



ANALYSIS OF MAJOR RISK FACTORS IMPACTING HEALTHY LIFESTYLE PRACTICES

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Abstract

The findings indicate that assessing behavioral factors is essential for identifying healthy lifestyle practices and disease prevalence among the population. Numerous studies have demonstrated that incorporating dietary interventions into disease management leads to improved health outcomes. Increases in body mass index and declines in physical activity have also led to a rise in unhealthy eating behaviors. Several literature reviews were conducted to assess the effects of interventions targeting the occupational health of healthcare workers. Workplace interventions have been shown to be potentially effective, and strategies using a variety of interventions have demonstrated benefits in combating overeating.

Keywords: Lifestyle-related diseases, sedentary behavior, nutrition interventions, health promotion, occupational health, obesity and overweight, preventive healthcare, health behavior change.

Introduction

The importance of a healthy lifestyle has grown in significance on a global scale, as it offers a vital means of preventing and managing a range of related illnesses. Consequently, maintaining a healthy lifestyle is of paramount importance for the prevention and management of non-communicable diseases. The lifestyle behaviors of healthcare workers exert a significant influence on their attitudes and counseling methods, as they play a pivotal role in the promotion of health and the dissemination of lifestyle education to patients and the general population. Objective The objective of this study was to examine the prevalence of lifestyle factors among primary care physicians in Al-Ahsa Governorate, including smoking, body mass index, nutrition, physical activity, and caffeine



consumption. **Methods** The study was conducted between December 2023 and February 2024. A total of 233 primary care physicians in Al-Ahsa were selected through a probability multistage clustering sampling method. Data were collected via the distribution of a self-administered questionnaire to the primary care physicians and were analyzed using the chi-square test. **Results** A greater proportion of primary care physicians exhibited multiple unhealthy lifestyle factors (166/233, 71.2%). The most prevalent lifestyle factor was low physical activity (169/233, 73%), followed by poor nutrition (121/233, 52%), obesity (120/233, 51.51%), smoking (37/233, 15.88%), and caffeine consumption (22/233, 9%). The majority of primary care physicians with optimal health status are employed in primary healthcare (PHC) facilities situated in the eastern region followed by the southern region in Al-Ahsa Governorate. **Conclusion** The study findings revealed a prevalence of unhealthy lifestyle factors among the majority of primary care physicians in the Al-Ahsa Governorate. The most prevalent unhealthy lifestyle factor among the participants was low physical activity [2].

Coronary atherosclerotic heart disease is one of the most common diseases, and health-promoting behaviors such as diet, exercise, and lifestyle habits are essential to improve the prognosis of patients with coronary heart disease. This study aimed to assess the health-promoting lifestyle status of patients following percutaneous coronary intervention and to analyse its influencing factors. A survey was conducted among 300 patients who had undergone percutaneous coronary intervention. Data were collected using a general information questionnaire and the Health-Promoting Lifestyle Profile. Multiple linear regression analysis identified ethnicity, monthly household income, and the presence of comorbidities as significant factors influencing the health-promoting lifestyle of these patients. The average scores for the health-promoting lifestyle post-intervention were (162.91 ± 12.24), which are considered favourable. The components of the health-promoting lifestyle were ranked from highest to lowest based on subscale scores: self-actualisation, interpersonal support, stress management, nutrition, health responsibility, and exercise. Healthcare professionals should tailor health education programs for patients based on their ethnic backgrounds, income levels, and whether they have comorbid conditions.



This targeted approach can effectively enhance their health responsibility and improve their overall health-promoting lifestyle[11].

