

Physical Activity: An Underutilized Tool in the Treatment of Mental Illness

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Abstract

There are a number of benefits to mental health that have been related to physical activity. Some of these benefits include relief from stress and depression, improved thinking, and an overall improvement in emotional wellbeing. According to a number of studies, people suffering from mental illnesses such as schizophrenia, anxiety disorders, and depression may all respond well to treatments that focus on physical activity. It is possible that including regular exercise as part of one's lifestyle will not only improve one's physical health but will also improve one's mental health and general well-being. Providers of mental health services have an important part to play in encouraging those who suffer from mental illness to engage in physically active pursuits. To have a full understanding of the potential benefits of mixing physical activity interventions with standard mental health therapies, such as psychotherapy and psychopharmacology, additional research is required.

Keywords: Physical activity, Mental health, Health benefits.

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Introduction

A mental condition is defined by cognitive impairment, emotional dysregulation, or behavioural abnormalities that are severe enough to warrant medical intervention. It is often misunderstood due to stigma and misconceptions, yet impacting millions worldwide with diverse and varied experiences. One in eight persons around the world suffer from a diagnosable mental illness¹.

The common types of mental disorders include depression, anxiety, obsessive-compulsive disorders, bipolar disorder, post-traumatic stress disorder and schizophrenia. These conditions are associated with impairment in thinking, mood and/or behavior and range from mild to severe in intensity. Depression is a prevalent medical condition that affects approximately 300 million individuals and together with anxiety can be classified as minor psychiatric disorder. Whereas the conditions such as schizophrenia, bipolar disorder, or major depressive disorder are considered serious mental illness (SMI).

People who suffer from SMI have higher rates of associated physical disorders, the majority of which are caused by risk factors related to lifestyle choices. There is some evidence that people with SMI can benefit from physical activity programs

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that aim to boost mental health². Psychiatrists have the ability to improve their patients' physical health by monitoring and treating physical factors in addition to providing treatment for mental health. Even simple steps taken by doctors can lead to significant improvements in patient care and outcomes. Patients can be encouraged and educated by psychiatrists to adopt healthier lifestyles, such as exercise, healthy eating habits, avoiding smoking and alcohol, avoiding prolonged sitting and good night sleep³.

Exercising regularly, have many positive effects on both physical and mental health, and is one of the most important aspects of leading a healthier lifestyle. It enhances self-esteem and cognitive function while aiding better sleep patterns, elevate mood and reduce stress. Exercise can improve brain health, help manage weight, strengthen bones and muscles, boost cardiovascular health, reduce the risk of developing diabetes and obesity and improve one's ability to do every day's activity⁴. It also alleviates feelings of depression and anxiety, lowers levels of stress, and improves cognitive performance in those who have major mental illnesses⁵.

As exercise has shown to improve both mental and physical health, it should be a top priority in the treatment plans but unfortunately, patients and professionals working in mental health do not understand or appreciate the significance of physical activity in its real spirit². Exercise has found to be an effective intervention in mental health care, with evidences suggesting that it may be an often-neglected intervention³.

Types of Exercise

Physical activity can be categorized into Endurance, strength, balance and flexibility exercises. One sort of physical activity can improve one's ability in other activities, while a variety of exercises can reduce monotony and injury.

To obtain the health benefits, the American Heart Association suggests engaging in moderate-intensity exercise, such as brisk walking, for at

least 30 minutes on three separate occasions per week⁶. These 30 minutes need not be done all at once; some studies find that breaking up a 30-minute walk into three 10-minute segments yields similar results.

It has been demonstrated that engaging in aerobic activity (endurance) has a beneficial effect on mental health, particularly in terms of alleviating the symptoms of depression and anxiety. It can also complement other treatments like therapy or medication for these conditions. This has been established by the results of an extensive number of studies and meta-analyses. For instance, one study comprising 49 randomized controlled trials indicated that exercise was connected with a significant reduction in symptoms of depression across all age categories, genders, and contexts⁷. According to another analysis of 16 separate studies on the individuals, exercise was found to be useful in reducing symptoms of anxiety, with the largest effects being seen in persons with greater levels of anxiety⁸.

Schizophrenia patients are more susceptible to cardio-metabolic illnesses, which increases their risk of early death. A meta-analysis by (Firth et al. 2015) found little evidence of exercise alone reducing BMI in these patients, however boosting cardiorespiratory fitness may be a more realistic and useful exercise intervention objective. Therefore, targeting cardiorespiratory fitness improvements may be a more attainable and clinically useful exercise intervention goal for schizophrenia patients⁹⁻¹⁰.

Mechanism by which Exercise improves Mental Health

Numerous suggestions have been put up to explain how exercise can boost mental health, but the specific process by which this occurs is still unclear. One such hypothesis proposes that mental health benefits can be attained by "increased blood flow to the brain", which can be achieved through physical activity¹¹. Increased blood flow can support the growth of new brain cells and connections, which may contribute to better mood re-

gulation and a reduced burden of certain mental health conditions. In addition, research has revealed that physical activity can lower the physiological responsiveness to stress by attenuating the reaction of the “hypothalamic-pituitary-adrenal (HPA) axis”¹².

