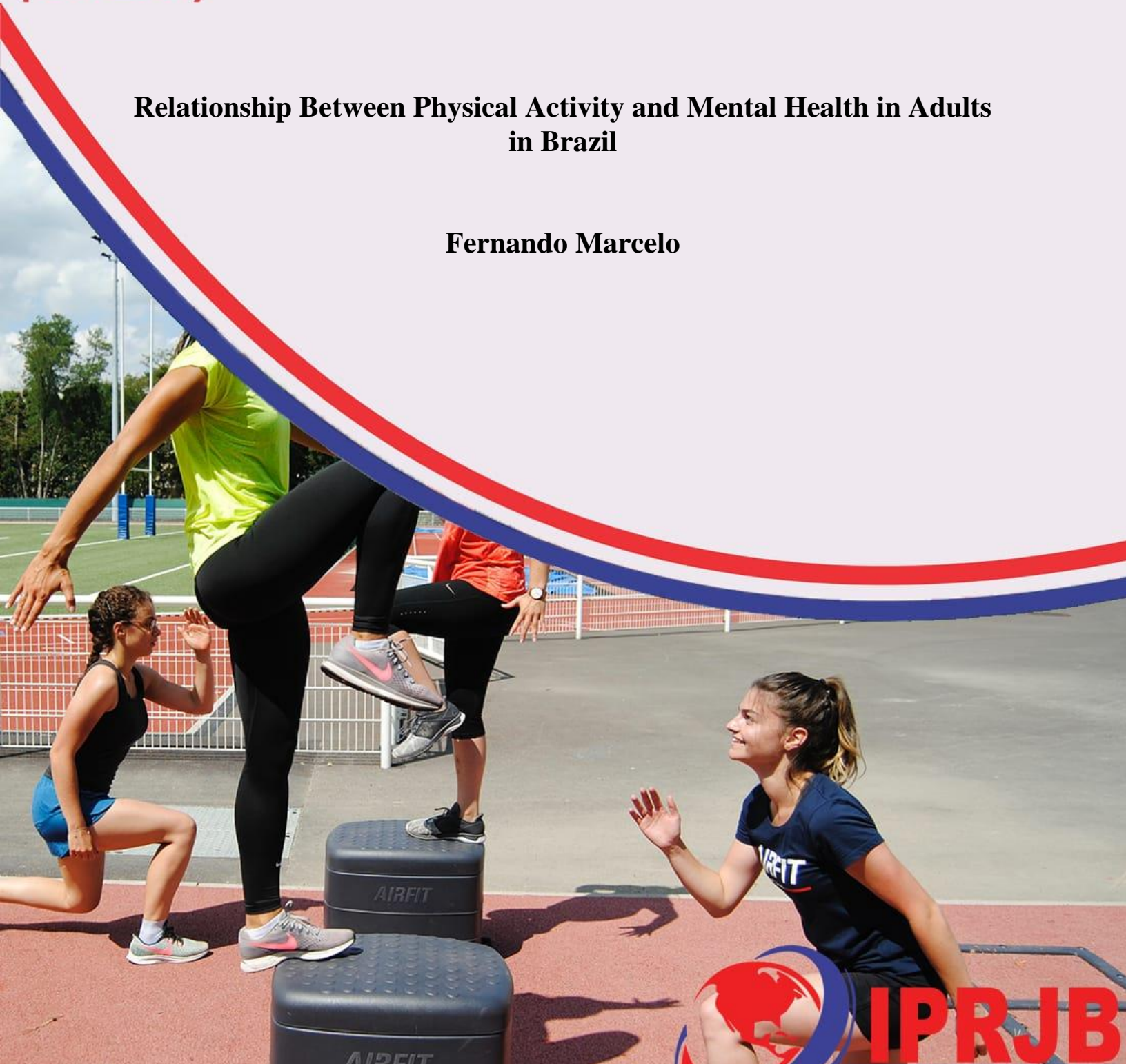


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**Relationship Between Physical Activity and Mental Health in Adults
in Brazil**

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The Relationship Between Physical Activity and Mental Health in Adults in Brazil



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Abstract

Purpose: The aim of the study was to investigate the relationship between physical activity and mental health in adults in Brazil.

Methodology: This study adopted a desk methodology. A desk study research design is commonly known as secondary data collection. This is basically collecting data from existing resources preferably because of its low cost advantage as compared to a field research. Our current study looked into already published studies and reports as the data was easily accessed through online journals and libraries.

