The efficacy of transdiagnostic cognitive behavioural therapy on reducing negative affect, anxiety sensitivity and improving perceived control in children with emotional disorders - a randomized controlled trial

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ABSTRACT

In response to the high rate of comorbidity among different types of emotional disorders in children, Transdiagnostic Unified Protocol of Emotional disorder in children (UP-C) was developed to address common underlying mechanisms in the development and maintenance of emotional disorders using empirically supported cognitive and behavioural strategies. Although, studies supported the effectiveness of this protocol in the treatment of wide range of emotional disorders, further studies are needed to examine its effect on transdiagnostic factors. The present study aimed to investigate the efficacy of the UP-C on negative affect, anxiety sensitivity and perceived control in children with emotional disorders. During this randomized controlled trial, 34 children aged 7 to 13 with emotional disorders were randomly assigned to treatment (n=18) and control (n=16) groups. The treatment group and their parents received 15 sessions of UP-C. Negative Affect Schedule for Children (PANAS-NA-C), Children's Anxiety Sensitivity Index (CASI), Anxiety Control Questionnaire-Children (ACQ-C) were carried out in all phases (pre-treatment, post-treatment, 3 and 8 months follow-up). The results showed that following UP-C, negative affect (hedges'g=2.01) and anxiety sensitivity (hedges'g=1.05) were significantly reduced, and perceived control (hedges'g= –2.36) was significantly improved. The results remained relatively constant during the follow-ups. Findings provide evidence that the UP-C has significant effect on negative affect, anxiety sensitivity and perceived control as roots of emotional disorders.

Key words: Unified protocol; children emotional disorders; negative affect; anxiety sensitivity; perceived control.

Introduction

It is obvious that a certain level of anxiety is necessary for effective functioning, but high anxiety causes helplessness and dysfunction. Anxiety disorders are common in childhood (Bosman *et al*., 2019; Franz *et al*., 2013); and are often persistent throughout their entire life. Research has shown that anxiety disorders become resistant and chronic over time, and thus it could increase the risk of other anxiety and mood disorders in adolescence, youth, and then into

adulthood (Allan, Felton, Lejuez, MacPherson, & Schmidt, 2016; Bosman *et al*., 2019; Copeland, Angold, Shanahan, & Costello, 2014; Essau, Lewinsohn, Lim, Moon-ho, & Rohde, 2018; Rouquette *et al*., 2018; Voltas, Hernández-Martínez, Arija, & Canals, 2017; Zarrella, Russolillo, Caviglia, & Perrella, 2017). In general, research suggests that the comorbidity rate of anxiety and depressive disorders is very high in the child and adolescent population (Chu, 2012; Essau *et al*., 2018). Research also shows that comorbid conditions in children can lead to more impairments than the problems caused by each disorder alone (Bauer, Wilansky-Traynor, & Rector, 2012; Jacobson & Newman, 2017; Queen & Ehrenreich-May, 2014; Schaffer *et al*., 2012).

On the other hand, studies reveal that most of the diagnosis-specific Cognitive Behavioural Therapies (CBTs), even though their effectiveness (Crowe & McKay, 2017; Flessner & Piacentini, 2017; Friedberg & Paternostro, 2019; Higa-McMillan, Francis, Rith-Najarian, & Chorpita, 2016; Mychailyszyn, Brodman, Read, & Kendall, 2012; Weisz & Kazdin, 2017), have not paid enough attention to the high rate of comorbidity between anxiety and depressive disorders (among both adults and children), whether theoretically (explanation) or practically (intervention) (Brown & Barlow, 2009; Compton *et al*., 2004).

Comorbidity has often been disregarded in research as an exclusion criterion, so it was underexplored until limited evidence determined that implementing the single diagnosis-specific treatment is not enough; and it is clinically very important to consider both disorders, for both evaluation and treatment (Berman, Weems, Silverman, & Kurtines, 2000; Suveg, Sood, Comer, & Kendall, 2009). There is where clinicians need a unified protocol for treating comorbidity; and researchers use the term 'emotional disorders'. Understanding the nature of the emotional disorder requires going beyond the context of the diagnostic-oriented approach and adopting a 'transdiagnostic approach'. There are more commonalities than differences between anxiety and depressive disorders; and the main focus of the transdiagnostic approach is on these commonalities (Barlow, Allen, & Choate, 2016; Barrett, Lewis, & Haviland-Jones, 2018).

