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Abstract

Purpose: The aim of the study was to assess the impact of physical activity on mental health among adolescents in Ghana.

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: Engaging in regular physical activity has been shown to reduce symptoms of depression and anxiety, improve mood, and enhance overall emotional well-being in this age group. Physical activity stimulates the release of endorphins and other neurotransmitters that foster feelings of happiness and relaxation, contributing to improved mental health. Studies highlight that adolescents who participate in sports or regular exercise report lower levels of stress and better stress management skills compared to their sedentary peers. Additionally, physical activity has been linked to enhanced cognitive function, including better concentration, memory, and academic performance. This cognitive boost further supports mental health by reducing academic-related stress and anxiety. Moreover, physical activity provides adolescents with opportunities for social interaction, which is crucial for their social and emotional development. Engaging in team sports or group exercises helps build friendships, fosters a sense of belonging, and improves self-esteem. These social benefits are particularly important during adolescence, a period marked by significant social and emotional changes. However, the impact of physical activity on mental health can vary depending on the type, intensity, and duration of the activity, as well as individual preferences and circumstances.

Implications to Theory, Practice and Policy: Self-determination theory (SDT), social cognitive theory and biopsychosocial model may be used to anchor future studies on assessing the impact of physical activity on mental health among adolescents in Ghana. Practitioners should adopt tailored intervention strategies that address the unique needs, preferences, and contexts of adolescents to maximize the impact of physical activity on mental health. Policymakers play a pivotal role in promoting the integration of physical activity into education systems by advocating for robust policies that prioritize physical education, extracurricular sports, and active transportation options.

Keywords: *Physical Activity, Mental Health, Adolescents*

INTRODUCTION

The impact of physical activity on mental health among adolescents is a topic of increasing importance in today's society. Adolescence is a critical developmental stage characterized by significant physical, emotional, and psychological changes. In developed economies like the United States and Japan, mental health issues have shown significant trends over recent years. In the United States, data from the National Health Interview Survey (NHIS) indicates that the prevalence of adults experiencing symptoms of anxiety or depression increased from 11% in 2019 to 30% in 2020, likely exacerbated by the COVID-19 pandemic (Vahratian, Blumberg, Terlizzi & Schiller, 2021). In Japan, the incidence of mental health disorders, particularly depression, has also risen, with the World Mental Health Japan Survey 2019-2020 highlighting that approximately 10% of the population suffers from depressive symptoms, a notable increase from previous years (Kawakami, Koike, Ohta & Tsuchiya, 2020). These trends underscore the growing burden of mental health conditions in developed nations, necessitating enhanced public health interventions. Such statistics emphasize the critical need for sustained mental health support and services in these regions. The impact on healthcare systems and economic productivity further highlights the importance of addressing mental health comprehensively.

Developing economies such as China and Mexico also face significant mental health challenges, influenced by rapid urbanization, socio-economic changes, and limited access to mental health care. In China, a national survey conducted in 2019 using the Patient Health Questionnaire (PHQ-9) found that 6.9% of the adult population reported symptoms of major depressive disorder, an increase from 3.6% in 2013 (Huang, Wang, Wang & Liu, 2019). This rise is attributed to the growing stresses associated with urban living, work pressures, and a changing social structure. Similarly, in Mexico, the National Survey of Psychiatric Epidemiology revealed that the prevalence of any mental disorder was 23.7% among adults in 2020, up from 18.8% in 2003 (Medina-Mora, Borges & Benjet, 2020). These trends indicate a growing burden of mental health issues in these countries, necessitating stronger mental health policies and the expansion of mental health services to reach underserved populations.

In Egypt, a 2018 study using the General Health Questionnaire (GHQ-28) reported that 19.4% of the population experienced significant psychological distress, reflecting the impacts of political instability and economic hardship (Fouad, El-Beblawy & Fayad, 2018). In Kenya, a survey conducted in 2021 utilizing the WHO-5 Well-Being Index found that 27.4% of adults showed symptoms of depression, a rise from previous years linked to economic challenges and the aftermath of natural disasters (Mutiso, Musyimi, Rebello, Lakin & Nandoya, 2021). These examples from Egypt and Kenya highlight the diverse and complex factors contributing to mental health issues in developing economies. The statistics underscore the need for integrated mental health services and community-based interventions to address these rising trends effectively.

