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Mindfulness Based Cognitive Therapy for Children And Adolescent: A Systematic Review

Çocuk ve Ergenlerde Bilinçli Farkındalık Temelli Bilişsel Terapi: Sistematik Bir Derleme

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ABSTRACT

Mindfulness-Based Cognitive Therapy, developed to prevent depression relapse in adults diagnosed with clinical depression, has attracted the attention of researchers in the current literature, and there is a growing interest in these applications. This growing interest has led to Mindfulness-Based Cognitive Therapy applications for children and adolescents. The current systematic review focuses on Mindfulness-Based Cognitive Therapy applications for children and adolescents. In this context, a total of 12 articles accessed from databases (PubMed, Web of Science, Wiley, Sage, and Sciencedirect) were included in the study. According to the findings obtained from the articles, Mindfulness-Based Cognitive Therapy has proven to be an effective intervention in reducing post-traumatic stress, introversion, and attention problems, as well as depressive and anxiety symptoms in children and adolescents. In addition, follow-up studies have indicated that the gains obtained from the application continue. These findings highlight important points regarding the use of Mindfulness-Based Cognitive Therapy in children and adolescents. On the other hand, the insufficient number of participants in the studies, lack of feedback, and lack of alternative treatments indicate that further studies on this application are still needed. The current systematic review study attempts to reveal the possible effects of Mindfulness-Based Cognitive Therapy applications conducted in children and adolescents.

Keywords: Child, adolescent, mindfulness based cognitive therapy

ÖZ

Klinik depresyon tanısı alan yetişkinlerde depresyon nüksünün önlenmesi için geliştirilen Bilinçli Farkındalık Temelli Bilişsel Terapi, mevcut alanyazında araştırmacıların ilgisini çekmektedir ve bu uygulamalara yönelik artan bir ilgi gözlemlenmektedir. Bu artan ilgi çocuk ve ergenlere yönelik Bilinçli Farkındalık Temelli Bilişsel Terapi uygulamalarına olanak sağlamıştır. Mevcut sistematik derleme çocuk ve ergenlere yönelik gerçekleştirilen Bilinçli Farkındalık Temelli Bilişsel Terapi uygulamalarına odaklanmaktadır. Bu doğrultuda veri tabanlarından (Pubmed, Web of Science, Wiley, Sage ve Sciencedirect) erişim sağlanan toplam 12 makale çalışmaya dahil edilmiştir. Makalelerden elde edilen bulgulara göre Bilinçli Farkındalık Temelli Bilişsel Terapi çocuk ve ergenlerde travma sonrası stres, içe yönelim ve dikkat problemlerinde, depresif ve anksiyete belirtilerinin azalmasında etkili bir müdahale olarak kendini göstermektedir. Yanı sıra, takip çalışmalarında da uygulamadan elde edilen kazanımların devam ettiği belirtilmiştir. Bu bulgular Bilinçli Farkındalık Temelli Bilişsel Terapi'nin çocuk ve ergenlerde kullanımı hususunda önemli noktaları işaret etmektedir. Öte yandan araştırmalarda yer alan katılımcı sayısının yetersizliği, eksik geri bildirimler, alternatif tedavilerin eksikliği ise bu uygulamaya yönelik hala çalışmaların yapılması gerektiğini göstermektedir. Mevcut sistematik derleme çalışması çocuk ve ergenlerde yürütülen Bilinçli Farkındalık Temelli Bilişsel Terapi uygulamalarının olası etkilerini ortaya koymaya çalışmaktadır.

Anahtar sözcükler: Çocuk, ergen, bilinçli farkındalık temelli bilişsel terapi

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Introduction

Within the last 20 years, mindfulness has gained significant prominence in the field of mental health and has become a prominent research topic. The concept was first introduced to Western culture based on Buddhist teachings (Herbert and Foreman 2014). Buddhist teachings posit that human problems arise from an intense preoccupation with temporary objects and mental states; consequently, meditation is deemed necessary to reduce this preoccupation (Herbert and Foreman 2014). Initially, while not widely adopted within mainstream psychology (Herbert and Foreman 2014), the concept of mindfulness began to be discussed within psychoanalysis (Smith 1986) and existential-humanist approaches (Kumar 2002) starting in the mid-20th century. There is no complete consensus in the literature regarding the definition of mindfulness, which was first academically conceptualized as 'a flexible state of mind' by Ellen Langer (1989). Jon Kabat-Zinn (1994) defined mindfulness as 'paying attention in a particular way; on purpose, in the present moment, and nonjudgmentally.' This definition emphasizes that mindfulness is an active process, that the experience enhances awareness, and that the individual accepts the experience as it is (Herbert and Foreman 2014). Baer (2003), on the other hand, defines mindfulness as 'the nonjudgmental observation of the ongoing flow of internal and external stimuli as they arise.'

Despite varying definitions, mindfulness has secured a significant place in contemporary scientific literature and has been incorporated into diverse fields of study, particularly clinical psychology. Interest in the concept has grown due to its relationship with both adaptive variables (e.g., psychological health, self-esteem, self-efficacy, and satisfaction) and maladaptive variables (e.g., mental disorders) (Baer et al. 2006, Dekeyser et al. 2008, Tubbs et al. 2019). Studies with clinical and non-clinical populations examining the relationship between mindfulness and psychological health have consistently revealed a positive correlation (Baer et al. 2006, Walach et al. 2006, Chadwick et al. 2008). For example, research has linked higher mindfulness levels with numerous positive outcomes, including satisfaction, self-esteem, competence, empathy, optimism, and positive affect (Brown and Ryan 2003, Dekeyser et al. 2008, Rasmussen and Pidgeon 2011).

Tubbs and colleagues (2019) found that mindfulness attenuates the relationship between trauma exposure and anxiety. More broadly, mindfulness has been shown to be negatively correlated with depression, anxiety, rumination, and difficulties in emotion regulation (Brown and Ryan 2003, Baer et al. 2006, Cash and Whittingham 2010, Raes and Williams 2010). Furthermore, a meta-analysis by Sala et al. (2020) indicated a negative relationship between mindfulness and eating disorders.

In addition to research on adult samples, mindfulness is an emerging topic in child and adolescent studies. Yu and colleagues (2022) found that mindfulness may be a protective factor for adolescents experiencing the negative effects of rumination and sleep problems.In research on adolescent substance addiction, higher mindfulness scores have been associated with lower substance use. Furthermore, mindfulness has been identified as a protective factor against the risky decision-making processes that can lead to substance addiction (Black et al. 2012, Lin et al. 2021, Arnaud et al. 2024).In their study on adolescent psychological distress, Ma and Fang (2019) indicated that low mindfulness is associated with psychological distress, whereas high mindfulness is linked to reduced distress via decreased reactivity to negative emotions. The authors also posited that low mindfulness contributes to dysfunctional emotional responses (Ma and Fang 2019).

In light of findings from studies on children, adolescents, and adults, mindfulness-based interventions have been integrated into numerous psychotherapeutic approaches. Having particularly influenced behavioral therapy since the early 1990s (Herbert and Forman 2014), mindfulness is now a core component of therapies such as Acceptance and Commitment Therapy (ACT), Dialectical Behavior Therapy (DBT), Metacognitive Therapy (MCT), and Mindfulness-Based Cognitive Therapy (MBCT).

