
ASSOCIATION OF JUNK FOOD CONSUMPTION, SMOKING, STRESS, AND SLEEP DEPRIVATION WITH INCREASED RISK OF HEART ATTACK AMONG YOUTH AGED 18-35 YEARS

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1. ABSTRACT

Cardiovascular diseases represent a significant public health concern, and the influence of lifestyle and psychosocial factors on cardiovascular health has attracted increasing research attention. This paper examines the association of junk food consumption, smoking, stress, and sleep deprivation with cardiovascular risk among youth aged 18–35 years. Drawing upon existing scientific literature, the study explores the potential mechanisms through which these factors may contribute to adverse cardiovascular outcomes, including metabolic disturbances, vascular dysfunction, psychological stress responses, and sleep-related physiological alterations. The paper critically discusses the relationship between unhealthy dietary habits, tobacco use, psychological stress, and inadequate sleep, while considering their possible combined effects on cardiovascular health. Particular emphasis is placed on preventive health education, lifestyle modification, and early awareness of cardiovascular risk among young people. As a literature-based study, this paper synthesizes findings from existing research rather than presenting original survey data or statistical estimates. It also identifies areas requiring further investigation, particularly age-specific research on cardiovascular risk factors among young populations. The study aims to contribute to a broader understanding of modifiable lifestyle and psychosocial factors associated with cardiovascular health and to highlight the importance of preventive strategies for reducing potential cardiovascular risks among youth.

KEYWORDS: Junk Food Consumption, Smoking, Stress, Sleep Deprivation, Cardiovascular Risk, Heart Attack, Youth.

2. INTRODUCTION

2.1 Background of the Study

Cardiovascular diseases (CVDs) are a major public health concern and an important cause of illness, disability, and premature mortality worldwide. Although cardiovascular disorders are commonly associated with older adults, many behavioural and psychosocial conditions contributing to cardiovascular risk begin much earlier in life. Adolescence and young adulthood are therefore important stages for developing healthy habits and preventing the gradual accumulation of cardiovascular risk factors. Youth aged 18–35 years experience significant educational, professional, financial, and social transitions. During this period, changes in dietary habits, daily routines, sleep patterns, physical activity, and emotional well-being may occur. Academic pressure, employment-related challenges, financial responsibilities, and social expectations may encourage unhealthy lifestyle practices, including frequent junk food consumption, smoking, psychological stress, and inadequate sleep. Cardiovascular risk is generally influenced by multiple interacting factors rather than by a single behaviour. Unhealthy dietary patterns may contribute to obesity and metabolic disturbances, while smoking can damage blood vessels and promote atherosclerotic changes. Stress may influence cardiovascular functioning and encourage unhealthy coping behaviours. Similarly, sleep deprivation can affect blood pressure, metabolism, mood, and daily decision-making. Examining these factors together is therefore important for understanding cardiovascular health among young people.

2.2 Lifestyle Factors and Cardiovascular Health

Lifestyle is an important determinant of cardiovascular health. Dietary quality, tobacco use, physical activity, sleep, and stress management influence several biological processes related to cardiovascular functioning. A healthy lifestyle may support normal blood pressure, healthy body weight, favourable lipid levels, balanced glucose regulation, and psychological well-being. In contrast, unhealthy lifestyle patterns may gradually increase cardiovascular risk. Young adults may be particularly vulnerable to unhealthy habits because they often gain greater independence in making decisions about food, tobacco use, sleep schedules, and leisure activities. The easy availability of processed foods, sedentary entertainment, academic demands, and social influences may make healthy choices difficult to maintain consistently. Lifestyle behaviours are also interconnected. A person experiencing stress may consume more energy-dense food, smoke more frequently, or sleep for fewer hours. Inadequate sleep may increase fatigue and reduce motivation for physical activity. Therefore, cardiovascular

health promotion should adopt a comprehensive approach rather than focusing on only one behaviour.

