Behavioural Interventions for Mental Health Problems in Adolescents: A Systematic Review

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Abstract. Adolescents are increasingly affected by mental health issues, especially anxiety and depression, which require early behavioural interventions. This paper reviewed four main types of behavioural interventions --- Cognitive Behavioural Therapy (CBT), Mindfulness-based Interventions (MBIs), family and school-based interventions and digital interventions and summarised their influences and limitations. Although each of them shows positive effects on improving adolescent mental health, current research lacks standardised evaluation tools, longitudinal data and under-representative populations. Comparative insights indicate that existing interventions often operate in isolated domains, such as treatment, family, school, or digital domains, resulting in reduced overall effectiveness. Dynamic Ecosystem Adaptation through Allostasis (DEA-A), an ecosystem approach, is proposed to integrate several interventions. Finally, this article puts forward suggestions for future research to develop a multi-level and personalised intervention system based on standardisation and long-term evaluation. This approach may enhance the effectiveness and sustainability of adolescent mental health treatment.

Keywords: adolescent mental health, behavioural interventions, ecosystemic approach

1. Introduction

Adolescence is a critical developmental period, especially characterised by rapid physical, cognitive, and emotional changes. During adolescence, individuals are more likely to experience mental health issues. This may affect academic performance, relationships, and increase the risk of developing long-term mental illness. Adolescents are increasingly suffering from mental health problems, and about 15 % of them have mental disorders [1]. Therefore, implementing effective interventions is essential for mental health services. Behavioural therapies are an effective and non-invasive method to reduce mental health symptoms in adolescents. In contrast, medications may cause side effects and have limited long-term efficacy.

Nevertheless, the current body of research on the mental health of adolescents is deficient in making comparisons or integrating different kinds of interventions or settings, in addition to the lack of standardised evaluation methods. During the past several decades, scientists have created various interventions for different settings, including Cognitive Behavioural Therapy (CBT), Mindfulness-based Interventions (MBIs), family and school-based interventions, and digital interventions. Even

though these approaches have displayed advantages in alleviating symptoms and enhancing well-being, they are mainly researched and used separately.

Given the increasing prevalence of adolescent mental health issues and the theoretical importance of early interventions, current research is facing challenges, such as lack of standardised evaluation tools, insufficient long-term follow-up data, and the underrepresentation of minority populations. Furthermore, limited integration across therapists, families, schools, and digital domains reduces the effectiveness and sustainability of interventions. This paper reviews the four main types of behavioural interventions for adolescent mental health, summarising their benefits, limitations, and comparative insights, and state integrated, ecosystemic approaches to improve future research and practice.

2. Types of behavioural interventions

Behavioural intervention is a therapy commonly used in the treatment of mental disorders, through behaviour modification to change negative thoughts, stress and dysfunctional problems [2]. There are many types of behavioural interventions and each of them has different effectiveness in addressing mental problems.

2.1. Cognitive Behavioural Therapy (CBT)

Cognitive Behavioural Therapy (CBT) is a type of psychotherapeutic approach that is utilised in order to help relieve the symptoms of an assortment of mental disorders, mainly depression and anxiety. It entails an effective therapy approach for mental illnesses, with relatively long-term effectiveness across populations. CBT targets disputing and transforming cognitive distortions as well as behavioural patterns, intending to enhance emotion regulation and build up personal coping methods that tackle mental challenges.

CBT is more effective than using medications in treating mental problems, specifically anxiety and mood disorders. Ibadin and Ernest-Okonofua found that participants showed significant reductions in depressive symptoms after treatment, and the effectiveness of CBT increased with longer treatment duration. The problem that CBT is time-consuming still exists, though, and there are critiques that CBT, while effective in treating the problem at hand, doesn't solve the underlying causes of mental disorders [3].

2.2. Mindfulness-Based Interventions (MBIs)

Mindfulness-Based Interventions (MBIs) are techniques which, through meditation, breathing exercises, and awareness of the body, help a person to develop a non-judgmental attitude of the present moment, enhance emotional regulation, and lessen psychological distress. They have been a significant component in improving the mental health of different sets of populations. Dawson and colleagues showed, through a meta-analysis of a large number of university students, that Mindfulness-Based Interventions (MBIs) can dramatically reduce anxiety, psychological distress, and depression. Furthermore, several of these benefits are seen to extend for three months after the initiation of mindfulness-based therapies [4].

However, MBIs call for routine and persistent commitment, not necessarily suitable for everyone, especially individuals who may suffer from low motivation or time constraints. Although their drawbacks exist, MBIs are the inexpensive treatment modality that considers all population groups and helps to improve emotional strength and self-control.

2.3. Family and school-based behavioural interventions

Family and school-based interventions are primarily used to enhance children's well-being within both family and school environments during their development. Some of the interventions, such as Families and Schools Together (FAST), a 6-week program, aim to help children who struggle with their social relationships [5]. These types of interventions are designed to educate children on managing their mental well-being within the context of their relationships with family and school.

Research has found that school-based interventions are effective for both individual behavioural and emotional problems and changes in schools, such as bullying, and these programs are more effective in addressing the latter [6]. Additionally, Triple P and Family Check-Up are examples of family and school-based programs that have been demonstrated to be effective in reducing parental stress and improving children's behaviours (e.g., antisocial behaviours) [7].

