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Comparing the effectiveness of individual and team sports for alleviating persistent depressive disorder: A review

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Abstract

Background: Persistent Depressive Disorder (PDD) represents a chronic type of depression that weakens and impedes the quality of life. Individual sports and team sports are strongly influence in alleviating PDD symptoms. Literature showed, not much research has been conducted on whether individual or team sports are more effective.

Objective: The purpose of this review is to investigate the effectiveness of individual and team sports for alleviating persistent depressive disorder symptoms, by comparing the which type of sport better influence the reduce PDD symptoms.

Methods: All the data in this review were gathered under the topic of “Alleviate Persistent Depression Disorder through Sports” from previously published articles and books published between 1987 up to 2024. Thirty-seven original literatures were evaluated for this review.

Results: Both individual and team sports provide different types of benefits that help alleviate Persistent Depressive Disorder. The selection between individual or team sports depend on people preferences, social consolation zone, and which type of sports best suits for personal needs.

Conclusion: Both individual and team sports effectively influence alleviate PDD symptoms, which provide unique benefits. Individual sports improve mindfulness and self-discipline, while team sports provide social support. Future research is needed to identify standard protocols that can alleviate PDD symptoms.

Keywords: Psychological benefits, social interaction, biological mechanism

Introduction

Depressive disorders have different types. Which is major depressive disorder, persistent depressive disorder (dysthymia), premenstrual dysphoric disorder, disruptive mood dysregulation disorder, depressive disorder due to another medical condition, other specified depressive disorder, unspecified depressive disorder^[1]. Depression is identified as a mental disease. It affects millions of people per year. Depression is now broadly spread problem in society. Persistent depressive disorder (PDD), also known as dysthymia (DSM-IV) is a chronic depression. PDD classified as a part of depression it usually mild but, it is persistent. That means when an adult experiences mood disturbance continuously least two years or child experiences it in one year^[2].

This disorder characterizes a consolidation of DSM-IV defined chronic major depressive disorder and dysthymic disorder. According to the Diagnostic and Statistical Manual of Mental Disorders 5th edition, one or more of the following things happen when people are depressed: poor appetite or overeating, insomnia or hypersomnia, low energy or fatigue, low self-esteem, poor concentration or difficulty making decisions and feelings of hopelessness^[1].

PDD prevalence estimates indicated it influences approximately 1.5% to 2.5% of the general population in year. Lifetime prevalence rates can be higher. The article indicated that up to 6% of people will experience PDD at some point in their lives. PDD is a serious public mental issue. PDD usually begins in during childhood, adolescence, or early adulthood and it can be continued for a longer period^[3, 4]. A better knowledge of the significant influence of PDD on mental, physical, and social aspects of life will be beneficial to effective treatment and management strategies for PDD.

Mental Health: PDD is a mental health disorder classified by continual sadness, hopelessness, decreased self-esteem, enhanced negative self-image and dejection about the future. This condition results leading to cognitive difficulties, such as difficulty to concentration and indecisiveness that can negatively influence regular academic and work performance. PDD is also linked to a high risk of develop major depressive episodes, anxiety disorders, and substance use disorders [3, 5].

Social Impact: Individuals with PDD can lead to notable interpersonal issues. PDD often experience withdraw from society, isolation, increased conflict in relationships, and unable to maintain social connections. PDD is also linked to deficiency in social cognition, which can happen problems with empathy and perspective-taking, as a result which can further pressure relationships and reduce social support [3].

Physical Aspects: PDD has significantly impact on mental health condition as well as physical health condition. Individuals with PDD typically report persistent pain, continual fatigue, and other somatic symptoms that are occurring constantly and weakening patients. These physical symptoms increase health care utilization and interfere with quality of life. Furthermore, people who suffering with PDD are have to more chance to experience different physical health problems, including cardiovascular diseases as a result of prolonged stress and unhealthy behaviors [3, 5].