2.3 Junk Food Consumption and Cardiovascular Risk

Junk food generally refers to food products that provide high amounts of energy but relatively low nutritional value. Such foods may contain excessive amounts of saturated fat, trans fat, salt, added sugar, and refined carbohydrates. Common examples include fried snacks, fast food, sugar-sweetened beverages, packaged snacks, processed meat products, and highly refined bakery items. Frequent consumption of junk food may negatively influence cardiovascular health by contributing to excessive calorie intake and poor dietary quality. Regular intake of energy-dense foods may promote weight gain and abdominal obesity. High sodium intake may contribute to elevated blood pressure, while excessive sugar consumption may be associated with impaired glucose regulation and metabolic disturbances. Diets rich in unhealthy fats may also contribute to unfavourable blood lipid profiles. Research on ultra-processed foods has increasingly examined their association with cardiometabolic health. However, the effects may vary according to ingredients, nutritional composition, portion size, frequency of consumption, and the overall dietary pattern of the individual. Physical activity, socioeconomic conditions, and existing health problems may also influence the observed relationship. Junk food consumption should therefore be considered a potentially modifiable dietary factor associated with cardiovascular risk. It should not automatically be interpreted as a direct or independent cause of heart attack, particularly among young adults. A balanced diet containing fruits, vegetables, whole grains, pulses, nuts, and other nutrient-rich foods may support long-term cardiovascular health.

2.4 Smoking and Cardiovascular Health

Smoking is one of the most clearly established modifiable risk factors for cardiovascular disease. Tobacco smoke contains nicotine and numerous toxic substances that can adversely affect the heart and blood vessels. Smoking may increase heart rate and blood pressure, reduce oxygen availability, damage the vascular lining, promote inflammation, and contribute to oxidative stress. Continued exposure to tobacco smoke may encourage the development of atherosclerosis, a condition in which fatty deposits accumulate within the arteries. Smoking may also increase platelet activation and blood clotting, thereby contributing to the risk of coronary artery disease, heart attack, and stroke. These harmful effects are not limited to older individuals; young smokers may also experience early vascular changes before developing noticeable symptoms. The cardiovascular effects of smoking may depend on the age at which smoking begins, the duration of tobacco exposure, the amount of tobacco used,

and the presence of other risk factors. Smoking combined with unhealthy food consumption, psychological stress, and sleep deprivation may reflect a broader pattern of health-risk behaviour. Preventing smoking initiation and promoting smoking cessation among youth are important public health priorities. Health education programmes should communicate both the long-term dangers of smoking and its possible effects on cardiovascular functioning during early adulthood.

2.5 Stress and Cardiovascular Risk

Stress is a psychological and physiological response to challenging, demanding, or threatening situations. Young adults may experience stress due to academic examinations, career uncertainty, financial problems, family responsibilities, relationship difficulties, and social expectations. While short-term stress may help individuals respond to immediate challenges, prolonged or poorly managed stress may adversely affect physical and psychological health. Chronic stress can activate the sympathetic nervous system and the hypothalamic–pituitary–adrenal axis. These systems influence heart rate, blood pressure, hormone release, immune functioning, and metabolic activity. Persistent stress may also disturb sleep, increase emotional eating, reduce physical activity, and encourage tobacco use as an unhealthy coping behaviour. The relationship between stress and cardiovascular risk is complex and may differ among individuals. Coping skills, social support, personality, socioeconomic conditions, and the duration of stress exposure may influence its effects. Stress should not be understood as an automatic or sole cause of heart attack. Nevertheless, persistent psychological stress may contribute to the development or worsening of several cardiovascular risk factors. Stress-management strategies, including physical activity, relaxation techniques, adequate sleep, social support, counselling, and time-management skills, may be useful components of preventive cardiovascular health education.

2.6 Sleep Deprivation and Cardiovascular Health

Sleep is essential for physical restoration, emotional regulation, cognitive performance, and metabolic balance. Sleep deprivation occurs when an individual consistently obtains less sleep than required for healthy functioning. Poor sleep quality, irregular sleep timing, and frequent nighttime interruptions may also reduce the restorative value of sleep. Young adults may experience inadequate sleep because of academic and professional responsibilities, excessive screen use, late-night social activities, irregular work schedules, and psychological stress. Persistent sleep deprivation may influence cardiovascular health through changes in blood pressure regulation, glucose metabolism, appetite control, inflammation, and stress responses. Insufficient sleep may also contribute indirectly to unhealthy lifestyle practices. A

sleep-deprived individual may experience fatigue, reduced concentration, and lower motivation for physical activity. Sleep loss may increase cravings for calorie-dense foods and make it difficult to maintain regular meal patterns. In addition, stress and sleep deprivation may reinforce one another: stress may disturb sleep, while inadequate sleep may intensify emotional distress and reduce coping capacity. Adequate and regular sleep should therefore be considered an important part of cardiovascular prevention among youth. Sleep education, along with dietary improvement and smoking prevention, may help young adults develop healthier routines.

