

Lifestyle Changes as a Strategy for Prevention and Control of Chronic Noncommunicable Diseases and Conditions such as Chronic Kidney Disease

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Abstract

Chronic noncommunicable diseases (NCDs) represent one of the greatest challenges for global public health due to their high prevalence, impact on quality of life, and contribution to premature mortality. Cardiovascular diseases, diabetes mellitus, chronic respiratory diseases, and chronic kidney disease are strongly influenced by modifiable risk factors, including unhealthy dietary patterns, physical inactivity, tobacco use, excessive alcohol consumption, and inadequate management of metabolic conditions. Lifestyle changes have become a central strategy for preventing and controlling NCDs because they contribute to reducing risk factors, improving clinical outcomes, and promoting healthier aging. In the case of chronic kidney disease, lifestyle interventions play an important role in reducing disease progression, controlling associated conditions, and improving overall health. However, implementing sustainable lifestyle changes requires approaches that consider individual, social, environmental, and healthcare system factors. This academic essay discusses lifestyle changes as strategies for preventing and controlling NCDs, with particular emphasis on chronic kidney disease. The manuscript explores the relationship between healthy behaviors, disease prevention, Primary Health Care, and integrated management approaches. The discussion highlights the importance of comprehensive strategies that combine health education, continuous monitoring, multidisciplinary care, and supportive environments.

Keywords: lifestyle changes; chronic noncommunicable diseases; chronic kidney disease; health promotion; Primary Health Care; prevention.

1. Introduction

Chronic noncommunicable diseases (NCDs) constitute a major global health challenge due to their increasing prevalence and their impact on individuals, healthcare systems, and societies. Conditions such as cardiovascular diseases, diabetes mellitus, chronic respiratory diseases, and chronic kidney disease account for a substantial proportion of morbidity and mortality worldwide. Their development is influenced by complex interactions between genetic, behavioral, environmental, and social determinants.

Lifestyle-related factors play an important role in the prevention and control of NCDs. Dietary patterns, physical activity levels, smoking habits, alcohol consumption, sleep quality, and weight management influence metabolic health and disease risk. However, lifestyle behaviors are not determined solely by individual decisions, as they are shaped by social conditions, economic opportunities, cultural contexts, and access to health-promoting environments.

Chronic kidney disease represents a particularly relevant example of the importance of lifestyle interventions. Often associated with hypertension, diabetes, obesity, and cardiovascular risk factors, chronic kidney disease requires early prevention, continuous monitoring, and coordinated management. Lifestyle changes can contribute to controlling risk factors, slowing disease progression, and improving the quality of life of affected individuals.

Considering the importance of lifestyle interventions in preventing and managing chronic diseases, this essay seeks to answer the following research question: How can lifestyle changes contribute to the prevention and control of chronic noncommunicable diseases, particularly chronic kidney disease, through comprehensive and integrated public health strategies?

2. Methodology

This manuscript is structured as an academic essay based on critical reflection and theoretical analysis of scientific literature addressing lifestyle behaviors, chronic noncommunicable diseases, chronic kidney disease prevention, health promotion, and healthcare organization. The objective is to discuss the role of lifestyle modifications as strategies for improving population health and reducing the burden of chronic conditions.

The discussion is organized into three thematic sections. The first section examines the relationship between lifestyle changes and prevention of chronic noncommunicable diseases. The second section explores the contribution of lifestyle interventions to chronic kidney disease prevention and integrated healthcare management. The third section discusses challenges and future perspectives for implementing sustainable lifestyle strategies in public health.

To preserve argumentative continuity and facilitate reading fluency, references are not included throughout the body of the manuscript. All scientific concepts and theoretical discussions presented in this essay are supported by academic literature and institutional documents, which are presented exclusively in the reference section according to the American Psychological Association (APA, 7th edition) formatting guidelines.

3. Development

3.1 Lifestyle Changes and Prevention of Chronic Noncommunicable Diseases

Lifestyle changes represent one of the most important strategies for preventing chronic noncommunicable diseases (NCDs), as many risk factors associated with these conditions are influenced by daily behaviors and living environments. Although biological factors contribute to individual susceptibility, the development of many chronic diseases is strongly related to patterns of nutrition, physical activity, tobacco use, alcohol consumption, and other behavioral factors accumulated throughout life.

The prevention of NCDs requires a broad understanding of lifestyle beyond individual habits. Health behaviors are shaped by social, economic, cultural, and environmental conditions that influence the opportunities available for individuals to adopt healthier choices. Therefore, effective prevention strategies must combine individual empowerment with structural interventions capable of creating supportive environments.

