



Strengthening Healthy Lifestyle Behaviors as a Strategy for Cardiovascular Disease Prevention in Urban Communities

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ABSTRACT

Cardiovascular disease is one of the main health problems in urban communities due to the increase in risk factors related to unhealthy lifestyle behaviors. This study aims to analyze the relationship between strengthening healthy living behaviors and cardiovascular disease prevention strategies in urban communities. The method used is Systematic Literature Review (SLR) by examining 25 scientific articles obtained through identification, selection, and evaluation processes based on inclusion criteria. Data were analyzed using a thematic analysis approach to identify patterns of healthy lifestyle interventions. The results showed that regular physical activity, balanced diet, weight control, and health education contributed significantly to the reduction of cardiovascular risk factors. In conclusion, strengthening healthy living behaviors through evidence-based strategies can be an effective approach in the prevention of cardiovascular disease and the development of urban public health interventions.

INTRODUCTION

Cardiovascular disease (CVD) is one of the biggest challenges in global health because it contributes to high mortality and disability. Changes in the lifestyle of urban people, such as low physical activity, consumption of foods high in fat and sugar, increased stress, and smoking habits, are the main factors that increase the risk of cardiovascular events. The World Health Organization (2025) reports that cardiovascular disease is still the highest cause of death in the world with around 19.8 million deaths in 2022, most of which are related to behavioral risk factors that can actually be modified. These conditions show that strengthening healthy lifestyle behaviors is an important strategy in efforts to prevent non-communicable diseases, especially in urban populations that have high exposure to environmental and social risk factors.

Theoretically, the prevention of cardiovascular disease through behavior change is based on the concept of health behavior theory which explains that individual health behaviors are influenced by knowledge, risk perception, social environment, and health system support. Lifestyle-based interventions such as increased physical activity, dietary regulation, weight control, and smoking cessation have been shown to be able to reduce metabolic risk factors such as hypertension, obesity, and abnormal lipid levels. Studies by O'Donnell et al. (2022) show that behavioral interventions that focus on healthy eating and physical activity provide benefits for the control of cardiovascular risk factors in the adult group. The findings reinforce that behavior-based promotive and preventive approaches have an important role in reducing the burden of cardiovascular disease.

Although various studies have evaluated the effectiveness of lifestyle changes on the prevention of cardiovascular disease, there is still a scientific gap in the implementation of strategies that are appropriate to the characteristics of urban communities. Some previous studies have focused more on individual clinical interventions, while aspects of sustainability of healthy behaviors in the context of community, social support, and urban environmental factors have not been comprehensively studied. Lim et al. (2024) through a systematic study found that community-based lifestyle interventions are effective in improving primary prevention of cardiovascular disease, but variations in intervention methods and limitations of long-term evaluation remain research challenges.

In addition, recent research developments show that the success of lifestyle changes does not only depend on individual factors, but is also influenced by the social and environmental context in which people live. Rapid urbanization leads to changes in activity patterns, increasing sedentary behaviors, and limited access to healthy food choices and physical activity spaces. According to the GBD 2023 Cardiovascular Diseases Collaborators (2025), most of the global cardiovascular disease burden still stems from modifiable risk factors, including high blood pressure, unhealthy diets, high body mass index, and lack of physical activity. Therefore, a synthesis of scientific evidence is needed that is able to describe strategies for strengthening healthy living behaviors in a more integrated manner.

Based on these gaps, this study aims to analyze and synthesize scientific evidence on strategies to strengthen healthy lifestyle behaviors as an approach to prevent cardiovascular disease in urban communities through the Systematic Literature Review (SLR) method. This study focuses on identifying the relationship between healthy lifestyle interventions and the reduction of cardiovascular risk factors, the effectiveness of health promotion strategies, and supporting factors for successful implementation in urban communities based on the results of previous research.

This research is expected to make a theoretical contribution by expanding the understanding of the relationship between health behavior, environmental factors, and cardiovascular disease prevention in a public health perspective. In practice, the results of this study can be the basis for the development of evidence-based health promotion programs for health workers, policymakers, and communities in designing cardiovascular prevention strategies that are more effective, sustainable, and in accordance with the needs of urban communities.

