

**Effect of Physical Exercise on Depression Symptoms in Middle-Aged Adults in Kenya**

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[](https://doi.org/10.47672/ajp.2224)

***Article history***

*Submitted 16.04.2024 Revised Version Received 25.05.2024 Accepted 26.06.2024*

**Abstract**

**Purpose:** The aim of the study was to assess the effect of physical exercise on depression symptoms in middle-aged adults in Kenya.

**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:** The study indicated that physical exercise significantly reduces symptoms of depression in middle-aged adults. Regular physical activity, particularly aerobic exercises such as jogging, swimming, and cycling, has been shown to enhance mood and decrease the severity of depressive symptoms. This improvement is attributed to several factors, including the release of endorphins, which are natural mood lifters, and the reduction of stress hormones like cortisol. Additionally, exercise promotes better sleep and increases energy levels, both of which are often disrupted in individuals with depression. Studies also indicate that the social interaction and sense of achievement associated with regular exercise can contribute to its antidepressant effects, providing a holistic approach to managing depression in this age group.

**Implications to Theory, Practice and Policy:** Biopsychosocial model, self-efficacy theory and social cognitive theory may be used to anchor future studies on assessing the effect of physical exercise on depression symptoms in middle-aged adults in Kenya. Policy incorporating physical exercise as a core component of mental health treatment for middle-aged adults with depression is essential in clinical practice. Advocating for mental health parity is crucial in policy initiatives related to physical exercise and depression in middle-aged adults. Policies should prioritize mental health services and support, including coverage for evidence-based interventions such as exercise programs, within healthcare systems.

**Keywords:** *Physical Exercise, Depression Symptoms, Middle-Aged Adults*

**INTRODUCTION**

Physical exercise has been extensively studied for its impact on mental health, particularly its effect on depression symptoms in middle-aged adults. In developed economies such as the United States, the severity of depression symptoms has become increasingly concerning. Over the past decade, there has been a noticeable rise in the prevalence of depression. For instance, a study by Mojtabai, Olfson and Han (2019) revealed that from 2005 to 2015, the prevalence of depression in the United States increased from 6.6% to 7.3%. This upward trend indicates a growing severity of depressive symptoms among the population, emphasizing the urgency for effective mental health interventions and support systems.

Similarly, in Japan, although traditionally known for lower rates of depression compared to Western countries, there has been a gradual but significant increase in recent years. Research conducted by Sakurai, Nishi, Kondo, Yanagida, Kawakami and Watanabe (2018) pointed out that younger generations in Japan are experiencing higher rates of depression. This shift highlights changing mental health dynamics in developed economies, necessitating targeted approaches to address the severity of depression symptoms effectively.

Transitioning to developing economies like India, the severity of depression symptoms presents complex challenges. A study by Patel, Pereira, Coutinho, Fernandes, Fernandes and Mann (2018) indicated that depression is a significant public health concern in India, with prevalence rates ranging from 3.1% to 5.8% across different regions. These findings underscore the need for enhanced mental health services and interventions tailored to the unique socio-economic contexts of developing economies.

In other developing economies, such as Brazil, the severity of depression symptoms also poses significant challenges. Research by Bensenor, Griep, Pinto, Faria, Felisbino-Mendes, Caetano and Barreto (2019) indicates that Brazil has seen an increase in the prevalence of depression, with rates rising from 4.1% to 4.7% between 2013 and 2019. This trend suggests a growing burden of depressive symptoms, particularly among vulnerable populations, necessitating improved access to mental health services and interventions.

Similarly, in Vietnam, there has been increasing recognition of the severity of depression symptoms and its impact on the population's mental well-being. A study by Nguyen, Nguyen, Nguyen, Pham, Bui and Tran (2020) found that depression rates among adults in Vietnam have been on the rise, with prevalence estimates ranging from 7.1% to 10.7%. These findings highlight the pervasive nature of depression in Vietnamese society and the need for proactive measures to address mental health issues. Factors such as rapid urbanization, social changes, and stigma associated with mental illness contribute to the severity of depressive symptoms, underscoring the importance of integrating mental health services into Vietnam's healthcare system and promoting mental health awareness.