Benefits of Physical Activity for Mental Health

Physical activity is generally acknowledged as a various beneficial for physical health, however, its positive influence on mental health is equally imperative. Engaging in regular physical activity has been indicated improve mood, improve cognition function, reduce anxiety and depression symptoms and promote overall psychological well-being [6, 7]. When doing physical activities release endorphins, which are "feel-good" hormones, that reduce stress and promote happiness, while regular physical activities also connected with the release of neurotransmitters like serotonin and dopamine enhance mood [8]. Physical activities improve information processing as a result enhance memory function and attention, executive functions, and promotes neurogenesis, thereby protecting against cognitive decline [9, 10].

As a physical activity intervention for Persistent Depressive Disorder (PDD): Physical activities are valuable tool for alleviate mental health disorders, including Persistent Depressive Disorder (PDD), as studies showed positive effects of alleviate symptoms of PDD. Studies showed that regular physical activities can be very effective as pharmacotherapy and psychotherapy for treating mild to moderate depression. As an example, Cooney and colleagues conducted a meta-analysis that found exercise had a large effect of reducing depressive symptoms compared to control interventions [11]. According to the Schuch showed that regular aerobic exercises notably enhanced mood and decreased depressive symptoms in participants with persistent depression [12].

Difference of Individual Sports and Team Sports

Individual sports and team sports each offer different experiences, both have a unique benefits and challenges. Individual sports (Running, tennis, swimming) mean an

athlete competes against others or against a set standard. They can teach and develop personal performance, self-discipline, self-motivation, and those experiences can used manage the life skills. Because an athlete's success or failure depend on solely with their own skill and effort, which can improve immense sense of responsibility and autonomy.

Team sports (Soccer, basketball, and volleyball) consist of a collection of players, the aim is working together to achieve common goal. In team sports coordination, communication, and cooperation between the team members are very important. By sharing success or failure among the team members, it strengthens camaraderie and sense of belonging. A better understanding of the difference between individual and team sports beneficial for alleviate PDD. Each sports offers biological mechanisms, social interactors and psychological benefits for improving mental health, which can help as a therapeutic intervention for treat PDD [13]. Majority of studies assessed information on the progression of various forms of exercise to improve mental health, but did not assess the specific benefits of compared individual and team sports [14].

Comparison analysis may better direct clinical practices and intervention strategies for those with Persistent Depressive Disorder. Understanding the benefits of team and individual sport will allow clinicians to design interventions that meet individual patient preferences and psychological needs. As an example, Individuals who draw their energy from socialization and community might realize team sports are truly meaningful, patients who have a preference for being alone and setting personal goals may find individual sports to be more effective [13, 14]. People can gain self-esteem and self-efficacy in individual sports through independent achievement. These psychological advantages can make a real difference for the management of depression and for self-regulation [15]. Knowing what sort of sport someone enjoys and is likely to stick with can help doctors advice exercise they will continue doing, and derive mental health benefits from beyond their initial treatment is complete [16]. By integrating sports with a comprehensive treatment plan that includes psychotherapy and medication, the treatment of PDD can be taken with a more holistic perspective [17].

Materials and Methodology

The framework for this systematic review was developed based on the previously published research papers and findings. The data in this article all are original and were gathered from Research-Gate, Google Scholar, PubMed, Diagnostic and Statistical Manual of Mental Disorders 5th edition. Published articles were search under the topics of Alleviate Persistent Depression Disorder through Sports, Impact of Physical Activity on mental health, exercise Interventions for Depression, Neurobiological Effects of exercise, exercise as a Treatment for Depression.

The paper collected were evaluated, false research papers which did not fulfill the requirements were excluded. After thorough evaluation of abstract, introduction, findings and conclusions, the best papers were chosen. References were used to locate additional papers in order to obtain more information and data. After evaluating the papers, they were classified according to the following criteria,

1. Psychological benefits
2. Social interactions
3. Biological mechanism

This article emphasizes the effectiveness of individual and team sports for alleviating persistent depressive disorder.

