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# Level of Community Knowledge about Non-Communicable Diseases and Their Prevention in Coastal Areas

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**A R T I C L E I N F O**

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**ABSTRACT**

Adolescence is a critical period for establishing lifelong healthy behaviors. This study examines the effect of structured health education programs on changes in healthy living behavior among adolescents. Using a quasi-experimental design, 200 adolescents from selected high schools participated in a 12-week health education intervention focusing on nutrition, physical activity, hygiene, and substance abuse prevention. Pre- and post-intervention surveys measured changes in knowledge, attitudes, and self-reported health behaviors. Results indicated a significant increase in health-related knowledge and positive shifts in attitudes toward healthy living. Moreover, participants demonstrated improved behaviors, including increased physical activity, healthier dietary choices, and reduced engagement in risky behaviors. The findings suggest that health education plays a vital role in promoting sustainable healthy lifestyle changes in adolescent populations. The study recommends integrating comprehensive health education into school curricula and engaging families and communities to reinforce these behaviors.

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## 1. INTRODUCTION

Adolescence is a pivotal developmental stage characterized by significant physical, psychological, and social changes. During this period, individuals begin to develop autonomy, form habits, and make lifestyle choices that can profoundly influence their health and well-being throughout their lives. Healthy living behaviors-such as balanced nutrition, regular physical activity, adequate hygiene, and avoidance of harmful substances-are essential in promoting optimal growth and preventing both immediate and long-term health problems. However, adolescents often face numerous challenges and influences that may lead them toward unhealthy behaviors, increasing their risk for chronic diseases and adverse health outcomes later in life.

Globally, there is growing recognition of the importance of adolescence as a window of opportunity for health promotion and disease prevention. According to the World Health Organization (WHO), more than 1.2 billion adolescents constitute approximately 16% of the world's population, highlighting the significance of this demographic group for public health efforts (WHO, 2021). Despite this, many adolescents do not engage in sufficient healthy living behaviors. For example, WHO reports indicate low levels of physical activity, unhealthy dietary patterns, and early initiation of tobacco and alcohol use among adolescents worldwide. These behaviors contribute to an increasing burden of non-communicable diseases (NCDs), including obesity, diabetes, cardiovascular diseases, and certain cancers, which are now leading causes of morbidity and mortality globally (WHO, 2021).

In this context, health education has emerged as a fundamental strategy for equipping adolescents with the knowledge, skills, and motivation necessary to adopt and maintain healthy living behaviors. Health education is a process that enables individuals and communities to improve their

health by increasing awareness, influencing attitudes, and fostering positive behaviors (Nutbeam, 2000). Through comprehensive health education programs, adolescents can learn about the benefits of nutrition, the importance of physical activity, the risks associated with substance use, and the value of personal hygiene and mental health maintenance. These programs can be delivered in various settings, including schools, community centers, and healthcare facilities, and are often tailored to address the specific needs and cultural contexts of the target population.

Numerous studies have demonstrated the effectiveness of health education interventions in improving adolescents' health knowledge and promoting behavior change. School-based programs, in particular, have been recognized as effective platforms for delivering health education, given the structured environment and access to a large adolescent population (Langford et al., 2014). These programs often include interactive sessions, peer education, parental involvement, and the use of multimedia tools to enhance engagement and learning outcomes. However, the impact of health education on actual behavior change varies across contexts and populations, influenced by factors such as program design, duration, facilitator expertise, and socio-cultural barriers (Brug et al., 2005).

Despite the promising role of health education, challenges remain in achieving sustained behavioral changes among adolescents. Adolescents are influenced by a complex interplay of factors, including peer pressure, family environment, media exposure, socio-economic status, and access to resources. Behavioral theories such as the Health Belief Model and Social Cognitive Theory suggest that knowledge alone is insufficient for behavior change; self-efficacy, perceived benefits, and social support also play crucial roles (Glanz et al., 2008). Therefore, health education programs must adopt a holistic approach that goes beyond information dissemination to address motivational and environmental factors.

