Review Article

Identification of the Most Prevalent Hypokinetic Disorders Linked to Sedentary Lifestyles and their Impact on Public Health

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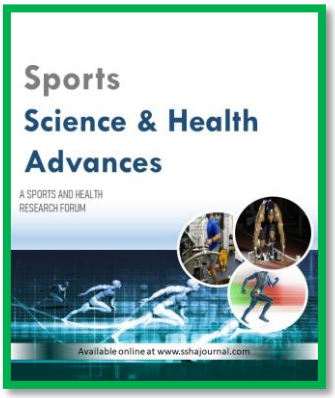

Peer-Reviewed
Refereed
Indexed

Abstract

The modern era has witnessed an alarming increase in sedentary lifestyles, primarily driven by technological advancements and changes in work patterns. Consequently, the associated health implications, particularly hypokinetic disorders resulting from insufficient physical activity, have emerged as a pressing public health concern. Various renowned electronic databases, including PubMed, Scopus, and Google Scholar, were exhaustively searched using a predefined set of keywords relating to sedentary behaviors and associated health disorders. To maintain the currency of information, only studies published within the last five years and subjects male and female were included in this analysis. This systematic research article aims to meticulously identify and explore the most common hypokinetic disorders linked to sedentary behaviors and elucidate their potential impact on public health. Through an in-depth analysis of the key disorders, we intend to propose effective interventions and targeted health promotion strategies to mitigate the detrimental effects of sedentary lifestyles on individuals and society as a whole.

Keywords: Hypokinetic Disorder; Sedentary lifestyle; Mental health; Body Movement

How to cite: Yadav, A., Chaudhary, S. (2024). Identification of the Most Prevalent Hypokinetic Disorders Linked to Sedentary Lifestyles and their Impact on Public Health. *Sports Science & Health Advances*. 2(01), 185-192. https://doi.org/10.60081/SSHA.1.1.2024.185-192

Received: 14-01-2024
Accepted: 20-02-2024
Published: 30-06-2024

Introduction

The 21st century has ushered in an unprecedented era of technological innovations, which have revolutionized the way people work, communicate, and entertain themselves. The rapid integration of technology into everyday life has inadvertently led to an alarming surge in sedentary behaviors, characterized by prolonged sitting and minimal physical activity (Walther et al., 2022). Poor lifestyle habits (e.g., using fatty-sweet foods, insufficient sleeping, low physical activity, and stress, and anxiety) are considered as the risk factors for many diseases such as acute myocardial infarction, hypertension, obesity, diabetes and cancer and even road accidents. Mentioned disorders are the most common and fatal chronic diseases around the world (Dhull, 2023; D. Kumar, Kumar, et al., 2023; S. Kumar et al., 2023). Lifestyle promotion can reduce the risk of many disorders, as a healthy lifestyle declines death rates and enhances the life expectancy also can seriously affect a country's advancement. Health Promoting Lifestyle (HPL) focuses on life promotion through lifestyle which consists of six aspects of "physical activity",

"nutrition", "health responsibility", "spiritual growth", "interpersonal relations" and "stress management".

This lifestyle promotes health and welfare and induces satisfaction, self-persuasion, and self-improvement (Mousavi Bazaz et al., 2022). This paradigm shift in lifestyle patterns has significantly contributed to the escalation of hypokinetic disorders, which manifest due to inadequate bodily movement (Lurati, 2018). These disorders, if left unchecked, could potentially give rise to substantial health challenges, warranting a meticulous examination to formulate informed and targeted interventions (Balwan & Kour, 2021). Sedentary lifestyles, characterized by prolonged sitting and low levels of physical activity, have become a major public health concern in recent decades (D. Kumar, Dhull, et al., 2023; D. Kumar & Dhull, 2023; Kumari & Chaudhary, 2023). As modern societies continue to rely heavily on technology and automation, the detrimental health consequences of sedentary behavior have become more apparent. Hypokinetic disorders, or conditions resulting from insufficient physical activity, pose a significant threat to global health (Park et al., 2020). This research aims to identify the most common hypokinetic disorders associated with sedentary lifestyles, their path physiological mechanisms, and potential interventions (Altavilla et al., 2018). The sedentary lifestyle, characterized by excessive sitting and physical inactivity, has been linked to various health risks. These risks include obesity, cardiovascular diseases, type 2 diabetes, musculoskeletal disorders, and mental health issues (D. Kumar, Nara, et al., 2023; D. Kumar & Dhull, 2023). Sedentary behavior contributes to a decrease in energy expenditure and negatively affects metabolism, leading to an increased risk of hypokinetic disorders (Choudhary, 2018; Di Vico et al., 2021). Sedentary lifestyles, defined as a low level of physical activity, have become increasingly prevalent in modern society, driven by technological advancements and urbanization (Nishad et al., 2016; Twinamasiko et al., 2018).Such behavior has been associated with a range of adverse health outcomes, collectively known as hypokinetic disorders. These disorders encompass a spectrum of physical and psychological conditions resulting from inadequate physical activity levels and have emerged as significant public health concerns (Leung et al., 2020). This study aims to identify the most common hypokinetic disorders linked to sedentary lifestyles and foster a better understanding of their implications on overall health and well-being.