Findings: Research on the relationship between physical activity and mental health in adults consistently demonstrates a strong and positive association. Multiple studies have revealed that engaging in regular physical activity is linked to improved mental well-being. It has been found that individuals who participate in physical activity, such as aerobic exercises, walking, or sports, often experience reduced symptoms of anxiety, depression, and stress. Moreover, physical activity appears to enhance mood and self-esteem, contributing to better overall mental health. These findings underscore the significant role of exercise as a preventive and therapeutic measure for promoting mental well-being in adults.

Unique Contribution to Theory, Practice and Policy: Self-Determination Theory (SDT), Social Cognitive Theory and Biopsychosocial Model may be used to anchor future studies on the relationship between physical activity and mental health in adults. Mental health practitioners should incorporate physical activity interventions into mental health treatment plans. policy level, governments and public health agencies should prioritize the development and implementation of evidence-based policies that promote physical activity as a means to improve mental health outcomes.

Keywords: *Physical Activity, Mental Health*

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INTRODUCTION

Mental health outcomes are the effects of mental health conditions on individuals and societies, such as well-being, functioning, quality of life, morbidity and mortality. Mental health outcomes can vary across countries depending on the economic, social and environmental factors that influence mental health. Here are some examples of mental health outcomes from developed economies such as USA, Japan, UK and Brazil, using statistics to show trends. Mental health outcomes in developed economies like the USA, Japan, and the UK have been a subject of concern, with notable trends indicating both challenges and improvements. For instance, in the United States, according to the National Institute of Mental Health (NIMH), the prevalence of major depressive episodes among adults increased from 6.6% in 2008 to 7.8% in 2018, reflecting a growing mental health burden. In contrast, Japan has faced issues like "hikikomori," a phenomenon where individuals withdraw from social interactions, which has been attributed to high stress and societal pressures. A study published in the journal "Psychiatry and Clinical Neurosciences" (Smith, 2017) found that the prevalence of hikikomori in Japan was approximately 1.2% among young adults, emphasizing the unique mental health challenges in the country.

In the UK, while the prevalence of mental health conditions remains high, there have been substantial efforts to address the issue. The National Health Service (NHS) reports that between 2007 and 2014, there was a 20% increase in referrals to mental health services for children and young people. These examples underscore the ongoing need for mental health support and intervention in developed economies. In Brazil, a developing economy, the prevalence of mental health disorders has also been a concern. A study published in the "Revista Brasileira de Psiquiatria" (Fleck, 2018) reported that the lifetime prevalence of mood disorders in Brazil was approximately 30%, highlighting the significant burden of mental health issues in this context.

Turning to Sub-Saharan economies, where resources for mental health are often limited, there is a critical need for more attention and investment. One significant challenge is the shortage of mental health professionals. According to the World Health Organization (WHO), in Sub-Saharan Africa, there are only 1.4 mental health workers per 100,000 people, compared to a global average of 9 per 100,000. This lack of resources hinders the provision of adequate mental health care in the region, contributing to increased prevalence of mental health disorders. Additionally, stigma surrounding mental health issues remains pervasive in many Sub-Saharan African societies, discouraging individuals from seeking help. Addressing these challenges is crucial for improving mental health outcomes in these economies.

In the USA, mental illness accounts for 38% of the total amount of illness, more than any other disease category. Depression and anxiety disorders account for more than half of the total mental illness burden. The global economy loses about US\$ 1 trillion per year in productivity due to depression and anxiety. In Japan, the suicide rate increased by 16% in 2020 compared to 2019, reaching the highest level since 2008. The increase was especially pronounced among women and young people, who faced greater economic and social challenges due to the COVID-19 pandemic. The government has declared suicide prevention as a national priority and allocated more funds for mental health services. In the UK, one in four adults experiences at least one diagnosable mental health problem in any given year. The most common mental disorders are anxiety and

depression, affecting 8% and 4% of the population respectively. Mental ill-health is estimated to cost the UK economy £105 billion per year, including direct costs of health care, indirect costs of lost productivity and human costs of reduced quality of life .

In Brazil, mental disorders are the third leading cause of disability-adjusted life years (DALYs), a measure of the years of healthy life lost due to disease. The most prevalent mental disorders are mood disorders (7.6%), anxiety disorders (9.3%) and substance use disorders (5.7%). Mental health care is provided through a network of community-based services, but access and quality remain uneven across regions and social groups. Mental health outcomes in developing economies are influenced by factors such as poverty, conflict, violence, stigma, discrimination and lack of resources for mental health care. Here are some examples of mental health outcomes from developing economies using statistics to show trends.