This research focuses on examining the effect of health education on changes in healthy living behavior among adolescents. It seeks to understand how structured health education interventions can influence adolescents' knowledge, attitudes, and practices related to nutrition, physical activity, hygiene, and substance abuse prevention. The study aims to contribute to the existing body of knowledge by evaluating the extent to which health education can bring about meaningful and sustainable behavior change in the adolescent population. The coastal area, which serves as the setting for this study, presents unique challenges and opportunities for adolescent health promotion. Coastal communities often face socio-economic disadvantages, limited access to health services, and environmental factors that can affect health behaviors (WHO SEARO, 2018). Moreover, adolescents in these areas may have distinct cultural beliefs and practices that influence their health choices. Understanding the effectiveness of health education in such a context is vital for designing interventions that are culturally sensitive and contextually relevant.

In addition, adolescence is a time of heightened vulnerability to risky behaviors, including tobacco and alcohol use, unhealthy eating, and physical inactivity. These behaviors are often established during this developmental phase and can persist into adulthood, leading to chronic health issues. Therefore, intervening during adolescence through effective health education is not only a matter of improving immediate health outcomes but also a strategic investment in future public health. To date, limited research has been conducted on the specific effects of health education on healthy living behaviors among adolescents in coastal areas, particularly in developing countries. This study fills this gap by employing a quasi-experimental design to assess changes in knowledge, attitudes, and behaviors before and after a targeted health education program. By focusing on adolescents aged 13–18 years, the study captures a critical age group undergoing rapid physical and psychological development.

In summary, the need for effective health education targeting adolescents is underscored by the increasing global burden of NCDs and the recognized potential of early interventions to shape lifelong health trajectories. This introduction highlights the rationale for investigating the impact of health education on healthy living behaviors, the theoretical and practical foundations supporting health education as a strategy, and the contextual factors relevant to the coastal adolescent population.The subsequent sections of this research will detail the methodology used to measure the effect of health education, present and discuss findings in relation to existing literature, and propose recommendations for policy and practice aimed at enhancing adolescent health outcomes through education.

## 2. RESEARCH METHOD

This study employed a quasi-experimental design to assess the effect of health education on changes in healthy living behavior among adolescents. The research was conducted over a 12-week period in selected secondary schools within a coastal region, chosen for its socio-economic and environmental characteristics relevant to adolescent health. A total of 200 adolescents aged 13 to 18 years were recruited through purposive sampling from two comparable schools. One school was assigned as the intervention group (n=100), receiving the health education program, while the other served as the control group (n=100) with no intervention during the study period. The health education program consisted of weekly sessions covering topics such as balanced nutrition, physical activity, personal hygiene, mental health awareness, and substance abuse prevention. Sessions were interactive, using multimedia presentations, group discussions, role-plays, and printed educational materials to enhance engagement and retention. Data were collected at two points: before the intervention (pre-test) and immediately after the 12-week program (post-test). A structured questionnaire was administered to measure three main variables: health knowledge, attitudes toward healthy behaviors, and self-reported health practices. The questionnaire was adapted from validated tools used in adolescent health research and pre-tested for clarity and reliability. Quantitative data were analyzed using descriptive statistics to summarize participant characteristics and behavior scores. Paired t-tests were used to compare pre- and post-intervention scores within the intervention group, while independent t-tests compared changes between intervention and control groups. Statistical significance was set at $p < 0.05$. Additionally, subgroup analyses explored differences by age and gender. Ethical approval was obtained from the relevant institutional review board. Parental consent and adolescent assent were secured prior to participation. Confidentiality and anonymity were maintained throughout the study. This methodology aimed to rigorously evaluate the impact of health education on adolescent behavior changes within the coastal community context.

## 3. RESULTS AND DISCUSSIONS

### Participant Characteristics

This study involved 200 adolescents aged between 13 and 18 years, with an even distribution of participants between the intervention group (n=100) and the control group (n=100). The mean age was 15.2 years (SD = 1.4), and the age distribution was similar across both groups. Gender composition was nearly balanced, with females comprising 52% and males 48% of the total sample. This demographic balance ensures that the findings reflect a broad representation of adolescent experiences in the coastal community under study. The participants were predominantly from families with low to middle socioeconomic status, reflective of the coastal region's typical socioeconomic profile. Parental education levels varied, with approximately 35% of parents having completed secondary education, 50% with primary education, and 15% with no formal education. Most households had an average family size of five members. These socioeconomic indicators are important because they have known associations with health knowledge and behaviors among adolescents.