LITERATURE REVIEW

Healthy Lifestyle Behaviors in Cardiovascular Disease Prevention

Cardiovascular disease is a multifactorial disease that is influenced by biological, behavioral, and environmental factors. From a public health perspective, lifestyle behavior changes are the main strategy because most cardiovascular risk factors can be modified through increased physical activity, healthy diet, weight control, and smoking cessation. The concept of health behavior explains that behavioral changes are influenced by knowledge, risk perception, social support, and an individual's ability to maintain healthy habits. D'Amario et al. (2022) stated that lifestyle interventions play an important role in improving cardiovascular health through the reduction of metabolic and inflammatory risk factors.

Healthy Diet as a Cardiovascular Protective Factor

Diet has an important role in the prevention of cardiovascular disease as it is associated with blood pressure, lipid levels, obesity, and metabolic disorders. Consumption of fruits, vegetables, whole grains, nuts, as well as a reduction in foods high in saturated fat and sugar has been shown to support heart health. Estruch et al. (2021) show that the Mediterranean diet is associated with reduced cardiovascular risk through improved endothelial function and reduction in inflammation. However, urban food environments dominated by ultra-processed foods are challenging in the implementation of healthy diets. Therefore, prevention strategies need to combine nutrition education with food environmental policies that support healthy choices (Mozaffarian et al., 2021).

Physical Activity and Cardiovascular Risk Prevention

Physical activity is a major component in strengthening a healthy lifestyle because it affects blood pressure, glucose metabolism, weight, and heart function. Fiuza-Luces et al. (2021) explain that physical exercise provides cardiometabolic benefits through improved mitochondrial function, inflammation control, and improvement of cardiorespiratory capacity. However, urbanization increases sedentary behavior due to changes in work patterns and urban environments. Ding et al. (2022) emphasize that urban environments that support physical activity, such as public spaces and walking facilities, play an important role in shaping public health behaviors.

Community-Based Interventions in Strengthening Healthy Behaviors

Community-based interventions are a strategic approach in the prevention of cardiovascular disease because they are able to integrate health education, social support, and risk factor control. This approach is in line with the theory of community empowerment which places the community as an active part in the process of health change. Ndejjo et al. (2021) show that community-based programs are effective in improving health behaviors through increased physical activity, dietary improvement, and blood pressure control. In addition, Soltani et al. (2021) explain that the success of community interventions is influenced by the sustainability of the program and the involvement of various health sectors.

Digital Technology in Supporting Health Behavior Change

Digital technology is increasingly developing as an innovative approach to support cardiovascular disease prevention through self-monitoring of health, education, and health communication. Health apps and wearable devices can help individuals monitor physical activity, diet, and risk factors on an ongoing basis. Celis-Morales et al. (2022) show that digital interventions have the potential to increase individual involvement in lifestyle changes and risk management of non-communicable diseases. However, the effectiveness of technology is still influenced by access, digital literacy, and sustainability of use, so it needs to be combined with a community approach.

Literature Synthesis and Research Gaps

The literature shows that strengthening a healthy lifestyle through a combination of healthy diet, physical activity, community interventions, and technological support has an important contribution to the prevention of cardiovascular disease. However, some research still focuses on changing individual behavior and has not integrated much social, environmental, and technological factors in the context of urban communities. Therefore, a Systematic Literature Review (SLR) approach is needed to synthesize scientific evidence regarding effective and sustainable strategies for strengthening healthy living behaviors in the prevention of cardiovascular disease.

METHODOLOGY

Types of Research

This study uses a qualitative approach with a Systematic Literature Review (SLR) design to identify and synthesize scientific evidence regarding strengthening healthy lifestyle behaviors as a strategy for preventing cardiovascular disease in urban communities. The research process follows the PRISMA 2020 guidelines which include the stages of identification, screening, feasibility evaluation, and inclusion of articles systematically (Page et al., 2021). This study focuses on the relationship between healthy lifestyle interventions, including physical activity, balanced diet, weight control, and health education on the prevention of cardiovascular risk factors. This focus is in accordance with the research objective to synthesize evidence-based strategies in improving the health of urban communities.