2.7 Interrelationship among Junk Food Consumption, Smoking, Stress, and Sleep Deprivation

The four factors examined in this paper are not independent of one another. They may interact through behavioural, psychological, metabolic, and physiological pathways. For example, a young adult experiencing academic or occupational stress may consume more junk food, smoke as a coping mechanism, and sleep for fewer hours. These behaviours may subsequently increase fatigue, emotional instability, and difficulty in maintaining healthy routines. Similarly, sleep deprivation may increase the desire for highly palatable foods and reduce self-control regarding dietary choices. Stress may contribute to smoking initiation or increased tobacco consumption, while smoking and irregular sleep may further affect physiological arousal and sleep quality. These patterns suggest that cardiovascular risk may be influenced by the cumulative effect of multiple unhealthy behaviours. However, the presence of these factors does not establish that a heart attack will occur. Cardiovascular outcomes are also influenced by genetic predisposition, family history, blood pressure, lipid levels, diabetes, physical activity, alcohol use, environmental conditions, and access to healthcare. A balanced interpretation must therefore distinguish between an association with cardiovascular risk and proof of direct causation.

2.8 Rationale and Scope of the Study

The growing importance of lifestyle-related and psychosocial factors in cardiovascular health provides a rationale for examining junk food consumption, smoking, stress, and sleep deprivation among youth aged 18–35 years. These factors are relevant because they are common, potentially modifiable, and frequently interconnected in the daily lives of young adults. The present paper is literature-based and synthesizes findings from existing scientific research. It does not include original survey data, clinical measurements, or newly calculated statistical estimates. Accordingly, the study focuses on reported associations, possible mechanisms, and preventive implications rather than claiming direct causation. The scope of

the paper is limited to understanding how the selected lifestyle and psychosocial factors may be associated with cardiovascular risk among young people. It also emphasizes preventive health education, balanced nutrition, smoking avoidance, stress management, adequate sleep, and early awareness of cardiovascular health.

2.9 Organization of the Study

The paper reviews existing literature concerning the selected risk factors and their possible relationships with cardiovascular health. It then presents the objectives and methodology of the literature-based study, followed by a discussion of the major findings and their preventive implications. The paper concludes with key observations and suggestions for health education, individual lifestyle improvement, and future research.

3. Objectives of the Study

The present study aims to examine the association of junk food consumption, smoking, stress, and sleep deprivation with increased cardiovascular risk among youth aged 18–35 years.

The specific objectives are :

1. To examine the relationship between junk food consumption and cardiovascular health among youth.
2. To analyse the possible cardiovascular effects of smoking among young adults.
3. To explore the association between psychological stress and cardiovascular risk.
4. To examine the potential effects of sleep deprivation on cardiovascular functioning.
5. To understand the possible interaction among dietary habits, smoking, stress, and inadequate sleep.
6. To highlight the importance of preventive health education and lifestyle modification.
7. To highlight the importance of preventive health education and lifestyle modification.

4. METHODOLOGY

4.1 Research Design

The present study adopts a literature-based research design. Since the study does not involve primary data collection, it relies on the systematic examination, analysis, and synthesis of existing scientific literature related to junk food consumption, smoking, stress, sleep deprivation, and cardiovascular risk among youth aged 18–35 years.

4.2 Nature of the Study

The study is descriptive and analytical in nature. It describes the existing evidence regarding the selected lifestyle and psychosocial factors and analytically examines their possible

association with cardiovascular health. The study does not attempt to establish direct causation or calculate an original level of heart-attack risk.

4.3 Sources of Data

- The study uses secondary sources, including:
- Peer-reviewed research articles
- Systematic reviews and meta-analyses
- Scientific review papers
- Reports published by recognized health organizations
- Academic books and relevant scholarly publications
- Research literature available through databases such as PubMed and Google Scholar

4.4 Selection and Analysis of Literature

Relevant literature was selected according to its relevance to the objectives of the study. Particular attention was given to research examining young adults, dietary behaviour, tobacco use, psychological stress, sleep duration, cardiovascular risk factors, and related physiological mechanisms. The selected literature was reviewed thematically under four major areas: junk food consumption, smoking, stress, and sleep deprivation. Findings were compared to identify common patterns, possible mechanisms, relationships among the selected factors, and gaps in existing research.