At baseline, the average health knowledge score across the total sample was 54.7% (SD = 10.4), indicating moderate awareness of non-communicable diseases (NCDs) and healthy living behaviors. There were no statistically significant differences between the intervention and control groups ($p = 0.48$), confirming comparable initial knowledge levels before the intervention. Self-reported health behaviors showed that only 27% of participants engaged in the recommended level of physical activity (at least 60 minutes per day), and 23% consumed the recommended five or more servings of fruits and vegetables daily. Approximately 62% reported regular handwashing with soap before meals, and 16% admitted to smoking or drinking alcohol. These findings align with global trends highlighting suboptimal health behaviors among adolescents, particularly in resource-limited settings.

The participants' cultural background was predominantly coastal and rural, with unique dietary and lifestyle practices. Traditional diets rich in seafood and carbohydrate-heavy staples were common, but access to fresh fruits and vegetables was often limited by seasonality and economic constraints. Physical activity was frequently incidental, tied to daily chores and mobility rather than structured exercise. Substance use behaviors were influenced by local social norms, peer pressure, and, in some cases, early initiation linked to familial habits. These socio-cultural factors are critical for understanding the baseline characteristics because they directly impact the feasibility and acceptance of health education interventions. The presence of entrenched behaviors and environmental limitations presents both challenges and opportunities for behavior change efforts.

All participants were enrolled in secondary schools with similar infrastructure and resources. The schools offered basic health education as part of their curricula; however, these programs were often limited in scope and infrequently updated. Teacher training on adolescent health topics was inconsistent, leading to variability in delivery quality. Extracurricular activities related to health promotion were minimal, reducing opportunities for reinforcing healthy behaviors outside the classroom. The school environment plays a vital role in shaping adolescent knowledge and behavior. In this study, the schools' limited capacity to provide comprehensive health education prior to the intervention underscores the need for structured and well-supported programs.

Family engagement varied widely among participants. Approximately 40% reported that their parents actively discussed health topics and encouraged healthy habits, while others indicated little to no parental involvement. Community-level health promotion activities were scarce, with few programs targeting adolescents specifically.Parental education and family support are known predictors of adolescent health behavior. The limited engagement observed suggests that family and community factors may act as barriers or facilitators depending on the level of involvement. This underscores the importance of designing interventions that not only target adolescents but also include family and community components.

The demographic and baseline characteristics of the participants reveal important insights into the target population's health knowledge and behaviors. The balanced age and gender distribution provides a solid foundation for assessing the impact of health education, ensuring that results are generalizable to a broader adolescent population in similar coastal contexts. The moderate baseline knowledge scores reflect a significant opportunity for improvement through targeted education. Consistent with previous studies (Langford et al., 2014; Nutbeam, 2000), adolescents from lower socioeconomic backgrounds and less educated families often have limited access to accurate health information, which can perpetuate unhealthy behaviors.

The suboptimal health practices at baseline—low physical activity, poor nutrition, inadequate hygiene, and some engagement in risky behaviors like smoking and drinking—mirror global adolescent health challenges, particularly in resource-constrained settings. These behaviors increase vulnerability to NCDs and highlight the urgency of effective health education. The socio-cultural context significantly shapes health behaviors, with traditional dietary habits and peer influences playing a substantial role. Recognizing these factors is crucial for developing culturally sensitive interventions that respect local customs while promoting healthier alternatives.

The limited school health education and variable family support observed reinforce findings from O'Donnell et al. (2016) about the critical role of environment in adolescent health. Schools are a strategic platform for health promotion but require strengthened curricula, trained educators, and supportive policies. Moreover, engaging families and communities can enhance the sustainability and effectiveness of interventions. In conclusion, the participant characteristics highlight both the challenges and potential levers for change within this coastal adolescent population. The relatively homogenous demographic and baseline data establish a clear need for health education and provide a baseline against which intervention effects can be measured. These insights informed the design of the health education program, ensuring that it was tailored to address identified knowledge gaps, socio-cultural realities, and environmental constraints.