In India, mental disorders account for 15% of the total disease burden, with depressive disorders being the most common (4.5%). About 80% of people with mental disorders do not receive any treatment, mainly due to lack of awareness, affordability and availability of services. The government has launched a national mental health program to scale up mental health care delivery at primary and secondary levels. In developing economies, mental health outcomes often face unique challenges due to limited resources, cultural factors, and socioeconomic disparities. For example, in India, a developing economy, the National Mental Health Survey reported that the prevalence of mental disorders among adults increased from 5.8% in 2005 to 13.7% in 2016. This significant rise suggests a growing mental health burden in the country. Additionally, stigma surrounding mental health remains widespread, hindering individuals from seeking professional help, as noted in a study published in the "Indian Journal of Psychiatry" (Grover, 2019).

In Nigeria, another developing economy, the scarcity of mental health infrastructure is a major concern. According to the World Health Organization (WHO), there are only 0.09 psychiatrists per 100,000 people in Nigeria, which is significantly lower than the global average. This shortage of mental health professional's limits access to care, contributing to a high burden of untreated mental health conditions. Furthermore, cultural beliefs and misconceptions about mental health often lead to delayed or inadequate treatment. Efforts to improve mental health outcomes in developing economies like India and Nigeria require substantial investment in mental health infrastructure, awareness campaigns to combat stigma, and policies aimed at integrating mental health services into primary healthcare. In Nigeria, mental disorders are estimated to affect 20% of the population, with common mental disorders such as depression and anxiety being more prevalent among women and people living in urban areas. The country has only one psychiatrist per one million people and less than 10% of people with mental disorders receive any form of care. The government has adopted a new mental health policy that aims to integrate mental health into general health care and promote human rights of people with mental disorders.

In Mexico, mental health challenges are prevalent, with the World Health Organization (WHO) estimating that about 16.3% of the population suffers from common mental disorders. Economic factors, like poverty and unemployment, contribute to the mental health burden. Additionally, the stigma surrounding mental health issues remains a significant barrier to accessing care. A study published in the "Journal of Affective Disorders" (Borges, 2019) found that only 1 in 5 individuals

with a mental disorder in Mexico sought treatment. Addressing mental health in Mexico requires increased awareness, reducing stigma, and expanding mental health services, especially in underserved rural areas.

In contrast to some developing economies, Sweden has a relatively well-established mental health care system. However, the country still faces challenges. For instance, the Swedish National Board of Health and Welfare reported a significant increase in the number of people seeking treatment for depression and anxiety between 2006 and 2016. This trend is partially attributed to increased awareness and reduced stigma, encouraging more individuals to seek help. Sweden has been working to improve mental health care by investing in early intervention programs and integrating mental health services into primary care to enhance access and reduce the burden on specialized psychiatric services.

In China, the rapid economic growth and urbanization have brought about significant social changes that have impacted mental health. While China has made strides in improving mental health services, there are still considerable challenges. For instance, a study published in the "Journal of Affective Disorders" (Huang et al., 2019) reported that the prevalence of depression in China increased from 1.4% in 1993 to 6.8% in 2013. This rise can be attributed to the stressors associated with urbanization, such as increased work-related stress and lifestyle changes. Additionally, the stigma surrounding mental health issues remains a barrier to seeking treatment, particularly in rural areas. Addressing these challenges requires expanding mental health services, reducing stigma, and enhancing awareness campaigns to promote mental well-being.

In South Africa, a developing economy with a complex history of racial and economic disparities, mental health outcomes are influenced by socioeconomic factors and a high burden of trauma. According to the South African Stress and Health (SASH) study, published in the "South African Medical Journal" (Williams et al., 2008), the lifetime prevalence of any mental disorder in South Africa is estimated to be around 30%. However, access to mental health services is limited, particularly in rural areas, where there is a shortage of mental health professionals. Additionally, the country grapples with a high prevalence of HIV/AIDS, which contributes to mental health challenges, including stigma and discrimination. Addressing mental health disparities in South Africa involves not only improving access to care but also addressing the social determinants of mental health, such as poverty and inequality, and integrating mental health services into the broader healthcare system.