Material & methods

Search strategy

To achieve the objectives of this research, a comprehensive review of literature from reputable databases was conducted. PubMed, Google Scholar, and Scopus were utilized to gather relevant studies on sedentary behavior, physical inactivity, and hypokinetic disorders. Keywords used in the search included "sedentary lifestyle," "hypokinetic disorders," "physical inactivity, "sedentary behavior health effects," and related terms. Epidemiological data from national health surveys and reports were also analyzed to understand the prevalence of sedentary lifestyles.

Data extraction

First, we search the E-database related to this research topic. After that we found 250 articles and record remove of the irrelevant article, I left with 80 articles. After that I excluded the articles that show no result, no proper methodology and disorder not mentioned in the articles, at final left with 10 articles only.

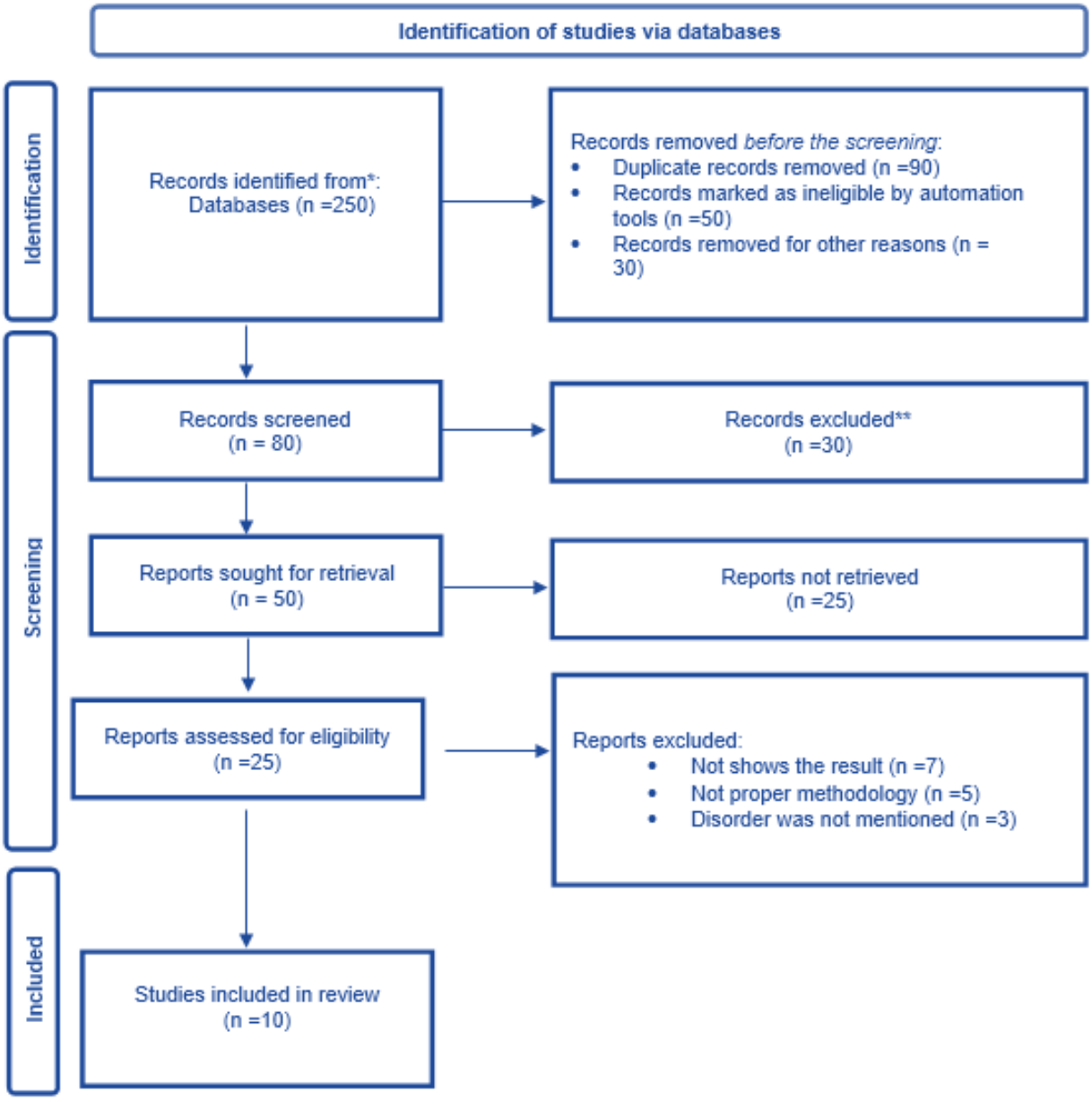

Fig. 1 A flowchart indicates the exploration of studies(Page et al., 2021)

Myriad Health Risks

The perils of sedentary lifestyles extend far beyond mere physical inactivity and are substantiated by a plethora of well-documented health risks. Foremost among these risks is obesity, which ensues from the disconcerting imbalance between caloric intake and expenditure, aggravated by prolonged periods of sitting. This can eventually lead to a myriad of comorbidities, including cardiovascular diseases, type 2 diabetes, musculoskeletal disorders, and mental health issues. The intricate interplay between sedentary behavior and these adverse health outcomes underscores the need for a comprehensive understanding of the most prevalent hypokinetic disorders associated with sedentary lifestyles.

Table1 study included in 10

Study	n, gender, study type	Identify Disorder	Outcome
(Walther et al., 2022)	52, male and female cross-sectional,	Parkinsonism, catatonia and obesity	According to the findings of this investigation, numerous hypokinetic motor disorders are associated with decreased physical activity. By engaging in physical activities, we can lower our risk of hypokinetic conditions.
(Altavilla et al., 2018)	Male and female elderly people, literature review	cardiovascular problem	A physical exercise programme has found to be effective in both old persons without and with diseases, as well as in senior people who lead sedentary lifestyles.
(Nishad et al., 2016)	520, 254 male & 266 females, survey study	High blood pressure, Cardiovascular Diseases, Type 2 Diabetes	A substantial number of teachers (37.11%) have high blood pressure. The study's findings also revealed that personal obstacles and external causes are the primary hurdles to physical exercise. Only 14% claim they have a sedentary lifestyle owing to external factors.
