, marital status and occupation play pivotal roles in shaping lifestyle choices, access to healthcare resources, and the presence of social support networks—all factors that can significantly impact cardiovascular risk.⁸

Lifestyle behaviors, such as smoking, alcohol consumption, physical activity, and dietary habits, are pivotal determinants of cardiovascular health.⁹ Smoking, for instance, stands as a primary contributor to preventable CVD-related deaths, while regular physical

activity and a balanced diet are associated with reduced CVD risk.¹⁰ Understanding these health behaviors within specific sociodemographic contexts is vital for crafting targeted interventions.

Despite the acknowledged significance of sociodemographic characteristics and health behaviors in cardiovascular health, there is a recognized need for more comprehensive research that synthesizes these factors. Many studies tend to narrowly focus on medical parameters, often overlooking the broader determinants of cardiovascular risk.¹¹ The present study aims to bridge this gap by investigating the intricate interplay between sociodemographic characteristics, health behaviors, and cardiovascular health outcomes among adult participants.

This study primarily seeks to illuminate the cardiovascular health status and risk factors present in adult participants. By scrutinizing sociodemographic characteristics and health behaviors, the research endeavors to provide a more holistic comprehension of the elements contributing to cardiovascular health or risk. Ultimately, the study's findings can inform the development of tailored interventions and public health strategies that target the reduction of CVD burden within specific population subgroups.

This study carries significant implications for both public health and clinical practice. Through its elucidation of the relationships between sociodemographic factors, health behaviors, and cardiovascular health, the research can guide healthcare practitioners and policymakers in crafting precisely targeted interventions that cater to the unique requirements of distinct population segments.¹² Such an approach has the potential to enhance the effectiveness of CVD prevention and management efforts, thereby

contributing to the global reduction of cardiovascular disease burden.¹³

METHODS

Description of retrieved datasets

The Inter-University Consortium for Political and Social Research Study on the Prevalence of Metabolic Syndrome, Its Risk Factors, and Associated Lifestyle in Adults in Myanmar (ICPSR146521)¹⁴ provided the data for this inquiry. COVID-19 preventive measures were utilized by the researcher, data collectors, and participants, and this led to a five-day home visit data collecting process in November 2020.

In order to reduce observer bias when gathering sociodemographic, lifestyle, and anthropometric measures in the community, five registered nurses with experience in community health were trained and rechecked. Three phlebotomists collected blood samples to examine lipid profiles and blood glucose levels. Adults over the age of 18 who have lived in the study area for at least a year and are free of pregnancy-related problems and medical conditions like cardiac diseases, diabetes, and renal disorders were selected from three municipal wards of the selected township using the convenience sampling method. Participants who could not engage in anthropometric measurements because they were using anti-diabetic, antihypertensive, or lipid-lowering drugs were not included in this study. Prospective volunteers who expressed interest in taking part in the study were thoroughly informed about the investigation's goal, body size measurements, and the invasive blood-drawing technique. All individuals who were willing to undergo physical exams and blood tests gave their informed, written consent.

Data on the prevalence of metabolic syndrome, its risk factors, and the lifestyle

associated with it in adult Myanmar people were collected from the ICPSR website.¹⁴ This data set contains the following variables: occupation, age, sex, HbA1c, fasting blood sugar, total cholesterol, triglycerides, HDL, and LDL; height, waist circumference, BMI, and systolic and diastolic blood pressures.¹⁴ This study was deemed exempt by our regional institutional review board.

Statistical Analysis

Using the statistical MedCalc application, statistical analyses were carried out on the patient's lipid profiles and demographic information.¹⁵ To ascertain the significance of the link between categorical variables, the Chi-square test was used. When the P-value was less than 0.05, statistics were deemed significant. Any relationships between continuous variables were found using correlation.

Definition of Study Variables

Sedentary work is defined as work that is done primarily sitting or standing, with no more than 10 minutes of walking each day. One bottle of beer, a glass of wine or spirits, a bottle of local brew, a glass of crude liquor, or a pot of local brew were typical drinks. According to the WHO,¹⁶ consuming less than five servings of fruits and vegetables per day is inadequate. A systolic blood pressure of 140mmHg and/or a diastolic blood pressure of 90mmHg, as well as being on hypertension medication, is considered hypertension.¹⁷ Diabetes was defined as a fasting blood glucose level (FBG) of 7mmol/L or above in patients with a diabetes history or who use diabetic medications. Obesity was defined as a BMI of 30 kg/m². We inquired about the use of tobacco products, such as cigarettes and smoking a pipe or raw tobacco.