4.5 Limitations of the Methodology

As a literature-based study, the present research does not include original survey responses, clinical measurements, experimental observations, or newly generated statistical estimates. The conclusions are therefore dependent on the quality, scope, and limitations of the existing literature. Furthermore, the association between the selected factors and cardiovascular risk should not be interpreted as proof of direct causation.

5. DISCUSSION

5.1 Junk Food Consumption and Cardiovascular Risk

The reviewed literature indicates that frequent consumption of junk food and other highly processed food products may be associated with several factors relevant to cardiovascular health. Diets characterized by high intake of refined carbohydrates, added sugars, unhealthy fats, and sodium may contribute to excessive energy intake and poor overall dietary quality. Over time, these dietary patterns may be associated with obesity, elevated blood pressure, impaired glucose regulation, and unfavourable lipid profiles, all of which are recognized

cardiovascular risk factors. The relationship between junk food consumption and cardiovascular health is, however, influenced by the overall dietary pattern and lifestyle of an individual. Occasional consumption of such foods does not necessarily indicate substantial cardiovascular risk. Greater concern arises when frequent consumption becomes a regular part of the diet and replaces nutrient-rich foods such as fruits, vegetables, whole grains, pulses, and nuts. Among young adults, dietary independence and changing social environments may make unhealthy food choices more common. Consequently, improving dietary awareness during early adulthood may have preventive value by reducing the development of modifiable cardiovascular risk factors over the longer term.

5.2 Smoking and Cardiovascular Risk

The evidence regarding smoking and cardiovascular health is considerably stronger than for many other behavioural factors. Tobacco exposure can adversely affect vascular function, blood pressure, inflammation, oxidative stress, and blood clotting. These physiological effects provide plausible pathways through which smoking may contribute to coronary artery disease and acute cardiovascular events. For young adults, an important concern is that cardiovascular damage can develop before obvious symptoms appear. Smoking may therefore represent an important preventable risk factor even when an individual considers themselves otherwise healthy. The combination of smoking with other unhealthy behaviours may further complicate cardiovascular risk. Smoking prevention and cessation are consequently important elements of cardiovascular health promotion among youth. Educational interventions should emphasize that the absence of immediate symptoms does not mean that tobacco exposure is harmless.

5.3 Stress and Cardiovascular Risk

The literature suggests that persistent psychological stress may be associated with cardiovascular risk through both direct physiological responses and indirect behavioural pathways. Repeated activation of stress-related physiological systems may influence blood pressure, heart rate, hormonal activity, inflammation, and metabolic processes. Stress may also influence cardiovascular health indirectly by changing everyday behaviour. Individuals experiencing persistent stress may have irregular eating patterns, increased tobacco use, reduced physical activity, or inadequate sleep. Thus, stress may act as both a psychological factor and a contributor to a cluster of unhealthy behaviours. Nevertheless, stress should not be treated as a simple or independent cause of heart attack. Its relationship with cardiovascular outcomes is affected by the intensity and duration of stress, individual coping

mechanisms, social support, and other health-related factors. This makes stress management an important but multifaceted component of cardiovascular prevention.

5.4 Sleep Deprivation and Cardiovascular Health

Adequate sleep is increasingly recognized as an important component of cardiovascular health. Persistent sleep deprivation may affect blood pressure regulation, metabolic functioning, appetite, stress responses, and emotional well-being. These effects may indirectly contribute to the development or worsening of cardiovascular risk factors. Young adults may be particularly exposed to irregular sleep because of academic responsibilities, occupational schedules, digital-device use, and psychological stress. Sleep deprivation can also interact with dietary and behavioural choices. Fatigue may reduce physical activity and increase the preference for energy-dense foods, while stress may simultaneously interfere with sleep quality. Therefore, improving sleep duration and regularity may complement other preventive strategies aimed at improving cardiovascular health among young adults.

5.5 Combined Influence of the Selected Factors

An important observation from the literature is that junk food consumption, smoking, stress, and sleep deprivation may occur together rather than independently. These factors can reinforce one another through interconnected behavioural and physiological pathways. For example, persistent stress may contribute to smoking, unhealthy food consumption, and irregular sleep. In turn, inadequate sleep may increase fatigue and influence food choices, while smoking may affect cardiovascular and physiological functioning. Such interactions suggest that cardiovascular risk should be considered within the broader context of an individual's lifestyle rather than through isolated examination of a single behaviour. However, the presence of multiple risk factors does not mean that a heart attack is inevitable. Cardiovascular health is influenced by numerous additional factors, including genetics, family history, physical activity, blood pressure, blood glucose, lipid levels, obesity, and other environmental and medical conditions.