(Di Vico et al., 2021)	Male and female, review study	Functional movement disorders (FMD)	In this study the author said that More clinical and scientific focus is needed to better understand fatigue's manifestations and etiology, as well as to enhance diagnosis and therapy.
(Park et al., 2020)	Male and female, review study	cardiovascular disease mortality, cancer risk, metabolic disorders	The outcomes of research indicating the worst sort of sedentary behavior varied among studies. Studies found that a brief inactive session with intermittent physical activity, mild physical exercise or basic muscle training, occasional breaks of sedentary behavior while work, and rest with physical activity resulted in better health outcomes.
(Lurati, 2018)	1,female, case study	musculoskeletal injuries	The study found that musculoskeletal ailments can also lead to sedentary lifestyle, but that positive behavior can break the ice, i.e., sedentary lifestyle. Proper strengthening and stretching activities were extremely beneficial in maintaining a healthy lifestyle.
(Twinamasiko et al., 2018)	310, 155 male and 155 female, cross sectional survey	obesity, hypertension, and diabetes	The majority of people with hypertension are unaware. Sedentary workers are more likely to have high blood pressure than active workers. More vegetables and fruits should be consumed, and a more active work and leisure lifestyle may assist to prevent against hypertension.
(Balwan & Kour, 2021)	Male and female, review study	Cardiovascular Diseases, cancer, diabetes, Chronic Respiratory Diseases	The purpose of this article is to educate readers on the risk factors connected with Lifestyle illnesses and to urge them to maintain a healthy lifestyle in order to lower their chances of having a Lifestyle linked disease later in life.
(Mousavi Bazaz et al., 2022)	120, 61male and 59female, cross-sectional study	Lifestyle diseases and health awareness	The findings of this study revealed that students' health-promoting behaviors were typically modest. Mental growth was at its worst, while stress management was at its greatest. Other components of healthy behavior were moderate. Because of differences in the status of many components of health-promoting behavior's between the sexes, distinct planning is required in the two groups.
(Leung et al., 2020)	270, male and female, cross-sectional study	obesity and chronic kidney disease	The finding of the study is that public concern about lifestyle behavior's and encourages self-assessment of health-promoting habits. The study also revealed fresh information on the relationship between HPLP-II and other prevalent chronic disorders.