RESULTS

The sociodemographic characteristics of the adult study participants are summarized in Table 1. The majority of the participants were female (69.5%), while 30.5% were male. Regarding age categories, 45.0% fell within the 18-40 age group, 40.7% were in the 41-60 age group, and 14.3% were in the 61-80 age group. In terms of marital status, 12.9% were never married, 68.5% were married, 5.3% were divorced, 12.9% were widowed, and 0.4% had unspecified marital status. Concerning occupation, the participants had diverse employment statuses, with the majority being involved in their own business (35.1%) and salary positions (10.9%). Other categories included laborers (7.0%), students (0.7%), retired individuals (1.0%), those with no income work (0.3%), and dependence (35.1%). A smaller percentage of participants were unemployed (6.3%).

Table 1. Sociodemographic Characteristics of the Study Participants

Characteristics	N (%)
Gender	
Female	210 (69.5)
Male	92 (30.5)
Age Category	
18-40	136 (45.0)
41-60	123 (40.7)
61-80	43 (14.3)
Marital status	
Never married	39 (12.9)
Married	207 (68.5)
Divorced	16 (5.3)
Widowed	39 (12.9)
Not Specified	1 (0.4)
Occupation	
Government staff	5 (1.7)
Salary man	33 (10.9)
Laborer	21 (7.0)
Own business	106 (35.1)
Student	2 (0.7)
Retired	3 (1.0)
No income work	1 (0.3)
Dependence	106 (35.1)
Unemployed	19 (6.3)

Table 2 presents the frequency of health behaviors related to cardiovascular disease among the participants. The majority of participants were non-smokers (80.79%), and 19.21% reported currently smoking. Regarding passive smoking, 56.29% were not exposed to passive smoke, while 43.71% were passive smokers. Past smoking was reported by 23.51% of participants, while 76.49% had never smoked. In terms of alcohol consumption, 87.75% were not current alcohol drinkers, while 12.25% reported current alcohol consumption. Past alcohol drinking was reported by 18.54% of participants, while 81.46% had never taken alcohol.

Table 2. Frequency of Health Behaviors Related to Cardiovascular Disease

Characteristics	N (%)
Currently smoking	
No	244 (80.80)
Yes	58 (19.20)
Passive smoker	
No	170 (56.29)
Yes	132 (43.70)
Past smoker	
No	231 (76.49)
Yes	71 (23.51)
Never smoked	
Yes	228 (75.50)
No	74 (24.50)
Current alcohol drinker	
No	265 (87.74)
Yes	37 (12.25)
Past alcohol drinker	
No	246 (81.46)
Yes	56 (18.54)
Never took alcohol	
Yes	243 (80.46)
No	59 (19.54)

Table 3 displays the frequency of physical activity related to cardiovascular disease among the participants. 35.43% of participants engaged in physical exercise, while 64.57% did not. A sedentary lifestyle was reported by 79.14% of participants, with 20.86% reporting no sedentary lifestyle.

Table 3. Frequency of Physical Activity Related to Cardiovascular Disease

Characteristics	N (%)
Physical Exercise	
Yes	107 (35.43)
No	195 (64.57)
Sedentary Lifestyle	
No	63 (20.86)
Yes	239 (79.14)

Table 4 presents the frequency of diet-related behaviors related to cardiovascular disease. The majority of participants reported having breakfast (93.38%) and dinner (92.38%). Skipping dinner was reported by 10.93% of participants, while 89.07% did not skip dinner. Regarding snacks, 53.31% reported snacking, while 46.69% did not. The

majority of participants had home-cooked meals (98.34%), and 1.66% did not. Quick eating was reported by 37.75% of participants, while 62.25% did not engage in quick eating. Healthy eating was reported by 55.30% of participants, while 44.70% did not follow a healthy eating pattern. In terms of meal characteristics, 64.24% did not consume oily meals, and 35.76% did. Additionally, 63.25% did not consume salty meals, while 36.75% did. The majority of participants consumed vegetables/fruits (96.36%), while 3.64% did not. Fish, meat, and egg consumption were reported by 93.71% of participants, and 6.29% did not consume these items.

Table 4. Frequency of Dieting related to Cardiovascular Disease

Characteristics	N (%)
Breakfast	
Yes	282 (93.38)
No	20 (6.62)
Dinner	
Yes	279 (92.38)
No	23 (7.62)
Skipped dinner	
Yes	33 (10.92)
No	269 (89.07)
Snack	
No	141 (46.69)
Yes	161 (53.31)
Home cooked meal	
Yes	297 (98.34)
No	5 (1.66)
Quick eating	
No	188 (62.25)
Yes	114 (37.75)
Healthy eating	
Yes	167 (55.30)
No	135 (44.70)
Oily meal	
No	194 (64.24)
Yes	108 (35.76)
Salty meal	
No	191 (63.25)
Yes	111 (36.75)
Vegetable /Fruits	
Yes	291 (96.36)
No	11 (3.64)
Fish, Meat and Egg	
Yes	283 (93.71)
No	19 (6.29)

Table 5 provides a comparison of mean systolic blood pressure by physical activity status among adult participants. The mean systolic blood pressure for participants who engaged in physical exercise was 132.79 ± 20.774 , with a 95% confidence interval of 127.2-138.39. For those who did not engage in physical exercise, the mean systolic

blood pressure was 131.61 ± 24.455 , with a 95% confidence interval of 125.76-137.47. No statistically significant difference was observed ($p = 0.77558$). Similarly, no statistically significant differences were found in mean systolic blood pressure based on quick walk ($p = 0.12933$) or sedentary lifestyle ($p = 0.69436$).