Chronic diseases are the leading cause of death and disability in the United States, and much of this burden can be attributed to lifestyle and behavioral risk factors. Lifestyle medicine is an approach to preventing and treating lifestyle-related chronic disease using evidence-based lifestyle modification as a primary modality. NYC Health + Hospitals, the largest municipal public health care system in the United States, is a national pioneer in incorporating lifestyle medicine systemwide. In 2019, a pilot lifestyle medicine program was launched at NYC Health + Hospitals/Bellevue to improve cardiometabolic health in high-risk patients through intensive support for evidence-based lifestyle changes. Analyses of program data collected from January 29, 2019 to February 26, 2020 demonstrated feasibility, high demand for services, high patient satisfaction, and clinically and statistically significant improvements in cardiometabolic risk factors. This pilot is being expanded to 6 new NYC Health + Hospitals sites spanning all 5 NYC boroughs. As part of the expansion, many changes have been implemented to enhance the original pilot model, scale services effectively, and generate more interest and incentives in lifestyle medicine for staff and patients across the health care system, including a plant-based default meal program for inpatients. This narrative review describes the pilot model and outcomes, the expansion process, and lessons learned to serve as a guide for other health systems [6].

Healthcare professionals are at increased risk of burnout, primarily due to workplace-related stressors. The COVID-19 pandemic has further increased this risk. Different interventions exist with varying degrees of effectiveness; little is reported on the content and implementation of such programs. This review fills this gap, with attention to recent programs using digital components. Methods: PubMed, Embase, PsycInfo, and Google Scholar were searched between January 24th and 28th, 2022, limited to the last 5 years (≥ 2017). Articles were included if they (1) focused on stress reduction or burnout prevention for nurses and medical doctors within workplace health promotion for nurses or medical doctors, (2) included a digital program component, (3) were conducted in high-income



country contexts, and (4) were clinical studies published in English or German. Data was extracted using a priori designed spreadsheets. A group of at least 2 authors at each stage carried out the screening, selection, and data extraction. Results: The search strategy identified 153 articles, all except 7 were excluded. Two studies were conducted in the USA, two in Spain, one in the Netherlands, Poland, and Korea each. Four studies used a randomized study design, all but one had a control group. A wide range of outcome measures was used. The types of interventions included an adapted mindfulness-based stress reduction program combined with aspects of behavioral therapies, cognitive behavioral therapy, or acceptance and commitment therapy. The digital components used were apps (4 studies), a digital platform, blended learning, and a web-based intervention (1 study each). Six studies focused on individual interventions, one included organizational interventions. Conclusion: Despite an acute burnout crisis in the healthcare sector, only seven recent interventions were found that integrated digital components. Several problems emerged during the implementation of the interventions that made it clear that organizational support is urgently needed for successful implementation. Although interventions for stress reduction and burnout prevention should combine individual and organizational measures to be as successful as possible, this was only partially the case in one of the intervention programs. The results of this scoping review can be used to further develop or optimize stress and burnout prevention programs [1].

Food retail strategies to improve the healthiness of food and beverage options may increase purchasing of healthier options and improve diets. Consumer demand for healthier options is an important determinant of the successful implementation and maintenance of healthy food retail interventions. A systematic review of peer-reviewed literature was undertaken to explore whether consumers are willing to pay more for healthier foods and to determine the key factors that influence willingness to pay. Fifteen studies reported the results of 26 experiments providing willingness to pay estimates for healthier food products across a range of food retail environments. Twenty three out of the 26 experiments included in this review (88.5%) found consumers would pay a 5.6% to 91.5% (mean 30.7%) price premium for healthier foods. Studies consistently found a



positive willingness to pay for foods with reduced fat and wholegrains with additional fruit and vegetables, while willingness to pay for foods with reduced salt or a combination of low fat and sugar, or salt showed mixed results. Adults over 60 years, females, those living with obesity, and consumers who aim to maintain a healthy lifestyle were more likely to pay a price premium for healthier food, whereas younger consumers, consumers with healthy weight, and consumers with higher levels of education were less likely to pay higher prices. The results of this review contribute to our understanding of consumer preferences for healthier products and provide information to retailers on consumer surplus (benefits) associated with the provision of healthier food alternatives [3].