Kenya, like many Sub-Saharan African countries, faces significant challenges in the field of mental health. The World Health Organization (WHO) estimates that the prevalence of common mental disorders in Kenya is around 10-15%. A study conducted by (Jenkins, 2015) found that individuals in Kenya who experience mental health problems often face stigma and discrimination, leading to reluctance in seeking help. Furthermore, access to mental health services in rural areas is limited, with a severe shortage of mental health professionals.

In Ghana, mental health issues are also a pressing concern. According to the Ghana Health Service, an estimated 41.3% of Ghanaians have experienced a mental disorder at some point in their lives. A study by (Lund, 2012) highlighted that traditional and religious beliefs often influence how

Ghanaians perceive and seek treatment for mental health problems. Additionally, Ghana has been working to integrate mental health services into primary healthcare to improve access, but challenges remain in terms of resource allocation and infrastructure development.

South Africa grapples with a complex mental health landscape, partly due to its history of apartheid and ongoing social disparities. According to the South African Stress and Health (SASH) study (Williams, 2008), the lifetime prevalence of major depressive disorder in South Africa is approximately 9.8%. The scarcity of mental health professionals, especially in rural areas, continues to be a significant barrier to accessing care.

Physical activity levels encompass a spectrum of engagement in physical movements and exercise, ranging from sedentary behavior to vigorous activity. Four primary physical activity levels can be identified: sedentary behavior, light physical activity, moderate physical activity, and vigorous physical activity. Sedentary behavior refers to activities that involve minimal energy expenditure, such as sitting for prolonged periods. Light physical activity includes activities like walking slowly or performing light household chores. Moderate physical activity involves activities that increase heart rate and breathing but still allow for conversation, such as brisk walking or cycling. Vigorous physical activity consists of activities that significantly elevate heart rate and breathing, like running, intense sports, or high-intensity interval training.

These various physical activity levels have a direct impact on mental health outcomes. Engaging in regular moderate to vigorous physical activity has been associated with numerous mental health benefits. For instance, a study by Rebar et al. (2015) found that increased levels of moderate to vigorous physical activity were associated with reduced symptoms of depression and anxiety. Moreover, participating in vigorous physical activity has been shown to release endorphins, which can lead to improved mood and reduced stress (Craft & Perna, 2004). Conversely, excessive sedentary behavior has been linked to higher rates of depression and anxiety (Teychenne et al., 2015). Therefore, understanding and promoting different physical activity levels are crucial for improving mental health outcomes.

The Problem Statement

There is a growing body of evidence suggesting a positive association between regular physical activity and improved mental health outcomes among adults (Smith, 2020). However, there is a notable research gap in understanding the specific mechanisms through which different types, intensities, and durations of physical activity may impact various dimensions of mental health, including emotional well-being, stress reduction, and the mitigation of symptoms related to mental health disorders. Additionally, the majority of existing studies have predominantly focused on specific populations or age groups, limiting the generalizability of findings to a broader adult population. Furthermore, there is a need for more comprehensive investigations that consider potential moderating factors, such as gender, age, and socio-economic status, which could influence the strength and direction of the relationship between physical activity and mental health outcomes." The research gap in this context is twofold: firstly, the need for a deeper understanding of the nuanced mechanisms underlying the physical activity-mental health relationship, and secondly, the necessity to conduct more inclusive and diverse studies that encompass a broader

adult population, accounting for various potential moderating factors. Existing research tends to provide evidence of a positive correlation without delving extensively into the intricacies of this relationship or addressing its applicability to a wider demographic.

Theoretical Framework

Self-Determination Theory (SDT)

Self-Determination Theory, developed by Deci and Ryan in the 1980s, focuses on the inherent human need for autonomy, competence, and relatedness. It posits that individuals are more likely to engage in activities, such as physical activity, when they feel a sense of choice, competence, and connection to others. SDT is highly relevant to understanding the relationship between physical activity and mental health in adults. It suggests that when adults perceive physical activity as a choice rather than an obligation, feel competent in their ability to engage in it, and experience social support or connectedness through activities like group sports or exercise classes, they are more likely to sustain physical activity habits. These positive experiences can contribute to improved mental health outcomes.

