

Relation of Physical Activity with the Depression: A Short Review

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According to the studies, physical exercise can prove to be a viable tool for the treatment of depressed patients. In the present review, various research studies from the year 2017-2019 were analyzed. Various reviews also confirmed that exercise played important role in the treatment of depression. After study, it was confirmed that structured and adherence to the exercise played an important role in the success of exercise protocol towards the treatment of patients. Conventional methods such as pharmacotherapy and psychotherapy were also discussed. It was also studied that sedentary behavior of patients with mental disorder can affect the patient badly. Therefore, all the studies concluded that exercise can be considered as better tool for the treatment of depressed patients if exercise are structured and protocol are regularly performed.

Key Words: Physical exercise, Depression, Pharmacotherapy, Patients

INTRODUCTION

It is the most common neuro-disorder which is always neglected and many individuals are affected by this neuro-disorder. According to the data, it was among the fourth most disease burden globally [1]. Even there are many diseases which also lead to the depression. Depression is affecting the quality of life among individuals. Depression has now gained interest to public health because of its severity and increased percentage of mortality among individuals.

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Depression affects the day to day activity of patient and its quality of life. There are many symptoms related to depression such as no pleasure in any activity, loss of appetite and weight, Fatigue, sitting idle, indecisive, and persistent thought of finishing life [2]. There are two main treatment methods available for the treatment of depression are psychological intervention and pharmacotherapy [3]. Psychological interventions can bring positive results but it is very time consuming process and sometimes person also do not consider the depression any psychological and mental disturbance. There are various psychological therapeutic interventions such as cognitive behavioral therapy (CBT), problem solving therapy (PST) and Interpersonal psychotherapy (ITP). The regular presence of patient is must for each therapeutic session. Due to social stigma, these psychotherapeutic interventions are not popular among patients [4,5]. Another therapy that is pharmacotherapy it involves the usage of drugs [6]. Drugs can be linked with many side effects specially it greatly affects the cardio-vascular function [7].

Moreover, antidepressants drugs also become habit of patient and leaving the drug can further alleviate the problems.

Depression is mainly associated with the autonomic and central nervous system [8,9]. Therefore it opens the path for physical rehabilitation. Physical rehabilitation has many advantages as compared to other conventional approaches as it is non-invasive, no side effects, requires minimal input and patient also get involved in some physical activities which ultimately affects the nervous system and hormonal balance [10]. The present review describes the various studies and data which confirmed that physical rehabilitation is better tool for the treatment of patients infected with depression.

Depression affects the motor nerve system as motor nerve system is mainly involved in activities and depression affects the daily routine activities. However other psychological and social factors can also affects the motor nervous system [11,12]. Some researchers confirmed that depression or anxiety affects the motor nervous system in which the patient feel little bit low and have lost the urge to do anything. Physical exercise can improve the activities of skeletal muscles, life style and even helps in the treatment of cardiovascular diseases. Physical therapy may affect the neuro-modulation which affects the increased production of some hormones which affects the depression. Along with the physical therapy some other activities such as swimming and other playful activities can greatly reduce the symptoms of depression.

EXERCISE - A BETTER PAVE FOR TREATMENT OF DEPRESSION

Aforementioned, there are two ways by which depression is often treated that is psychological interventions and pharmacotherapy. These interventions suffer from some setbacks and advantages. Psychological intervention involves some therapeutic session in which the patients are being listened patiently and was given many options to live smooth life. In this method the regular session of the individuals are required. It requires very long time to treat the patients. In more severe case of depression it is combined with the pharmacotherapy. However while in case of pharmacother-

apy anti-depressants drugs are given to the patients for the treatment of depression. Anti-depressant drugs have many side effects and patient become habitual of drugs. This therapy is not at all good as in the patients can become addicted to many drugs. Patient feel good only after medication, after medication the condition become even worse. In some cases patients are not even responsive to these antidepressants drugs. Therefore pharmacotherapy can be considered as good option for the treatment of more severe cases of depression. Exercises or Physical therapy has many advantages as compared to aforementioned technique such as it can be done at patient place, non-invasive, economical and shows immediate improvements in the symptoms of depression [13].