The school food environment is a critical interface for child and adolescent nutrition, and there is a need to understand existing literature on Canadian school food environments to identify equity gaps and opportunities, and empower decision-makers to plan for future action. Literature on Canadian school food and nutrition interventions, policies, programs, and their effects on diets and nutritional status are synthesized and appraised in this systematic review. A search strategy was developed for each database used (Medline, Embase, PsycINFO, ERIC, Cochrane Collaboration, Canadian Electronic Library, BiblioMap), with a combination of free text and controlled vocabulary, for articles published from 1990 to 2021. Unpublished data and grey literature were also searched. 86 articles measured and reported on effectiveness outcomes, including dietary intake; anthropometry; knowledge, attitudes, and practices; and physical activity. The literature remains largely heterogenous and primarily focused on nutrition education programs that use subjective assessments to infer changes in nutrition. A key facilitator to implementation and sustainability was community engagement, whereas key barriers were staff capacity, access to resources and funding, and consistent leadership. This review provides insight into Canadian school food and nutrition interventions, programs, and policies and uncovers important evidence gaps that require careful examination for future evaluations. Governments must create supportive environments that optimize nutrition for children and adolescents through equitable policies and programs[12].



This randomized controlled study aimed to investigate the effects of 8-week task-oriented activities of daily living (T-ADL) training on upper limb functions, activities of daily living (ADL), and quality of life (QoL) in chronic stroke patients. The 33 patients were randomly assigned to the T-ADL training or conventional occupational therapy (OT) group. The respective interventions were provided for 45-min a day, five times a week for eight weeks. To compare the upper-limb function before and after the intervention, the manual function test (MFT), box and block test (BBT), and grasp power test were performed; to compare the level of ADL performance, the modified-Barthel index (MBI) was measured. To evaluate QoL, stroke-specific QoL was measured. There was a significant group-by-time interaction in the affected side MFT score and both sides of BBT scores, but no significant interaction was found in the unaffected side MFT score, ADL, and QoL. Both groups showed a significant main effect of time in their ADL and QoL after the intervention ($p < 0.001$). The results of this study indicate that the eight-week T-ADL training has a positive effect on upper limb functions and gross manual dexterity, and both T-ADL training and conventional OT are effective in improving ADL and QoL in chronic stroke patients [4].

Health professionals are disproportionately affected by burnout compared to other occupational groups. This study aims to systematically review and meta-analyze thirteen occupational risk factors related to burnout syndrome among health professionals globally. A comprehensive literature search was conducted in August 2023. The protocol was registered in The International Prospective Register of Systematic Reviews (PROSPERO), registration number CRD42023396081. Using a random-effects model, this meta-analysis assessed the association between occupational risk factors and burnout, reporting odds ratios (ORs) and 95% confidence intervals (CIs). The meta-analysis included 109 studies from diverse global locations. Key factors influencing burnout included workplace bullying, job stress, and poor communication, with protective factors such as supportive work environments, adequate staffing, and individual resilience. All risk factors examined showed a significant positive relationship with burnout incidence. Workplace bullying was strongly associated with



increased burnout (OR 4.05–15.01, $p < 0.001$). Similarly, low job satisfaction and high job stress were strongly associated with burnout, with ORs of 5.05 (95% CI 3.88–6.56, $p < 0.001$) and 4.21 (95% CI 1.62–10.94, $p = 0.003$), respectively. The review findings highlight the importance of addressing these risk factors through enhanced supportive work environments and promoting personal resilience strategies [5].

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Consideration of the utility of PERMA as a multidimensional model of positive psychology to guide interventions to reduce burnout and enhance well-being among physicians is missing in the literature. Nevertheless, the majority of the studies reported some level of positive outcome regarding reducing burnout or improving well-being by using a physician or a system-directed intervention. Albeit, we found more favorable outcomes in the system-directed intervention.



Future studies are needed to evaluate if PERMA as a framework can be used to guide system-directed interventions in reducing physician burnout and improving their well-being [7].

Physician burnout has become a public-health crisis. The need is dire for robust organizational solutions, focusing on reduction of specific stressors. The physician-specific Occupational Stressor Index (OSI) based on cognitive ergonomics can help. Further participatory-action research is needed in well-controlled intervention trials to alleviate physician burnout [8].

To assess the frequency, risk factors, consequences, and prevention of violence against healthcare workers in intensive care units. Patients who exhibited violent behavior were often male, older, and physically impaired by drugs. Violence was underreported in up to 80% of cases and associated with higher burnout rates, increased anxiety, and higher turnover intentions. Overall the level of evidence was low. Conclusions: Workplace violence is frequent and underreported in intensive care units, with potential serious consequences for healthcare workers, calling for heightened awareness, screening, and preventive measures. The potential risk factors for violence should be further investigated [9].

