

A Review of the Effectiveness and Side Effects of Intervention Treatment for Adolescent Depression

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Abstract: Based on the statistics from World Health Organization, depressive disorder is the main reason of adolescent morbidity as well as disability. If they do not get treatment promptly, the depression could persist into their adulthood. And this disease could bring a series of long-term adverse consequences including poor academic performance and unhealthy physical and mental condition. Furthermore, since some treatments have side effect, some teenagers resist to be treated. Therefore, it is essential to find out effective intervention and treatment measures as well as their side effects to cure adolescent depression. More and more researches discussed the therapeutic effect of various traditional and modern intervention treatments on adolescent depression, such as psychological intervention, medication, and combination therapy. Currently, there is no systematic review of the effectiveness and side effects of those treatments. This study hopes to summarize effective treatment plans and advice for adolescent depression via looking through current research on adolescent depression, comparing the effectiveness of different intervention and treatment measures and analyzing the side effects of those measures. This study categorizes the intervention treatment for adolescent depression into five types. Pharmacotherapy, psychotherapy, physiotherapy, other therapy, combination therapy, as well as the comparisons of different therapies are thoroughly analyzed. In the end, the study draws a general conclusion in terms of the effectiveness and side effects of those therapies, and affirms the importance of patient subgroups which have preferential responses to different treatments.

Keywords: adolescent depression, intervention treatment, effectiveness, side effects

1. Introduction

Based on the statistics from World Health Organization, depressive disorder is the most rooted reason of adolescent morbidity and disability [1]. If they don't get treatment promptly, the depression could persist into their adulthood. And this disease could bring a series of long-term adverse consequences including poor academic performance and unhealthy physical and mental condition. Furthermore, since some treatments have side effects, some teenagers resist to be treated. Therefore, it is essential for us to find out effective intervention and treatment measures as well as their side effects to cure adolescent depression. In the existing research, more and more studies discussed the therapeutic effect

of various traditional and modern intervention treatments on adolescent depression, such as psychological intervention, medication, and combination therapy. However, currently there is no systematic review of the effectiveness and side effects of those treatments. Therefore, the objective of this study is to summarize effective treatment plans and advice for adolescent depression via looking through current research on adolescent depression, comparing the effectiveness of different intervention and treatment measures and analyzing the side effects of those measures.

2. Analysis

2.1. Medication

Controlled experiment has substantiated that Fluoxetine has well therapeutic effects on adolescent depression and it also possesses a good standard of safety, similar to comfort pills. The benefits of Fluoxetine in treating adolescent depression outweigh its potential risks [2]. Another controlled experiment proved that Venlafaxine and Fluoxetine can both reduce depressive symptoms in adolescent patients but the former one is better, faster onset, and it is worth to promote the application of Venlafaxine [3]. Furthermore, although Escitalopram can also affect depression and its effectiveness is the same as Fluoxetine in the adolescent depression treatments, Escitalopram is better because it acts faster and has fewer side effects [4]. Compared to patients whose depression is not that serious, patients with treatment-resistant depression seems to have a stronger response to medication treatment. In addition, there do has research proving a subgroup of patients with ketamine responsive Treatment-resistant depression (TRD), who tend to derive benefits from long-term application of ketamine. Last but not least, Quetiapine Fumarate tablets combined with Sertraline Hydrochloride in the treatment of adolescent depression was defined to be effective and the discomfort after this medication treatment did not increase, so it is worthy for promotion and application [5].

In the future, to achieve a better result, doctors should customize different treatment plans for different patients based on their acceptance of the side effects of various drugs and whether their response to the drugs is strong or not.

2.2. Psychotherapy

Single-Session Intervention: A study shows that a simple digital SSI (Shamiri-Digital) could relieve the depression of the adolescences in sub-Saharan Africa. Such SSI includes the reading and writing exercise on three ideass, which are the mindset of growth, appreciation and value recognition.. Such SSI is to teach patient that the traits are malleable. A study during covid 19 finds that online SSI could effectively reducing symptoms in teenagers with major depressive disorder even under high-pressure circumstance. Specifically, behavioral activation SSI in which patience practice managing their emotion by participating in valued, enjoyable activities and SSI in which patients are taught that traits are malleable could help reduce the symptoms of depression, despair and restrictive diets, and improve the initiative [6].

Cognitive behavioral therapy (CBT): internet-based CBT (ICBT) seems to be able to reduce the depressive symptoms in adolescents and help overcome the barrier to care for young people. ICBT provided evidence for the effectiveness of reducing depressive symptoms in adolescents. The research result is significant in the construction of the guide to evidence-based interventions in digital age. Topooco's study proves that when receiving the combination of ICBT and therapist chat sessions, adolescents with depression could well participate in the treatment and significantly reduce their symptoms [7].

Comparison of CBT and Treatment-as-usual (TAU): Both methods are suitable for the treatment of Clinically referred adolescents with depression. The effectiveness of CBT is not better than TAU

in clinical practice in the Netherlands. CBT needs to be improved in order to decrease the level of symptoms below critical after the treatment.

Internet-based psychodynamic therapy (IPDT): IPDT is probably the effective interventions for adolescent depression, which need to be researched further including comparing it with other interventions [8]. When treating adolescents' major depression, IPDT is not inferior to ICBT in its effectiveness [9].