5.6 Implications for Preventive Health Education

The findings have important implications for preventive health education among youth. Health education should move beyond simply providing information about cardiovascular disease and should encourage practical skills for developing healthy daily routines. Young adults can benefit from education concerning balanced nutrition, avoidance of tobacco, stress-management techniques, regular physical activity, healthy sleep practices, and early recognition of cardiovascular risk factors. Educational institutions, workplaces, healthcare providers, and community organizations can contribute to creating environments that support

healthier choices. A comprehensive preventive approach may be more meaningful than addressing each behaviour separately because the selected factors frequently overlap in real-life situations. Early intervention during young adulthood may help establish healthier habits that can continue throughout later life.

6. CONCLUSION

The present literature-based study examined the association of junk food consumption, smoking, stress, and sleep deprivation with cardiovascular risk among youth aged 18–35 years. The reviewed literature indicates that these factors may influence cardiovascular health through different but interconnected behavioural, metabolic, psychological, and physiological pathways. Frequent consumption of unhealthy and highly processed foods may contribute to poor dietary quality and cardiometabolic risk factors, while smoking has well-established adverse effects on vascular and cardiovascular functioning. Persistent psychological stress may influence cardiovascular health through physiological stress responses as well as unhealthy coping behaviours. Similarly, inadequate sleep may affect blood pressure regulation, metabolism, stress responses, and behavioural patterns. An important finding from the literature is that these factors should not be considered completely independent. Stress may contribute to unhealthy eating, smoking, and inadequate sleep, while sleep deprivation may influence food choices and emotional regulation. Such interactions may contribute to an overall pattern of increased cardiovascular vulnerability. However, the evidence discussed in this paper primarily concerns associations and potential mechanisms. The presence of these factors does not establish that an individual will experience a heart attack, and cardiovascular outcomes are influenced by several additional genetic, behavioural, environmental, and medical factors.

Overall, the literature highlights the importance of preventive cardiovascular health among young adults. Promoting balanced dietary practices, tobacco avoidance, effective stress management, adequate sleep, regular physical activity, and early health awareness may help reduce modifiable cardiovascular risk and support healthier lifestyles during young adulthood.

7. Suggestions

Based on the findings of the reviewed literature, the following suggestions are proposed

1. Promote Healthy Dietary Practices

Young adults should be encouraged to reduce the frequent consumption of junk food, ultra-processed foods, sugar-sweetened beverages, and foods high in salt and unhealthy fats. Greater emphasis should be placed on balanced diets containing fruits, vegetables, whole grains, pulses, nuts, and other nutrient-rich foods.

2. Strengthen Tobacco Prevention and Cessation

Educational institutions and youth-oriented health programmes should provide evidence-based information about the cardiovascular consequences of smoking. Tobacco prevention and cessation support should be made accessible to young adults.

3. Develop Effective Stress-Management Practices

Young people should be encouraged to develop healthy ways of managing academic, occupational, financial, and social stress. Physical activity, relaxation practices, adequate social support, time management, and professional counselling where appropriate can be incorporated into stress-management programmes.

4. Improve Sleep Awareness

Awareness programmes should emphasize the importance of adequate and regular sleep. Young adults should be encouraged to maintain consistent sleep schedules and reduce behaviours that interfere with healthy sleep patterns, particularly excessive late-night screen use.

5. Integrate Comprehensive Health Education

Educational institutions should include cardiovascular health education within student wellness programmes. Such programmes should address diet, smoking, stress, sleep, physical activity, and other modifiable risk factors together rather than treating them as isolated issues.

6. Encourage Early Risk Awareness

Young adults should be encouraged to understand their individual cardiovascular risk factors and, where appropriate, undergo routine health checks such as blood pressure, blood glucose, lipid profile, and weight assessment.

7. Promote Further Research

Future researchers should conduct longitudinal and population-specific studies among youth aged 18–35 years to examine the combined effects of junk food consumption, smoking, stress, and sleep deprivation on cardiovascular outcomes. More research is also required to understand how these factors interact over time.

8. Adopt a Multi-Level Preventive Approach

Families, educational institutions, healthcare professionals, workplaces, and community organizations should work together to create environments that make healthy lifestyle choices easier and more sustainable for young adults.

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