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Examine Compared to SSRIs in the Treatment of Major Depressive Disorder

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Abstract

Major Depressive Disorder (MDD) is a common disease seen every day by primary care providers across the United States. According to the Centers for Disease Control and Prevention (CDC, 2018), eight percent of all adults over the age of 20 suffer from depression, and a study by the American Psychological Association found depressive disorders to cost roughly $71 billion annually. Today, psychotherapy is the recommended first-line therapy for treating MDD, but pharmacotherapy is more commonly used. Alternative forms of therapy are also being researched in order to avoid the use of medication while adequately treating the symptoms of MDD. For this review, seven databases were searched including PubMed, Cochrane Database of Systematic Reviews, PsychInfo, Cinahl, DynaMed, ClincaKey, and ScienceDirect. A review of the literature was conducted for the purposes of this study. The majority of the articles reviewed were randomized controlled trials (RCTs). The majority of articles conclude that exercise provided benefits over medication or CBT including: exercise alone therapy compared to pharmacological treatments (Cooney et al., 2013): exercise was moderately more effective than control (Dunn et al., 2005 & Bartholomew et al., 2005): SSRI more effective than placebo (Garrett-Jones & McCormack, 2010 & Arroll et al., 2009): SSRI more effective at preventing relapse than placebo (Garrett-Jones & McCormack, 2010): Small effect with only mild to moderate intensity side effect noted with increased incidence at higher dosages (Garrett-Jones & McCormack, 2010): Weaknesses of the current research include: lack of blind due to nature of exercise as treatment (Dunn, 2005): Small sample sizes: Studies lack longevity: Lack of specific recommendations regarding dose and duration: Exercise Compared to SSRIs in the Treatment of MDD:

- Exercise alone is effective at improving depressive symptoms (Dunn, 2005 & Bartholomew et al., 2005):
- Higher dose and intensity of exercise produced greater effects (Dunn et al., 2005):
- Exercise provided benefits over medication or CBT including: reduction of risk of mortality from diseases such as cardiovascular disease and obesity (Dunn, 2005):
- Exercise also improved positive well-being for a short period (Bartholomew et al., 2005):
- Weaknesses of the current research include:
  - Lack of blind due to nature of exercise as treatment
  - Small sample sizes
  - Studies lack longevity

Literature Review

- Pathophysiology of MDD:
  - Exact pathophysiology remains unknown, but many hypotheses exist:
  - Two common theories:
    - Biogenic monoamine theory: basis for pharmacologic treatment, developed after medications unexpectedly increased monoamine neurotransmitters in the brain by blocking MAO or reuptake of neurotransmitters such as serotonin (Fekadu, Shibosh & Engidawork, 2016):
    - Current source of pathogenesis: Environmental stress combined with genetic factors act on immunologic and endocrine responses to cause structural and functional changes in the brain leading to dysfunction of neurogenesis and neurotransmitters which ultimately causes symptoms of depression (Jusidola et al., 2018):

- Exercise in the Treatment of MDD:
  - SMILE study assigned groups to supervised exercise, home exercise, sertraline, or placebo pill (Blumenthal et al., 2007):
  - 41% of participants achieved remission based on HAM-D at the completion of the study including:
    - 45% of supervised exercise participants
    - 40% home exercise
    - 47% medication
    - 31% placebo pill
  - Cochrane review compared exercise versus control and pharmacological treatments (Cooney et al., 2013):
    - Exercise was moderately more effective than control:
    - Resistance or resistance + aerobic exercise at a vigorous intensity was the most effective
    - No statistical difference between pharmacological treatment and exercise
  - Limitations of this review include lack of studies with longevity of large sample sizes.

Introduction

- 8% of all adults age 20 and over from depression:
  - Women are twice as likely to be affected (CDC, 2018):
  - Depression is the 6th most costly health condition overall with $71 billion spent annually (Winerman, 2017):
  - Diagnosis is clinical with the use of screening tools such as the PHQ-9:
  - Psychotherapy is the recommended first-line treatment, but pharmacotherapy is more commonly used due to availability and convenience (DynaMed, 2018):
  - Recent research shows alternative therapies, including exercise, may be just as beneficial as traditional therapies while avoiding side effects and limiting the use of medication:

Statement of the Problem

- With the increasing cost of medications and potential for high risk side effects, some providers are recommending alternative therapies to SSRIs for adult patients diagnosed with mild MDD in hopes of providing an option that is safer and more effective while providing the same benefit. Further research is needed to show if exercise and SSRIs are equal in efficacy in the reduction of symptoms associated with mild MDD in adults:

Research Question

- In adult patients diagnosed with mild MDD in a primary care setting, does treating with exercise as a stand-alone therapy compared to treating with SSRIs adequately improve symptoms while minimizing side effects?

Literature Review

- Response rate 76.9% and remission rate 64%:
- Exercising at energy expenditure of 17 kcal/kg/wk 3 or more:
- Exact pathophysiology remains unknown, but many hypotheses:
- No statistical difference between pharmacologic treatment and exercise:

Discussion

- Exercise in the Treatment of MDD:
  - Exercise alone is effective at improving depressive symptoms (Dunn, 2005 & Bartholomew et al., 2005):
  - Higher dose and intensity of exercise produced greater effects (Dunn et al., 2005):
  - Exercise provided benefits over medication or CBT including:
    - Reduction of risk of mortality from diseases such as cardiovascular disease and obesity (Dunn, 2005):
    - Exercise also improved positive well being for a short period (Bartholomew et al., 2005):
    - Weaknesses of the current research include:
      - Lack of blind due to nature of exercise as treatment
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References

- Smith, F., Kenealy, T., Blashki, G., ... MacGillivray, S. (2017). Meta analysis of randomized controlled trials (RCTs), systematic reviews, and meta analyses. This review found several benefits of using exercise to treat MDD while reducing risks, but exercise alone is not superior in effectiveness to psychotherapy or pharmacotherapy. Overall, exercise offers the greatest benefit in reducing MDD symptoms when used as an augmented therapy to either psychotherapy or pharmacotherapy. Limitations of this literature review include lack of studies with longevity of large sample sizes.
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    - Two common theories:
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    - With the increasing cost of medications and potential for high risk side effects, some providers are recommending alternative therapies to SSRIs for adult patients diagnosed with mild MDD in hopes of providing an option that is safer and more effective while providing the same benefit. Further research is needed to show if exercise and SSRIs are equal in efficacy in the reduction of symptoms associated with mild MDD in adults:
  - Research Question:
    - In adult patients diagnosed with mild MDD in a primary care setting, does treating with exercise as a stand-alone therapy compared to treating with SSRIs adequately improve symptoms while minimizing side effects?