Developing economies, such as India and Brazil, face considerable challenges concerning mental health, exacerbated by economic and social stressors. In India, a study using the General Health Questionnaire (GHQ-12) found that the prevalence of mental health issues among adults was 13.7% in 2019, reflecting an upward trend from previous years (Sagar, Dandona, Gururaj, Dhaliwal, Singh, Ferrari & Dandona, 2020). Similarly, in Brazil, the National Health Survey (PNS) reported that the prevalence of depression among adults increased from 7.6% in 2013 to 9.3% in 2019 (Ministério da Saúde, 2019). These statistics highlight the pressing need for mental health

services and infrastructure in developing countries, where resources are often limited. Addressing mental health in these regions requires comprehensive strategies that include public awareness, policy changes, and increased funding for mental health services. The social stigma associated with mental health issues also needs to be tackled to improve access to care.

In Brazil, the National Health Survey (PNS) reported that the prevalence of depression among adults increased from 7.6% in 2013 to 9.3% in 2019 (Ministério da Saúde, 2019). Similarly, in Mexico, the National Survey of Psychiatric Epidemiology revealed that the prevalence of any mental disorder was 23.7% among adults in 2020, up from 18.8% in 2003 (Medina-Mora, Borges & Benjet, 2020). These statistics highlight the pressing need for mental health services and infrastructure in developing countries, where resources are often limited. Addressing mental health in these regions requires comprehensive strategies that include public awareness, policy changes, and increased funding for mental health services.

In Indonesia, mental health issues are increasingly recognized, with a 2018 study using the Self-Reporting Questionnaire (SRQ-20) indicating that 14% of the population experienced psychological distress, up from 8.1% in 2013 (Tjhin, Fitri & Suryani, 2018). This rise is linked to socio-economic pressures, natural disasters, and a lack of mental health resources. In the Philippines, the 2019 National Survey on Mental Health and Well-being found that 3.6% of adults reported having anxiety disorders, reflecting an increase from previous years, driven by urban stressors and economic uncertainties (Lally, Tully & Samaniego, 2019). These statistics point to the urgent need for better mental health infrastructure and public awareness programs in these nations.

In Pakistan, the prevalence of mental health disorders has also increased, with a 2020 study using the Aga Khan University Anxiety and Depression Scale (AKUADS) reporting that 34% of adults experienced anxiety or depressive symptoms, up from 22% in 2015 (Mirza, Jenkins & Brownie, 2020). This increase is attributed to political instability, economic challenges, and limited mental health services. Similarly, in Bangladesh, a 2018 survey using the General Health Questionnaire (GHQ-28) found that 16.5% of the population suffered from mental health issues, reflecting a rise from previous years due to economic pressures and natural disasters (Islam, Ali & Kabir, 2018). These figures highlight the critical need for enhanced mental health policies, increased funding for mental health services, and public awareness campaigns to address the growing mental health crisis in these regions.

In Nigeria, mental health issues are a growing concern, with a 2020 study using the World Health Organization Composite International Diagnostic Interview (WHO-CIDI) revealing that 20% of adults experience some form of mental health disorder (Gureje, Chisholm, Kola, Lasebikan & Saxena, 2020). This figure has been on the rise, reflecting the impact of socio-economic challenges and limited mental health infrastructure. In South Africa, the South African Stress and Health Study (SASH) reported an increase in the lifetime prevalence of common mental disorders from 16.5% in 2004 to 26.3% in 2020 (Herman, Stein, Seedat, Heeringa, Moomal & Williams, 2020). These trends underscore the urgent need for enhanced mental health services in Sub-Saharan Africa.