As third-wave therapies, mindfulness-based approaches target vulnerability processes associated with psychopathology. These approaches help individuals recognize negative ruminative thought patterns and adopt strategies of openness and acceptance rather than experiential avoidance (Segal et al. 2002). Whereas Cognitive Therapy focuses on reinterpreting the content and meaning of thoughts, mindfulness

practices aim to shift the individual's relationship to their thoughts and awareness (Barnhofer and Crane 2009). MBCT, a prominent example of this approach, is a twelve-week program. This program combines mindfulness meditation training (developed by Jon Kabat-Zinn 2013) with interventions from cognitive behavioral therapy (CBT), an evidence-based approach proven effective for various psychological disorders. Thus, the program aims to help individuals become more aware of impairing emotional, cognitive, and behavioral patterns and to develop more adaptive, rather than habitual, responses to them (Barnhofer and Crane 2009). MBCT, which was first developed for the prevention of relapse in depression (Segal et al. 2002), has been reported in research conducted in the scientific literature to be an effective form of treatment for various psychological disorders (Craigie et al. 2008, Miklowitz et al. 2009, Deckersbach et al. 2012, Ghahari et al. 2020, Nissen et al. 2020, Zemestani and Fazeli-Nikoo 2020, Li et al. 2021, Sala et al. 2021). Additionally, MBCT is not limited to studies involving only adult psychopathology. Mindfulness Based Cognitive Therapy for Children (MBCT-C) is a therapy program conducted with children experiencing anxiety and depressive symptoms that affect health and functioning in their daily lives, and it can be implemented individually or in a group format (Semple and Lee 2011).

In MBCT-C, which largely resembles the program developed for adults, elements such as games, stories, and activities included within the therapy protocol, as well as family participation in the therapy, have been added differently (Semple and Lee 2014). It has been indicated that sessions are kept shorter and include ample repetition due to children having lower memory and attention capacities than adults. Additionally, while adult psychotherapies rely on clients' ability to identify and verbalize their emotional experiences using abstract thinking and logical analysis, it is stated that games, stories, and activities should be used because children's skills in these areas are limited, and that family participation in therapy sessions can provide positive effects on the treatment process since children are more intertwined with their families than adults (Semple and Lee 2014).

The program also includes home practices, aiming for children to apply the taught mindfulness exercises in their daily lives. While the first session consists of introductions and psychoeducation about mindfulness, mindfulness training begins from the second session onwards, with breathing and movement exercises delivered alongside activities. These skills continue throughout the other sessions and are presented in home practices. In the third and fourth sessions, work begins on the Cognitive Behavioral concept of the thought-emotion-body sensation-behavior quartet based on the mindfulness approach, and yoga movement exercises are also included in the program. While the fifth session focuses more on the senses, the sixth session works on the connection between bodily sensations and emotions. In the seventh session, the importance of observing experiences rather than judging them is emphasized, while the eighth session focuses on how judgment changes the perception of the world, and thus the importance of freeing oneself from this perspective and experiencing new awareness regarding what is happening. In the ninth session, the focus is on the existence of choice points related to events, and consequently, how by increasing mindfulness, potential choice options can be evaluated. This session also includes work on mindful contact, focusing on bodily sensations and experiences. In the final three sessions, the mindfulness techniques learned and experienced thus far are reinforced through various games and applications, aiming to ensure their integration into daily life. Throughout all practices, all skills are conveyed accompanied by games, activities, and metaphorical narratives, in a manner suitable for child participants (Semple and Lee 2014).

Another program frequently encountered in the literature and one of the childhood mindfulness-based intervention programs is Mindfulness Based Cognitive Therapy-Dual (MBCT-D), developed especially for adolescents. It is a psychotherapy method developed for adolescents diagnosed with post-traumatic stress disorder and substance addiction, combining cognitive therapy and mindfulness (Fortuna and Vallejo 2015). The program centers on the importance of becoming aware of negative thought patterns, how to change reactions to emotions, and approaching the thoughts and bodily sensations one has through mindfulness compassionately, without judgment and avoidance. Similar to MBCT-C, MBCT-D, which consists of 12 sessions, has sections such as introduction to mindfulness, psychoeducation, managing triggers, common thinking styles, and cognitive restructuring (Fortuna and Vallejo 2015).

In the Turkish literature, mindfulness as a variable has been addressed in many studies, and a limited number of studies focus on the child and adolescent group. Furthermore, no studies were found in the Turkish literature regarding MBCT applications conducted with children and adolescents. The present study aims to fill this gap in the field. Consequently, the systematic review study conducted aims to systematically compile the results regarding the effectiveness of intervention research on mindfulness-based cognitive therapies conducted with children and adolescents. In the effectiveness studies, it was observed that all applied interventions were either MBCT-C or MBCT-D themselves, or were created based on these two applications.

Method

In this systematic review study, the focus was placed on effectiveness studies concerning mindfulness-based cognitive therapy applications conducted for children and adolescents. The search, carried out to examine the studies in the literature, was conducted using the Pubmed, Web of Science, Wiley, Sage, and Sciencedirect databases. In scanning the databases, the keywords "Mindfulness based cognitive therapy", "children", and "adolescent" were used. In each database, the keywords were used in combination (e.g., ("Mindfulness based cognitive therapy" AND "Children", "Mindfulness based cognitive therapy" AND "Adolescent", "Mindfulness based cognitive therapy" AND "Children" AND "Adolescent"). Due to mindfulness-based cognitive therapy studies conducted with children and adolescents being a new field, no year limitation was imposed on the current systematic review study.

1. The inclusion criteria for the systematic review study were determined as follows;
2. The intervention included in the studies must be mindfulness-based cognitive therapy,
3. The mean age of the participants must be under 18; in studies where the mean age is not provided, the age range must not exceed 18,
4. Child and adolescent participants must be from a clinical population and meet diagnostic criteria related to psychopathology,
5. The study must be clinic-based,
6. The studies must be published in the English language.

No restrictions were placed on the problems, meaning the diagnoses, experienced by the children. The exclusion criteria were determined as: the absence of an intervention related to mindfulness-based cognitive therapy within the study, the intervention used in the study containing elements that include techniques from many different approaches, intervention studies conducted only with adults, non-clinic-based studies (such as school-based applications), studies published in languages other than English, and the mean age of participants being over 18. The search for studies to be included in the systematic review was concluded in November 2024.

Results

The current systematic review study was conducted in accordance with the PRISMA 2020 (Page et al. 2021) guidelines. According to the search results obtained from the databases using the specified keywords, a total of 2901 studies (Pubmed: 1248, Web of Science: 649, Wiley: 37, Sage: 12, Sciencedirect: 955) were reached. Within the 2901 studies reached, duplicate studies (n=1258) were first removed. After the removal of duplicate studies, the remaining articles were examined in terms of titles and abstracts, and unsuitable studies were excluded (n=1597). Finally, after considering the inclusion and exclusion criteria for the remaining studies, the number of studies to be included in the current study was determined (n=12). The PRISMA diagram regarding the 2901 studies reached is given in Figure 1. The studies included in the review are shown in Table 1.