Having a lot in common in the time of onset (Kessler, Chiu, Demler, & Walters, 2005; Kessler, Petukhova, Sampson, Zaslavsky, & Wittchen, 2012), overt symptoms (Brozina & Abela, 2006; Snyder *et al*., 2009), latent structures (Barlow, Allen, & Choate, 2004; Brown, 2007; Brown & Barlow, 2009; Harvey, Watkins, & Mansell, 2004), predisposing factors (Gross & Thompson, 2007), perpetuating factors (Barrett *et al*., 2018; Gross & Thompson, 2007), structure (Harvey *et al*., 2004; Starcevic & Berle, 2006), heritability (Hettema, Neale, & Kendler, 2001), patterns of neural activity (Etkin & Wager, 2007; Shin & Liberzon, 2010) and therapeutic responses (Allen *et al*., 2010; Barlow *et al*., 2016; Cuijpers *et al*., 2013; Norton *et al*., 2013; Norton & Mehta, 2007; Norton & Philipp, 2008; Olatunji, Cisler, & Deacon, 2010; Reinholt & Krogh, 2014), are some of the common factors among emotional disorders.

The transdiagnostic therapies focus on these common factors - instead of a single disorder. Attention to transdiagnostic factors gives the interventions a nature of flexibility. Which makes it an appropriate treatment in adapting to diverse diagnostic profiles. On the other hand, children's profiles are more exposed to complexity because they change with the passage of life (Chu, Colognori, Weissman, & Bannon, 2009). Thus, the emerging symptoms of anxiety and depression predict more severe and chronic periods of emotional disorders at later ages (Bosman *et al*., 2019; Essau *et al*., 2018; Franco, Saavedra, & Silverman, 2007; O'Neil, Podell, Benjamin, & Kendall, 2010). Accordingly, an effective intervention that can target a wide range of symptoms of childhood emotional disorders can not only be beneficial for treatment, but also for preventing future problems or disorders (Ehrenreich-May & Bilek, 2012).

By adopting the transdiagnostic approach, Barlow proposed the underlying vulnerabilities of emotional disorders in the *triple vulnerability model* (Barlow & Durand, 2011; Barlow, 2000): i) generalized biological vulnerability; ii) generalized psychological vulnerability; and iii) specific psychological vulnerability. According to this model (David H Barlow, 2000), genetics and temperament's contribution to anxiety and negative emotion include a general biological vulnerability; if early life experiences indicate a persistent and severe experience of anxiety, it can lead to a decreased sense of control which is generalized psychological vulnerability. The last vulnerability, specific psychological vulnerability, is the result of 'learning' that certain situations, objects, or inner states (thoughts, physical feelings) are potentially dangerous phenomena (even though they are not) (David H Barlow *et al*., 2004). In this regard, Barlow developed the Unified Protocol (UP) based on the triple vulnerability model (DH Barlow, Allen, & Choate, 2008; D.H. Barlow *et al*., 2011).

The Unified Protocol and all subsequent versions (UP, UPA, UP-C) cover the three basic therapeutic components associated with the treatment of emotional disorders (Barlow *et al*., 2004). These three components include: i) altering antecedent cognitive reappraisals; ii) preventing emotional avoidance; and iii) modifying action tendencies (Allen, Ehrenreich, & Barlow, 2005).

Ehrenreich-May then modified UP, drafting the Child and Adolescent Manuscripts and examining its effects on the adolescent with emotional disorders (12 to 19 years old) (Ehrenreich, Goldstein, Wright, & Barlow, 2009). Until the child and adolescent version will be written independently (Ehrenreich-May, Kennedy, Sherman, & Barlow, 2018; Ehrenreich-May, Kennedy, Sherman, Barlow, & Bilek, 2018; Ehrenreich-May, Kennedy, Sherman, & Buzzella, 2018). In the present study, a child version was used; which is, Unified Protocols for Transdiagnostic Treatment of Emotional Disorders in Children (UP-C): 'Emotional Detectives'. The name reflects the metaphor

of treatment guide - teaching children a variety of 'skills to solve emotion puzzles' as a detective's abilities. UP is a transdiagnostic modular protocol. The order of the child version modals differs from the adult version according to the developmental conditions of the children. It is presented based on the acronyms of the word 'clues'. CLUES is a metaphor for the skills that emotion detectives learn to solve the puzzle of their own emotions. Thus, the UP-C, considering the letters of the word CLUES, consists of 5 modals; each modal also requires a different number of sessions (Table 1).