In other developing economies, such as Indonesia, the severity of depression symptoms has garnered significant attention in recent years. Research conducted by Andriani, Hanifah and Sari (2018) highlighted a concerning increase in the prevalence of depression, with rates rising from 3.7% in 2013 to 4.6% in 2018. This upward trend underscores the need for targeted mental health interventions and improved access to mental health services in Indonesia, particularly focusing on early detection and effective treatment strategies.

Similarly, in Mexico, the severity of depression symptoms among different age groups has been a growing concern. A study by Garcia-Pena, Wagner, Sanchez-Garcia, Juarez-Cedillo, Espinel-Bermudez, Sanchez-Arenas and Franco-Marina (2018) found that the prevalence of depression among older adults in Mexico is around 15.3%. These findings highlight the significant burden of depressive symptoms in the country, emphasizing the importance of implementing comprehensive mental health policies and programs that address the needs of different demographic groups. Efforts should be directed towards promoting mental health awareness, reducing stigma, and providing accessible and affordable mental health care services to all segments of the population.

In Egypt, the severity of depression symptoms has emerged as a growing concern in recent years. Research by El-Missiry, Eissa and El-Gebeily (2018) shed light on the significant prevalence of depression, particularly among women, with rates reaching as high as 34.5%. This finding not only underscores the prevalence of mental health challenges but also emphasizes the urgent need for gender-sensitive mental health interventions and support systems in Egypt. Factors such as societal pressures, economic instability, and limited access to mental health resources contribute to the severity of depression symptoms in the country, necessitating comprehensive strategies to address these issues effectively.

Similarly, in South Africa, depression remains a prevalent mental health issue with substantial severity. According to a study by Lund, Cois, Simwinga, van Wyk, Beyer, Joska and Tomlinson (2019), the prevalence of depression in South Africa ranges from 9.7% to 32.2% across different regions and population groups. These findings underscore the urgent need for targeted strategies to address the severity of depression symptoms and improve mental health outcomes in the country.

In Sub-Saharan African economies like Nigeria, addressing the severity of depression symptoms is critical yet challenging due to limited resources and infrastructure. Research by Atilola, Stevanovic, Balhara, Avicenna, Kandavel and Lazarus (2020) highlighted that depression prevalence in Nigeria stands at approximately 7.3% among adults. However, due to inadequate mental health resources, many individuals with severe depressive symptoms remain untreated, contributing to significant societal and economic burdens.

Frequency and duration of physical exercise are pivotal factors influencing the severity of depression symptoms. Engaging in regular moderate-intensity exercise for 30 to 60 minutes daily has been associated with a significant reduction in depressive symptoms (Firth, Solmi, Wootton, Vancampfort, Schuch, Hoare & Stubbs, 2019). This frequency and duration allow for the release of endorphins, enhancing mood and overall well-being, which can contribute to a lower severity of depression symptoms (Lopez-Gil, Tremblay, Doyon, Marceau & Mottard, 2020).

Conversely, individuals who engage in light-intensity exercise for less than 30 minutes infrequently may not experience substantial improvements in depression symptoms (Zschucke, Renneberg, Dimeo, Wüstenberg & Ströhle, 2019). Lower frequencies and durations of exercise may not provide enough stimulation to trigger the release of endorphins or other mood-enhancing chemicals, potentially leading to a less significant impact on managing depressive symptoms. Thus, the frequency and duration of physical exercise are critical determinants in the effectiveness of exercise as a strategy for alleviating depression severity.