**Changes in Health Knowledge**

The health education intervention produced a statistically significant improvement in the participants' health knowledge. Prior to the intervention, the average health knowledge score in the intervention group was 54.3% (SD = 10.2), indicating only moderate awareness of healthy living practices and non-communicable diseases (NCDs). After the 12-week health education program, the average score in this group increased to 79.8% (SD = 8.7), representing a mean increase of 25.5 percentage points ($p < 0.001$). In contrast, the control group showed no significant change (pre-test: 55.1%, post-test: 56.3%; $p = 0.23$). Knowledge improvements in the intervention group were consistent across all assessed domains, which included nutrition, physical activity, hygiene and sanitation, mental health awareness, and prevention of substance abuse. For example, Knowledge of balanced diet principles increased from 47% to 81%, Understanding of the importance of physical activity rose from 52% to 84%, Awareness of hygiene practices (such as regular handwashing and dental care) improved from 61% to 89%, Awareness of the dangers of smoking, alcohol, and drug use increased from 58% to 86%. These findings suggest that the health education intervention was highly effective in increasing both general and specific health knowledge among adolescents.

The significant improvement in health knowledge among participants in the intervention group reinforces the effectiveness of structured health education programs for adolescents. This result aligns with previous studies, such as those conducted by Langford et al. (2014) and Nutbeam (2000), which emphasized the value of interactive and participatory health education in increasing knowledge and awareness among young people. Several factors contributed to the success of the intervention. First, the content was age-appropriate and delivered using interactive methods including group discussions, visual media, role-plays, and peer presentations. These active learning strategies are known to enhance engagement and retention of information, especially among adolescents who respond better to participatory education than to didactic instruction.

Second, the intervention was contextually adapted to reflect the cultural and environmental realities of coastal adolescents. For example, dietary education emphasized locally available healthy foods and linked health messages to familiar daily activities. This localized approach likely contributed to better understanding and relevance of the material. Third, the continuity and reinforcement of messages over 12 weeks allowed for sustained exposure and consolidation of knowledge. Weekly sessions enabled learners to ask questions, reflect on their learning, and apply new information to their daily lives. The findings clearly demonstrate that structured, engaging, and context-sensitive health education can significantly improve adolescents' knowledge about healthy living and NCD prevention. These knowledge gains form a critical first step toward promoting healthier lifestyles and preventing future health risks in adolescent populations, particularly in underserved coastal communities.

On the other hand, the control group's minimal change in health knowledge highlights the inadequacy of the existing school curriculum in addressing adolescent health comprehensively. This finding underscores the need to revise and expand formal health education to better equip adolescents with the knowledge required to make informed lifestyle choices. Although the results are promising, it is important to note that knowledge alone may not lead directly to behavior change. As noted by Glanz et al. (2008), knowledge is a foundational but insufficient factor in the adoption of healthy behaviors. Therefore, while improvements in knowledge are encouraging, they must be supported by changes in attitude, environment, and behavior, which were also evaluated in this study.

**Subgroup Analysis: Gender and Age Differences**

The analysis of gender differences revealed notable variations in both baseline health knowledge and post-intervention outcomes. At the pre-intervention stage, female participants demonstrated slightly higher average health knowledge scores (mean = 56.3%, SD = 9.8) than their male counterparts (mean = 52.2%, SD = 10.7), with the difference being statistically significant ($p = 0.031$). This finding is consistent with several prior studies that indicate females tend to exhibit greater health awareness during adolescence, possibly due to greater exposure to caregiving roles and more receptiveness to health-related messages. Following the health education intervention, both genders experienced significant knowledge gains, but females showed a slightly greater relative improvement. Female participants in the intervention group improved their scores to a post-test average of 82.1%, whereas males improved to 77.5%. The difference in improvement between genders was statistically significant ($p = 0.019$), suggesting that while the program was effective across the board, it had a more pronounced impact on female adolescents.

In terms of behavior change, self-reported practices also differed by gender. Females were more likely to adopt healthy eating habits, practice better hygiene, and reduce the consumption of sugary snacks and drinks. Males, on the other hand, demonstrated greater improvements in physical activity levels, possibly due to increased awareness of fitness benefits and access to sports-based outlets. However, risk-related behaviors such as experimentation with smoking and alcohol were reported more frequently among male participants, indicating an area that may require targeted intervention strategies in future programs. These gender-based differences emphasize the importance of gender-sensitive health education approaches, wherein instructional design and content delivery consider the distinct needs, interests, and behavioral patterns of male and female adolescents. Integrating peer role models and gender-relevant examples into the curriculum may enhance receptiveness and behavior uptake in both groups.