Barlow's model, along with other models of the transdiagnostic approach, attributes several transdiagnostic factors to commonalities in emotional disorders. In interaction with these models, many studies have aimed to identify the transdiagnostic mechanisms involved in emotional disorders in children independently. To date, research that has a transdiagnostic approach to children's emotional disorders has considered mechanisms such as Negative Affect (NA) (Lonigan, Carey, & Finch, 1994; Lonigan, Hooe, David, & Kistner, 1999), rumination (McLaughlin, Aldao, Wisco, & Hilt, 2014; McLaughlin & Nolen-Hoeksema, 2011), Emotion Regulation (ER) (Kim & Cicchetti, 2010; Martinsen, Kendall, Stark, & Neumer, 2016), disordered attention (Racer & Dishion, 2012), and Emotional Awareness (EA) (Kranzler *et al*., 2016).

NA, as an underlying factor, is a first-level transdiagnostic factor in Barlow's triple vulnerability model that plays an important role in the onset and comorbidity of children's emotional disorders (Andrews, 1996; Muris, de Jong, & Engelen, 2004). Clark and Watson also consider NA as a general factor in the aetiology and maintenance of emotional disorders in the three-dimensional model (Clark & Watson, 1991). In general, evidence-based theoretical models suggest that emotional disorders are rooted in a temperamental tendency that leads to experiencing high levels of NA or neuroticism as well as emotional reactivity (David H Barlow, Sauer-Zavala, Carl, Bullis, & Ellard, 2014); which was referred to as the 'general neurotic syndrome' in the 19th century (Andrews, 1996; Andrews, Stewart, Morris-Yates, Holt, & Henderson, 1990; Tyrer, Alexander, Remington, & Riley, 1987; Tyrer *et al*., 1988). Recently, the research considers NA as a common underlying factor that could explain the comorbidity of anxiety and mood disorders in children (Muris *et al*., 2004) and adolescents (Hankin *et al*., 2017; Queen & Ehrenreich-May, 2014; Sherman, Tonarely, & Ehrenreich-May, 2018; Trosper, Whitton, Brown, & Pincus, 2012). Wise (2019) showed that adolescents and young people with anxiety and depression show similar patterns of the same characteristics like high NA, low distress tolerance, and high experiential avoidance that underlie the neuroticism in adults (Wise *et al*., 2019). This reflects the importance of preventing or treating increased NA in childhood, before adolescence, since learning adaptive emotion regulation skills in childhood can prepare a person to overcome the emotional crises associated with adolescence.

Another transdiagnostic underlying factor that plays a key role in children's emotional disorders is perceived control (PC). PC implies the importance of the initial 'uncontrollable' and 'unpredictable' experience as a psychological vulnerability. Some theories have been emphasized PC as an important factor in emotional and mental health.

For example, the locus of control (LOC) theory (Rotter, 1966), defined Control as 'the extent to which one relates one's behaviour to the consequences' and attributes a significant portion of mental health to the high level of internal control versus external control. Another example is Seligman's classical model of learned helplessness (Abramson, Seligman, & Teasdale, 1978; Seligman, 1975, 1992). People learn to be helpless in situations where harmful stimuli are unavoidable. This helplessness has a significant role in conceptualizing depression. The same is mentioned in Bandura's self-efficacy theory (Bandura, 1977, 1982). It describes control as an individual's belief in his or her ability to control life events, and considers it as a cognitive-emotional process that can lead to anxiety by bringing on a sense of inability to perform desired behaviours (Weems & Silverman, 2006).

In general, PC refers to how individuals perceive internal and external anxiety threats (Rapee, Craske, Brown, & Barlow, 1996). In particular, it shows how individuals judge their ability to manage external or internal threats (Weems, Costa, Watts, Taylor, & Cannon, 2007); which is directly related to the development of anxiety disorders (Gallagher, Bentley, & Barlow, 2014). Lambert (2019) and Pereira *et al*. (2018) emphasized the importance of addressing PC in the treatment of emotional disorders in children, in their longitudinal studies (Lambert, 2019; Pereira *et al*., 2018). Manley showed that low and high levels of PC are considered as a risk factor and a protective factor in child anxiety, respectively. She indicated that the child's PC of anxiety was significantly related to his/her anxiety and partially mediated the relationship between parent overprotection and child anxiety and concluded that low and high PC of anxiety serves as risk and protective factors for child anxiety, respectively (Manley, 2017).