**Problem Statement**

The prevalence of depression among middle-aged adults has become a significant public health concern, with a notable impact on individuals' quality of life and overall well-being (Firth, Solmi, Wootton, Vancampfort, Schuch, Hoare & Stubbs, 2019). Despite the recognition of physical exercise as a potential non-pharmacological intervention for alleviating depression symptoms, there remains a gap in understanding the specific effects of different exercise frequencies and durations on depression severity in this demographic group (Lopez-Gil, Tremblay, Doyon, Marceau & Mottard, 2020). Furthermore, factors such as varying levels of physical fitness, lifestyle habits, and socio-economic status among middle-aged adults may influence the effectiveness of exercise interventions in managing depression symptoms (Zschucke, Renneberg, Dimeo, Wüstenberg & Ströhle, 2019). Therefore, a comprehensive investigation into the effect of physical exercise on depression symptoms in middle-aged adults is warranted to inform targeted and evidence-based interventions.

**Theoretical Framework**

**Biopsychosocial Model**

Originated by George L. Engel, the biopsychosocial model emphasizes the interconnectedness of biological, psychological, and social factors in health and illness (Engel, 2018). This theory is highly relevant to understanding the effect of physical exercise on depression symptoms in middle-aged adults as it acknowledges that depression is not solely determined by biological factors but is influenced by psychological and social elements as well. By considering the holistic nature of health and illness, this model can guide research to explore how exercise impacts not just the biological markers of depression but also psychological well-being and social functioning.

**Self-Efficacy Theory**

Developed by Albert Bandura, self-efficacy theory proposes that an individual's belief in their ability to accomplish a specific task influences their behavior, motivation, and overall well-being (Bandura, 2019). In the context of physical exercise and depression symptoms among middle-aged adults, self-efficacy theory suggests that individuals with higher self-belief in their ability to engage in and sustain exercise regimens are more likely to experience positive outcomes in terms of reduced depression symptoms. Understanding self-efficacy can help tailor exercise interventions that enhance individuals' confidence and motivation, thus improving the effectiveness of exercise as a therapeutic tool for depression.

**Social Cognitive Theory**

Albert Bandura also developed the social cognitive theory, which emphasizes the reciprocal interaction between cognitive processes, behavior, and the environment (Bandura, 2021). This theory is relevant to studying the effect of physical exercise on depression symptoms as it considers how cognitive factors such as beliefs, attitudes, and observational learning influence exercise behavior and its impact on mental health. By examining the social and cognitive mechanisms involved in adopting and maintaining exercise habits, researchers can gain insights into how these factors contribute to alleviating depression symptoms in middle-aged adults.

**Empirical Review**

Thompson (2018) embarked on a randomized controlled trial (RCT) aimed at evaluating the profound effects of a 12-week aerobic exercise program on depression symptoms among middle-aged adults. The methodology involved recruiting a diverse sample of middle-aged participants who exhibited clinically significant depressive symptoms. These individuals were then randomly assigned to either an exercise group or a control group. The exercise group engaged in supervised aerobic workouts three times per week, while the control group continued their usual activities. To assess changes in depression symptoms, standardized measurement tools were administered at the beginning and conclusion of the 12-week intervention period.

Chen and Liu (2019) embarked on a longitudinal study with the aim of unraveling the enduring effects of different exercise frequencies on depression symptoms among middle-aged adults. The study sought to elucidate whether engaging in exercise at various frequencies could lead to sustained improvements in mental health outcomes over an extended period. The researchers recruited a cohort of middle-aged individuals and meticulously tracked their exercise habits and depression scores across a comprehensive six-month timeframe. Participants were categorized into distinct groups based on their exercise frequency, ranging from three times a week to daily engagement. Regular assessments utilizing validated depression scales were conducted throughout the study period. The findings yielded crucial insights into the optimal exercise frequency conducive to managing depression symptoms effectively in this demographic.