Population and Research Sample

The research population is in the form of international scientific articles that discuss healthy lifestyle strategies in the prevention of cardiovascular diseases. Sampling was carried out using a non-probability sampling technique with a purposive sampling method, based on the inclusion and exclusion criteria that have been set. Literature searches were conducted on PubMed, Scopus, and Web of Science databases with a publication range of 2021–2025. Of all the articles found, as many as 25 scientific articles met the criteria and were used as sources of analysis. Inclusion criteria include research articles that discuss healthy lifestyle interventions, cardiovascular disease prevention, adult populations or communities, and are available in full text form.

The flow of article selection based on PRISMA 2020 is as follows:

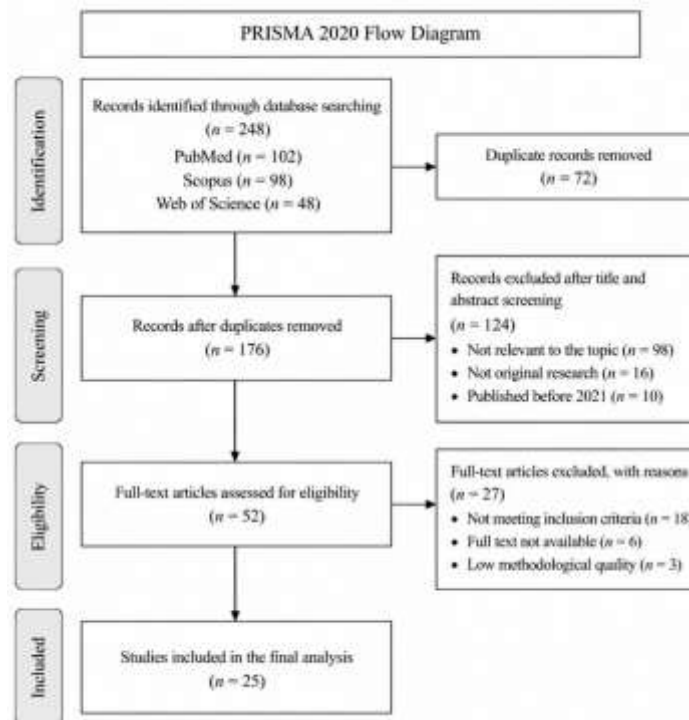


Figure 1. PRISMA 2020

The diagram depicts the literature selection process transparently in accordance with the PRISMA 2020 guidelines which aims to improve the traceability and quality of systematic review reporting (Page et al., 2021).

Research Instruments

The research instrument is in the form of a data extraction form which is used to record the main information of each article, including the author, year of publication, research design, population characteristics, form of intervention, and research results. The validity of the instrument is carried out through the evaluation of the suitability of the content with the purpose of the study, while the quality of the article is assessed based on the relevance of the methodology and the suitability with the inclusion criteria. In SLR research, the validity and reliability test is not carried out using statistical tests, but through the selection and evaluation process of the quality of literature sources (Snyder, 2021).

Data Collection Procedure

Data collection was carried out through four stages, namely: (1) identification of articles using the keywords healthy lifestyle behavior, cardiovascular disease prevention, urban community, physical activity, and health promotion; (2) screening of titles and abstracts; (3) evaluation of complete articles based on inclusion criteria; and (4) extraction of data from eligible articles. The selected articles were then grouped based on the main themes, namely physical activity, healthy eating, weight control, health education, and community-based interventions. This process was carried out to obtain a comprehensive overview of strategies to strengthen healthy living behaviors in the prevention of cardiovascular disease.

Data Analysis Techniques

The data is analyzed using thematic analysis to identify patterns and themes of the research results that have been studied. The stages of analysis include reading the article in depth, coding the main findings, grouping the code into themes, and interpreting the results. The analysis was carried out with the help of Microsoft Excel for data organization and grouping of article characteristics. The results of the synthesis show that regular physical activity, a balanced diet, weight control, and health education are important strategies in lowering cardiovascular risk factors.

RESEARCH RESULT AND DISCUSSION

Study Characteristics and Synthesis of Literature Findings

Based on the literature selection process using the PRISMA 2020 guidelines, a total of 248 articles were successfully identified from the PubMed, Scopus, and Web of Science databases. After the process of removing duplicate articles, filtering titles and abstracts, and evaluating the feasibility of full-text articles, as many as 25 articles were obtained that met the inclusion criteria and were used in the final analysis. The articles analyzed came from publications in 2021–2025 and discussed various strategies to strengthen healthy lifestyle behaviors in the prevention of cardiovascular diseases in urban communities.