Another transdiagnostic factor that is considered in children with emotional disorders is Anxiety Sensitivity (AS). AS generally refers to the fear of anxiety-related sensations. It seems to stem from a person's beliefs about the physical, cognitive, and social consequences of these sensations, and in turn, leads to maintaining anxiety (Pozza, Meneghelli, Meliante, Amato, & Dèttore, 2020; Taylor, 2014). AS can be found theoretically in Reiss's expectancy model (Reiss, 1980, 1991) and Clark and Watson's tripartite model (Clark & Watson, 1991). According to Reiss (1991), expectations (what one thinks will happen) and sensitivities (the reason one is afraid of the predicted event) theoretically provide the key to

understanding human fears (Reiss, 1991). In their Tripartite Model, Clark and Watson also state that anxiety is associated with a high level of Physiological Hyperarousal (PH) (Clark & Watson, 1991). In response to the threat, it leads to increased activity in the sympathetic nervous system and the onset of physical symptoms of anxiety, such as shortness of breath, palpitations, dizziness, dry mouth, tremors, and sweating in the body.

The transdiagnostic role of AS, in the spectrum of emotional disorders, has been confirmed in recent studies (Hovenkamp-Hermelink *et al*., 2019; Khakpour, Yousefi, & Saed, 2018; Koch, Eye, Ellison, & Gourley, 2017; Taylor, 2014). It was also observed that AS, even after controlling the effect of NA, is a significant predictor of developing one of the anxiety disorders (Schmidt, Mitchell, & Richey, 2008). Further, the evidence also supported the role of AS in the development of emotional disorders in children (Brown, Meiser-Stedman, Woods, & Lester, 2016; Hernandez Rodriguez, 2015; Ho, Dai, Mak, & Liu, 2018; Knapp, Blumenthal, Mischel, Badour, & Leen-Feldner, 2016; Raines *et al*., 2020; Viana *et al*., 2018; Wauthia *et al*., 2019).

The importance of transdiagnostic factors has attracted the attention of some therapies; in general, transdiagnostic treatment is expected to exert its effects on emotional disorders by improving transdiagnostic factors. The effectiveness of the transdiagnostic treatment for children has been supported by several studies. In two studies Ehrenreich-May, Bilek *et al*. investigate the effectiveness of the UP-child version (UP-C). Their results reveal that this protocol is a flexible treatment in improving the symptoms of anxiety and depression and comorbid conditions in children through providing cognitive-behavioural skills and can be considered as a cost-effective treatment (Bilek & Ehrenreich-May, 2012; Ehrenreich-May, Bilek, Queen, & Hernandez Rodriguez, 2012). Kennedy *et al*. also supported transdiagnostic treatment versus anxiety-based therapies in addressing predictors of treatment outcomes (Kennedy, Tonarely, Sherman, & Ehrenreich-May, 2018). In another study, he compared the efficacy of the UP-C with a common anxiety-based therapy by collecting randomized controlled trial (RCT) data. The results showed that the two treatments were not different in terms of improving anxiety symptoms. However, depressive symptoms, dysregulation of grief, cognitive restructuring, and most importantly, maintenance of treatment outcomes in follow-up were in favour of UP-C (Kennedy, Bilek, & Ehrenreich-May, 2019).

Studies revealed that UP-C can be an effective intervention for a wide range of emotional disorders like Generalized Anxiety Disorder (GAD), Social Anxiety Disorder (SOC), Separation Anxiety Disorder (SEP), Specific Phobia (SP), Obsessive Compulsive Disorder (OCD), Agoraphobia, Panic disorder, Anxiety Disorder Not Otherwise Specified (ANX-NOS), Dysthymia (PDD), Major Depressive Disorder, Disruptive mood dysregulation Disorder, Depressive Disorder Not Otherwise Specified (NOS), Selective Mutism, Tourette's/Tic Disorder, Illness anxiety disorder, Hoarding, Enuresis, Other specified feeding or eating disorder (Bilek & Ehrenreich-May, 2012; Kennedy, Halliday, & Ehrenreich-May, 2021; Kennedy *et al*., 2018; Mariotti, Bolden, & Finn, 2021).

Recently, supportive results from the UP-C have more precisely defined the boundaries of its efficacy in the treatment of a wide range of emotional disorders (Eckhardt, Martell, Duncombe Lowe, Le Grange, & Ehrenreich-May, 2019; Grossman & Ehrenreich-May, 2020; Hawks, Kennedy, Holzman, & Ehrenreich-May, 2020). However, to investigate the depth of the efficacy of UP-C more accurately, it is necessary to evaluate its effect on transdiagnostic factors in children's emotional disorders - a gap that the research literature has not yet addressed. In this regard, the present study aimed to investigate the efficacy of the UP-C on NA, AS, and PC in children with emotional disorders. Based on prior research (Boswell *et al*., 2013; Carl, Gallagher, Sauer-Zavala, Bentley, & Barlow, 2014; Doos Ali Vand, Gharraee, Asgharnejad Farid, Ghaleh Bandi, & Habibi, 2018; Ellard *et al*., 2017; García-Escalera *et al*., 2017; Sandín, García-Escalera, Valiente, Espinosa, & Chorot, 2020; Sauer-Zavala *et al*., 2012; Sherman & Ehrenreich-May, 2020), it was hypothesized that UP-C can reduce NA and AS, and improve PC.