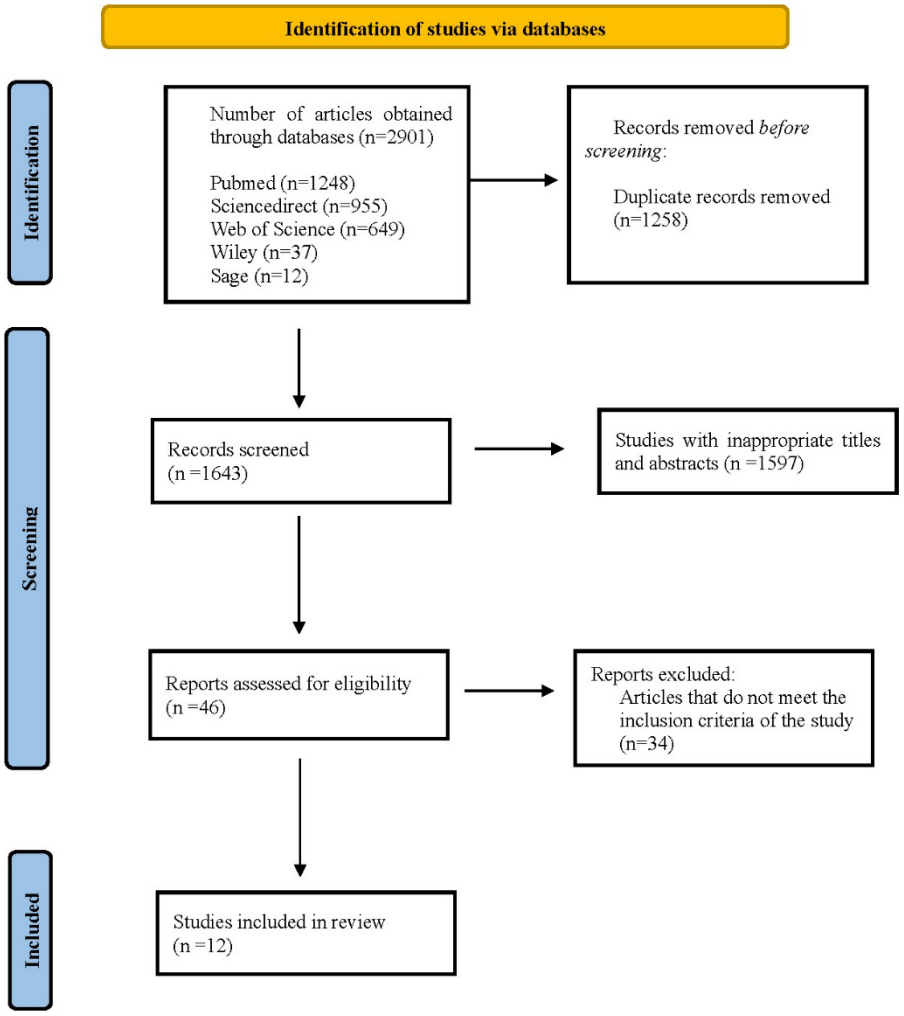

Figure 1. PRISMA flow chart

Table 1. Studies on the effectiveness of mindfulness-based cognitive therapy in children and adolescents

Study	Number of Participants	Age Range/Average	Inclusion and Exclusion Criteria	Intervention	Measures	Number of Sessions	Result	Follow-up (Month)
Abedini et al. 2021 (Iran)	40 (20 on TAU)	12.12	Being between the ages of 11 and 13 Average knowledge of Persian Any cancer diagnosis other than brain cancer Receiving radiation therapy and/or chemotherapy Not having psychological or psychiatric treatment for 6 months Meeting the criteria for at least two of the four psychiatric diagnoses (anxiety, depression, psychosomatic, attention deficit disorder)	MBCT-C TAU	K-SADS-PL-P CBCL YSR	12	Participants in the MBCT-C group showed a statistically significant decrease in internalizing and attention problems compared to participants in the TAU group	2

Table 1. Studies on the effectiveness of mindfulness-based cognitive therapy in children and adolescents								
Study	**Number of Participants**	**Age Range/Average**	**Inclusion and Exclusion Criteria**	**Intervention**	**Measures**	**Number of Sessions**	**Result**	**Follow-up (Month)**
			Internalization problems should be subclinical or clinical Attention problems (in two of the four subscales) Not having a significant cognitive impairment or developmental disability Not having been diagnosed with a terminal illness with a prognosis of less than 6 months					
Ames et al. 2014 (UK)	7	12-18	Despite receiving psychological treatment for low mood in addition to a diagnosis of mood disorder or anxiety disorder, exhibiting residual symptoms of depression Not showing a high level of risk Not having an acute period of depression Not having active drug abuse problem Not having completed any psychological treatment process	MBCT-C	MFQ CRSQ PSWQ CAMM PQLESQ SDQ	8	Increased awareness of thoughts and actions. Mindfulness as a tool for managing stress. Satisfaction with sensory exercises.	1
Cotton et al. 2016 (USA)	10	9-17	Being between the ages of 9 and 17 At least one parent of the participants must have a diagnosis of bipolar I disorder Meeting DSM-IV-TR criteria for generalized anxiety disorder, separation anxiety disorder, panic disorder, and/or social phobia/social anxiety disorder as determined by the University of Washington Children's Schedule for Affective Disorders and Schizophrenia HAM-A score above 16 and PARS score above 10 Fluency in English Must not be pregnant or breastfeeding IQ must not be below 70 Not having a diagnosis of substance use disorder in the DSM-IV-	MBCT-C	SCID-P/L WASH-U-KSADS HAM-A PARS STAI ERC CAMM CDRS-R CSSRS	12	Decrease in anxiety symptoms. Increase in emotional regulation. Increase in mindfulness with age.	None

Table 1. Studies on the effectiveness of mindfulness-based cognitive therapy in children and adolescents

Study	Number of Participants	Age Range/Average	Inclusion and Exclusion Criteria	Intervention	Measures	Number of Sessions	Result	Follow-up (Month)
			TR within the last 3 months, excluding nicotine or caffeine use There should be no active suicidal or suicide-related events (e.g., intent, tendency, attempt) within the last 30 days, or the CDRS-R suicide score should not be greater than 3 No change in psychotropic medication within the last 28 days Not meeting DSM-IV-TR diagnosis of bipolar disorder (mania or hypomania), schizophrenia, or other psychotic disorders The absence of a psychiatric symptom requiring admission to an inpatient psychiatric hospital Not having started psychotherapy within the 2 months prior to the screening or not having plans to start psychotherapy during the study					
Cotton et al. 2020 (USA)	24 (19 on waiting list)	13.7 (intervention group) 13.8 (waiting list)	Being between the ages of 9 and 18 At least one parent must have a diagnosis of bipolar I disorder To meet the DSM-IV-TR criteria for generalized anxiety disorder, separation anxiety disorder, social anxiety disorder, or panic disorder as defined by the University of Washington Children's Schedule for Affective Disorders and Schizophrenia At baseline and during the screening phase, the Pediatric Anxiety Rating Scale five-item scale score was ≥10 Fluency in English Approval to attend 75% of sessions Not having mental disability	MBCT-C Psychoeducation Waiting List	STAI PARS ERC CAMM CGI	12	Significant improvement in overall clinical severity and anxiety in the intervention group.	None