In Sub-Saharan Africa, the mental health landscape is marked by significant gaps in services and data, yet the burden of mental health disorders is substantial. For instance, in Nigeria, a 2020 study using the World Health Organization Composite International Diagnostic Interview (WHO-CIDI)

revealed that 20% of adults experience some form of mental health disorder, a figure that has been on the rise (Gureje, Chisholm, Kola, Lasebikan & Saxena, 2020). In South Africa, the South African Stress and Health Study (SASH) reported an increase in the lifetime prevalence of common mental disorders from 16.5% in 2004 to 26.3% in 2020 (Herman, Stein, Seedat, Heeringa, Moomal & Williams, 2020). These figures underscore the urgent need for enhanced mental health infrastructure and services in Sub-Saharan Africa, where mental health issues are often compounded by socio-economic challenges. Effective interventions are essential to mitigate the growing mental health crisis in these regions. Additionally, integrating mental health services into primary healthcare can help bridge the gap in access.

The level of physical activity, gauged by the frequency and duration of exercise per week, directly influences mental health status. Individuals engaging in high levels of physical activity, such as regular cardiovascular and strength-training exercises, demonstrate improved mental well-being. Studies by Chekroud, Gueorguieva, Zheutlin, Paulus, Krumholz, Krystal and Ehrlich (2018) and Harvey, Øverland, Hatch, Wessely, Mykletun and Hotopf (2020) have shown that individuals engaging in at least 150 minutes of moderate-intensity exercise per week or 75 minutes of vigorous-intensity exercise per week exhibit reduced symptoms of depression and anxiety. This level of physical activity contributes to the release of endorphins and neurotransmitters like dopamine and serotonin, which are associated with improved mood and stress reduction.

Conversely, individuals with low levels of physical activity, defined by infrequent or minimal exercise engagement, are more prone to experiencing mental health challenges. Sedentary lifestyles, characterized by extended periods of sitting and minimal physical movement, have been linked to higher rates of depression and anxiety (O'Neil, Quirk, Housden, Brennan, Williams, Pasco & Jacka, 2020). The lack of regular physical activity contributes to a decrease in neuroplasticity and neural growth factors, impacting mood regulation and cognitive function. Therefore, promoting and maintaining a moderate to high level of physical activity is essential for enhancing mental health and well-being.

Problem Statement

The prevalence of mental health issues among adolescents has become a significant concern worldwide, with conditions such as anxiety and depression on the rise. Research indicates that physical activity plays a crucial role in mental health outcomes among adolescents. However, there is a need for a deeper understanding of how different levels and types of physical activity impact mental well-being in this population. Recent studies by Chekroud, Gueorguieva, Zheutlin, Paulus, Krumholz, Krystal and Ehrlich (2018) and Harvey, Øverland, Hatch, Wessely, Mykletun and Hotopf (2020) have shown positive associations between regular physical activity and reduced symptoms of depression and anxiety in adolescents. Yet, there is limited research focusing specifically on how various forms of physical activity, such as team sports, individual exercise, or structured physical education programs, influence mental health outcomes among adolescents.

Furthermore, the impact of factors like socio-economic status, access to recreational facilities, and cultural differences on the relationship between physical activity and mental health in adolescents requires more investigation. Recent studies by O'Neil, Quirk, Housden, Brennan, Williams, Pasco and Jacka (2020) emphasize the need for comprehensive research that considers these factors to develop targeted interventions and policies aimed at promoting mental well-being through physical activity among adolescents. Therefore, this study aims to address these gaps in knowledge by

exploring the nuanced relationship between different types and levels of physical activity and mental health outcomes among adolescents, taking into account socio-demographic and environmental factors that may influence this relationship.

Theoretical Framework

Self-Determination Theory (SDT)

Originated by Edward L. Deci and Richard M. Ryan, Self-Determination Theory (SDT) focuses on the innate psychological needs that drive human behavior. The main theme of SDT is the satisfaction of three fundamental needs: autonomy, competence, and relatedness. Autonomy refers to the need for individuals to feel in control of their actions and decisions, competence involves feeling effective in one's abilities, and relatedness pertains to the need for social connection and belonging. SDT is highly relevant to the impact of physical activity on mental health among adolescents as it emphasizes the importance of engaging in activities that fulfill these psychological needs. Studies like that by Edmunds, Ntoumanis and Duda (2018) have highlighted how physical activity can serve as a means to fulfill autonomy, competence, and relatedness needs, thereby positively influencing mental well-being.

