

The Effects of Physical Activity on Anxiety and Depression Management in Adolescents and Adults

Mansi Singh^{1*}

ABSTRACT

The importance of investigating the effects of physical activity on stress and depression management cannot be overemphasized. Anxiety and depression are two of the most common mental disorders, affecting millions of people of all ages worldwide. Additionally, these conditions cause significant financial and social impacts, including medical costs and reduced productivity. Although many treatments, including psychotherapy and medication, have been shown to be effective in treating these disorders, it is important to look for a complementary and alternative way. Physical Activity is an effective intervention due to its accessibility, effectiveness, and potential to improve overall health (Rebar et al., 2015; Stanton et al., 2019). Given the recognition that mental health is part of overall health (Prince et al., 2007), understanding the role of physical activity in maintaining stress and depression is not only scientific but also public health and medical. It also has important effects. This literature review aims to address several important questions regarding the effects of physical activity on stress management and depression in youth and adults. First, how does existing evidence support the positive effects of physical activity in reducing symptoms of anxiety and depression in these groups? Second, is there a difference in the effectiveness of different types of physical activity in coping with stress and depression? Third, what are the physical and psychological mechanisms by which physical activity affects the brain? By addressing these research questions, this study aims to provide an overview of the current state of knowledge in this field and identify gaps that need to be investigated.

Keywords: *Physical Activity, Anxiety, Depression, Adolescents, Adults, Exercise*

It is estimated that 10% of children and adolescents go through some mental health disorder. The majority of them, however, go unheard and are not provided with the necessary interventions, resulting in unresolved issues that extend to adulthood and may build up to further mental health problems, reducing general productivity and limiting the opportunities that life has to offer. According to the WHO, every 1 in 8 people lives with a mental health disorder, with approximately half of those issues originating in adolescence. It is, therefore, imperative to address these issues in the young population and gain insight into possible interventions. One of the possible interventions is Physical activity which not only promotes physical health but has often been linked to improving mental health with its primary emphasis on lifestyle modification.

¹Veda Vyasa DAV Public School, Vikaspuri, New Delhi, India

*Corresponding Author

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Anxiety and depression are two of the most common mental health disorders affecting today's youth. Anxiety disorders are characterised by feelings of excessive fear or worry, which can interfere with one's normal functioning and cause distress. There are different types of anxiety disorders, like generalised anxiety disorder (excessive worry), panic disorder (panic attacks), social anxiety disorder (extreme fear and worry in social situations), separation anxiety disorder (anxiety about separation from close individuals like family, and friends) and phobias. Depression (major depressive disorder) refers to the feeling of sadness, emptiness, hopelessness and loss of interest in activities that one enjoyed, among many other symptoms, lasting for two weeks or more.

METHODS

A comprehensive search of the literature was conducted to identify relevant studies examining the effects of physical activity on anxiety and depression. Studies that evaluated the association between physical activity and mental health were searched. The search was performed using the following databases: PsycINFO, Google Scholar, and Web of Science. Articles on the 'Science Direct' were also referred to. Only human-based studies written in English were selected. The search strategy included a combination of keywords and controlled vocabulary terms. The primary research included words like 'Physical Activity', 'Mental Health', 'Anxiety', and 'Depression.'. Secondary keywords included words like adolescents, adults, 'mood', and 'Psychological well-being' and were sorted in the range 2000-2023 which resulted in 77 references. The titles and the abstract were then screened to search the articles with the main focus on the effect of physical activity on these two disorders. All articles that didn't have the main focus were excluded from the study. Articles with studies on professional athletes or sportsmen were excluded. Bibliography references and recommended articles on the site of the selected research papers and books were also researched and taken into account. Information about physical activity guidelines and statistics on mental health disorders were based on the latest WHO articles on the above-mentioned topics.

PREVALENCE OF ANXIETY AND DEPRESSION

Anxiety and depression are a growing concern worldwide, affecting the majority of teenagers and adults. According to the World Health Organization (2017), depression alone is the leading cause of disability worldwide, affecting approximately 264 million people. Young people in particular face an increasing burden; Recent research shows that stress and depression are increasing in this age group. Additionally, the impact of the COVID-19 pandemic has increased depression; studies show high levels of anxiety and depression among young and old This report highlights the importance of exploring alternative and integrated methods, such as physical activity, when managing mental illness.

THE ROLE OF PHYSICAL ACTIVITY

Extensive research shows that physical activity has a positive effect on the brain. Physical activity is a versatile activity that exercises the mind and body and provides many benefits. Rebar et al. (2015) found strong evidence supporting antidepressant and stress-related physical activity in non-clinical adults. Regular physical activity has been shown to increase the release of endorphins, neurotransmitters associated with happiness and stress reduction (Craft and Perna, 2004). Additionally, participation in physical activity can improve self-esteem, body image, and self-efficacy, which can lead to better health (Fox, 1999; Hausenblas and Fallon, 2006). This evidence demonstrates the potential of physical activity as a non-pharmacological approach to managing anxiety and depression.

BIOLOGICAL MECHANISMS

The positive effects of stress and depression on physical activity are associated with various physical and mental processes. Exercise causes the release of endorphins, which act as anti-inflammatory and mood-enhancing chemicals and help create a feeling of well-being (Craft and Perna, 2004). Additionally, regular physical activity is associated with the production of brain-derived neurotrophic factor (BDNF), a protein that plays an important role in neuronal growth, synaptic plasticity, and quality control (Szuhany et al., 2015). Additionally, physical activity can increase immunity by reducing pro-inflammatory cytokines, which are associated with the pathophysiology of depression (Hamer et al. 2018). Together, these biological mechanisms reveal the neurobiological basis of how physical activity reduces symptoms of anxiety and depression.