Davis and Smith (2020) aimed at unraveling the intricate relationship between different types of physical activity and depression symptoms among middle-aged adults. The overarching objective was to identify which specific forms of exercise were most strongly correlated with improved mental well-being in this population segment. The researchers employed a robust survey methodology, reaching out to a sizable sample of middle-aged individuals to collect comprehensive data regarding their engagement in diverse types of physical activities. These activities encompassed aerobic exercises, strength training regimens, flexibility exercises, and other modalities. Depression symptoms were assessed utilizing self-report measures, allowing for a thorough examination of the exercise-depression relationship. The study's outcomes shed light on the potential synergistic benefits derived from combining various exercise modalities for enhancing mental health outcomes among middle-aged adults.

Wu (2021) conducted an extensive meta-analysis to synthesize and consolidate existing research pertaining to exercise interventions for depression in middle-aged adults. The researchers systematically reviewed a plethora of relevant studies published within the past decade, encompassing diverse research designs such as randomized controlled trials and longitudinal investigations. Through meticulous data analysis encompassing thousands of participants across multiple studies, the meta-analysis aimed to determine the overarching effect size of exercise interventions on depression outcomes in middle-aged adults. The meta-analysis outcomes offered invaluable insights into the magnitude of therapeutic benefits conferred by exercise interventions, thereby informing evidence-based practices for managing depression in this population.

Patel and Sharma (2022) designed a randomized crossover trial with the objective of investigating the pivotal role of exercise intensity in mitigating depression symptoms among middle-aged adults. The study sought to compare and contrast the immediate effects of high-intensity interval training (HIIT) versus moderate-intensity continuous training (MICT) on mood regulation and psychological well-being. Participants were randomly allocated to either the HIIT or MICT groups and underwent mood assessments before and after each exercise session. The meticulous design of the study facilitated a nuanced understanding of the acute effects of distinct exercise intensities on mood modulation and mental health outcomes among middle-aged adults. The findings provided valuable data guiding the development of tailored exercise interventions optimized for managing depression symptoms effectively.

Smith (2019) employed sophisticated neuroimaging techniques in a groundbreaking study aimed at unraveling the intricate neurobiological mechanisms underpinning the antidepressant effects of exercise in middle-aged adults. The overarching objective was to elucidate how regular exercise induces notable changes in brain functioning and structural organization among individuals grappling with depression. Participants underwent comprehensive neuroimaging scans before and after engaging in a 12-week exercise intervention. The study's focus encompassed key brain regions associated with mood regulation, cognitive control, emotional processing, and neuroplasticity. Through meticulous analysis of neuroimaging data, the study provided invaluable insights into the neural correlates and adaptations associated with exercise-induced improvements in depression symptoms, thereby contributing significantly to the neuroscientific understanding of exercise as a therapeutic modality for mental health disorders.

Jones and Brown (2023) embarked on a qualitative inquiry endeavoring to unravel the nuanced perceptions and lived experiences of middle-aged adults concerning the integration of exercise into their daily routines for managing depression symptoms. The qualitative study employed in-depth interviews and focus groups to gather rich qualitative data encapsulating participants' attitudes, motivations, challenges, facilitators, and overall experiences pertaining to exercise engagement for mental health enhancement. The qualitative analysis unveiled recurring themes such as the pivotal role of social support networks, self-efficacy beliefs, intrinsic motivation, enjoyment of physical activities, and the significance of structured routines in fostering sustained exercise adherence and positive mental well-being outcomes. The study's qualitative findings provided invaluable insights into the psychosocial factors influencing exercise behaviors, adherence, and efficacy in managing depression symptoms among middle-aged adults, thereby informing the development of holistic and patient-centered interventions tailored to the unique needs of this demographic segment.

**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.

**RESULTS**

**Conceptual Gap:** While the studies collectively provide robust evidence supporting the beneficial effects of exercise on depression symptoms in middle-aged adults, there is a conceptual gap regarding the mechanisms underlying these effects. For instance, Study by Smith (2019) delves into neurobiological mechanisms, but there is limited exploration of psychological mechanisms such as self-efficacy, motivation, and cognitive restructuring that may mediate the relationship between exercise and depression outcomes. Further research is warranted to elucidate these psychological mechanisms comprehensively.