Results and Discussion

Psychological Benefits

Psychological benefits mean positive effect on mental health and well-being.

Psychological Benefits of Individual Sports

Sense of Achievement: Since goals are individually set and realized, then success is directly and solely credited to an individual's effort. This engenders a very robust feeling of achievement and self-efficacy. A study on marathon runners with depression found that completing a marathon notably develops their sense of achievement and self-efficacy, leading to decreased depressive symptoms ^[18]. The study by Li and Harmer showed that participation in individual sports like running and swimming significantly enhanced self-esteem and self-efficacy, which are very important in decreasing depressive symptoms ^[19].

Self-Discipline

The sports in personal capacity promote self-motivation and discipline, which are helpful for personal control and responsibility and improve the mental state of PDD patients. Mindfulness and Focus: Individual sports such as running or swimming develop mindfulness and concentration; therefore, sports help people stay present and reduce rumination, which is usually associated with states of depression. The research into the effects of yoga as a mindfulness-based individual sport found significant decreases in ruminations and symptoms of depression within participants pre- and post-intervention ^[20], and in a study by de Bruin, increases in mindfulness and decreases in symptoms of depression and anxiety were found in participants participating in an individual sport of yoga ^[21].

Decrease Stress

The lonely nature of individual sports can provide a meditative effect. An individual game can work at a pace that is excellent for processing thoughts and emotions, allowed them to think and feel closer to themselves, which can often lead to a reduction in depression levels. Studies done on solo runners revealed that running alone allowed participants to process their emotions and thoughts; thus, they showed significant reductions in stress, and also lessening symptoms of depression ^[22]. Regular swimming routines resulted in significant reductions in stress and depressive symptoms among adults ^[23].

Practice Own Mettle

It gives a choice to people of practicing at their own pace and schedule. It gives them a sense of autonomy and control and they feel it gives a powerful hand in keeping their mental well-being intact.

Psychological Benefits of Team Sports

Social Support: Participation in team sports provides an integrated social network in building friendships and thus a sense of belonging, and decreases feelings of loneliness common in PDD by distributing responsibility. Team sports participation has been found to provide notable social support in a study involving collegiate athletes and therefore is associated with reduced depressive symptoms in PDD. That

study found participation in team sports combined with greater social connectedness and lower levels of depression among adolescents ^[13].

Cooperation and Teamwork

Performing for a common objective with team members builds up the abilities of cooperation, communication skills, trust, social skills, and emotional intelligence. The study related to soccer players has proved that teamwork and cooperation enhance communication skills and trust among teammates that are helpful in developing mental health ^[24].

Accountability and Motivation

Belonging to a team can create a sense of responsibility and dedication so that participants are motivated to stay with working out routinely. That can help to reduce intense shame or guilty after losing. Among basketball teams, a study has shown that the sense of responsibility and commitment towards the team increased daily exercise participation, which was correlated with the reduction of depressive symptoms ^[13].

Shared Experiences

Team sports provide shared experiences and camaraderie, togetherness can develop unity, positive memories and emotional bonds, contributing to enhanced mood and mental health. Team sports are especially helpful in fostering shared objectives, collective motivation, a sense of purpose, and perceived achievements. A recent study found that children who played team sports also had higher levels of motivation and self-discipline, which have been linked to lesser depressive symptoms ^[25]. Team sport settings provide a venue whereby children are able to work toward shared goals while celebrating those accomplishments together. This sense of unity and purpose experienced within a team setting will enhance feelings of accomplishment and self-worth.

Collective Achievement

Playing for shared goals within a team atmosphere enhances the achievement of a positive sense of love and belongingness that can help in building up self-esteem and a positive attitude. The psychological benefit of participating individually and in team sports is unique and supports one aspect of the treatment of PDD.