A healthy lifestyle has a protective role against the onset and management of asthma and chronic obstructive pulmonary disease (COPD). Therefore, combined lifestyle interventions (CLIs) are a potentially valuable prevention approach. This review aims to provide an overview of existing CLIs for the prevention and management of asthma or COPD. (2) Methods: A systematic literature search was conducted using PubMed, EMBASE, and PsycInfo. Studies were included if CLIs targeted at least two lifestyle factors. (3) Results: Among the 56 included studies, 9 addressed asthma and 47 addressed COPD management, with no studies focusing on prevention. For both conditions, the most prevalent combination of lifestyle targets was diet and physical activity (PA), often combined with smoking cessation in COPD. The studied CLIs led to improvements in quality of life, respiratory symptoms, body mass index/weight, and exercise capacity. Behavioural changes were only measured in a limited number of studies and mainly showed improvements in dietary intake and PA level. (4) Conclusions: CLIs are effective within asthma and COPD management.



Modern American Journal of Medical and Health Sciences

ISSN (E): 3067-803X

Volume 2, Issue 1, January 2026

Website: usajournals.org

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Next to optimising the content and implementation of CLIs, these positive results warrant paying more attention to CLIs for persons with an increased risk profile for these chronic respiratory diseases [10].

Limited data exist on the benefits of lifestyle behavior change delivered using telehealth and webbased applications with varied support on blood pressure. In conclusion, dietitian--support and minimal support approaches using webbased applications resulted in similar reductions in 24 hour systolic BP. The dietitian support intervention lowered sleep BP and improved physical activity greater than the minimal support intervention [14].

Healthcare workers need to be at work 24 h a day to ensure continuity of care in hospitals. However, shift work - particularly night shifts - can have negative acute and long-term effects on health and productivity due to disturbances in the circadian rhythm. Shift work is also associated with unhealthy lifestyle behaviors such as poor sleep hygiene and diet. The PerfectFit@Night intervention aims to improve sleep and recovery, and reduce fatigue, and therewith contribute to sustainable employability of healthcare workers. The current study describes the intervention and the evaluation and implementation. The study population will consist of healthcare workers, nurses and physicians, with night shifts in a large Dutch academic hospital. The intervention consists of individual and environmental intervention elements: i) an e-learning for healthcare workers to increase knowledge and awareness on a healthy lifestyle during night shifts, ii) a powernap bed to take powernaps during night shifts, iii) the availability of healthy food at the department during night shifts, iv) a workshop on healthy rostering at the level of the department, and v) individual sleep coaching among the high risk group. In a longitudinal prospective study, data will be collected 1 month before the start of the intervention, in the week before the start of the intervention, and three and 6 months after the start of the intervention. The primary outcomes are sleep, fatigue, and need for recovery. The implementation process will be evaluated using the framework of Steckler and Linnan. Cost-benefit analyses from the employers perspective will be conducted to understand the possible financial consequences or benefits of the implementation of PerfectFit@Night. The feasibility and effectiveness of this workplace health promotion program will



be investigated by means of an effect, process and economic evaluation. If proven effective, PerfectFit@Night can be implemented on a larger scale within the healthcare sector [18].

The findings of the present systematic review clearly highlight the complexity of the management and prevention of work-related stress, which requires a multicomponent and multilevel approach. Despite the growing interest in the topic, it is not possible to draw definite conclusions on the “best practice” to adopt in order to prevent work-related stress among healthcare workers. It can be useful to run randomized controlled trials examining the most promising intervention techniques (such as mindfulness), which need to be well-structured and reliable. Interventions should be carried out on restricted categories of healthcare professionals, taking into account age, tasks, and type of treated patients. It is also necessary to define which assessment tools shall be used in order to compare more objectively the results and to investigate all the dimensions of burnout [13].