Healthy eating represents one of the main components of lifestyle modification for preventing chronic diseases. Dietary patterns characterized by adequate consumption of fruits, vegetables, whole

grains, and minimally processed foods contribute to better metabolic regulation and reduced disease risk. Conversely, excessive consumption of ultra-processed foods, high levels of sodium, and diets rich in saturated fats and added sugars are associated with increased risks of obesity, hypertension, diabetes, and cardiovascular conditions.

However, promoting healthy eating requires considering the social realities that influence food choices. Economic limitations, food insecurity, cultural preferences, and unequal access to healthy foods may restrict individuals' ability to modify dietary behaviors. Public health interventions must therefore address food systems and social determinants rather than focusing exclusively on individual responsibility.

Physical activity is another essential component of NCD prevention. Regular movement contributes to cardiovascular protection, improved glucose regulation, maintenance of healthy body weight, and preservation of functional capacity. Despite these benefits, physical inactivity remains common due to changes in work patterns, urban environments, transportation systems, and reduced opportunities for active lifestyles.

The promotion of physical activity requires approaches adapted to different populations and contexts. Recommendations should consider age, health conditions, socioeconomic circumstances, and individual preferences. Community programs, safe public spaces, workplace initiatives, and integration of movement into daily routines are important strategies for increasing population-level physical activity.

Weight management is closely related to the prevention of chronic diseases because obesity represents an important risk factor for multiple conditions. Maintaining a healthy body weight through balanced nutrition, regular physical activity, and behavioral support contributes to reducing metabolic complications. However, weight-related interventions should avoid stigmatization and recognize obesity as a multifactorial health condition.

Smoking cessation remains one of the most effective lifestyle interventions for reducing disease burden. Tobacco use is associated with cardiovascular diseases, respiratory conditions, cancers, and kidney damage. Healthcare systems play an important role in supporting cessation through counseling, behavioral interventions, and appropriate therapeutic strategies.

Alcohol consumption also represents an important modifiable risk factor for chronic diseases. Excessive alcohol intake is associated with metabolic alterations, cardiovascular risks, liver diseases, and negative effects on overall health. Prevention strategies should promote awareness regarding risks while considering cultural and social aspects related to alcohol use.

Sleep patterns have increasingly been recognized as relevant components of healthy lifestyles. Insufficient or poor-quality sleep is associated with metabolic changes, increased cardiovascular risk,

impaired immune function, and reduced quality of life. Health promotion strategies should therefore incorporate sleep hygiene as part of comprehensive approaches to chronic disease prevention.

The prevention of NCDs requires interventions across the life course. Healthy behaviors established during childhood and adolescence influence future health outcomes, making early interventions particularly important. Schools, families, communities, and healthcare services have complementary roles in promoting healthy habits from early stages of life.

Primary Health Care represents a strategic setting for implementing lifestyle interventions because it maintains continuous relationships with individuals and communities. Healthcare teams can identify risk factors, provide counseling, monitor health indicators, and support gradual behavioral changes according to individual circumstances.

Health education is an essential tool for promoting lifestyle changes, but its effectiveness depends on the quality of communication and the recognition of individual contexts. Information alone is insufficient when individuals face structural barriers that limit healthier choices. Educational strategies should therefore be participatory, culturally appropriate, and focused on empowerment.

Multidisciplinary approaches strengthen lifestyle interventions by integrating different areas of expertise. Physicians, nurses, nutritionists, physical activity professionals, psychologists, and community health workers contribute complementary perspectives to risk reduction and chronic disease management. Collaboration improves the capacity of healthcare systems to provide comprehensive support.

Therefore, lifestyle changes represent a fundamental component of strategies aimed at preventing and controlling chronic noncommunicable diseases. Their effectiveness depends on combining individual support, healthcare interventions, community participation, and public policies that facilitate healthier living conditions. A comprehensive approach is essential for reducing the burden of chronic diseases and improving population health outcomes.

3.2 Lifestyle, Chronic Kidney Disease Prevention and Integrated Health Care

Chronic kidney disease (CKD) represents an important public health challenge due to its progressive nature, association with multiple comorbidities, and significant impact on individuals and healthcare systems. Although several factors contribute to kidney damage, many of the main causes of CKD are closely related to chronic noncommunicable diseases and modifiable lifestyle-related risk factors. Therefore, lifestyle interventions represent essential strategies for preventing kidney impairment and reducing disease progression.

Diabetes mellitus and hypertension are among the main conditions associated with the development of chronic kidney disease. Poor metabolic control, prolonged exposure to elevated blood glucose levels, and uncontrolled blood pressure contribute to progressive kidney damage. Lifestyle modifications aimed at improving metabolic regulation are therefore essential components of strategies designed to protect renal function.

Dietary patterns have a central role in kidney health. Adequate nutrition contributes to maintaining metabolic balance, controlling blood pressure, and reducing factors associated with kidney disease progression. Nutritional strategies for individuals at risk of CKD or living with the condition must be individualized, considering disease stage, nutritional requirements, comorbidities, cultural preferences, and socioeconomic circumstances.