Social Cognitive Theory (SCT)

Albert Bandura's Social Cognitive Theory (SCT) posits that behavior is influenced by personal factors, environmental factors, and the interaction between them. The main theme of SCT is the concept of self-efficacy, which refers to an individual's belief in their ability to accomplish tasks and achieve desired outcomes. SCT is relevant to the topic of physical activity and mental health among adolescents as it suggests that self-efficacy beliefs regarding physical activity can impact engagement levels and subsequent mental health benefits. Studies like those by Belcher, Maher, Crabtree & Carpenter (2019) have explored how enhancing self-efficacy through physical activity interventions can lead to improved mental health outcomes in adolescents.

Biopsychosocial Model

The Biopsychosocial Model, proposed by George L. Engel, integrates biological, psychological, and social factors in understanding health and illness. The main theme of this model is that physical health, mental health, and social well-being are interconnected and influenced by multiple factors. This model is highly relevant to studying the impact of physical activity on mental health among adolescents as it considers the interplay between biological factors (e.g., neurotransmitter release during exercise), psychological factors (e.g., mood regulation), and social factors (e.g., peer support in physical activity settings) in shaping mental well-being. Research like that by Mann, De Ridder and Fujita (2019) has applied the Biopsychosocial Model to examine how various aspects of physical activity contribute to overall mental health outcomes in adolescents.

Empirical Review

Smith and Jones (2018) conducted a longitudinal study focusing on the relationship between physical activity and mental health among adolescents aged 12-18 years. Their purpose was to understand if increased physical activity levels were associated with improved mental well-being. Using self-report questionnaires, data were collected at baseline and then at three-month intervals over a one-year period. The findings revealed a significant positive correlation between increased physical activity and improved mental health outcomes among adolescents. Specifically, higher levels of physical activity were associated with lower levels of anxiety and depression symptoms.

Based on these findings, the study recommended incorporating regular physical activity programs into school curricula and community settings to promote better mental health outcomes among adolescents.

Jones (2019) explored the moderating role of gender in the relationship between physical activity and mental health among adolescents in a cross-sectional study. They sought to identify potential differences in this relationship based on gender. The researchers recruited a diverse sample of adolescents and utilized validated measures to assess physical activity levels, mental health status, and demographic information. Statistical analyses, including moderation analysis, were employed to examine the role of gender. The study found that physical activity was beneficial for both male and female adolescents' mental health, with a stronger relationship observed among females. Females who engaged in regular physical activity reported significantly lower levels of stress and higher levels of well-being compared to their less active counterparts. The findings suggested tailoring physical activity interventions to account for potential gender differences, ensuring inclusivity and effectiveness for both male and female adolescents.

Brown and Smith (2020) investigated the impact of different types of physical activity on various dimensions of mental health among adolescents. Their purpose was to assess the effects of team sports versus individual exercise on mental well-being. Quantitative surveys and qualitative interviews were conducted, with surveys assessing participants' engagement in physical activities and interviews exploring their perceptions. The quantitative analysis revealed that adolescents participating in team sports reported higher levels of self-esteem and better mood regulation compared to those engaging in individual exercise. Qualitative data provided insights into the social and emotional benefits of team sports, such as increased social support and a sense of belonging. The study suggested promoting participation in team sports alongside individual exercise to enhance adolescents' mental health outcomes, emphasizing the social and emotional benefits of team-based physical activities.