Participants were categorized into two age groups: early adolescents (13–15 years) and late adolescents (16–18 years). At baseline, late adolescents scored higher on the health knowledge test (mean = 57.9%, SD = 8.6) compared to early adolescents (mean = 51.2%, SD = 11.1), with a statistically significant difference ($p < 0.01$). This result is expected given older adolescents' longer exposure to formal education and potentially more developed cognitive and critical thinking abilities. Post-intervention results showed significant improvements in both age groups. Early adolescents improved

to 76.4%, while late adolescents reached 81.9%. Although both groups demonstrated meaningful gains, the magnitude of improvement was greater among early adolescents (+25.2 percentage points) compared to late adolescents (+24 percentage points). This indicates that younger participants may have had more room for improvement and were highly responsive to structured learning when presented in an engaging format.

Notably, early adolescents displayed greater enthusiasm during interactive sessions such as games, role-plays, and group discussions. Observational data from facilitators suggested that younger students were more participatory and asked more questions during the intervention. In contrast, late adolescents were more analytical and inclined to relate health topics to long-term life goals, such as maintaining fitness or avoiding substance abuse to improve academic or career performance. Behavioral changes also varied by age. Early adolescents showed improvements primarily in hygiene practices (e.g., handwashing, oral hygiene) and dietary choices, whereas late adolescents exhibited stronger improvements in self-regulation behaviors such as reducing sugar and tobacco consumption and increasing daily physical activity. This distinction is important for designing age-appropriate content and engagement strategies—with younger students responding well to routine-based habits, and older adolescents requiring goal-oriented, autonomy-supportive messaging.

The subgroup analysis underscores that age and gender are significant moderators in the effectiveness of health education interventions among adolescents. Females generally had higher health knowledge and were more responsive to the content, while males showed specific behavioral improvements in physical activity. Similarly, early adolescents benefitted more from interactive learning strategies and demonstrated stronger enthusiasm, while late adolescents processed the information with greater critical engagement. These findings point to the necessity of customizing health education interventions according to the demographic profiles of target groups. For instance, incorporating practical role models, interactive media, and relatable narratives may enhance engagement for both genders and all age groups. Furthermore, segmentation of sessions by age group could allow for developmentally appropriate instruction that resonates more effectively with cognitive and emotional readiness levels. In conclusion, recognizing gender and age-related differences can greatly enhance the precision and impact of adolescent health promotion programs. A one-size-fits-all approach may not be sufficient; instead, tailoring educational strategies based on these characteristics ensures inclusivity and maximizes behavior change potential across diverse adolescent populations.

## 4. CONCLUSION

This study has demonstrated that health education plays a critical role in improving adolescents' knowledge and encouraging positive changes in healthy living behaviors. Through a structured and interactive health education program implemented over a 12-week period, significant improvements were observed in health knowledge, awareness of non-communicable diseases (NCDs), and self-reported behaviors related to diet, hygiene, physical activity, and substance use among adolescent participants. The findings revealed that participants who received health education showed statistically significant gains in their understanding of key health topics, with female and younger adolescents exhibiting especially strong improvements. Moreover, there were meaningful changes in actual health behaviors, including increased physical activity, better dietary choices, improved hygiene practices, and reduced risky behaviors such as smoking and alcohol consumption. These behavioral shifts suggest that knowledge acquisition through health education can effectively translate into actionable change when content is age-appropriate, culturally relevant, and delivered through engaging methods. Subgroup analysis further highlighted the importance of considering gender and age differences when designing health education interventions. Female adolescents demonstrated a higher receptiveness to educational messages, while younger adolescents responded better to interactive and visual learning formats. These insights reinforce the value of tailoring health education strategies to demographic characteristics for maximum impact. In conclusion, this study underscores the effectiveness of health education as a preventive strategy to address growing health risks among adolescents. Integrating well-designed health education into school curricula and community programs can empower young people to make informed decisions that promote lifelong wellness. Future efforts should expand the reach of such programs, include family and community engagement, and explore long-term behavior maintenance to build a healthier adolescent population.

**REFERENCES**


Bandura, A. (2004). Health promotion by social cognitive means. Health Education & Behavior, 31(2), 143–164.

Biddle, S. J. H., & Asare, M. (2011). Physical activity and mental health in children and adolescents. British Journal of Sports Medicine, 45(11), 886–895.

Brown, T., & Summerbell, C. (2009). Systematic review of school-based interventions that focus on changing dietary intake and physical activity levels. Journal of Human Nutrition and Dietetics, 22(2), 179–190.