EXERCISE AND HORMONES

Exercise can be linked with the release of hormones. As we know that hormones plays an important role in the mood swings and mental health [14]. Exercise is mainly involved in the release of endorphins which is responsible for increasing the availability of hormones. Endorphins mainly interact with the brain receptor and thus reduce the perception of pain [15]. Endorphin hormones are mainly acting as sedative and analgesics. Exercise can be successful measure for the treatment of moderate or low depression [16].

DISCUSSION

Various databases were explored for the understanding of the relation between the depression and its various treatment methods such as PubMed, Google and Researchgate. Various advanced studies which happened in the year 2017-2019 were taken in order to elucidate the linkage of depression with exercise. How exercise can be a viable tool for the treatment of depression? Various research studies are summarized in Table 1.

The effect of aerobic exercise on the patients infected with the depression. Participants belong to St. Joseph Health care center. However the numbers of participants are low [17]. They have employed various tools for the assessment of depression. Various tools' names are described in the Table 1. They also confirmed that aerobic exercises induces

Table 1. Various studies showing effect of physical exercise on depression

Study	Subjects	Treatment protocol	Tools	Outcome	References
Effect of running on depression in mixed population (both young and adult)	46 running participants		Various stress scales are employed such as Cohen's perceived stress, Beck Depression inventory and Beck Anxiety questionnaires	Aerobic exercise such as running is impacting great in the improvements moods swings of depressed patients. Conditions improved a lot but it is also dependent on the social support	[17]
Effect of both psycho-therapeutic and physical exercises (BPT) were examined	Subjects were taken of sample size forty seven (both male and female)	Psychotherapeutic and physical exercise when combines together it forms bouldering psychotherapy techniques (BPT)	Various assessment tools are used such as symptoms check list -90-R , Beck Depression Inventory and various questionnaires. All subjects were assessed at eight, sixteen and 24 weeks	Depressions symptoms are decreased after application both psychotherapeutic and physical exercises	[19]
Effect of physical exercise on children affected with depression	Subjects were children age ranging between six to seventeen years.	Exercise protocol was six days a week and seven days a week.	Both sex and age stratified models are employed in order to access the depression symptoms.	Results indicated that females are at risk of physical inactivity which resulted in more depression. Limitation of the study is less number of subjects and inadequate exercise among females.	[20]
Effect of moderate aerobic exercise on the depression level of women	Forty women were taken affected with depression in Bengaluru, India	Moderate aerobic exercises with video assisted technology in order to make it supervised and structured	Tools employed for assessment of depression are Visual Analogue Mood scale (VAMS), Hamilton depression Rating scale (HDRS) and Depression somatic symptom scale (DSSS)	Results confirmed that aerobic exercises definitely reduce the symptoms of depression unless executed in supervised or structure environment.	[21]
Effect of anti-depressants drugs on severe depression		Drugs which are examined are smitriptyline and fluoxetine. Treatment with these drugs requires almost ten days for consequent biochemical and cellular changes.	Various histo-chemical and blot analysis were done in order to confirm that autophagy is signaling pathway for regulation of depression	Anti-depressants drugs are responsible for autophagy induction in neurons. The research reveals that there should be an effective or novel anti-depressants which can control the depression in few days.	[22]
Discussion on Obstacles and enablers of physical activity on depression among adults		Exercise is now considered as an effective control measure of depression	Various data from different studies are extracted which reached to the conclusion	They concluded after extensive literature review that exercise can be viable tools for treatment of depression but when there is active physical participation. Emotional regimes of individuals are overlooked in various studies. Therefore future studies should imply on emotional regime also.	[23]