Table 1. Studies on the effectiveness of mindfulness-based cognitive therapy in children and adolescents								
Study	**Number of Participants**	**Age Range/Average**	**Inclusion and Exclusion Criteria**	**Intervention**	**Measures**	**Number of Sessions**	**Result**	**Follow-up (Month)**
			Not having previously participated in any mindfulness-based intervention Not having had a substance use disorder other than nicotine and caffeine in the last 3 months Not having active suicidal thoughts, intentions, plans, or serious attempts in the past 30 days, or initial Children's Depression Rating Scale suicide item scores not exceeding 3 Concurrent use of antidepressants and/or ADHD medications is not permitted, except when no medication adjustments have been made within the 30 days prior to screening or are not anticipated during the study Not having received psychotherapy support at least 2 months prior to the start of the study. However, children who had received long-term psychotherapy (e.g., more than 2 months) but still exhibited symptoms of anxiety disorder were included in the study. Not having been diagnosed with bipolar disorder, cyclothymia, schizophrenia, or any other psychotic disorder Not having symptoms that require admission to an inpatient psychiatric unit Absence of acute medical illness determined by medical evaluation or relief of symptoms, acute poisoning, or anxiety symptoms caused by withdrawal from drugs or alcohol					

Table 1. Studies on the effectiveness of mindfulness-based cognitive therapy in children and adolescents

Study	Number of Participants	Age Range/Average	Inclusion and Exclusion Criteria	Intervention	Measures	Number of Sessions	Result	Follow-up (Month)
Dehghani et al. 2014 (Iran)	14 (7 on control group)	9	Meeting the diagnostic criteria for Generalized Anxiety Disorder	MBCT-C Control Group	SCARED PSWQ-C RCMAS	12	Decrease in worry and anxiety.	None
Ebrahiminejad et al. 2016 (Iran)	25 (13 on control group)	14.5 (intervention group) 14.3 (control group)	Meeting the DSM-5 diagnostic criteria Being between the ages of 12 and 18 Having a Social Phobia Inventory score of 16 or higher Being willing to participate in the study and signing the consent form Not receiving pharmacotherapy or psychotherapy support during the study Not having been diagnosed with psychosis or schizophrenia Not having been diagnosed with a personality disorder	MBCT-C Control Group	Demographic Measure SCID-I SPIN RSES	8	Decrease in social anxiety scores. Increase in self-esteem.	None
Fortuna et al. 2018 (USA)	37	16.76	Post-Traumatic Stress Disorder (PTSD) diagnosis Current substance use or moderate substance use with a risk of relapse within 3-6 months	MBCT-D	PCL-C UES CRAFFT CPSS PTCI T-ASI TLFB BDI-II	12	Meaningful improvements in conditions related to PTSD. No change in alcohol use. Decrease in marijuana use. Increase in nicotine use.	None
Fortuna et al. 2023 (USA)	20	16 (average age)	The participants consist of unaccompanied migrant children. Meet the criteria for PTSD diagnosis	MBCT-D	UES PCL-C CPSS PTCI	12	Decrease in PTSD symptoms. Meaningful change in cognition.	None
Peter et al. 2022 (India)	65 (32 on control group)	13.05 (intervention group) 13.10 (control group)	Having a high anxiety score (T score of 60 or above) The absence of a physical, neurological, or intellectually related illness Not having other psychiatric disorders Ability to read and understand English or Hindi	MBCT-C Waiting List	SD&CIS GHQ-12 BPRS-C SCAS CAMM BURS	12	Increase in mindfulness and resilience scores. Decrease in anxiety scores.	3
Racey et al. 2018 (UK)	25	16.4	Recovery from an acute depressive episode, regardless of the presence or absence of generalized/phobic anxiety disorder Not presenting a risk to oneself or others, or having no safety concerns	MBCT-C	BDI-II RRS SCS MAAS EQDS	8	Decreases in all measurements, particularly depressive symptoms.	None

Table 1. Studies on the effectiveness of mindfulness-based cognitive therapy in children and adolescents

Study	Number of Participants	Age Range/Average	Inclusion and Exclusion Criteria	Intervention	Measures	Number of Sessions	Result	Follow-up (Month)
			The absence of a diagnosis of acute depressive episode, psychosis, eating disorder, OCD, or PTSD for both young people and their parents Not having misuse of the active substance Not having ADHD and conduct disorder Not actively receiving any other psychotherapy support					
Strawn et al. 2016 (USA)	9	12.9	A family history of bipolar disorder Meeting the criteria for at least one of the following diagnoses: generalized anxiety disorder, social anxiety disorder, and/or separation anxiety disorder	MBCT-C	KSADS CHQ PARS CAMM	12	MBCT-C is associated with increased activation in the bilateral insula, lentiform nucleus, and thalamus, as well as in the left anterior cingulate. Decrease in anxiety-related symptoms.	None
Syeda and Andrews 2021 (Canada)	25 (13 on waiting list)	9-12	High levels of anxiety symptoms reported by the parent, child, or both (T score of 65 or higher) Based on the responses provided by the parent, child, or both to the SEB assessment, the participant should not meet the diagnostic criteria for any of the mood disorders (e.g., depression), behavioral disorders (e.g., ADHD), or atypical disorders (e.g., manic episode) listed in the DSM-5 Participants must be able to speak and understand English Parent participation for outcome measurements	MBCT-C Waiting List	MASC-2 CBRS MAAS-C	12	Significant decrease in anxiety scores among children in the intervention group. Significant correlational relationship between mindfulness and anxiety.	1

MBCT-C: Mindfulness based Cognitive Therapy for Children and Adolescent, MBCT-D: Mindfulness based Cognitive Therapy for Children and Adolescent-Dual TAU: Treatment As Usual, K-SADS-PL-P: The Kiddie Schedule for Affective Disorders and Schizophrenia Present and Lifetime Version-Persian, CBCL: Child Behavior Checklist, YSR: Young Self Report, PCL-C: PTSD Control List – Civillian Version, UES: Upsetting Events Survey, CRAFFT: Addiction Screening, CPSS: Child PTSD Symptom Scale, PTCI: Post Trauma Cognition Inventory, T-ASI: Teen Addiction Severity Index, TLFB: Timeline Follow Back, BDI-II: Beck Depression Inventory-II, MFQ: Mood and Feelings Questionnaire, CRSQ: Child Response Style Questionnaire, PSWQ: Penn State Worry Qestionnaire Ölçeği, CAMM: Child and Adolescent Mindfulness Measure, PQLESQ: Pediatric Quality of Life Enjoyment and Satisfaction Questionnaire, SDQ: Strenghts and Difficulties Questionnaire, SCARED: The Screen for Child Anxiety Related Emotional Disorders, PSWQ-C: Penn State Worry Questionnaire for Children, RCMAS: Revised Children's Manifest Anxiety Scale, MASC-2: Multidimensional Anxiety Scale for Children-Second Edition, CBRS: Conners Comprehensive Behavior Rating Scales, MAAS-C: Mindful Attention Awareness Scale for Children, STAI: State-Trait Anxiety Index, PARS: Pediatric Anxiety Rating Scale, ERC: Emotion Regulation Checklist, CGI: Clinical Global Impression, RRS: Rumination Response Scale, SCS: Self Compassion Scale, EQDS: Experiences Scale-Decentering Subscale, SCID-P/L: Structured Clinical Interview For DSM-IV-Present/Life Time, WASH-U-KSADS: Washington University at St. Louis Kiddie Schedule for Affective Disorders and Schizophrenia, HAM-A: Hamilton Anxiety Rating Scale, CDRS-R: Children Depression Rating Scale-Revised, CSSRS: Columbia Suicide Severity Rating Scale, CHQ: Crovitz Handedness Questionnaire, SCID-I: Structured Clinical Interview For DSM-IV Axis I, SPIN: Social Phobia Inventory, RSES: Rosenberg Self Esteem Scale, SD&CIS: Clinical Interview Schedule, GHQ-12: General Health Questionnaire, BPRS-C: Brief Psychiatric Rating Scale for Children, SCAS: Spence Children's Anxiety Scale, BURS: Bharathiar University Resillience Scale