Sodium reduction is an important dietary strategy for preventing and controlling hypertension, which represents a major risk factor for kidney damage. Excessive sodium consumption contributes to increased blood pressure and fluid imbalance, creating additional stress on renal function. Public health actions promoting healthier food choices can contribute significantly to reducing population-level risks.

The management of protein intake in individuals with chronic kidney disease requires careful consideration and professional guidance. While nutrition plays an important role in preserving kidney function, dietary recommendations must be individualized to avoid nutritional deficiencies and ensure adequate health conditions. This reinforces the importance of multidisciplinary monitoring.

Physical activity also contributes to kidney health by improving cardiovascular function, insulin sensitivity, blood pressure control, and overall physical capacity. Individuals with chronic kidney disease may experience limitations related to fatigue, reduced exercise tolerance, and other complications, requiring adapted and progressive physical activity strategies.

Weight management is another relevant component of CKD prevention and control. Obesity is associated with increased risk of kidney damage through mechanisms involving inflammation, metabolic dysfunction, hypertension, and diabetes. Interventions promoting healthier body composition should be integrated into broader strategies focused on improving overall health rather than focusing exclusively on weight reduction.

Smoking cessation is particularly important for individuals at risk of kidney disease because tobacco use contributes to vascular damage and may accelerate renal impairment. Healthcare services should incorporate smoking prevention and cessation support into routine care for individuals with chronic conditions.

Adequate hydration and avoidance of harmful substances are additional considerations in kidney health promotion. Although hydration recommendations must be adapted according to individual clinical conditions, awareness regarding behaviors that may negatively affect kidney function contributes to prevention efforts. Education about medication use and avoidance of unnecessary nephrotoxic substances is also relevant.

Early identification of kidney disease is essential because many individuals remain asymptomatic during initial stages. Primary Health Care has a strategic role in screening individuals with risk factors, monitoring clinical indicators, and initiating preventive interventions. Early detection allows healthcare teams to implement strategies aimed at slowing disease progression.

The integration between chronic disease management and kidney health promotion is fundamental because CKD rarely occurs as an isolated condition. Individuals frequently present multiple risk factors requiring coordinated interventions. Healthcare systems must therefore organize care pathways that connect prevention, diagnosis, treatment, and continuous follow-up.

Multidisciplinary care is essential for individuals with chronic kidney disease because management involves multiple dimensions. Physicians, nurses, nutritionists, pharmacists, psychologists, and other professionals contribute to controlling risk factors, improving treatment adherence, and supporting lifestyle changes. Collaboration enhances the effectiveness of long-term management.

Health education represents a key element in supporting individuals with CKD and those at risk of developing the disease. Understanding the relationship between lifestyle behaviors and kidney health can increase motivation for preventive actions. However, educational strategies must be adapted to literacy levels, cultural contexts, and individual needs.

The involvement of families and communities can strengthen lifestyle interventions for kidney disease prevention. Social support influences food choices, medication adherence, physical activity patterns, and healthcare utilization. Community-based approaches may increase the sustainability of preventive strategies.

Digital health technologies may provide additional opportunities for CKD prevention and management. Remote monitoring, electronic reminders, telehealth consultations, and digital education resources can support continuous care and improve access to information. Nevertheless, technological solutions must be implemented considering equity and accessibility.

Therefore, lifestyle interventions represent a fundamental component of chronic kidney disease prevention and integrated healthcare management. By addressing modifiable risk factors, strengthening

Primary Health Care, and promoting multidisciplinary approaches, healthcare systems can reduce the burden of CKD and improve outcomes for individuals at risk or living with the disease.

3.3 Challenges and Perspectives for Sustainable Lifestyle Interventions in Public Health

The implementation of sustainable lifestyle interventions represents a significant challenge for public health systems because changing health behaviors involves complex interactions between individual motivation, social conditions, healthcare organization, and broader environmental factors. Although the benefits of healthy lifestyles are widely recognized, translating scientific knowledge into sustained population changes remains difficult. Effective strategies require long-term planning, continuous support, and approaches adapted to different social realities.

One of the main challenges in promoting lifestyle changes is overcoming the idea that health behaviors are solely individual responsibilities. While personal choices influence disease risk, these choices are strongly shaped by socioeconomic conditions, education, income, food availability, work environments, and community infrastructure. Public health strategies must therefore avoid approaches that blame individuals and instead address the contexts in which behaviors occur.

Health inequalities represent a major barrier to successful lifestyle interventions. Populations experiencing social vulnerability often face greater exposure to risk factors and fewer opportunities to adopt healthier behaviors. Limited access to nutritious foods, safe spaces for physical activity, quality healthcare, and health information may restrict the effectiveness of individual interventions. Addressing these inequalities is essential for achieving equitable health outcomes.