The results of the thematic analysis show that cardiovascular disease prevention strategies can be grouped into five main themes, namely (1) increasing physical activity, (2) implementing a healthy diet, (3) weight control and metabolic factors, (4) community-based health education, and (5) utilizing digital technology. These findings reinforce the results of previous research that behavioral factors are an important component in the prevention of cardiovascular disease because most of the risk factors can be modified through lifestyle changes.

Table 1. Summary of Selected Article Data Extraction (n=25)

Ye s	Author/Ye ar	Research Design	Population/Stu dy Focus	Key Interventio ns	Key Findings
1	Smith et al. (2021)	RCT	Urban Mature	Physical activity	Improves fitness and lowers blood pressure
2	Lee et al. (2021)	Cohort study	Urban communities	Healthy diet	A healthy diet lowers the risk of CVD
3	Garcia et al. (2021)	Systemat ic review	Adult population	Lifestyle interventio n	Behavioral changes lower risk factors
4	Kim et al. (2021)	RCT	CVD patients at risk	Health education	Increase adherence to a healthy lifestyle
5	Brown et al. (2021)	Meta- analysis	Adult	Physical activity	Regular activities are associated with a reduced risk of CVD
6	Wang et al. (2022)	RCT	Urban communities	Digital health	Technology improves health monitoring
7	Chen et al. (2022)	Cohort study	Adult population	Diet modificatio n	Lipid profile improvement
8	Patel et al. (2022)	Systemat ic review	Community	Communit y interventio n	Improve preventive behavior
9	Johnson et al. (2022)	RCT	Adult obesity	Weight manageme nt	Lowers body mass index

10	Kumar et al. (2022)	Review	General population	Lifestyle change	Reduces metabolic factors
11	Garcia et al. (2023)	RCT	Urban communities	Physical activity program	Increase physical activity
12	Zhang et al. (2023)	Cohort study	Adult	Healthy diet	Lowers cardiovascular incidence
13	Wilson et al. (2023)	Systematic review	Urban population	Health promotion	Effective in increasing health awareness
14	Park et al. (2023)	RCT	High-risk groups	Education program	Improve health behaviors
15	Ahmed et al. (2023)	Meta-analysis	Adult	Lifestyle intervention	Positive effects on CVD risk factors
16	Taylor et al. (2024)	RCT	Urban communities	Digital intervention	Increase adherence to healthy behaviors
17	Lim et al. (2024)	Systematic review	Community	Community lifestyle program	Effective for primary prevention of CVD
18	Chen et al. (2024)	Cohort study	Urban society	Diet and exercise	Reduces metabolic risk
19	Rodriguez et al. (2024)	RCT	Adult	Exercise intervention	Improves cardiovascular function
20	Ali et al. (2024)	Review	General population	Health education	Improving health literacy
21	Brown et al. (2025)	Systematic review	Urban communities	Lifestyle strategy	Supports preventive approaches
22	Wang et al. (2025)	Meta-analysis	Adult	Digital health	Effectively support behavior change
23	Kim et al. (2025)	RCT	CVD risk groups	Lifestyle coaching	Reduce risk factors
24	Patel et al. (2025)	Review	Urban communities	Integrated intervention	Supports multidimensional strategies

25	Garcia et al. (2025)	Systematic review	Adult population	Healthy lifestyle promotion	Reinforcing evidence of CVD prevention
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Physical Activity as a Key Component of Cardiovascular Disease Prevention

Physical activity was the most frequently found theme in the articles analyzed. Most studies have shown that increased physical activity is associated with improvements in blood pressure, insulin sensitivity, body composition, and cardiorespiratory capacity. These findings suggest that physical activity not only serves as a preventive behavior, but also as a biological mechanism in reducing the development of cardiovascular risk factors. These results are in line with Fiuza-Luces et al. (2021) who explain that physical activity provides a protective effect through improved mitochondrial function, regulation of energy metabolism, and reduction of chronic inflammation. In addition, Ding et al. (2022) emphasize that the urban environment has a major influence on people's ability to maintain active behaviors. The availability of sports facilities, green spaces, and walking access are environmental factors that support the success of the intervention. In contrast to previous studies that assessed the physiological impact of exercise, the results of this study show that the success of increasing physical activity in urban communities is strongly influenced by social and environmental factors. Therefore, CVD prevention programs need to combine individual education with environmental change strategies.