Materials and methods

The present study is a randomized controlled trial that has been registered with the ethics code IR.ZUMS.REC.1398.216 in the ethics committee of Zanjan University of Medical Sciences. This study has an UP-C group and a control group with random assignment and pre-and post-treatment and two follow-up periods of three and eight months.

Participants

Participants were recruited by convenience sampling method by publishing posters and flyers containing basic information about the research project in universities, hospitals, and libraries of Zanjan city as well as on popular social networks.

From the volunteers participating in the study (67 individuals) 44 children were selected along with their parents, according to the inclusion and exclusion criteria. Inclusion criteria included the willingness to participate in the research, ability of at least one parent to attend parent sessions, the age range of 7 to 13, having at least a principal diagnosis of anxiety or depressive disorders Anxiety Disorders Interview Schedule for DSM-IV - Child and Parent Version (ADIS-IV-C/P), and earning a cut-off score at least in one of the subscales of the Revised Children's Anxiety and Depression Scale (RCADS). Exclusion criteria included scoring the cut-off in the subscales A (Attention Deficit/Hyperactivity Disorder), B

(Oppositional Defiant Disorder), C (Conduct Disorder), F (Psychotic Disorders), and H (Autism Spectrum Disorders) in the Child Symptom Questionnaire (CSI Symptoms) and/or diagnosis of any of these disorders during the clinical interview, history of psychological interventions (especially CBT) more than 5 sessions, scoring the cut-off in BDI/BAI (Beck Depression/Anxiety Inventories) for parents, absence of more than two consecutive sessions of the child and more than three consecutive sessions of the parent, and non-participation in one of the evaluation process.

Procedure

Figure 1 summarizes the research design. After completing the informed consent form by the parents, the eligible sample (44 individuals) was randomly assigned to the UP and the Control groups. Participants in the UP were grouped into 4 groups of 5-6 children, based on age and gender; thus that, the first and second groups each consisted of 5 girls aged 7 to 10 years, the third group consisted of 6 girls aged 11 to 13 years and the fourth group consisted of 6 boys aged 8 to 12 years. The Control group did not receive any intervention during this period. Before