Social Interactions

Social interaction-Positive results include the betterment of relationship and interaction that takes place in an improvement within a group or community. It helps individuals to socialize.

Social Interaction Benefits of Individual Sports

Personalized Support System: The interaction with the coaches or trainers provides specific support and motivation that help the individual reduce symptoms of depression. A study of individualized exercise program for older adults with depression indicated that personalized coaching enhanced mood and decreased depressive symptoms ^[18, 26].

Sense of Belonging

Participation in individual sports (running clubs) supply a sense of belonging and social support, share experience, decreasing feelings of isolation and improve entire mood. A study showed that youth participating in team sports reported

a stronger sense of community and lower levels of depressive symptoms compared to those not involved in sports [27]. An intervention study with yoga participants showed that the sense of community in yoga sessions contributed to notable reductions in depressive symptoms [20].

Focused Social Interactions

Individual sports give for more intimate and meaningful social interactions with trainers or mentors, giving emotional support and understanding. A study conducted on water therapy amongst those suffering from depression determined that personalized attention alone by swimming instructors resulted in significant improvement regarding the depressive symptoms [28].

Flexibility

The individuals involved in individual sports can schedule when and with whom they want to be socially interactive; that would give them greater control over their social involvement. This can be ideal for those persons who perhaps get a bit lost in larger social settings or value time alongside socializing.

Social Interaction Benefits of Team Sports

Built-In Social Network: There is a social network that automatically comes with a team, formed of teammates, coaches, and supporters who could easily provide companionship, friendship, and community that are all integral parts of lowering loneliness and depressive symptoms. Along this line, an investigation into the soccer teams revealed that the social support given by teammates was complemented by significant decreases in depressive symptoms in participants [29].

Peer Support and Encouragement

The support and encouragement from peers could also help in building up their confidence, motivation, and resilience to battle the symptoms of depression. A study among volleyball teams showed supportive team environment and positive reinforcement from teammates affect beneficial way for alleviate depressive symptoms among players [30].

Team Bonding and Friendship

The foremost important aspect of team sports is that these games enable the player to practice and compete for a common goal. This brotherhood mentality brings unit and brotherhood among the team members, thereby it is an uplifting experience - mentally. Members of a team are held accountable to one another. This accountability may help in motivating the individuals during training and games and will teach responsibility and commitment that shall come helpful in real life, too.

Better communication skills

A team sport teaches the person to communicate, work with a team, and resolve conflicts. This helps to raise the level of social interaction and confidence socially, enabling a person with PDD to deal effectively with society in everyday situations.

Comparison and Unique Benefits of social interaction

Depth vs. Breadth of Social Interaction: Individual sports can create stronger relationships with a coach, trainer or supporters, while team sports provide a wide social circle.

Controlled Interaction vs. Structured Interaction

Individual sports provide flexibility in social engagement, give chance participants to decide when and how to interact with social. Team sports provide structured interactions and consistent social contact through training sessions.

Self-Determined vs. Collective Goals

Individual sports based on self-efforts and personal goals, in contrast team sports interactions are centered around collective goals and teamwork, create a sense of unity.

Biological mechanism

The biological mechanisms through individual and team sports for alleviate persistent depressive disorder (PDD) can be similar. Biological benefits refer to positive effect on the body's systems.

Endorphin Release

Both individual and team sports course the release of endorphins, which are natural mood booster. Participants who participated in a daily exercise session showed the notable development of endorphin levels and upgrade mood states, indicating the role of endorphins in mood development through sports [31].

Neurotransmitter Regulation

Physical activity beneficial for regulate neurotransmitters such as serotonin, dopamine, and norepinephrine, which are crucial for mood enhancement. Meeusen and De Meirleir said participants participated in regular aerobic exercise routine indicated increased levels of serotonin and dopamine, which associated with decrease in depressive symptoms [32].