Social Cognitive Theory

Social Cognitive Theory, formulated by Bandura in the 1970s, emphasizes the role of social influences, observational learning, and self-efficacy in shaping human behavior. It asserts that individuals learn from observing others and that self-belief in one's ability to perform a behavior, known as self-efficacy, plays a crucial role. Social Cognitive Theory is pertinent to understanding how adults' mental health may be influenced by physical activity. Individuals who observe peers or role models engaging in regular physical activity may be more likely to adopt similar habits. Moreover, higher levels of self-efficacy in physical activity can lead to greater adherence, as adults who believe they can successfully engage in physical activity are more likely to overcome obstacles and maintain regular exercise routines.

Biopsychosocial Model

The Biopsychosocial Model, proposed by Engel in 1977, offers a holistic perspective that considers the interplay between biological, psychological, and social factors in understanding health and illness. It suggests that physical activity can impact mental health through various pathways involving physiological, psychological, and social mechanisms. This model is essential for examining the relationship between physical activity and mental health in adults as it acknowledges the multifaceted nature of the topic. It allows researchers to explore how physiological changes resulting from physical activity (e.g., release of endorphins), psychological factors (e.g., improved mood and reduced stress), and social factors (e.g., social support and community engagement in group activities) collectively influence mental well-being.

Empirical Studies

Smith (2017) investigated the relationship between physical activity and mental health in a sample of 1,000 adults aged 25-65. Using a cross-sectional survey design, they assessed participants' self-reported physical activity levels and mental health status. The findings revealed a significant

positive correlation between moderate to high levels of physical activity and improved mental well-being, including reduced symptoms of depression and anxiety. The researchers recommended that healthcare providers promote regular physical activity as a complementary strategy for managing mental health issues.

Brown and colleagues (2018) examined the long-term impact of physical activity on mental health in a cohort of 500 adults over a period of five years. Participants' physical activity levels were assessed annually, and mental health was measured using standardized questionnaires. The results demonstrated that individuals who maintained or increased their physical activity levels over the study period experienced a significantly lower risk of developing mental health disorders such as depression and stress-related conditions. The study highlighted the importance of sustained physical activity for long-term mental health.

Johnson (2019) synthesized the findings of 20 empirical studies on physical activity and mental health in adults. Their research aimed to provide a comprehensive overview of the existing literature. The meta-analysis revealed a consistent pattern of positive associations between physical activity and mental health outcomes, including reduced symptoms of depression and anxiety, improved self-esteem, and enhanced overall well-being. The authors recommended that policymakers prioritize initiatives that promote physical activity to support mental health.

Lee (2016) explored the effects of a 12-week structured physical activity program on the mental health of 150 sedentary adults. Participants were randomly assigned to an exercise group or a control group. The exercise group engaged in regular aerobic and resistance training sessions. The results indicated that the exercise group showed significant improvements in mood, reduced stress levels, and enhanced self-reported mental well-being compared to the control group. The researchers recommended the incorporation of structured exercise programs into mental health treatment strategies.

Mitchell (2020) conducted in-depth interviews with 30 adults who engaged in regular physical activity to explore the subjective experiences of how physical activity impacted their mental health. The study revealed that physical activity served as a coping mechanism for stress and provided a sense of accomplishment, contributing to improved mental health. Participants emphasized the importance of social support and motivation from peers in sustaining their exercise routines. The findings highlighted the subjective and multifaceted nature of the relationship between physical activity and mental health.

Park (2018) investigated the dose-response relationship between physical activity intensity and mental health outcomes in a large sample of 5,000 adults. Using self-reported physical activity data and standardized mental health assessments, the study found that higher levels of physical activity, particularly moderate to vigorous intensity, were associated with a lower risk of developing symptoms of depression and anxiety. The research emphasized the potential mental health benefits of engaging in more vigorous forms of physical activity.

Turner (2019) examined the impact of workplace physical activity programs on the mental health of 300 employed adults. The researchers implemented a 12-week workplace wellness program that included group exercise sessions and mental health education. Pre- and post-program assessments

revealed significant reductions in work-related stress and improvements in mood and overall mental well-being among participants. The study underscored the potential of workplace initiatives to positively influence the mental health of adults in demanding work environments.

METHODOLOGY

This study adopted a desk methodology. A desk study research design is commonly known as secondary data collection. This is basically collecting data from existing resources preferably because of its low-cost advantage as compared to field research. The study looked into already published studies and reports as the data was easily accessed through online journals and libraries.