Sample Characteristics

In the current systematic review study, mindfulness-based cognitive therapy studies conducted with children and adolescents were included. Within the studies included in the systematic review, it is seen that the number of participants was at least 7 (Ames et al. 2014) and at most 65 (Peter et al. 2022). In 5 of the included studies (Dehghani et al. 2014, Ebrahiminejad et al. 2016, Cotton et al. 2020, Syeda and Andrews 2021, Peter et al. 2022), mindfulness-based cognitive therapy was compared with a control group/waitlist, and in 1 study, it was compared with treatment as usual (Abedini et al. 2021). The interventions included in the studies were carried out for psychological disorders such as anxiety disorders (Ames et al. 2014, Dehghani et al. 2014, Cotton et al. 2016, Ebrahiminejad et al. 2016, Strawn et al. 2016, Racey et al. 2018, Cotton et al. 2020, Abedini et al. 2021, Syeda and Andrews 2021, Peter et al. 2022), depressive disorder (Ames et al. 2014, Racey et al. 2018, Abedini et al. 2021), post-traumatic stress disorder (Fortuna et al. 2018, Fortuna et al. 2023), attention problems (Abedini et al. 2021), and substance use (Fortuna et al. 2018).

Intervention Feature and Effect

In all studies included in the review, the main intervention is mindfulness-based cognitive therapy developed for children and adolescents (MBCT-C), and it was observed that other psychotherapy approaches were not used as comparison groups within the studies. While two studies (Ames et al. 2014, Racey et al. 2018) tested the effectiveness of an 8-session intervention, the interventions in the remaining studies consisted of 12 sessions. In four studies (Ames et al. 2014, Abedini et al. 2021, Syeda and Andrews 2021, Peter et al. 2022), post-intervention follow-up was available, and the follow-up periods ranged from 1 to 3 months. The measurement tools used within the studies are listed with their original names at the end of Table 1.

In the studies included in the systematic review, it is seen that mindfulness-based cognitive therapy conducted with children and adolescents helped with the difficulties experienced by the participants. It is observed that MBCT-C caused a significant decrease in anxiety-related symptoms (Abedini et al. 2021, Ames et al. 2014, Cotton et al. 2016, Dehghani et al. 2014, Ebrahiminejad et al. 2016, Strawn et al. 2016, Racey et al. 2018, Cotton et al. 2020, Syeda and Andrews 2021, Peter et al. 2022), helped achieve significant improvement in trauma severity and trauma-related cognitions (Fortuna et al. 2018, Fortuna et al. 2023), created the awareness that enables establishing a different relationship with emotions and thoughts (Ames et al. 2014), provided a significant reduction in general clinical severity (Cotton et al. 2020), caused a significant decrease in depressive symptoms and ruminative thinking (Ames et al. 2014, Abedini et al. 2021), and supported a significant increase in emotion regulation (Cotton et al. 2016). However, it was determined that the effectiveness of the intervention program regarding substance use was not found to be significant (Fortuna et al. 2018).

The MBCT application conducted by Abedini and colleagues (2021) consisted of 12 sessions, targeting 40 participants aged 11-13 undergoing cancer treatment in a hospital. The inclusion criteria for the study included average Persian language proficiency, not having any cancer diagnosis other than brain cancer, receiving radiotherapy and/or chemotherapy, not having received psychological or psychiatric support in the last 6 months, meeting at least two of four psychiatric diagnoses, having internalizing problems in the borderline and clinical range, having attention problems, not having a significant cognitive dysfunction or developmental disability, and not having received a terminal illness diagnosis. In the study, MBCT-C is compared with treatment as usual, and in this study, treatment as usual consists of limited psychosocial support provided by social workers in addition to medical treatment. Furthermore, the follow-up period of the study was determined as 2 months. The measurement tools used in the study were identified as the Schedule for Affective Disorders and Schizophrenia for School-Age Children-Present and Lifetime-Persian Version, Child Behavior Checklist, and Youth Self-Report. At the end of the study, it was reported that there were statistically and clinically significant changes in internalizing and attention problems in the group that received MBCT-C compared to the group that received treatment as usual.

The MBCT-C applied by Ames and colleagues (2014), targeting 7 adolescent participants aged 12-18, consists of 8 sessions. The inclusion criteria for the study included, in addition to a mood or anxiety

disorder diagnosis, showing residual symptoms of depression despite receiving psychological treatment for low mood, not exhibiting high-level risk, not experiencing an acute depressive episode, having no active substance use, and not having completed any psychological intervention process. Within the study, MBCT-C was not compared with another intervention or a waitlist. The follow-up period in the study was determined as 1 month. The researchers stated that analyses regarding the outcome measures were limited due to the small number of participants. The measurement tools used in the study were identified as the Mood and Feelings Questionnaire, Children's Response Style Questionnaire, Penn State Worry Questionnaire, Child Acceptance and Mindfulness Measure, Pediatric Quality of Life Enjoyment and Satisfaction Questionnaire, and Strengths and Difficulties Questionnaire. They stated that MBCT-C had a large effect size in the reduction of depression and related symptoms. Additionally, they added that there was an increase in quality of life, a small increase in mindfulness, and a modest decrease in worry and rumination.

The MBCT-C conducted by Dehghani and colleagues (2014), targeting 14 participants in the 9-year-old age group, consists of 12 sessions. Meeting the diagnostic criteria for generalized anxiety disorder is the inclusion criterion for the study. Within the study, MBCT-C was compared with a control group, and there is no follow-up period in the study. The measurement tools used within the study are the Screen for Child Anxiety Related Emotional Disorders-Child Version, the Penn State Worry Questionnaire for Children, and the Revised Children's Manifest Anxiety Scale. The researchers stated that at the end of the study, anxiety and worry scores decreased in the children in the MBCT-C group.