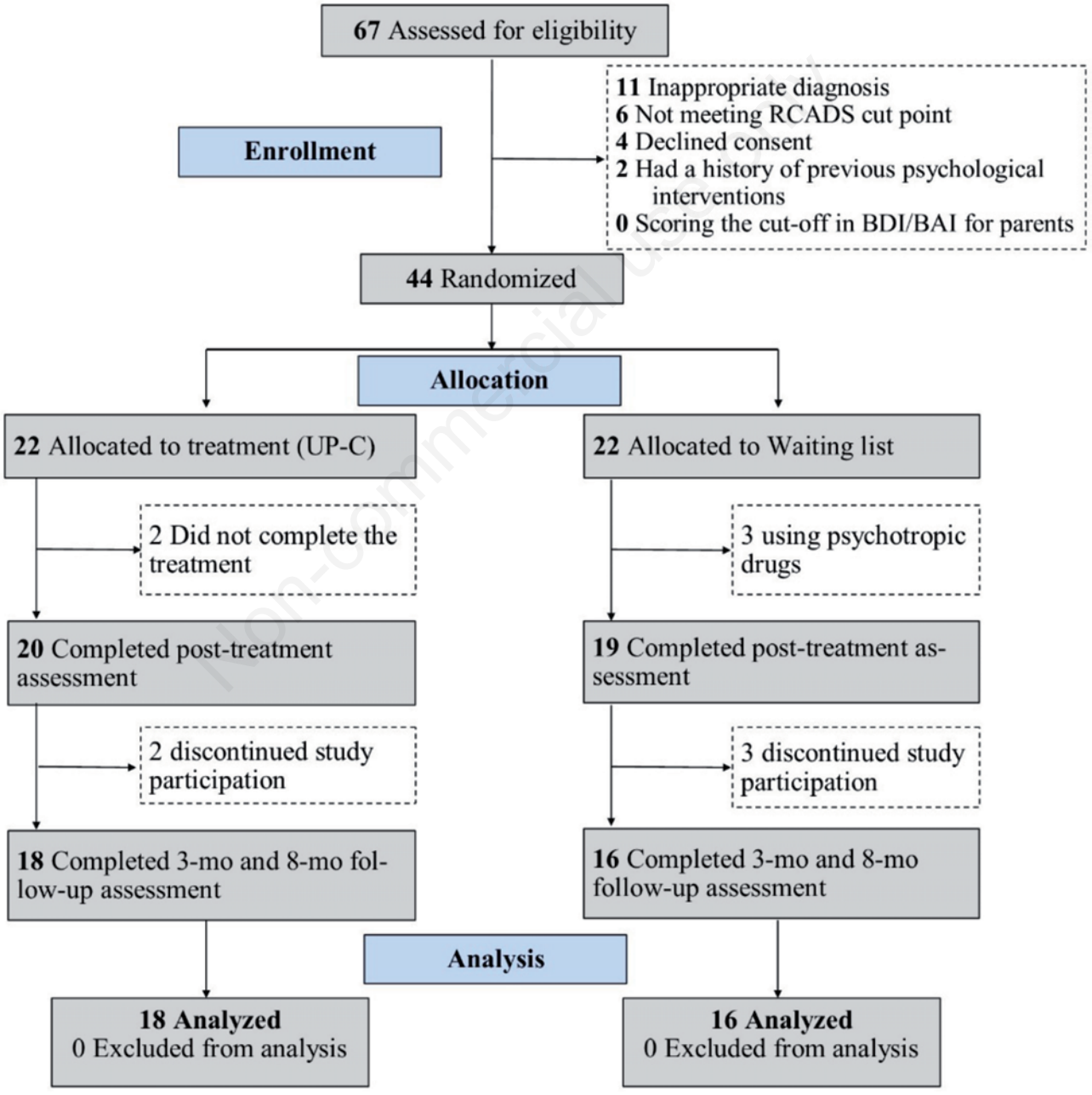

Figure 1. CONSORT diagram illustrating participant flow during the study.

the start of the treatment sessions, immediately after them, three and eight months after the end of the sessions, assessments related to the dependent variable were performed by all participants. Due to the conditions of the COVID-19 pandemic, assessments related to the second follow-up period were performed online. During the treatment and assessments stages, 4 individuals from the UP-C group and 6 individuals from the Control group were excluded from the study, and finally, the information about 34 people was analysed.

Randomization and blinding

The diagnostic interview was conducted by a clinical psychologist (assessed using the ADIS-IV-C/P) who was blind to the treatment protocol for all volunteers. A research assistant who was not involved in initial evaluations randomized the eligible sample in the two groups by random number generator 3.1 software. There are no statistical differences in demographic variables between the treatment group and control group, and baseline evaluation indicated no significant differences in the severity of parental psychopathology between the two groups.

All evaluations were performed by a clinical psychologist familiar with the measures who was blind to random assignment. Therapists were blind to randomization and initial evaluations.

Intervention

The treatment protocol was presented to the children and their parents in the form of group therapy. Children and parents in the UP-C groups were held by the different therapists separately but simultaneously so that parents could participate at the beginning and end of their child's sessions. The purpose of holding parent meetings was to familiarize them with the content of the emotional detective protocol as well as to improve their parenting methods. Both therapists received training on the UP-C for children and parents. All sessions were conducted under the supervision of a clinical psychology professor. To assure treatment fidelity, all the sessions were recorded by the therapist and randomly reviewed by the professor of clinical psychology. In addition, weekly meetings are held between therapists and the professor of clinical psychology.

The unified protocol for the transdiagnostic treatment of emotional disorders in children

The UP for Children is designed to address emotional disorders in children aged 7 to 13 and is adapted from the UP for adults and the UPA for adolescents. This protocol is based on the 'emotional detective' metaphor and includes 5 main modules that are introduced to children in the form of the word 'CLUES'. These modules include: i) increasing emotional awareness (Module C); ii) increasing cognitive flexibility (Module L); iii) challenging maladaptive appraisals and negative thoughts (Module U); iv) emotional exposure and behavioural experiment (Module E); and v) wrap-up and relapse prevention (Module S). These modules are presented to children and their parents during 15 weekly 90-minuts sessions (Ehrenreich-May, Kennedy, Sherman, Barlow, *et al*., 2018; Ehrenreich-May, Kennedy, Sherman, & Buzzella, 2018) (Table 1).