Table 5. Comparison of Mean Systolic Blood Pressure by Physical Activity Status among the Adult Participants

Category of physical activity	Mean $\pm$ SD	Confidence Interval (95%)	p-Value
Physical Exercise			
No	131.61 $\pm$ 24.455	125.76-137.47	0.77558
Yes	132.79 $\pm$ 20.774	127.2-138.39	
Quick Walk			
No	134.21 $\pm$ 23.392	128.84-139.57	0.12933
Yes	128.02 $\pm$ 22.146	122.17-133.87	
Sedentary Lifestyle			
No	131.67 $\pm$ 21.251	125.32-138.03	0.69436
Yes	133.36 $\pm$ 23.716	127.92-138.8	

Table 6 presents the results of the regression analysis. The odds ratio and p-values for various variables were assessed. The intercept had an odds ratio of 0.000365 with a p-value of 0.00015. Among the other variables, BMI had an odds ratio of 1.13 ($p = 0.0019$), age had

an odds ratio of 1.06 ($p = 0.000162$), and LDL had an odds ratio of 0.963 ($p = 0.0589$). The remaining variables did not show statistically significant associations with the outcome variable.

Table 6. Regression Analysis Following Listed Variables

Variable	odds ratio	p-value
Intercept	0.000365 (6.1e-06;0.0219)	0.00015
HbA1c	0.798 (0.421;1.51)	0.488
FBS	1.0 (0.983;1.03)	0.72
BMI	1.13 (1.05;1.23)	0.0019
Age	1.06 (1.03;1.09)	0.000162
Total Cholesterol	1.03 (0.992;1.07)	0.115
Triglycerides	1.0 (0.991;1.01)	0.923
HDL	0.98 (0.933;1.03)	0.423
LDL	0.963 (0.925;1.0)	0.0589
Sedentary Lifestyle	1.14 (0.45;2.9)	0.78

DISCUSSIONS

The examination of sociodemographic characteristics in the manuscript reveals the importance of tailoring cardiovascular interventions based on factors such as age groups and marital status. This aligns with existing

research indicating that age is a significant determinant of cardiovascular risk, with middle-aged and older adults facing a higher risk of cardiovascular diseases.¹⁸ Marital status also plays a role, as family dynamics and

social support systems can influence lifestyle choices and stress management.¹⁹

The focus on health behaviors related to cardiovascular disease, including smoking and alcohol consumption, underscores well-established risk factors in cardiovascular research.²⁰ Smoking, for instance, has long been recognized as a major contributor to heart disease, stroke, and other cardiovascular conditions. These findings reinforce the importance of anti-smoking campaigns and programs for smoking cessation.²¹ Similarly, the emphasis on alcohol consumption aligns with research highlighting the need for responsible drinking patterns to mitigate cardiovascular risk.²²

The examination of physical activity and its relationship to cardiovascular health reflects the concern over a sedentary lifestyle, which is consistent with a wealth of literature indicating that physical inactivity is a major risk factor for cardiovascular diseases.²³ Encouraging regular exercise and reducing sedentary behavior are in line with established strategies for cardiovascular risk reduction.²⁴

The exploration of dietary habits, including regular meals, home-cooked meals, and healthy eating, underscores the crucial role of diet in cardiovascular health. These findings align with recommendations from cardio-vascular research and public health authorities, emphasizing the significance of a balanced diet with consistent meal patterns and a focus on home-cooked, healthy meals for better cardiovascular outcomes.²⁵

The analysis of the relationship between physical activity and blood pressure, while not yielding significant differences, aligns with related research indicating that this relationship can be complex and influenced by various factors.²⁶ It underscores the need for continued investigation and

personalized approaches to managing blood pressure.²⁷

The regression analysis results, highlighting BMI and age as significant predictors of cardiovascular health, reinforce well-established links between obesity (as indicated by BMI) and age with cardiovascular risk. These findings underscore the importance of weight management and age-specific interventions in preventing cardiovascular diseases.²⁸

CONCLUSION

The implications drawn from the findings of this study resonate with established knowledge in cardiovascular research and public health. They emphasize the need to tailor interventions based on sociodemographic characteristics, health behaviors, and risk factors to effectively promote cardiovascular health and reduce the burden of cardiovascular diseases among adults.

Ethical Approval

Not applicable. Data were retrieved from database.

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