The MBCT-C conducted by Ebrahiminejad and colleagues (2016) for 25 Iranian female adolescent students experiencing social anxiety problems, with an average age of 14, consists of 8 sessions. The inclusion criteria for the study were determined as: being in the 12-18 age range, meeting DSM-5 diagnostic criteria, having a social phobia scale score of 16 or higher, being willing to participate in the study and signing the consent form, not receiving pharmacotherapy or psychotherapy support during the study, not having a diagnosis of psychosis or schizophrenia, and not having a diagnosis of a personality disorder. Within the study, MBCT-C was compared with a control group, and there is no follow-up period in the study. The measurement tools used in the study are the Structured Clinical Interview for DSM-IV-TR Axis I, Social Phobia Inventory, and Rosenberg Self-Esteem Scale. The researchers stated that the participants who received the MBCT-C intervention had a decrease in social anxiety scores and an increase in their self-esteem compared to the participants in the control group.

The MBCT-C application conducted by Strawn and colleagues (2016) on anxious children and adolescents at risk of developing bipolar disorder consists of 12 sessions. The number of participants is 9, and their mean age is 12.9. The inclusion criteria were determined as having a family history of bipolar disorder and meeting at least one of the diagnoses of generalized anxiety disorder, social anxiety disorder, and/or separation anxiety disorder. In the current study, MBCT-C was not compared with any intervention group or control group, and there is no follow-up period in the study. The measurement tools used are the Schedule for Affective Disorders and Schizophrenia for School-Age Children, Crovitz Handedness Questionnaire, Pediatric Anxiety Rating Scale, and Child and Adolescent Mindfulness Measure. According to the findings obtained from the study, MBCT-C was associated with increased activation in the bilateral insula, lentiform nucleus, and thalamus, as well as the left anterior cingulate. Additionally, a decrease in anxiety-related symptoms was observed.

The MBCT-C study conducted by Cotton and colleagues (2016), targeting adolescents diagnosed with anxiety disorders who are at risk for bipolar disorder, consists of 12 sessions. The number of participants in the study is 10, and the age range of the participants is between 9 and 17. The researchers determined the inclusion criteria as: being in the 9-17 age range, having at least one parent with a diagnosis of bipolar I disorder, meeting DSM-IV-TR criteria for generalized anxiety disorder, separation anxiety disorder, panic disorder, and/or social phobia/social anxiety disorder as determined by the Washington University Schedule for Affective Disorders and Schizophrenia for School-Age Children, having a Hamilton Anxiety Rating Scale score above 16 and a Pediatric Anxiety Rating Scale score above 10, being fluent in English, no pregnancy or lactation, having an intelligence quotient not below 70, not having a DSM-IV-TR diagnosis of a substance use disorder within the last 3 months (excluding nicotine or caffeine use), having no active

suicidality or suicide-related events (e.g., intent, ideation, attempt) within the last 30 days or having a suicide score no greater than 3 on the Children's Depression Rating Scale-Revised, having no psychotropic medication changes within the last 28 days, having no DSM-IV-TR diagnosis of bipolar disorder (mania or hypomania), schizophrenia, or other psychotic disorders, not having a psychiatric symptom requiring admission to an inpatient psychiatric hospital, and not having started psychotherapy within the 2 months prior to screening or having no plans to start psychotherapy during the study. In the study, MBCT-C was not compared with any intervention or control group, and the study has no follow-up period. The measurement tools used within the study are the Structured Clinical Interview for DSM-IV – Present/Lifetime, Washington University in St. Louis Schedule for Affective Disorders and Schizophrenia for School-Age Children, Hamilton Anxiety Rating Scale, Children's Depression Rating Scale-Revised, Columbia-Suicide Severity Rating Scale, State-Trait Anxiety Inventory, Emotion Regulation Checklist, and Pediatric Anxiety Rating Scale. According to the results obtained from the research, it was seen that MBCT-C significantly reduced anxiety symptoms and increased emotion regulation. The researchers reported that as participants' ages increased, mindfulness increased, and there were greater reductions in emotional dysregulation. It was also stated that the increase in mindfulness reduced anxiety. The individuals participating in the study indicated that they felt less worry in their lives and stated that they found the intervention useful and would use the practices learned in the study (e.g., mindful breathing) in their daily lives. A large majority of the participants' parents in the study stated that mindfulness-based cognitive therapy was beneficial for their children.

The MBCT-C conducted with adolescents by Racey and colleagues (2018) with 25 participants consists of 8 sessions. The participants' mean age is 16.4. In the study, MBCT-C was not compared with any intervention or control group. Again, there is no follow-up period within the study. The inclusion criteria were determined by the researchers as: having recovered from an acute depressive episode regardless of the presence or absence of generalized/phobic anxiety disorder, the participant not posing a risk to themselves or others, or having no safety concerns, the absence of an acute depressive episode, psychosis, eating disorder, OCD, PTSD diagnosis for both the adolescents and their parents, the absence of active substance misuse difficulties, the absence of ADHD and conduct disorder, and not actively receiving other psychotherapy support. Within the research, the Beck Depression Inventory-II, Ruminasyon Response Scale, Self-Compassion Scale, Mindful Attention Awareness Scale, and Experiences Questionnaire-Decentering Subscale were used. According to the findings of the research, participants and their parents expressed mindfulness as an increase in awareness of the self through emotions, thoughts, and feelings. The decrease in depressive symptoms in participants and the reduction of rumination in parents were statistically significant. It was also stated that there were statistically significant improvements in parents' decentering and self-compassion scores. Furthermore, it was reported that changes in parent depression scores and mindfulness were not statistically significant.

The MBCT-C conducted by Syeda and Andrew (2021), targeting 25 participants in the 9-12 age range, consists of 12 sessions, and the study includes a 1-month follow-up period. MBCT-C was compared with a control group. The inclusion criteria were stated as: high levels of anxiety symptoms reported by the parent, child, or both; the participant not meeting the diagnostic criteria for any mood (e.g., depression), behavioral (ADHD), or atypical disorders (e.g., manic episode) within the DSM-5 after socio-emotional and behavioral assessment; participants being able to speak and understand English; and parent participation in the outcome measures. Within the research, the Multidimensional Anxiety Scale for Children-2nd Edition, Conners Comprehensive Rating Scales, and the Mindful Attention Awareness Scale for Children were used. According to the findings obtained from the study, parents reported decreases in participants' anxiety scores from the beginning of the application to the follow-up period. An increase in mindfulness was observed in the children in the intervention group.