Over the last decade, there has been considerable and increasing interest in the development of Active and Assisted Living (AAL) systems to support independent living. The demographic change towards an aging population has introduced new challenges to today’s society from both an economic and societal standpoint. AAL can provide an array of solutions for improving the quality of life of individuals, for allowing people to live healthier and independently for longer, for helping people with disabilities, and for supporting caregivers and medical staff. A vast amount of literature exists on this topic, so this paper aims to provide a survey of the research and skills related to AAL systems. A comprehensive analysis is presented that addresses the main trends towards the development of AAL systems both from technological and methodological points of view and highlights the main issues that are worthy of further investigation [17].

Weight loss interventions focus on dietary and physical activity changes to induce weight loss. Both through weight loss and independent of it, diet quality is important for reducing chronic disease risk. However, whether and how diet quality changes over the course of a behavioral intervention is unclear. To systematically review the evidence from randomized controlled trials on the



effect of behavioral interventions on diet quality as defined by the Healthy Eating Index (HEI) among adults with overweight and obesity. Inclusion criteria comprised randomized controlled trial design, a primary or secondary aim of weight loss, a sample of US adults with overweight or obesity, measurement using the HEI-2005, 2010, or 2015, and assessment of the time by treatment effect. Interventions must have included behavioral components and lasted at least 3 months. Risk of bias was assessed using the Cochrane Risk of Bias 2 tool. The systematic review protocol was published on Open Science Framework. Of 3,707 citations retrieved, 18 studies met inclusion criteria. A wide array of behavioral interventions were assessed, including in-person and mobile health interventions as well as those prescribing intake of specific foods. Risk of bias in the included studies primarily arose from the measurement of the outcome variable. Sample sizes ranged from 34 to 413 participants. Nine studies used multiple dietary recalls, with few using the recommended method of Healthy Eating Index calculation. Changes in diet quality ranged from no improvement to a 20-point improvement. More often, improvement was in the 4- to 7-point range. Conclusions: The evidence for the efficacy of behavioral weight loss interventions for improving diet quality among adults with overweight and obesity is limited. Modest improvements in HEI scores were observed in the reviewed studies [15].

Workplace health promotion (WHP) in the healthcare industry is an important yet challenging issue to address, given the high workload, heterogeneity of work activities, and long work hours of healthcare workers (HCWs). This study aimed to investigate the effectiveness and response differences of a multidisciplinary WHP program conducted in HCWs. This retrospective cohort study included HCWs participating in a multidisciplinary WHP program in five healthcare facilities. The 20-week intervention included multiple easy-to-access 90-min exercise classes, one 15-min nutrition consultation, and behavioral education. Pre- and post-interventional anthropometrics, body composition, and physical fitness (PF) were compared with paired sample t-tests. Response differences across sex, age, weight status, and shiftwork status were analyzed with a generalized estimating equation. A total of 302 HCWs were analyzed. The



intervention effectively improved all anthropometric (body mass index, waist circumference, waist-hip ratio, and waist-to-height ratio), body composition (body fat percentage, muscle weight, visceral fat area), and PF (grip strength, high jump, sit-up, sit-and-reach, step test) parameters in all participants (all $p < 0.05$). Subgroup analyses revealed shift workers had a more significant mean reduction in body mass index than non-shift workers (adjusted $p = 0.045$). However, there was no significant response difference across sex, age, and weight subgroups. This study suggested that a multidisciplinary WHP program can improve anthropometric and PF profiles regardless of sex, age, and weight status for HCWs, and shifter workers might benefit more from the intervention [16].

Conclusion

This literature review highlights that healthy lifestyle practices are strongly influenced by multiple interrelated risk factors, including unhealthy dietary habits, reduced physical activity, and increased body mass index. Evidence consistently demonstrates that healthy eating plays a crucial role in reducing the risk of chronic diseases among adults and underscores the importance of behavioral assessment in lifestyle-related health outcomes. Furthermore, the reviewed studies indicate that workplace-based interventions have the potential to improve dietary behaviors and address overeating, particularly among healthcare workers. However, despite the demonstrated effectiveness of various intervention strategies, a comprehensive, sustainable, and behavior-focused approach to reducing overweight and obesity among healthcare professionals has not yet been clearly established. Future research should prioritize the development and evaluation of long-term, evidence-based interventions that integrate behavioral change, policy support, and environmental modifications to promote healthier lifestyle practices.

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