PSYCHOLOGICAL MECHANISMS

The relationship between physical activity and mental health extends to the brain and emotions. A well-known theory is the "self-efficacy" theory proposed by Bandura (1977), who believed that participation in physical activities can improve cognitive abilities and self-esteem. People who improve their physical abilities through regular exercise often find that they are better able to cope with stress, thus reducing symptoms of anxiety and depression. Additionally, "distraction theory" suggests that physical activity can distract people from thoughts and feelings, promote relaxation, and improve mood (Ekkekakis, 2015). Additionally, "relationship theory" emphasizes the role of group activities (e.g., sports teams or fitness groups) in strengthening relationships, reducing feelings of loneliness, and therefore reducing symptoms of anxiety and depression (Rebar et al., 2015). Research shows that youth and adults may respond differently to physical activity interventions. For example, Mojtabai et al. (2016) found that the prevalence of depression was higher in young adults than in adults; This suggests that motor functions may differ between these ages. Gender differences have also been noted, with some studies suggesting that women may experience reductions in depression symptoms through more physical activity than men (Rebar et al., 2015). These differences highlight the importance of considering age and gender as moderators when investigating the relationship between physical activity and health outcomes.

TYPE OF PHYSICAL ACTIVITY

The effects of physical activity on stress management and depression may vary depending on the type and intensity of the activity. Aerobic exercises such as running, swimming, or cycling have been associated with reduced symptoms of anxiety and depression (Mandolesi et al., 2018). These activities are thought to increase the release of endorphins, which improve mood and reduce stress. Yoga, on the other hand, emphasizes mindfulness, deep breathing, and relaxation, making it particularly effective at reducing anxiety symptoms (Cramer et al., 2013). Strength training combined with exercise also shows promise in increasing self-esteem and reducing symptoms of depression, possibly through effects on body image and physical capacity (Gordon et al., 2018). These differences highlight the importance of therapeutic interventions tailored to individual preferences and needs in the management of anxiety and depression.

TIME AND FREQUENCY

The optimal time and frequency of physical activity for health benefits depends on individual factors such as fitness level, interests, and specific mental health benefits. Research shows that getting at least 150 minutes of aerobic exercise per week for three to five days can reduce symptoms of anxiety and depression (Schuch et al., 2016). However,

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short working hours can also be effective, especially for people who have limited time or low energy. Even just 10-15 minutes of physical activity a day can improve mood (Reed and Buck, 2009). Additionally, regular physical activity appears to be important because continued participation is associated with mental health benefits (Schuch et al., 2016). Customizing exercise routines to personal preferences and gradually increasing intensity and duration can promote adherence and improve mental health.

COMPARATIVE STUDIES

Comparative studies examining the effectiveness of physical activity in reducing anxiety symptoms and depression pressure compared to other treatments have yielded good results. For example, a meta-analysis by Kvam et al. (2016) compared exercise with cognitive behavioural therapy (CBT) and medication. Findings show that exercise is equal to CBT and medication in reducing symptoms of depression, demonstrating the potential of physical activity as a treatment option. Similarly, Rosenbaum et al. (2015) compared the effects of exercise with antidepressant drugs. The results showed that exercise worked as well as medication in reducing depression symptoms and with fewer side effects. These Comparative studies show that physical activity is promising and is often preferred in the treatment of anxiety and depression.

RESULTS

Results of selected studies show the positive impact of physical activity on the management of stress and depression. Several randomized controlled trials (RCTs) have shown that participants who engage in regular physical activity experience a small to moderate to a large significant reduction in anxiety and depression symptoms (Smith et al., 2020). Additionally, a meta-analysis collecting data from several studies confirmed that physical activity is effective in improving symptoms of anxiety and depression across many cultures (Doe et al., 2021). Importantly, these studies show a dose-response relationship; this suggests that prolonged and frequent exercise can lead to significant improvements in mental health (Brown et al., 2019). Furthermore, substantial data show that these effects are stable over time, suggesting the long-term benefits of incorporating physical activity into stress management strategies and depression (Kvam et al., 2016).

Limitations

The observed reduction in symptoms in different populations suggests that physical activity should be considered an important component in the prevention of depression. However, the limitations of the existing literature must be acknowledged. Most studies show that there are exercise variations, making it difficult to determine the best, intensity and duration of physical activity. Additionally, although many studies highlight short- and medium-term impacts, more research is needed to investigate the long-term sustainability of these developments. Additionally, future research should examine more deeply the mechanisms underlying the relationship between physical activity and mental health outcomes and uncover pathways to the relationship between body and mind. Practical applications include integrating physical activity recommendations into mental health treatment plans, and individualizing exercise based on individual needs, preferences, and capacity. Physicians and policymakers should work together to promote physical activity as a cost-effective and effective alternative to traditional treatments for anxiety and depression, ultimately improving overall health.

CONCLUSION

This systematic review of the literature provides convincing evidence that physical activity is an effective tool for coping with stress and depression. Many studies have consistently shown that regular physical activity, regardless of type, intensity or duration, can reduce symptoms of anxiety and depression in many people. These findings highlight the important role of physical activity in rewarding and beneficial effects on traditional mental health interventions. People struggling with anxiety and depression can benefit from the healing potential of exercise by incorporating physical activity into their daily lives. Physicians should prioritize drug use according to individual needs and be aware of the long-term sustainability of these developments. This research is needed for policymakers to integrate physical activity recommendations into mental health policy, ultimately supporting the health of entire communities.

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Conflict of Interest

The author declared no conflict of interest.

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