The MBCT-C application conducted by Cotton and colleagues (2020), targeting children and adolescents diagnosed with anxiety disorders who are at risk of developing bipolar disorder, consists of 12 sessions. In the study, MBCT-C was compared with a psychoeducation waitlist. The psychoeducation content consists of mood disorders and anxiety disorders in youth, bipolar disorder, familial risks for bipolar disorder, and treatment strategies for anxiety and depression in youth. The study does not have a follow-up period. The

mean age of the participants in the study is 13.7 for the intervention group and 13.8 for the waitlist. The inclusion criteria for the research were determined as: being in the 9-18 age range, the participant having at least one parent diagnosed with bipolar I disorder, meeting DSM-IV-TR criteria for generalized anxiety disorder, separation anxiety disorder, social anxiety disorder, or panic disorder as determined by the Washington University Schedule for Affective Disorders and Schizophrenia for School-Age Children, having a Pediatric Anxiety Rating Scale five-item scale score ≥10 at baseline and screening, being fluent in English, consent to attend 75% of the sessions, absence of an intellectual disability, not having previously participated in any mindfulness-based intervention, not having a substance use disorder within the last 3 months (excluding nicotine and caffeine), having no active suicidal ideation, intent, plan, or serious attempt within the last 30 days, or having baseline Children's Depression Rating Scale suicide item scores no greater than 3, absence of concurrent treatment with psychotropic medications (except that concurrent antidepressant and/or ADHD medications were permitted only if no medication adjustments were made within 30 days prior to screening or anticipated during the study), not having received psychotherapy support for at least 2 months before the start of the study, not having a diagnosis of bipolar disorder, cyclothymia, schizophrenia, or another psychotic disorder, not having symptoms requiring admission to an inpatient psychiatric unit, and the absence of anxiety symptoms resulting from an acute medical illness, acute intoxication, or withdrawal from drugs or alcohol, as determined by medical evaluation or symptom resolution. Additionally, children who had received long-term psychotherapy (e.g., more than 2 months) but still showed symptoms of an anxiety disorder were included in the study. Within the study, the Structured Clinical Interview for DSM-IV – Present/Lifetime, State-Trait Anxiety Index, Pediatric Anxiety Rating Scale, Emotion Regulation Checklist, Child and Adolescent Mindfulness Measure, and Clinical Global Impression Scale were used. According to the research results, there is a significant difference between the waitlist and MBCT-C periods in terms of improvement in overall clinical severity, and the MBCT-C period showed a greater reduction in the Clinical Global Impression Scale score. No significant difference was found between the waitlist and MBCT-C periods in terms of anxiety (rated by clinician and child), emotion regulation, or mindfulness. A significant improvement in clinician-rated anxiety was observed during the MBCT-C period, which was not present during the waitlist period, and a significant improvement in child-rated trait anxiety was observed during the MBCT-C period, which was not present during the waitlist period; however, these changes were not significant between periods. While a significant improvement in clinical severity was seen during the MBCT-C period, this improvement was not seen during the waitlist period. While a significant improvement in mindfulness was seen during the waitlist period, it was not seen during the MBCT-C period, but there was no significant difference between the periods. Changes in mindfulness were significantly correlated with changes in child-rated state anxiety, child-rated trait anxiety, and emotion regulation during the MBCT-C period, while they were not correlated during the waitlist period.

In their study conducted by Peter and colleagues (2022) examining the effects of MBCT-C on anxiety and resilience in anxious school-aged and early adolescent students, MBCT-C was compared with a waitlist. In the current study, MBCT-C consists of 12 sessions, and the study's follow-up period was determined as three months. The mean age of the 65 participants was 13.05 for the intervention group and 13.10 for the control group. The inclusion criteria for the study were determined as: having a high-level anxiety score (T-score 60 and above), absence of a physical, neurological, or intelligence-related illness, absence of another psychiatric disorder, and being able to read and understand English or Hindi. Within the study, the Clinical Interview Schedule, General Health Questionnaire, Brief Psychiatric Rating Scale for Children, Child and Adolescent Mindfulness Measure, and Bharathiar University Resilience Scale were used. According to the research results, a statistically significant increase in mindfulness and resilience scores and a decrease in anxiety scores were observed. This was also maintained at follow-up.

MBCT-D, developed by Fortuna and colleagues (2018) for adolescents experiencing substance addiction and post-traumatic stress symptoms, consists of 12 sessions. The mean age of the 37 participants in the study is 16.76, and the study has no follow-up period. In the current study, there is no other group to which the intervention group is compared. The inclusion criteria were determined as: meeting the diagnostic criteria for post-traumatic stress disorder (PTSD), moderate substance use with current use or risk of relapse within 3-6 months, absence of active psychosis and cognitive or intellectual disability that would

prevent participation in the study, and no suicide attempts or ideation within the last 3 months. Within the study, the PTSD Checklist – Civilian Version, Traumatic Events Questionnaire, Addiction Screener, Child PTSD Symptom Scale, Posttraumatic Cognitions Inventory, Adolescent Addiction Severity Index, Time Line Follow-Back, and Beck Depression Inventory-II were used. According to the results of the study, statistically significant improvements were seen in PTSD symptoms, impairment severity, and trauma-related cognitions. There was no change in alcohol use. Cannabis use decreased. Although an increase in nicotine use was observed, this increase was not statistically significant.

In another study conducted by Fortuna and colleagues (2023), which included an MBCT-D application for unaccompanied immigrant children, the application consisted of 12 sessions. The number of participants in the study was 20, and the study did not have a follow-up period. The inclusion criteria for the study were determined as being an unaccompanied immigrant child and meeting PTSD diagnostic criteria. The measurement tools used within the research were the Upsetting Events Questionnaire, Child PTSD Symptom Scale, and Posttraumatic Cognitions Inventory. According to the results of the study, a decrease in PTSD symptoms was observed. A statistically significant change was observed in cognitions. In the feedback from participants, mindfulness practices helped them relax and focus. Cognitive restructuring work enabled them to re-conceptualize and reframe trauma-related cognitions.

Discussion

The aim of this study was to conduct a systematic review of clinic-based mindfulness-based cognitive therapy conducted in children and adolescents. A total of 12 studies that met the inclusion and exclusion criteria were included in the systematic review. In the studies included in the review, it is observed that the number of participants is generally low and that MBCT-C was not compared with other psychotherapy interventions whose effectiveness has been demonstrated. The Society of Clinical Child and Adolescent Psychology (SCCAP), Division 53 of the American Psychological Association (APA), lists many psychotherapy methods that have shown effectiveness in children and adolescents. In making this list, it evaluates the psychotherapies with demonstrated effectiveness based on 5 criteria and classifies the therapy methods into 5 levels (Southam-Gerow ve Prinstein 2014). According to SCCAP criteria:

1. The study must include a randomized controlled design.
2. Manuals or their equivalents must be used for the treatment.
3. The intervention must be aimed at a specific population with clearly defined inclusion criteria.
4. There must be measurement tools that measure the targeted outcomes.
5. Appropriate data analyses must be used, and the sample size must be sufficient to detect the expected effects.

Regarding these criteria, it classifies existing treatments as Level 1 (Well-Established Treatments), Level 2 (Probably Efficacious Treatments), Level 3 (Possibly Efficacious Treatments), Level 4 (Experimental Treatments), and Level 5 (Treatments of Questionable Efficacy) (Southam-Gerow and Prinstein 2014). Consequently, MBCT is not yet included among the treatments it classifies (SCCAP Division 53 2024). One of the probable reasons for this situation is that intervention programs like MBCT-C are still being tested with new studies. Therefore, studies with larger samples and designs that meet the effectiveness study criteria listed above need to be contributed to the literature. The earliest studies included in the current systematic review (Ames et al. 2014, Dehghani et al. 2014) are from 2014, and the most recent study (Fortuna et al. 2023) is from 2023. For this reason, it should not be overlooked that it is still a developing field.