Table 1. Continued

Study	Subjects	Treatment protocol	Tools	Outcome	References
Effect of exercise on academic performance among depressed patients	Participants were taken from Pakistan universities. Sample size is equal to 358 participants	Physical exercise	Academic performance was measured by their grade point. Tools employed here are only for subjective measurements	Physical activities dramatically increase the self-esteem and made significant academic performance in depressed patients. Depression showed negative effects on depressions	[24]
Factors associated with the Exercise adherence	Participants of various age group ranging from 18-67 years. Sample size is 310 participants	Physical exercise	Various factors such as use of tobacco, alcohol and work environment.	Exercise is very effective measure for the depression. But adherence of exercise made it further viable tools. Therefore attention should be paid on adherence	[25]
Effect of exercise and education about mental disorders in Australian population	Participant belongs to adult group	Physical exercise	Imparting knowledge about the benefits of exercise to adult brought good results	Exercise was considered as effective tools for the treatment of Australian woman. Therefore advantages of exercise was decoded for public knowledge	[26]
Improvements in the health of psychiatric patients by physical activity	Participants affected with depression were from Switzerland	Structured exercise and sports activities		Sitting idle and doing nothing can prove to be harmful for depressed patients. Therefore exercise and sports activities can prove to be good option for the treatment of depressed patients	[27]

significant reduction in depression level and moods swings [18]. Keating et al. demonstrated running exercise as aerobic exercise in order to reduce the depression symptoms. Though he described that social support is also a parameter which affects the depression [17]. If social support is provided then aerobic exercise can cause substantial improvements in the depression level. The effect of both psychotherapeutic and physical exercise on the depression was also studied [19]. Various tools are also employed in assessment of depression level. Herein this approach amalgamation of both techniques leads to the significant decrease in the depression level. Therapeutic climbing and bouldering techniques are employed as physical exercise. However limitation of the study was authors are not focused on only one parameter. They are focused on multivariable parameter and assessments are also difficult to measure. Researchers also demonstrated the effect of exercise in the depression level of children. Exercises were performed six or seven days a week but major limitation of the study was less number of

participations and inadequate physical activity among females. They concluded that inadequate exercise among female can lead to major problem [20]. Therefore exercise intervention in school and education to the parent regarding inadequate exercise among female and children should be given. Aerobic exercise can prove to be good method for the treatment of depression. However aerobic exercises should be well structured and supervised otherwise the research would not be able to come to the conclusion. Researchers also confirmed that mere exercise cannot be considered as viable tool [21]. Other parameters such as intensity, type, duration are also impacting majorly on the depression level. Study demonstrated the effect of anti-depressant drugs played a role in controlling the depression by inducing autophagy. Extensive study was done in order to assess the mechanism of anti-depressants [22]. The various barriers and enablers of treatment of depression with the physical exercise were also discussed [23]. There are various important obstacle and enablers such as knowledge, skills so-

cial professional roles, capabilities, optimism, intentions, goals, memory enforcement etc. These parameters mainly affect the treatment of depression as they have concluded from various databases and researches [23]. A Study demonstrated the effect of exercise on academic performance and depression. Participants are mainly from Pakistan University [24]. They found that depression and self-esteem are acting as mediator in between physical exercise and academic performance. Researcher found that self-esteem played important role in academic performance of the students. Depression also played role as mediator but self-esteem was acting as important mediator in between the physical exercise and academic performance [24]. Researchers demonstrated that attention should be paid toward the adherence to the exercise with specific protocol [25]. Exercise needs not to be improved but regular and adherence to the exercise protocol can increase the chance of effective treatment. There are various factors associated with the adherence with the exercise such as flexibility in work environment and any addiction of drugs and alcohol [25]. Study described that people are not aware about the usage of exercise in treatment of depression [26]. Therefore education is being imparted to the Australian women for the benefits of exercises in the treatment of depression [26]. Ehrber et al. concluded that sedentary behavior of patients with mental disorder affected them more while introduction of physical exercise resulted in the improvement in mental disorder patients [27]. All studies are also summarized below in Table 1 for more interpretations and analysis.

CONCLUSION

All studies concluded that physical exercise can be considered as a viable tool for the treatment of patients with mental disorder and depression. But there are many factors which influenced the treatment such as adherence and structured exercise. Therefore video assisted and structured exercise can prove to be more beneficial agent for the treatment of depression. Moreover adherence and education of the exercise protocol for the treatment of depression is also an important factor which should be kept in mind.

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