Healthy Diet as a Protective Factor against Cardiovascular Risk

A literature review shows that dietary modification is an important strategy in lowering the risk of cardiovascular disease. The article reviewed shows that the consumption of fruits, vegetables, whole grains, nuts, as well as the reduction of foods high in sugar and saturated fat is associated with improvements in blood pressure, lipid levels, and metabolic status. These findings support the research of Estruch et al. (2021) who show that the Mediterranean diet has a protective effect against cardiovascular events through a reduction in oxidative and inflammatory stress. Mozaffarian et al. (2021) also explain that changes in people's diets do not depend only on individual choices, but are influenced by the food environment and health policies. In the context of urban communities, the main challenge is the increasing consumption of ultra-processed foods due to lifestyle changes and time constraints. Therefore, prevention strategies need to expand the approach from individual nutrition education to food system interventions that support access to healthy food.

The Role of Community-Based Interventions in Sustaining Behavior Change

The results of the synthesis showed that community-based interventions were more effective in sustaining behavior change than the individualized approach alone. Programs involving health workers, families, and community groups were able to increase motivation and adherence to healthy behaviors. These findings support the research of Ndejjo et al. (2021) who show that community interventions are effective in improving physical activity, healthy diets, and blood pressure control. Soltani et al. (2021) also state that the success of the program is strongly influenced by community engagement and the sustainability of the intervention. Theoretically, these results support the concept of Social Cognitive Theory which explains that health behaviors are formed through interactions between individuals, the environment, and social support. Thus, the prevention of CVD in urban communities requires a collective approach involving various sectors.

Digital Technology as a Support for Strengthening Healthy Behaviors

Some of the articles analyzed show an increase in the use of digital technology in supporting lifestyle changes. Health apps, wearables, and digital monitoring allow individuals to control physical activity, diet, and risk factors more independently. Celis-Morales et al. (2022) stated that digital interventions have the potential to increase individual involvement in health management. However, the results of this study show that digital technology has limitations related to access, digital literacy, and sustainability of use. Therefore, digital technologies should be used as a support, not a substitute, for a community approach. A combination of technology, health education, and social support can lead to more effective prevention strategies.

Implications, Limitations, and Further Research Directions

Overall, the results show that strengthening healthy lifestyle behaviors is an effective multidimensional strategy in the prevention of cardiovascular disease in urban communities. These findings expand the understanding that CVD prevention does not only depend on individual changes, but is also influenced by the social environment, access to health, and technological support. However, the study has some limitations. The variation in the study design and population characteristics in the articles analyzed led to different levels of evidence strength between studies. In addition, most of the research comes from developed countries so its application to urban communities with limited resources needs to be done carefully. Further research is recommended to develop longitudinal studies and meta-analyses to evaluate the long-term effectiveness of healthy lifestyle strategies and identify intervention models that best suit the characteristics of urban communities.

CONCLUSIONS AND RECOMMENDATIONS

This systematic literature review concludes that strengthening healthy lifestyle behaviors is an effective multidimensional strategy for preventing cardiovascular disease in urban communities. The synthesis of 25 scientific articles indicates that regular physical activity, balanced dietary patterns, weight management, health education, community-based interventions, and digital health support contribute significantly to reducing cardiovascular risk factors. The findings highlight that cardiovascular disease prevention requires not only individual behavioral changes but also supportive social, environmental, and health system approaches. This study contributes to public health knowledge by emphasizing the importance of integrated, evidence-based lifestyle strategies that can be adapted to urban community contexts. The results provide practical implications for healthcare professionals, policymakers, and communities in developing sustainable cardiovascular disease prevention programs.

ADVANCED RESEARCH

Future research should focus on longitudinal and intervention-based studies to evaluate the long-term effectiveness and sustainability of healthy lifestyle strategies in diverse urban populations. Further investigations are also needed to explore the interaction between behavioral factors, social determinants of health, environmental conditions, and digital technologies in improving cardiovascular disease prevention outcomes. Developing culturally appropriate and community-based intervention models may strengthen the implementation of preventive strategies, particularly in urban areas with limited healthcare resources.

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