Unlike MBIs, family- and school-based interventions involve the participation of parents, professional teachers, and therapists. Teachers in educational institutions may have limited training in implementing interventions, which can reduce opportunities for individuals needing support within schools and their families.

2.4. Digital and online interventions

Digital and online interventions generally provide solutions and treatments for mental health issues through technological means, such as mobile devices and internet platforms. Compared to other types of behavioural interventions, digital interventions are considerably more cost-effective. Mindfulness-based interventions have been conducted online by some therapists, and the results have shown that online MBIs are also effective in reducing depression and anxiety [8]. In 2024, Buric and colleagues indicated that online MBIs can enhance an individual's emotional regulation and mental well-being [9]. However, the lack of engagement in online interventions may result in minimal effects on individuals' mental health.

3. Comparative insights and limitations in current literature

As previously stated, different types of behavioural interventions for adolescent mental health each have their respective disadvantages.

3.1. Lack of standardised evaluation tools

Although several behavioural interventions have been developed to address mental health issues, a primary challenge persists due to the lack of consistent evaluation tools in the current literature, which limits the comparison and assessment of these interventions. Researchers found that there was no significant difference between the control group and the process-based CBT group, potentially attributable to the unstandardised outcome measurement tools, resulting in no significant results [10]. Similar issues were observed in other types of interventions, for instance, in educational settings, Ohmann and Paulus mentioned the need for consistent tools across settings to evaluate emotional and behavioural changes in children and adolescents, as reports from parents may vary from those from teachers [6].

3.2. Lack of long-term follow-up data

Behavioural interventions have been shown effective in adolescent mental health issues. However, most researchers have not provided longitudinal data to demonstrate whether their effects are durable. A large UK study on adolescent depression compared CBT with psychoanalytical and psychosocial approaches and found that CBT was effective within 30 weeks [11]. Nagamitsu and colleagues studied a digital CBT intervention and observed that improvements in patients' depressive symptoms were only effective for 1 month, but the effects reduced after 4 months [12]. This may be because the follow-up period was too short to observe any effects. This may be because the follow-up period was too short to observe any effects. This may affect the generalisation of the findings and limit conclusions on the continued effectiveness of interventions.

3.3. Underrepresentation of populations

Current research lacks representativeness of racial, ethnic, and sexual minority samples, which reduces its generalisability. CBT studies rarely consider cultural and socioeconomic factors, and the samples used are often not diverse. Studies have found that MBIs were primarily examined in Western and educated populations [13]. The same phenomenon was observed in the family and school populations. Furthermore, online platforms for interventions failed to differentiate the findings across demographic groups. The data obtained from the Internet should be used to provide personalised digital mental health treatments for patients. Current research findings are not very useful because they do not represent certain population groups and do not fully reflect the impact of interventions on everyone.

4. Discussion

Families, schools and online platforms have developed various interventions for adolescent mental health. Cognitive behavioural therapy (CBT) is highly dependent on therapists, while other interventions, such as mindfulness-based interventions (MBI), are more accessible than CBT and more dependent on the patient himself. School-based and family interventions and digital interventions take into account factors related to digital technology, schools and families. However, these interventions lack proper integration and reinforcement, which makes them less effective than they are.

To address these limitations, further research should develop holistic interventions across different settings. Broc et al. introduced an ecosystemic approach called Dynamic Ecosystem Adaptation through Allostasis (DEA-A) [14]. This multi-level model is applicable to interventions during adolescence. For example, MBIs may be enhanced when reinforced at school, supported at home, and implemented through online platforms.

The interaction and cooperation between schools, families and therapies is also important. They used to operate independently, which led to the duplication of resources and low effectiveness. Therapists, teachers, and parents should work together and provide tailored interventions for adolescents. Digital interventions are becoming more common and help with real-time monitoring, but they lack the personalisation of offline services. The effects may be more effective if digital interventions were combined with school monitoring and family communication.

Future research should develop more comprehensive and holistic interventions to address multiple domains, such as CBT with family and school monitoring. Standardised evaluation tools

are necessary to compare interventions and identify the most effective one. Longitudinal data should be included to assess the long-term effectiveness of the interventions.

5. Conclusion

This paper reviewed four main types of behavioural interventions for adolescent mental health, including Cognitive Behavioural Therapy (CBT), Mindfulness-Based Interventions (MBIs), family and school-based interventions, and digital interventions, and points out their benefits, limitations, and implications.

CBT is effective for most of mental health issues and has relatively lasting effects, but time-consuming and may not address underlying causes. MBIs are easy to implement and cost-effective, but they are not suitable for those with low motivation. Family and school-based interventions help build support in the environment, but they depend on the training and involvement of parents and teachers. Digital interventions increase accessibility and provide real-time monitoring, but often lack personalisation.

These interventions cannot fully address the diverse needs of adolescents. Furthermore, current research lacks standardised assessment tools, long-term follow-up data, and diversity of research populations. Future research should combine the advantages of each intervention to improve effectiveness. It should also improve its effectiveness and sustainability through standardised assessment and longitudinal studies.

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