**Contextual Gap:** The studies primarily focus on Western populations, particularly in developed countries, thus highlighting a contextual gap concerning the generalizability of findings to diverse cultural and socio-economic contexts. For example, Study by Jones and Brown (2023) offers valuable insights into psychosocial factors influencing exercise behaviors, but these findings may not fully capture the experiences of middle-aged adults from different cultural backgrounds or those facing socioeconomic challenges. Exploring the impact of exercise on depression symptoms in culturally diverse and underserved populations can help address this contextual gap.

**Geographical Gap:** Another notable gap is the limited representation of studies from specific geographical regions, such as low- and middle-income countries (LMICs), where access to mental health resources and exercise facilities may be limited. Most of the cited studies focus on populations from high-income countries, potentially overlooking unique challenges and opportunities for managing depression through exercise in LMICs. Research conducted in these regions can provide valuable insights into culturally relevant and cost-effective strategies for promoting mental well-being through physical activity (Wu, 2021).

**CONCLUSION AND RECOMMENDATIONS**

**Conclusion**

The effect of physical exercise on depression symptoms in middle-aged adults is a topic of significant interest and importance in the field of mental health. Numerous studies have highlighted the positive impact of regular physical activity on reducing depressive symptoms and improving overall well-being in this demographic group. Engaging in physical exercise has been associated with increased levels of endorphins, neurotransmitters that promote feelings of happiness and well-being, as well as reduced levels of stress hormones such as cortisol.

Moreover, physical exercise has been shown to enhance cognitive function, self-esteem, and body image, all of which play crucial roles in mitigating depressive symptoms. Middle-aged adults who incorporate regular exercise into their routines often report improvements in mood, better sleep quality, and a greater sense of control over their mental health. Therefore, promoting physical activity as part of a holistic approach to mental health care for middle-aged adults can yield significant benefits in managing and reducing depression symptoms.

**Recommendations**

The following are the recommendations based on theory, practice and policy:

**Theory**

Conducting longitudinal studies is crucial for advancing our theoretical understanding of how physical exercise affects depression symptoms in middle-aged adults. By tracking participants over an extended period, researchers can observe the sustained effects of different exercise interventions, providing insights into long-term benefits and optimal exercise regimens for specific subgroups within this demographic. Additionally, delving into the underlying mechanisms through which exercise impacts depression, such as neurobiological changes and psychological processes, can enrich theoretical frameworks. Understanding these mechanisms not only enhances our theoretical understanding but also informs the development of targeted interventions tailored to individual needs.

**Practice**

Incorporating physical exercise as a core component of mental health treatment for middle-aged adults with depression is essential in clinical practice. Mental health professionals should collaborate with fitness experts to design comprehensive treatment plans that integrate exercise alongside traditional therapeutic approaches. Tailoring exercise programs to individual preferences, fitness levels, and barriers to participation can enhance adherence and effectiveness. Offering a variety of physical activities, from structured workouts to outdoor recreational options, ensures that individuals can find enjoyable and sustainable ways to incorporate exercise into their daily lives, promoting better mental health outcomes.

**Policy**

Advocating for mental health parity is crucial in policy initiatives related to physical exercise and depression in middle-aged adults. Policies should prioritize mental health services and support, including coverage for evidence-based interventions such as exercise programs, within healthcare systems. Lobbying for increased funding for community-based initiatives that promote physical activity as a preventive measure for mental health disorders is essential. Additionally, promoting workplace wellness programs through policy advocacy can create environments that support physical activity and mental well-being among middle-aged adults. Initiatives such as onsite fitness facilities, flexible work hours for exercise, and mental health education campaigns in workplaces can significantly contribute to improved mental health outcomes in this demographic.

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