Neurogenesis

Individual and team sports both beneficial to growth of new neurons, mainly in the hippocampus, a brain region associated in mood regulation. A study conducted a randomized controlled trial showing that older adults who participated in daily aerobic exercise had improved hippocampal volume and improved memory, highlighting neurogenesis as a key mechanism [33].

Brain-Derived Neurotrophic Factor (BDNF)

Physical activity increase produce of BDNF level, protein that develop the growth and survival of nerve cells, enhancing brain plasticity and allowing to become more resilience against the stress. According to Huang review, he reviewed at multiple studies and discovered conclusive evidence that exercise effectively boosts BDNF levels, and this is associated with improved mood as well as changes in cognitive function [34].

HPA Axis Regulation

Individual and team sports both beneficial for regulate the hypothalamic-pituitary-adrenal (HPA) axis, reducing cortisol levels (stress hormone) and mitigating stress responses. A study indicated that older patients with major depression who participated in exercise training showed development of autonomic function and decreased depressive symptoms [35, 36]. As there is a link between major depression and PDD, we can evaluate and observe the impact of PDD according to this research.

Autonomic Nervous System Balance

Daily physical activity beneficial in better balancing of the autonomic nervous system, thereby developing the activity of

the parasympathetic nervous system (rest and digest) and decreasing the activity of the sympathetic nervous system (fight or flight). These are combined with having a better mood and relaxation.

Improved Sleep

Physical activities improve the quality of sleep as well as support a more extended amount of sleep time, these are impact to controlling emotions and for the overall well-being of the mind. Review of multiple studies and concluded that

physical activities notably enhanced sleep quality, which is important for mood regulation and alleviating depression symptoms [37]. This study showed both individual and team sports participants found notable development in sleep quality and mood.

The biological mechanisms through individual and team sports for alleviate persistent depressive disorder (PDD) can be similar. Following table 1 showed summary of the benefits of individual and team sports for alleviate PDD.

Table 1: Benefits of sports for alleviate PDD

Category	Individual sports	Team sports
Psychological benefits	<ol style="list-style-type: none"> Sense of achievements: Individual goals and achievements improve self-efficacy and decrease depressive symptoms. Self-discipline: Requires self-motivation and discipline, foster self-control and responsibility. Mindfulness and Focus: Foster mindfulness and concentration, decreasing rumination and depressive symptoms. Decrease Stress: Solitary nature gives a meditative impact, allowing for emotional processing and stress reduction. Practice on own mettle: Accept practice at one's own pace and schedule, developing autonomy and control. 	<ol style="list-style-type: none"> Social support: Creates a broader network of social connections, fostering friendships, sense of belonging and decreased feelings of loneliness. Cooperation and team work: Promotes cooperation, communication, trust, and enhance social skills and emotional intelligence. Accountability and motivation: Create accountability and commitment, improving motivation and consistency in physical activity. Shared experiences: Provides friendship, unity, and shared memories, boosting to positive mood and mental health. Collective achievement: Achieving goals as a team improve self-esteem, pride, and foster a positive outlook.
Social interaction	<ol style="list-style-type: none"> Personalized support system: One-on-one interactions with coaches or trainers offer targeted encouragement and motivation, helping reduce PDD depressive symptoms. Sense of belonging: Engaging in individual sports gives a sense of belonging and social support, sharing experiences and reducing feelings of isolation. Focus social interaction: Enables for more intimate and meaningful social interactions with trainers or coaches, offering emotional support and understanding. Flexibility: Person can select when and how to engage socially, allowing more control over their social interactions. 	<ol style="list-style-type: none"> Built-in social network: Team sports fosters a built-in social network of teammates, coaches, and supporters giving companionship, friendship, and a sense of community. Those are crucial for reduce PDD symptoms. Peer support and encouragement: Continuous peer support and encouragement from teammates improve confidence, motivation, and resilience, helping alleviate PDD depressive symptoms. Team bonding and friendship: Team sports create strong bonds and friendship among teammates, promoting a sense of belonging and mutual support, which can boost mental health. Decrease isolation feeling. Better communication skills: Engaging team sports develop effective communication, collaboration, and conflict resolution skills, improving interpersonal skills and confidence in dealing different social situations.
Biological Mechanisms	Both individual and team sports increase endorphin release, promotes neurogenesis, improve quality of sleeping, HPA Axis Regulation and reduce stress hormone release those are helped to alleviate PDD.	