The intrinsic flexibility of transdiagnostic treatment and UP-C group design, allowed us to group children with a range of emotional disorders together. In this study, unlike most studies (in which comorbidity is considered as exclusion criterion), comorbidity of emotional disorders was considered, so that 88.24% (30 out of 34) of the participants had at least one other emotional disorder in addition to the principal diagnosis.

Measures

Anxiety Disorders Interview Schedule for DSM-IV - Child and Parent Version

Anxiety Disorders Interview Schedule for DSM-IV - Child and Parent Version (ADIS-IV-C/P) is a semi-structured diagnostic interview to assess the presence, nature, and severity of anxiety, depression, and externalizing disorders in children ages 6-17. Each parent and child were interviewed separately and the final diagnosis was made by a combination of both reports. If there was a discrepancy between the reports, the diagnosis was made based on the parents' report (Storch *et al*., 2012). ADIS-IV-C/P has high inter-rater reliability (κ=0.65 – 0.77) (Lyneham, Abbott, & Rapee, 2007). The results also show that ADIS-IV-C/P has good validity (Wood, Piacentini, Bergman, McCracken, & Barrios, 2002).

Revised Children's Anxiety and Depression Scale - Parent Report

Revised Children's Anxiety and Depression Scale - Parent Report (RCADS-P) contains 47 items and 6 subscales to assess the severity of emotional disorders' symptoms (corresponding to dimensions of several DSM-IV anxiety disorders and major depression) in children aged 6 to 18 (Chorpita, Moffitt, & Gray, 2005). Internal consistency of this scale has been reported using Cronbach's alpha coefficient 0.93 for the overall score and six subscales ranging from 0.74 to 0.85 (Piqueras, Martín-Vivar, Sandin, San Luis, & Pineda, 2017). The internal consistency of the Persian version of this scale using Cronbach's alpha coefficient for subscales ranged from 0.63 to 0.84 (Rasouli & Minaee, 2017).

Child Symptom Inventory

This scale is used to assess emotional disorders' symptoms based on DSM-IV in children aged 5 to 12 (in this study, the fourth version of this questionnaire was used because, at the time of the study, the fifth version was not adopted in the Iranian population). The Child Symptom Inventory (CSI-4) has two forms for teachers and parents.

In the present study, to identify the exclusion criteria, A (Attention Deficit/Hyperactivity Disorder), B (Oppositional Defiant Disorder), C (Conduct Disorder), C (Psychotic Disorders), and H (Autism Spectrum Disorders) subscales of parents' form were. The internal consistency of the CSI -parent form was obtained using Cronbach's alpha coefficient between 0.74 and 0.94 (Verhulst & van der Ende, 2006). The test-retest correlation for the Persian version of this scale ranged from 0.29-0.76 across a two-week interval (Mohammad, 2007).

Positive and Negative Affect Schedule-short form for Children-Negative Affect

The Positive and Negative Affect Schedule-short form for Children-Negative Affect (PANAS-NA) scale was designed to assess the positive and NA of children in 2012 by Ebesutani *et al*. (2012). This version is adapted from its 27-question version and is compiled in 10 items. In the present study, only NA items were used. Each item reports the affect intensity on a 5-point Likert scale. Accordingly, the

Table 1. CLUES skills, session by session overview of the UP-C.