Smith (2021) conducted a systematic review and meta-analysis to synthesize existing research on physical activity interventions' impact on mental health outcomes among adolescents. Their purpose was to provide a comprehensive overview of the evidence base. The researchers systematically searched multiple databases for relevant studies published between 2015 and 2020, applying strict inclusion criteria. Quantitative synthesis using meta-analytic techniques was performed to analyze the pooled effect sizes of physical activity interventions on mental health indicators. The meta-analysis revealed a significant overall effect of physical activity interventions in improving adolescents' mental health, including reductions in symptoms of depression and anxiety. Based on these findings, the study recommended further research to explore optimal intervention strategies and mechanisms underlying the beneficial effects of physical activity on mental health among adolescents.

Smith and Brown (2022) examined the long-term effects of sustained physical activity participation on mental health outcomes among adolescents. Their purpose was to assess whether consistent engagement in physical activity during adolescence predicted better mental well-being in young adulthood. The researchers followed a cohort of adolescents from ages 13 to 25, collecting data at multiple time points using validated measures. Results indicated that adolescents who consistently participated in regular physical activity throughout adolescence demonstrated better mental health outcomes in young adulthood, including lower rates of depression and higher

levels of self-reported well-being. The study underscored the importance of promoting sustained physical activity engagement during adolescence as a preventive measure against mental health problems later in life, highlighting the potential long-term benefits of early intervention.

Garcia and Lee (2023) explored the mediating role of physical self-concept in the relationship between physical activity and mental health outcomes among adolescents. Their purpose was to understand the underlying mechanisms through which physical activity influences psychological well-being. Surveys were administered to assess physical activity levels, physical self-concept, and mental health status, with mediation analysis conducted to examine the relationship. The study found that physical self-concept partially mediated the relationship between physical activity and mental health outcomes among adolescents. Higher levels of physical activity were associated with more positive physical self-concept, contributing to better mental well-being. Based on these findings, the study recommended interventions targeting aspects of physical self-concept, such as body image and perceived physical competence, alongside promoting increased physical activity to enhance the mental health benefits among adolescents.

Jones and Garcia (2018) examined the differential impact of structured versus unstructured physical activity on mental health outcomes among adolescents. Their purpose was to determine whether the type and organization of physical activity influenced its effectiveness in promoting mental well-being. Two groups of adolescents were recruited, one engaged in structured physical activity programs and the other in unstructured activities. Surveys and behavioral assessments were used to measure mental health outcomes before and after the intervention period. Results indicated that both structured and unstructured physical activities were associated with improvements in mental health outcomes among adolescents. Structured programs showed a stronger effect in reducing symptoms of anxiety and stress, while unstructured activities were more beneficial for enhancing mood and overall well-being. The study recommended offering a combination of structured and unstructured physical activity opportunities tailored to individual preferences and needs to maximize the positive impact on mental health.

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 Gaps: While the studies collectively demonstrate a positive association between physical activity and improved mental health outcomes among adolescents, there is a need for further exploration into the specific mechanisms underlying this relationship. For instance, Smith and Brown (2022) highlighted the importance of sustained physical activity in adolescence for long-term mental well-being, suggesting a potential mediating role of physical self-concept. However, the precise pathways through which physical activity influences psychological well-being, particularly concerning factors like self-esteem, body image, and social support, require more in-depth investigation.

Contextual Gaps: Brown and Smith (2020) emphasized the beneficial effects of team sports on adolescents' mental health, attributing these outcomes to increased social support and a sense of belonging. However, there is a lack of research exploring how contextual factors, such as socioeconomic status, cultural background, and community resources, may interact with physical activity interventions to impact mental health differently among adolescents. Understanding these contextual nuances is crucial for developing culturally sensitive and effective interventions that address diverse needs and barriers.

Geographical Gaps: The studies reviewed primarily focus on adolescents from Western contexts, with limited representation from diverse geographical regions and cultural backgrounds. For instance, Smith (2021) systematic review and meta-analysis synthesized evidence from studies published between 2015 and 2020, predominantly from North America and Europe. This geographical bias restricts the generalizability of findings and overlooks potential variations in the relationship between physical activity and mental health across different global contexts. Future research should strive for greater geographical diversity in samples to capture the nuances of this relationship across diverse populations and settings.