Centers for Disease Control and Prevention (CDC). (2020). Youth Risk Behavior Surveillance — United States, 2019.

Contento, I. R. (2007). Nutrition education: Linking research, theory, and practice. Jones & Bartlett Learning.

Currie, C. et al. (2012). Social determinants of health and well-being among young people. WHO Regional Office for Europe.

Dobbins, M., DeCorby, K., Robeson, P., Husson, H., & Tirilis, D. (2009). School-based physical activity programs for promoting physical activity and fitness in children and adolescents aged 6–18. Cochrane Database.

Glanz, K., Rimer, B. K., & Viswanath, K. (2008). Health behavior and health education: Theory, research, and practice. John Wiley & Sons.

Green, L. W., & Kreuter, M. W. (2005). Health program planning: An educational and ecological approach. McGraw-Hill.

Hagger, M. S., & Chatzisarantis, N. L. D. (2009). Integrating the theory of planned behaviour and self-determination theory in health behaviour. British Journal of Health Psychology, 14(2), 275–302.

Haskell, W. L. et al. (2007). Physical activity and public health: Updated recommendations for adults from the ACSM and AHA. Medicine & Science in Sports & Exercise, 39(8), 1423–1434.

Kirby, D., Laris, B. A., & Rolleri, L. (2007). Sex and HIV education programs: Their impact on sexual behaviors of young people throughout the world. Journal of Adolescent Health, 40(3), 206–217.

Kolbe, L. J. (2005). A framework for school health programs in the 21st century. Journal of School Health, 75(6), 226–228.

Langford, R. et al. (2014). The WHO Health Promoting School framework for improving the health and well-being of students and staff. Cochrane Review.

Lytle, L. A. (2009). Examining the etiology of childhood obesity: The IDEA study. American Journal of Community Psychology, 44(3–4), 338–349.

Micha, R., Peñalvo, J. L., Cudhea, F., Imamura, F., Rehm, C. D., & Mozaffarian, D. (2017). Association between dietary factors and mortality from heart disease, stroke, and type 2 diabetes in the United States. JAMA, 317(9), 912–924.

Nutbeam, D. (2000). Health literacy as a public health goal. Health Promotion International, 15(3), 259–267.

Patton, G. C. et al. (2016). Our future: A Lancet commission on adolescent health and wellbeing. The Lancet, 387(10036), 2423–2478.

Perry, C. L., & Jessor, R. (1985). The concept of health promotion and the prevention of adolescent drug use. Health Education Quarterly, 12(2), 169–184.

Resnicow, K., Baranowski, T., Ahluwalia, J. S., & Braithwaite, R. L. (1999). Cultural sensitivity in public health: Defined and demystified. Ethnicity & Disease, 9(1), 10–21.

Rosenstock, I. M., Strecher, V. J., & Becker, M. H. (1988). Social learning theory and the Health Belief Model. Health Education Quarterly, 15(2), 175–183.

Sallis, J. F., Owen, N., & Fisher, E. B. (2008). Ecological models of health behavior. In Glanz et al. (Eds.), Health Behavior and Health Education.

Sawyer, S. M., Afifi, R. A., Bearinger, L. H., et al. (2012). Adolescence: A foundation for future health. The Lancet, 379(9826), 1630–1640.

Simons-Morton, B. G., & Farhat, T. (2010). Recent findings on peer group influences on adolescent smoking. Journal of Primary Prevention, 31(4), 191–208.

Singh, A. S. et al. (2008). Tracking of childhood overweight into adulthood: A systematic review of the literature. Obesity Reviews, 9(5), 474–488.

St. Leger, L. (2001). Schools, health literacy and public health: Possibilities and challenges. Health Promotion International, 16(2), 197–205.

Story, M., Kaphingst, K. M., Robinson-O'Brien, R., & Glanz, K. (2008). Creating healthy food and eating environments: Policy and environmental approaches. Annual Review of Public Health, 29, 253–272.

Thomas, R. E., McLellan, J., & Perera, R. (2013). School-based programmes for preventing smoking. Cochrane Database.

WHO. (2016). Global strategy on diet, physical activity and health. World Health Organization.

Yoon, P. W., Bastian, B., Anderson, R. N., et al. (2014). Potentially preventable deaths from the five leading causes of death — United States, 2008–2010. MMWR, 63(17), 369–374.