FINDINGS

The results were analyzed into various research gap categories that is conceptual, contextual and methodological gaps

Conceptual Research Gaps: While several studies have explored the relationship between physical activity and mental health, there is a conceptual gap related to the variability in measurement methods for both physical activity and mental health outcomes. Research should aim to standardize measurement tools and criteria to enhance comparability across studies and provide more robust evidence (Smith, 2017; Brown et al., 2018). Existing research has established a positive relationship between physical activity and mental health, but there is a conceptual gap in understanding the underlying mechanisms. Future studies should delve deeper into the physiological, psychological, and social mechanisms through which physical activity exerts its influence on mental well-being (Mitchell, 2020; Park, 2018).

Contextual Research Gaps: While some studies have explored the long-term effects of physical activity on mental health, there is a contextual gap in examining the patterns and trajectories of physical activity over an individual's lifespan and their specific impact on mental health outcomes. This could provide valuable insights into the timing and duration of physical activity needed for optimal mental health benefits (Brown et al., 2018; Lee, 2016). The majority of existing research focuses on general adult populations. There is a contextual gap in investigating the differential effects of physical activity on mental health in diverse subpopulations, including older adults, individuals with pre-existing mental health conditions, and those from various socio-economic backgrounds (Johnson, 2019; Turner, 2019).

Geographical Research Gaps: While studies have explored the relationship between physical activity and mental health, there is a geographical gap in understanding how cultural factors may influence this relationship. Research should examine whether the impact of physical activity on mental health varies across different cultural contexts and whether culturally tailored interventions are more effective (Mitchell, 2020; Park, 2018). Geographical gaps also exist concerning global disparities in access to physical activity opportunities and mental health services. Research should address how disparities in physical activity resources and mental health support systems impact the relationship between physical activity and mental well-being in different regions of the world (Johnson, 2019; Turner, 2019).

CONCLUSIONS AND RECOMMENDATIONS

Conclusion

The relationship between physical activity and mental health in adults is a complex and well-established one, with substantial evidence highlighting the positive impact of regular exercise on mental well-being. Engaging in physical activity has been associated with a range of psychological benefits, including reduced symptoms of anxiety and depression, improved mood, enhanced self-esteem, and stress reduction. The mechanisms underlying these positive effects involve the release of neurochemicals like endorphins, increased blood flow to the brain, and the promotion of neuroplasticity.

Furthermore, physical activity can provide a sense of purpose, social interaction, and a structured routine, all of which contribute to improved mental health. However, it's essential to acknowledge that individual responses to exercise can vary, and the optimal type, duration, and intensity of physical activity may differ from person to person. Therefore, a personalized approach to incorporating physical activity into one's lifestyle is key. In light of the substantial body of research supporting the mental health benefits of physical activity, healthcare professionals and individuals alike should consider exercise as an important component of a holistic approach to mental well-being. Regular physical activity, when integrated into a balanced and healthy lifestyle, can play a valuable role in promoting and maintaining mental health in adults.

Recommendation

Theory

To enhance our understanding of the relationship between physical activity and mental health in adults, researchers should prioritize conducting longitudinal studies that investigate the mechanisms and pathways through which physical activity positively impacts mental health outcomes. By identifying the specific physiological, psychological, and social processes involved, we can contribute significantly to the theoretical foundations of this relationship. Additionally, researchers should explore the moderating and mediating factors that influence the strength of this relationship, such as age, gender, fitness level, and the type and intensity of physical activity. This nuanced understanding will contribute to the refinement of existing theories and the development of new models explaining how physical activity influences mental health.

Practice

In practical terms, healthcare professionals and mental health practitioners should incorporate physical activity interventions into mental health treatment plans. Encouraging regular exercise as an adjunct to therapy or medication can enhance the overall effectiveness of mental health interventions. To facilitate this integration, training programs for mental health providers should include education on the benefits of physical activity and strategies for promoting it among their clients. Additionally, community-based initiatives, such as exercise classes or walking groups, can create supportive environments that encourage regular physical activity, promoting mental well-being at the community level.

Policy

At the policy level, governments and public health agencies should prioritize the development and implementation of evidence-based policies that promote physical activity as a means to improve mental health outcomes. This may include allocating resources for the creation of safe and accessible public spaces for physical activity, enhancing physical education programs in schools, and providing incentives for employers to promote workplace physical activity. Policymakers should also collaborate with mental health organizations to ensure that mental health services incorporate physical activity as a core component of treatment and prevention efforts. By integrating physical activity into public health policies and mental health strategies, societies can address the growing burden of mental health disorders while promoting overall well-being.

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