Results

Most Prevalent Hypokinetic Disorders

The research identified several hypokinetic disorders that are commonly associated with sedentary lifestyles. From the research it is founded that most common disease that occurs due to sedentary lifestyle is obesity, in three studies it is founded that obesity is most prevailing disorder along with diabetes and Parkinsonism (Leung et al., 2020; Twinamasiko et al., 2018; Walther et al., 2022). Obesity effects the blood flowing veins and arteries also thus cardiovascular disorders are very likely to occur to people who do less or no physical activity (Altavilla et al., 2018; Balwan & Kour, 2021; Nishad et al., 2016; Park et al., 2020). In some studies, it is also founded that hypokinetic disorder also leads to major risk of occurrence of cancer in patients of metabolic and Chronic Respiratory Diseases (Balwan & Kour, 2021; Park et al., 2020). Functional movement disorder (FMD) and musculoskeletal injuries are some factors that can influence a person to live a sedentary lifestyle. But this can also be overcome by positive behavior changes and doing proper stretching and physical activity (Di Vico et al., 2021; Lurati, 2018)

These disorders include but are not limited to

Obesity: The sedentary lifestyle's deleterious effect on obesity cannot be overstated. Prolonged periods of sitting invariably lead to a substantial reduction in energy expenditure, impairing the body's ability to efficiently metabolize fats and carbohydrates. As a result, individuals engaged in sedentary behaviors are at a significantly higher risk of obesity, a complex condition with far-reaching health implications. Sedentary behavior contributes to an imbalance between caloric intake and expenditure, leading to weight gain and obesity, a significant risk factor for various chronic conditions.

Cardiovascular Diseases: Physical inactivity has been unequivocally identified as a critical risk factor for the development of cardiovascular diseases. The sedentary lifestyle's adverse effects on blood pressure, lipid profile, and insulin sensitivity significantly elevate the risk of coronary heart disease, stroke, and other cardiovascular conditions, posing a formidable challenge to global health. Prolonged sitting and limited physical activity are associated with an increased risk of heart diseases, including hypertension, coronary artery disease, and stroke.

Type 2 Diabetes: Sedentary lifestyles foster a state of insulin resistance and disrupted glucose regulation, rendering individuals susceptible to type 2 diabetes mellitus, a metabolic disorder characterized by chronic hyperglycemia. Regular physical activity plays a pivotal role in maintaining healthy glucose metabolism and mitigating the risk of type 2 diabetes. Insufficient physical activity negatively impacts insulin sensitivity, elevating the risk of developing type 2 diabetes.

Musculoskeletal Disorders: The negative impact of prolonged sitting on the musculoskeletal system is well-documented. Reduced physical activity contributes to muscle imbalances, weakened bones, and joint stiffness, culminating in various musculoskeletal disorders such as lower back pain, neck pain, and osteoporosis. Sedentary lifestyles may lead to muscle weakness, joint problems, and bone density reduction, increasing the likelihood of musculoskeletal disorders. Sedentary lifestyles may lead to muscle weakness, joint problems, and bone density reduction, increasing the likelihood of musculoskeletal disorders.