The limbic system, amygdala, and hippocampus are all involved in the control of motivation, mood, fear, and memory, and it is known that the HPA axis communicates with these brain regions¹¹. It has been demonstrated that regular exercise can increase the size of the hippocampus, which in turn can contribute to improvements in both cognitive performance and mood¹³. The emotional processing hub of the brain, the amygdala, that is commonly hyperactive in patients with anxiety disorders, can be retrained to react less strongly to stress with regular physical activity. Thus, exercise therapy may be a useful, non-pharmaceutical option for the management of anxiety symptoms¹⁴.

Another hypothesis “Endorphin hypothesis” says regular exercise triggers an increase in the amount of endogenous opioid peptides produced by the brain that reduce pain, improve mood and alleviate feelings of anxiety as well as helplessness¹⁵. This theory explains how our body’s own chemistry may play a role in the delectation derived from exercise.

Moreover, a theory known as the “Monoamine hypothesis,” proposes that engaging in physical exercise raises the availability of neurotransmitters like serotonin and dopamine in the brain. This, in turn, leads to improvements in one’s mood as well as their cognitive function¹⁶.

In addition, distraction, self-efficacy, and social interaction have all been proposed as potential mechanisms of action for the positive effects of physical activity on mental health¹⁷.

Advantages of Regular Exercise

Mental health practitioners should emphasize and reaffirm to their patients that regular exercise has multiple health advantages, both physically and mentally. Patients should be encouraged to st-

art exercising on a regular basis by stressing the following health benefits:

1. Regular exercise is essential for weight management since it increases both energy expenditure and metabolic rate. Exercising more frequently and eating less at each meal creating a calorie deficit will help maintain a healthier weight and establish better eating habits. It helps build muscle mass, which can increase the resting metabolic rate, helping in weight control. A study found that people who exercised regularly had a reduced chance of becoming obese or gaining weight over time¹⁸.
2. Exercising regularly can help avoid or lessen the severity of many illnesses. Regular exercise has been linked to better cardiovascular health, a lower risk of diabetes type 2, and a lower risk of several cancers. Additionally, regular physical activity has been linked to a decreased threat of untimely demise¹⁹. Bone and muscular strength, balance and mobility, and emotional well-being are all enhanced by regular exercise²⁰.
3. It has been demonstrated that regular exercise enhances both the quality and length of sleep by alleviating tension and anxiety, both of which can make it difficult to fall or stay asleep. In addition, regular exercise can help regulate the internal clock of the body, making it simpler to go to sleep and wake up at the same times each day²¹.
4. It has been demonstrated that engaging in regular physical activity can improve sexual health and function by elevating sexual desire and satisfaction and lowering the risk of sexual dysfunction. Based on a research study, males who engage in consistent physical activity exhibit a decreased likelihood of experiencing erectile dysfunction in

comparison to those who do not regularly participate in physical activity²².

5. The negative effects of anxiety and depression can be mitigated and a general sense of well-being can be fostered by regular exercise. A decrease in symptoms of depression and an improvement in mood were identified in a study²³. In addition, endorphins release may be triggered by consistent physical activity which boost mood and lessen stress. It reduces inflammation and stress hormones, contributing to the alleviation of depressive symptoms.
6. Consistent physical activity has been shown to raise both energy and stamina levels through enhancing cardiovascular health, strengthening muscles, and boosting overall athletic ability. Over time, exercise increases the body's capacity to generate energy, enhancing stamina for prolonged activities. According to the findings of a study, participants of a resistance training program for a period of twelve weeks had significant gains in their physical strength, endurance, energy and stamina²⁴. Thus, regular exercise not only improves physical health but also boosts overall energy levels and physical endurance.

Barriers for physical activity in mental illness

Low levels of physical activity are common in people with SMI, particularly schizophrenia, bipolar illness, and major depressive disorder. Several factors may contribute to it such as medication side effects, lack of access to safe and affordable exercise facilities, lack of motivation, and stigma associated with mental illness.

Furthermore, people with SMI also have higher rates of obesity and other physical health problems associated with physical inactivity, such as diabetes, cardiovascular disease (CVD), and respiratory problems. In addition to a number of other reasons, the metabolic side effects of antipsychotic medica-

tion can be blamed for the alarmingly high prevalence of obesity among these patients²⁵. Increased efforts are needed to promote physical activity in this population, including interventions that are tailored to the unique needs and challenges of people with SMI.

Developing efficient plans for encouraging physical activity – The Ideal Amount of Exercise

The American College of Sports Medicine (ACSM) is one of the leading organizations in the field of sports medicine, exercise science, and health and fitness. To enhance health and decrease the prevalence of chronic diseases like cardiovascular disease, diabetes, and some forms of cancer, they have suggested physical activity guidelines for various populations.