In the findings included in the review, it was stated that the interventions performed were effective on anxiety and mood disorders and provided significant changes in participants. The studies included in the current study state that MBCT-C is effective for internalizing and attention problems (Abedini et al. 2021), depressive symptoms (Ames et al. 2014, Racey et al. 2018), anxiety-related symptoms (Dehghani et al. 2014, Cotton et al. 2016, Ebrahiminejad et al. 2016, Strawn et al. 2016, Cotton et al. 2020, Syeda and Andrew, 2021, Peter et al., 2022), and PTSD symptoms (Fortuna et al. 2018, Fortuna et al. 2023). Studies showing that

interventions involving mindfulness are effective for the aforementioned problems exist in the literature, and it is observed that the density of these studies is greater in adult samples (Hofmann et al. 2010, Ghawadra et al. 2020, Hearn and Cross 2020). When the findings of the studies included in this review are examined as a whole, symptoms related to depression and anxiety have been the focal point of the interventions as a primary priority. It also appears that the number of participants in the studies is quite low (Cotton et al. 2016). It is also noteworthy that the MBCT-C application was not compared with another intervention, except for one study (Abedini et al. 2021). Furthermore, the limited feedback obtained from the participants in these applications leaves it ambiguous how the components of MBCT-C positively affect individuals' lives. The low number of participants, the lack of comparison with another psychosocial or medication intervention with demonstrated effectiveness, the existence of applications focused on depressive and anxiety symptoms, and the lack of feedback received from participants make it difficult to generalize the findings obtained from mindfulness-based cognitive therapy conducted with children and adolescents. On the other hand, there are also studies suggesting that mindfulness-based interventions are not effective or have low effectiveness for children in schools (Lee et al. 2022, Montero-Marin et al. 2022).

Childhood and adolescence are important developmental stages in which individuals go through critical social, emotional, and cognitive phases. Having limited skills to understand and apply mindfulness may be one of the reasons why interventions focused on this are not effective for some individuals. Application problems and outcome findings, especially in the younger age group, can be evaluated as supporting that these skills have not yet fully formed. Developmentally, it is seen that as individuals grow older, mindfulness skills can be better understood and applied (Carsley et al. 2018). In a comprehensive study conducted by Montero-Marin and colleagues (2022), the possible harmful effects of mindfulness-based applications were mentioned. According to the researchers, children and adolescents in different developmental periods may benefit from different approaches. Researchers, stating that adolescence is an important period for social-developmental-emotional development, indicated that especially younger adolescents in this period do not benefit from mindfulness applications because they have limited metacognitive skills and self-regulatory behaviors (Montero-Marin et al. 2022). Various researchers state that metacognitive skills are fully formed in the 12-18 age range (Cartwright-Hatton et al. 2004, Ellis and Hudson, 2011, Wolters et al. 2012). Considering the low mean age of the participants in the studies included in the current systematic review, the effects of MBCT-C in children and adolescents can be understood more holistically. Furthermore, these criticisms related to mindfulness are generally directed at mindfulness meditation practices rather than MBCT-C. Considering all these situations, there is a need to diversify the intervention groups to be compared in MBCT-C studies conducted on children and adolescents. In other words, it needs to be clarified from which intervention (e.g., mindfulness skills, traditional cognitive behavioral therapy, MBCT-C, or meditation) the positive effects that may occur in children and adolescents originate.

Except for a few (Ames et al. 2014, Abedini et al. 2021, Syeda and Andrews 2021, Peter et al. 2023), the studies included in the current systematic review do not have a follow-up period. According to the findings reported in the studies, participants in the intervention group appear to maintain the gains obtained from the applications at follow-up. However, the longest follow-up period being 3 months (Peter et al. 2023) leaves ambiguity regarding the extent to which the gains obtained in the study impact individuals' lives. Cuzick (2023) states that an early analysis of treatments may lead to a distorted assessment of the treatment's value and that possible side effects related to the treatment could emerge after the treatment is completed. Therefore, having long-term follow-up periods in mindfulness-based cognitive therapy applications will eliminate these areas of ambiguity.

Besides MBCT-C, which focuses on anxiety and mood, MBCT-D, a mindfulness-based treatment manual developed for PTSD, leads to significant changes in trauma-related cognitions and a marked decrease in PTSD severity (Fortuna et al. 2018, Fortuna et al. 2023). In children and adolescents diagnosed with PTSD, mindfulness applications, in addition to helping them re-conceptualize and reframe trauma-related cognitions, also help the individual to focus and relax (Fortuna et al. 2023). In a systematic review and meta-analysis study conducted by Taylor and colleagues (2020), it was reported that mindfulness-based

interventions have positive effects on psychological trauma. Also, according to Tubbs and colleagues (2019), mindfulness attenuates the relationship between trauma exposure and high anxiety. MBCT-D utilizes mindfulness practices that aim to reduce automatic responses, including self-harm, and enable coping with distressing emotions originating from PTSD. Although there are significant changes in trauma-related cognitions and reductions in trauma severity, the lack of significant changes in substance use, which frequently co-occurs with PTSD, indicates a need for different and longer treatment processes. Given the insufficient results in substance use, increasing the therapeutic applications related to substance use within the content of MBCT-D treatment may provide more effective improvements in cases of co-diagnosed PTSD and addiction.

The studies included in the current systematic review study consist only of studies involving MBCT-C. Other mindfulness-based applications conducted with children and adolescents were left outside the scope of this study. Therefore, this situation emerges as one of the limitations of the study. Other mindfulness-based applications conducted regarding the difficulties experienced by children and adolescents can also find a place in the literature. For example, applications such as mindfulness-based reading and mindfulness-based listening are not included in the current study. As another limitation, other evidence-based psychotherapies that include mindfulness practices were not included in the current study. Many third-wave cognitive behavioral therapies, such as Acceptance and Commitment Therapy and Dialectical Behavior Therapy, contain mindfulness practices. Children and adolescents have also benefited from other evidence-based psychotherapies regarding the difficulties they experienced.

Conclusion

In the current study, effectiveness studies regarding mindfulness-based cognitive therapy applications in children and adolescents were compiled through relevant databases using specific keywords and adhering to inclusion and exclusion criteria. MBCT-C intervention programs conducted with children and adolescents diagnosed with a psychiatric disorder are increasing day by day. It appears that the literature regarding the effectiveness of the conducted intervention programs is still in its initial stages. In this context, there is a need for future studies to compare MBCT-C with other treatment protocols whose effectiveness has already been demonstrated, using large samples.

Considering the existence of social, emotional, and cognitive developmental stages specific to childhood, the creation of intervention programs that are appropriate for the participants' developmental periods and capable of meeting their needs, especially in studies conducted with children and adolescents, will be highly beneficial for both clinical and school-based applications. In addition to the studies concentrating on anxiety and mood disorders, the promising results regarding PTSD should be considered important indicators for conducting more studies in this field and designing different mindfulness-based intervention programs. Based on the studies included in the systematic review, the necessity of a post-intervention follow-up period in research planned for the future is noteworthy. In existing studies, the brevity or absence of follow-up periods not only creates uncertainty regarding how long the positive changes obtained from MBCT-C last, but also hinders reaching sound conclusions. Additionally, the inclusion of comparison groups or placebo interventions in effectiveness studies, and the diversification of the quality and quantity of the measures taken for evaluation, are other issues that must be considered.

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