Mental Health Issues: The psychological ramifications of sedentary behaviors cannot be overlooked. Inadequate physical activity has been consistently associated with an increased risk of mental health issues, including depression and anxiety. The role of physical activity in releasing endorphins, which foster improved mood and reduced stress, underscores the significance of addressing this aspect of hypokinetic disorders. Lack of physical activity is linked to a higher prevalence of depression, anxiety, and other mental health conditions

Interventions and Targeted Health Promotion Strategies: Comprehending the severity and multi-faceted nature of hypokinetic disorders linked to sedentary lifestyles demands a comprehensive approach towards intervention and health promotion. Policymakers, healthcare professionals, industries, and individuals must collaboratively devise evidence-based strategies to ameliorate the adverse effects of sedentary behaviors. Workplace initiatives aimed at encouraging physical activity, educational programs emphasizing the paramount importance of movement, and public health campaigns raising awareness about the deleterious health risks of sedentary behavior form a triad of potential interventions to address this growing public health challenge.To address the rising prevalence of hypokinetic disorders associated with sedentary lifestyles, a multifaceted approach to intervention and health promotion is necessary. Policymakers should design urban environments and workspaces that encourage physical activity, such as pedestrian-friendly streets, bike lanes, and standing desks. Employers can implement workplace wellness programs to incentivize and facilitate physical activity during work hours. Educational initiatives can raise awareness about the importance of regular exercise and its health benefits, encouraging individuals to incorporate physical activity into their daily routines.

Public health campaigns play a vital role in disseminating information about the health risks of sedentary behaviors and promoting the adoption of active lifestyles. Healthcare professionals can play an active role in screening patients for sedentary behaviors and providing tailored advice and support for behavior change.

Discussion

The findings of this research highlight the alarming impact of sedentary lifestyles on individualshealth and well-being. The prevalence of hypokinetic disorders associated with physical inactivity is a matter of grave concern, warranting urgent attention from policymakers, healthcare providers, and society as a whole.Promoting physical activity through various strategies is imperative to mitigate the risk of hypokinetic disorders (McKenzie et al., 2022). Incorporating regular exercise into daily routines, encouraging active commuting, and creating opportunities for physical activities in schools and workplaces can significantly contribute to addressing this issue (Deepak et al., 2022).Educational campaigns are vital in raising awareness about the health risks of sedentary behavior and promoting the benefits of an active lifestyle (Griban et al., 2020). Additionally, policies that incentivize physical activity, such as tax breaks for gym memberships and creating safe public spaces for recreational activities, can play a pivotal role in encouraging individuals to lead more active lives (Sanyaolu et al., 2019).

Implementation of the study

After hypokinetic disorder, people benefit not just from physical exercise or medication, but also from psychological aspects. This study demonstrates that when a patient is in the rehabilitation process, emphasis should be made to

psychological issues in addition to physical treatment. The information in the article may be valuable to medical scientists who work with patients recuperating from hypokinetic condition. Regarding the characteristics discussed in this review, they may organize and carry out treatments in rehab facilities to ensure that a person recovers effectively from his or her inactive lifestyle. This study findings can be implemented on the people suffering from Functional movement disorder (FMD) and musculoskeletal injuries along with major lifestyle diseases like obesity, hypertension, diabetes, Parkinson disease, cancer risk patients as well as other cardiovascular problems.

Conclusion

The escalating prevalence of sedentary lifestyles has significantly contributed to the emergence of a range of hypokinetic disorders, constituting a grave public health concern. Through a meticulous analysis of the most prevalent hypokinetic disorders linked to sedentary behaviors, this research elucidates the urgency and imperative of implementing evidence-based interventions and targeted health promotion strategies. A multi-pronged approach, encompassing individuals, healthcare professionals, policymakers, and industries, holds the key to effectively combatting this growing public health challenge, ensuring a healthier and more physically active future for individuals and society at large.

Conflict of interest: No Conflict of Interest among author.

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