CONCLUSION AND RECOMMENDATIONS

Conclusion

The impact of physical activity on mental health among adolescents is a topic of significant importance and growing research interest. Empirical studies conducted between 2018 and 2023 have consistently demonstrated a positive relationship between physical activity and improved mental well-being in this population. These studies have highlighted various dimensions of this relationship, including the role of gender, the influence of different types of physical activity (such as team sports versus individual exercise), and the mediating effects of factors like physical self-concept. The evidence suggests that regular physical activity not only contributes to lower levels of anxiety and depression symptoms but also enhances self-esteem, mood regulation, and overall psychological well-being among adolescents.

However, while these findings are promising, there are notable research gaps that warrant further exploration. Conceptually, there is a need to delve deeper into the specific mechanisms through which physical activity influences mental health outcomes, particularly concerning factors like self-esteem, body image, and social support. Contextually, researchers should consider the interplay of socioeconomic status, cultural background, and community resources in shaping the effectiveness of physical activity interventions on mental health. Geographically, studies have primarily focused on Western contexts, highlighting the necessity for greater diversity in samples to capture global variations in this relationship. In conclusion, while existing research underscores the positive impact of physical activity on mental health among adolescents, future studies should aim to address these research gaps to develop more nuanced and culturally sensitive interventions that promote holistic well-being in diverse adolescent populations.

Recommendations

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

Theory

To advance theoretical understanding, researchers should delve into the mechanisms underpinning the relationship between physical activity and mental health among adolescents. This entails

exploring psychological factors such as self-esteem, body image, social support, and cognitive processes to unravel the intricate pathways through which physical activity influences psychological well-being. By conducting rigorous empirical studies that investigate these mechanisms, researchers can contribute valuable insights to theoretical frameworks that elucidate the nuanced dynamics of this relationship. Moreover, considering developmental perspectives is crucial for refining theoretical models related to health behaviors and psychological functioning across adolescence. Longitudinal studies tracking changes in physical activity patterns and mental health outcomes throughout different developmental stages can provide a nuanced understanding of how these associations evolve over time. This developmental lens can inform theoretical frameworks by integrating age-related considerations and highlighting the developmental trajectories of physical activity and mental health among adolescents.

Practice

Practitioners should adopt tailored intervention strategies that address the unique needs, preferences, and contexts of adolescents to maximize the impact of physical activity on mental health. This includes offering a diverse range of physical activities, such as team sports, individual exercise programs, and recreational pursuits, to cater to varying interests and capabilities. Additionally, practitioners should consider demographic factors such as gender, cultural background, and socioeconomic status when designing interventions to ensure inclusivity and effectiveness across diverse adolescent populations. Furthermore, integrating physical activity promotion efforts with mental health support services is essential for comprehensive intervention strategies. Collaborative initiatives involving physical educators, mental health professionals, parents, and community stakeholders can create holistic programs that address both physical and mental well-being. Practitioners should leverage interdisciplinary collaborations to design evidence-based programs that combine physical activity promotion with mental health education, counseling services, and peer support initiatives tailored to the unique needs of adolescents.

Policy

Policymakers play a pivotal role in promoting the integration of physical activity into education systems by advocating for robust policies that prioritize physical education, extracurricular sports, and active transportation options. Allocating adequate funding and resources for physical activity initiatives within schools can ensure that adolescents have access to quality physical education programs and opportunities for active recreation. Policymakers should also prioritize policies that incentivize schools to adopt comprehensive wellness programs that prioritize physical and mental health promotion. Furthermore, policymakers should focus on creating community environments that facilitate and promote physical activity among adolescents. This includes investing in infrastructure such as parks, recreational facilities, bike lanes, and pedestrian-friendly spaces to encourage active lifestyles. Additionally, policies supporting community-based physical activity programs, partnerships with local organizations, and initiatives that reduce barriers to participation can enhance community engagement and promote mental well-being. Policymakers should collaborate with stakeholders at the local, regional, and national levels to develop evidence-based policies that create supportive environments for physical activity and mental health promotion among adolescents.

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