1. For adults aged 18-65 years: ACSM recommends 150 minutes of moderate-intensity or 75 minutes of vigorous-intensity exercise per week for adults. They should also work all main muscle groups twice a week²⁶.
2. For older adults: Older persons should exercise at least 150 minutes per week at a moderate effort or 75 minutes per week at a vigorous intensity, as recommended by ACSM. They also recommend balance training at least three days per week to reduce the risk of falls²⁷.
3. For children and adolescents: The ACSM advocates that minors and youths should participate in a minimum of 60 minutes of physical activity with moderate-to-vigorous intensity on a daily basis. Also, at least three times a week, workout to strengthens your muscles and bones²⁸.

Activity that is both structured and part of a lifestyle

Exercise programs in a supervised setting and as a part of lifestyle therapy have been demonstrated to be beneficial both for people with minor

and severe mental illness (SMI). The potential for developing cardiovascular disease (CVD) can be reduced in large part by improving cardiorespiratory fitness (CRF) as individuals affected by schizophrenia have a greatly diminished CRF. A study comprising a systematic review and meta-analysis of studies on lifestyle physical activity interventions in individuals with SMI found that the interventions improved physical fitness, body composition, and symptoms of depression²⁹. It is justifiable and urgently needed to incorporate physical activity interventions into the treatment of patients with schizophrenia, but it is important to consider the preferences and needs of individuals with SMI when designing and implementing physical activity interventions.

A study revealed that major depressive disorder risk is reduced by exercise such as walking or biking and proper eating. These findings show that physical activity affects depression differently³⁰. However, more research is needed to determine which physical activities and body compositions improve and prevent depression. Another study showed a decrease in patients' anxiety and depression scores, and their health-related quality of life increased when primary care providers gave them pedometers and encouraged them to walk more³¹. In general, both supervised, facility-based exercise programs and interventions promoting physical activity as part of one's lifestyle have demonstrated efficacy in enhancing physical health and psychological wellness among individuals diagnosed with SMI.

Psychiatric service delivery that includes activity-based therapies

Effective coordination and communication across service providers is critical in managing the care of individuals with SMI due to the complex nature of their needs³². Moreover, adherence to exercise programs among individuals with SMI can be a significant challenge due to symptoms such as motivation deficits, cognitive impairments, and medication side effects. These factors can affect the consistency and long-term sustainability of ex-

ercise interventions. Antipsychotic drug use, inactivity, and eating disorders raise cardiovascular and metabolic risks. Low-risk physical activity therapies can improve mental health, weight, and quality of life in SMI patients. However, in serious mental illnesses, physical exercise programs need to be more organized and improve adherence³³.

An approach that is considered less desirable is to refer individuals with SMI to a primary care physician for the purpose of managing their CVD risk factors, which includes encouraging physical activity. Individuals with SMI often face significant barriers to accessing primary care, including stigma, lack of transportation, and limited financial resources. Referring them to other providers for physical activity management may further exacerbate these barriers, resulting in lower rates of adherence and worse health outcomes³⁴.

Participants in a non-blinded controlled trial reported greater increases in physical activity and VO_{2max} following completion of an organized, supervised exercise program for the treatment of anxiety and/or depressive disorders. A review article shows that organized exercise regimens help treat schizophrenia. Most studies have only looked at 3-month follow-ups, thus further study on exercise modality, frequency, and duration is needed to determine the best therapy approach¹⁷.

Limitations of the research and Future considerations

Insufficient research has been conducted regarding the correlation between physical activity and the physical as well as mental health consequences experienced by individuals diagnosed with SMI. While there is some evidence that suggests that physical activity can be beneficial to individuals with SMI reducing the risk of chronic illnesses like CVD and diabetes, improving mood and reducing symptoms of anxiety and depression, the extent and nature of these effects are not well understood due to the limited research in this area.

This limitation may be due in part to the challenges of conducting research in this populati-

on, including difficulties with recruitment, retention, and adherence to exercise programs. Additionally, the complex nature of SMI may require tailored exercise programs that are not easily implemented in traditional exercise interventions.

Despite these barriers, research into the advantages of exercise for people with SMI is expanding. Further research in this area may help to clarify the nature and extent of these benefits and inform the development of effective exercise interventions for this population.

Conclusion

In conclusion, an increasing amount of empirical research has indicated the positive impact of aerobic exercise on mental health. There is potential evidence that mild to moderate instances of depression and anxiety benefit from physical activity. The mechanism by which exercise exerts its effects on mood and anxiety is complex and involves multiple physiological pathways. However, the available evidence indicates that physical exercise is a secure and efficient strategy to enhance mental health results, and it should be regarded as an integral component of a comprehensive therapeutic regimen for individuals with mood and anxiety disorders.

Conflict of Interest

Authors have no conflict of interest and no grant funding from any organization

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