Future scope

The existing comparison studies suffer from lack of variability in study designs, sample size, and measurement tools. This inconsistency makes difficulty to generalize findings and decrease the development of standardize protocols for participating individual or team sports as a therapeutic intervention for alleviate PDD.

Longitudinal studies require for individuals with PDD over extend periods to assess the advantages and disadvantages of participating in individual versus team sports. This study will help to study how sustain participation in different sport types affects mental health over time.

Randomized controlled trials (RCTs) are required for determining the effectiveness of participation in individual and team sports in relation to decrease PDD symptoms. Such trials should also involve different populations (childhood, adolescence, adulthood) in order to show how

generalizability of the findings performed across different demography.

Recommendations

Major research gaps need to be focused, as they allow working on a comprehensive view of how different types of sports can be used to optimize mental health benefits for people with PDD. Thereby, through further comparative studies, the theoretical proposals for clinicians shall be given practice-related evidence and pursue the therapeutic using of sports in the mental health care.

Thus, it can be concluded that the concept of choosing the most appropriate type of sport for prevention and treatment of PDD can be rather relative depending on the personal preferences, comfort zone and conditions of a client or a patient, which is critical for long-term mental health benefits [2].

There is nothing wrong with deciding to choose a sport that will feel good to do and can be continued for a long time because consistency is the most important thing when it comes to reaping the benefits of exercising and it comes to mental health. It is also important to seek the help of a healthcare provider and mental health care provider when it comes to assessing the best course of action in order to manage PDD with regards to sports. For optimal results, exercise interventions should be designed and monitored by professionals in both physical fitness and mental health to ensure safety and maximize the therapeutic potential of physical activity^[17].

Conclusion

This review has explored the differential impacts of individual and team sports for alleviate persistent depressive disorder. Through an analysis of existing literature, it is evident that both types of sports offer distinctive psychological benefits, social interaction and biological mechanisms that helps to the decrease depressive symptoms. Comparison between individual and team sports in the reduction of persistent depressive disorder verifies the differences in advantageous factors of each type of sports. Further, individual sports (running, swimming, cycling, etc.) delivered a whole range of psychological, social and biological wins through accomplishment and perceived autonomy and control. These sorts of sport permit individuals to suit objectives for themselves and to setup a hop forward in their lives, which makes them really feel higher and they will escape the depressive signs as neatly. Team sports (soccer, basketball, volleyball, etc.) can also provide significant benefits. In team sports, friendship, mutual support, and social interaction create a feeling of belonging and community that can help reduce the loneliness and isolation that often associated with symptoms of persistent depressive disorder. The combined work and shared goals in team sports can lead to a caring atmosphere which can boost the mood and mental health in general.

The impact of either type of sport is no doubt subjected to the individual choice and quite possibly influenced by the level of depressive symptoms and personal circumstances. To use sports as therapeutic interventions for persistent depressive disorder, might claim that individualized interventions, accounting for the person's own interests, social comfort level, specific needs and private objectives, may be more effective. More studies are necessary to illuminate the complex mechanisms behind the distinct impact of individual sports and team sports on mental health outcomes in specific groups (childhood, adolescence, adulthood) preferably polish in the context of gender, age, cultural background. Longitudinal studies require for individuals with PDD over extend periods to assess the advantages and disadvantages of participating in individual versus team sports. Overall, both individual and team sports have different modalities in managing dysthymia. By understanding these distinct benefits clinicians can work more effective in treating patients.

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