MoodHwb and its assessment procedure is proved to be feasible and acceptable, which serves as an early intervention in philanthropies, education, and social adolescence services. Such intervention may benefit young people, families, and caretakers. Therefore, it is necessary to conduct a randomized controlled trial to furtherly assess the programme [10].

The care efficacy of family interventions towards depressive adolescents is proved to be definitive. Also, using the function of families when treating depressive adolescents could obtain more significant results [11].

Summary: In terms of types, SSI, CBT, PDT, and TAU are effective treatment methods. There are no significant differences in efficacy among CBT, PDT, and TAY. In format, for the acute treatment of major depression, those psych-talk therapies tend to turn to the internet platforms and are proved to be effective. In the short term, group and family therapy might have advantages over individual therapy [12].

2.3. Physical Therapy

Repeated transcranial magnetic stimulation(rTMS) is feasible, tolerable, and has a certain level of effectiveness for adolescent depression [13]. Intermittent theta burst stimulation (iTBS) is a secure form of rTMS, it is used to treat depression. Controlled experiment has supported that iTBS could be used as a safe and clinical measure in adolescent depression patients and ensures prospective clinical practices to upgrade treatment parameters and validate the efficiency of iTBS [14].

2.4. Other Therapy

Sleep therapy: A study matches each participant with evidence-based sleep therapy, including exogenous melatonin, bright light therapy, as well as CBT. Those treatments could improve sleep and relieve symptoms of depressions, affirming the utility of sleep therapy for adolescent comorbidity [15].

Sports therapy: In the subgroups of different depression categories, aerobics are the main sports format in the therapy of adolescent depressive disorder. For adolescents who suffer from depression, the treatment lasting 6 weeks, 30 min/session and 4 sessions/week were most effective. The effect of aerobics and resistance plus aerobics are significant to the subgroups of adolescents with depression, while there is no significant effect in physical and mental exercise (yoga). Moreover, aerobic exercise that lasts for 8 weeks, 75-120 minutes/session and 3 times/week is most effective. Therefore, Moderate-intensity physical activity is a better choice. However, as an intervention method, although physical therapy could reduce depressive symptoms for adolescent to some extent, its efficacy should not be exaggerated. Rather, physical therapy should only act as an auxiliary mean and be combined with other therapy to achieve better outcomes [16].

Sleep therapy and sports therapy are proved to be valid in reducing the adolescent depression symptom, and they can act as auxiliary methods to help achieve better therapeutic effects combined with conventional therapies.

2.5. Combination Therapy

Although there are many effective therapies for adolescent depression such as those measures mentioned above, many researches had proved that the combination of various therapies will achieve a better result rather than persisting on one therapy. Doctors can choose to combine several measures according to the severity, background information and acceptance of their patients to create the most effective treatment plan for their patients.

2.6. Comparison of Different Types of Therapy

Comparisons of CBT, FLX and combination of both: Overall, large randomized trial proved that CBT has the same efficacy as medication when treating adolescent depression [17]. However, beneath the breakdown, the efficacy of different kinds of therapies depends on different patient subgroups, which have preferential response to specific treatments. First of all, no matter what therapy categories are, physical illnesses and disabilities are regarded as the main predictor for therapeutic responses. While the patient subgroups' preferential response is determined by psychosomatic illness, Baseline CDRS-R, absence, self-perspective, therapy expectations, and attention. Individualized therapy plan could be proposed based on this finding [18].

3. Conclusion

In pharmacotherapy, FLX combined with sertraline hydrochloride as well as quetiapine fumarate tablets combined with hydrochloride both have proven efficacy of treatment. While venfaxine and escitalopram have fewer side effects compared to fluoxetine, and Ketamine is proved to be most valid in treating refractory depression. For psychological therapies, CBT, PDT and TAU are very effective treatment with no distinctive differences in efficacy. The improvement of SSI is proved to be effective. Talk-psycho therapies based on the internet are proved to be effective, and family and group therapies are more effective than individual therapies in the short term. For physiotherapy, repeated transcranial magnetic stimulation as well as intermittent theta burst stimulation has some effectiveness in curing adolescent depression. For other therapies, sleep therapy and sports therapy have significant efficacy in reducing adolescent depression and will achieve better efficacy when combined with conventional therapy. For combination therapy, sertraline or fluoxetine treatment combined with cognitive behavioral interventions, medication combined with family therapy, and medication combined with transcranial magnetic therapy could significantly help treat the adolescent depression. The combination has better effect than mono-drug therapy. For the comparison of different therapies, the difference of CBT, FLX and combination of both in efficacy is determined by different patient subgroups. Baseline CTS-R, psychosomatic symptoms, absence from school, self-view, expectations, and attention determine the patient's preferential response toward specific treatment.

This study could help the doctors consider thoroughly the effectiveness and side effects of different interventions, combining the patients' situations, and choose the best intervention method when treating adolescent depressions. The limitation of the study is that the patient subgroups are not categorized for discussion when analyzing the efficacy of individual treatments separately. Therefore, futural research should discuss the preferential response of different subgroups to different treatment methods.

Authors Contribution

All the authors contributed equally and their names were listed in alphabetical order.

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