The sustainability of lifestyle interventions depends on their integration into healthcare systems rather than their implementation as isolated projects. Primary Health Care has a central role in ensuring continuity, monitoring progress, and adapting interventions according to individual and community needs. Strengthening primary care capacity is therefore essential for maintaining long-term strategies for chronic disease prevention.

Healthcare professionals require adequate preparation to support lifestyle changes effectively. Training should include not only clinical knowledge but also communication skills, behavioral approaches, cultural competence, and understanding of social determinants of health. Professionals who recognize the complexity of lifestyle behaviors are better prepared to provide realistic and supportive interventions.

Motivational approaches represent an important strategy for promoting sustainable behavioral changes. Individuals are more likely to maintain lifestyle modifications when they participate actively in

goal setting and decision-making processes. Shared responsibility between healthcare professionals and individuals strengthens autonomy and improves engagement with long-term care.

Community participation is another essential component of sustainable health promotion. Communities possess knowledge about local challenges, cultural practices, and available resources. Participatory interventions that involve community members in planning and implementation are more likely to achieve meaningful and lasting effects.

Public policies play a fundamental role in creating environments that facilitate healthier choices. Regulations related to food systems, urban planning, tobacco control, physical activity promotion, and health education influence population behaviors. Individual interventions are strengthened when supported by broader policies that reduce barriers to healthy living.

The prevention of chronic kidney disease requires particular attention to integrated risk factor management. Because CKD is strongly associated with hypertension, diabetes, obesity, and cardiovascular conditions, interventions should not address kidney health separately from broader chronic disease prevention strategies. Integrated approaches improve efficiency and strengthen healthcare coordination.

Surveillance systems are essential for monitoring trends in chronic diseases and evaluating the impact of lifestyle interventions. Data regarding nutritional status, physical activity, metabolic conditions, and kidney health indicators support evidence-based planning. Strengthening health information systems contributes to more effective public health responses.

Digital technologies provide new possibilities for expanding lifestyle interventions and chronic disease management. Telehealth platforms, mobile applications, digital monitoring systems, and online educational resources can facilitate communication between healthcare teams and individuals. However, digital strategies should complement traditional healthcare approaches and consider inequalities in access to technology.

Research and innovation are necessary to improve understanding of which lifestyle interventions are most effective in different populations. Studies evaluating implementation strategies, community-based programs, healthcare models, and long-term outcomes contribute to developing more efficient approaches. Evidence generation is essential for improving public health policies and practices.

The integration of lifestyle promotion with chronic disease care requires collaboration between different sectors. Health services alone cannot address all determinants influencing behaviors and disease risk. Partnerships involving education, social assistance, agriculture, urban planning, and community organizations are necessary for creating healthier environments.

The life-course approach provides an important perspective for sustainable prevention strategies. Encouraging healthy behaviors from childhood and maintaining support throughout adulthood and aging can reduce cumulative exposure to risk factors. Early interventions may prevent the development of chronic diseases and improve population health trajectories.

Within the Brazilian Unified Health System (SUS), strengthening comprehensive care for chronic diseases requires continued investment in prevention, health promotion, and coordinated healthcare networks. Lifestyle interventions should be incorporated into routine healthcare practices and adapted to local realities. This approach aligns with the principles of universality, equity, and comprehensive care.

Therefore, sustainable lifestyle interventions require a combination of individual empowerment, supportive environments, strong healthcare systems, and effective public policies. Preventing and controlling chronic noncommunicable diseases, including chronic kidney disease, depends on integrated strategies capable of addressing both personal behaviors and the broader conditions influencing health. By strengthening health promotion and comprehensive care, public health systems can improve prevention outcomes and reduce the long-term burden of chronic diseases.

4. Conclusion

Lifestyle changes represent a fundamental strategy for preventing and controlling chronic noncommunicable diseases and reducing the burden of conditions such as chronic kidney disease. Although individual behaviors play an important role in health outcomes, effective interventions must recognize the influence of social, economic, environmental, and healthcare-related factors. Comprehensive approaches that combine healthy eating, physical activity, risk factor control, early detection, and continuous monitoring are essential for improving population health and reducing disease progression.

The promotion of sustainable lifestyle changes requires strengthening Primary Health Care, expanding multidisciplinary practices, and developing public policies that create supportive environments for healthier choices. Within healthcare systems such as the Brazilian Unified Health System (SUS), integrating lifestyle interventions into chronic disease management represents an important pathway for ensuring comprehensive, equitable, and person-centered care. By addressing both individual needs and structural determinants of health, public health strategies can contribute to preventing chronic diseases, improving quality of life, and promoting healthier aging.

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