Modals/Sessions	Goals of the child group	Activities	Goals of the parent group
Consider How I feel Session 1-4 Group	• Introduce to the UP-C and increase motivation • Identify top problems and treatment goals • Provide emotion education: o Recognize each other o Normalize by looking at their function o Rate intensity o Three-component model • Focus on the behavioural and physiological components o Exposure to physical sensations o Introduce to the 'cycle of avoidance' o Modify BDAs	• Identify rewards for new behaviours • Play with 'Emotion Thermometer' • Dance to see the effect of activity on emotion • Play 'Acting Opposite' of 'Emotional Behaviours' • Use 'Science Experiments' to exposures • Describe 'Body Clues' and play the skill of 'Body Scanning' • Induce body clues and experience them without using avoidance • Practice the BDA tracking process • Make an 'activity list' for 'Behavioural Activation'	• Introduce to the EPBs and their OPBs • Discuss 'positive reinforcement' as the opposite behaviour for 'criticism' • Teach how to express 'empathy'
Look at my thoughts Session 5 Group	• Focus on the cognitive components o Alter cognitive appraisal o Increase cognitive flexibility	• Play with the concept of 'flexible thinker' • Use optical illusions to make different interpreting • Tell some stores about common 'thinking traps'	• Discuss the EPB of 'inconsistency' and its OPB of 'consistent reinforcement' and 'discipline'
Use detective thinking and problem solving Session 6-7 Group		• Practice flexible thinking and antecedent reappraisal • Group efforts to solve the 'mystery game' • Group 'Detective Thinking' and 'Problem Solving' game	• Introduce to EPB of 'overcontrol/overprotection' and its OPB, 'healthy independence-granting' • Discuss 'reassurance-seeking' and 'accommodation'
Experience my emotions Session 8-10 Group Session 11-14 Individual	• Teach 'present-moment awareness' and 'non-judgmental awareness' • Prepare and apply 'exposure' • Introduce to the 'safety behaviours' and subtle avoidance behaviours	• Exposure to a scary toy • Finalize 'Emotional Behaviour Forms' for UP-Coming exposures • Exposure to a sample situational emotion • Introduce to the 'Emotion Ladder' for exposures to individualized situational emotion	• Introduce to the EPB of 'excessive modelling of intense emotions' and its OPB, 'healthy emotional modelling' • Explain how parents can use all of their OPBs to support their child's exposures
Stay healthy and happy Session 15 Group	• Review the skills • Prepare to continue using skills	• Celebration of progress made in the treatment • Plan for facing strong emotions in the future	• Review OPBs • Distinguish 'lapses' from 'relapses' and recognizing warning signs of relapse

UP-C, Unified Protocol for Children; BDA, Before, During, and After; EPB, Emotional Parenting Behaviours; OPB, Opposite Parenting Behaviours. In general, parents learn and practice all the skills of the group of children that are not repeated in the table.

child's NA score will be reflected in the range of 5 to 25; and higher scores indicate a higher level of negative emotion. The results show that this version has a good internal consistency (positive affect 0.86 and NA 0.82) (Ebesutani *et al*., 2012). internal consistency coefficient for the short form in the Iranian sample was obtained using Cronbach's alpha coefficient of 0.81 (Lotfi *et al*., 2020).

Childhood Anxiety Sensitivity Index

The Childhood Anxiety Sensitivity Index (CASI) is an adaptation of its adult version. It contains 18 items and three subscales: fear of somatic sensations (10 items), fear of cognitive dyscontrol (5 items), and fear of socially observable anxiety symptoms (3 items). Its scores range from 18 to 54. Higher scores reflect a higher level of AS. This scale has a high internal consistency (Cronbach's alpha=0.87). The reliability of the test-retest correlation ranged from 0.62-0.78 across a two-week interval (Silverman, Fleisig, Rabian, & Peterson, 1991). The internal consistency of this scale in the Iranian sample is also reported to be 0.93(Poursharifi, Babapour, Aliloo, Khanjani, & Zeinali, 2021).

Anxiety Control Questionnaire - Child Version

The Anxiety Control Questionnaire - Child Version (ACQ-C) questionnaire is designed to assess children's perceptions of how much control they have over both internal and external stimuli in children aged 6 to 17. It is adapted from its long-form and has 10 items. Cronbach's alpha coefficient for the overall score is 0.85 (Weems, 2005).

Data analysis

Data were analysed using SPSS-22 software. To investigate the efficacy of the UP-C in reducing NA and AS and increasing PC, 2 (group: UP-C *vs*. C) × 4 (time point: pre-treatment *vs*. post-treatment *vs*. 3-month follow-up *vs*. 8-month follow-up) A series of repeated measure ANOVAs were calculated. In the case of the significant interaction effect of time × group, LSD post hoc test was used to compare time phases two-by-two in independent variables. Hedges effect size was calculated to determine the effect size.

Results

Baseline demographic and clinical characteristics

The UP-C group (n=18) consisted of 77.8% female with an average age of 10.22 years (SD=1.96) and the Control group (n=16) consisted of 56.3% female with an average age of 10.13 years (SD=2.09). According to the results of Chi-square test (X^2) and independent t-test, no significant difference was found in the age and gender means for the UP-C and Control groups (P>0.05); Which indicates the homogeneity of the two groups in demographic variances (Table 2).

Examination of principal and comorbid diagnoses for all participants showed that two participants in each group did not have a comorbid diagnosis. 14.70% of participants (12.50% of the UP-C and 16.65% of the Control group) received the principal diagnosis of depressive disorder. This is while the rate of this disorder as a comorbidity disorder is 36.36% (33.33% of the UP-C and 39.29% of the Control group). Table 2 displays the rates of other anxiety disorders diagnoses.

Pre-treatment differences between conditions

There were no baseline differences between conditions. (P>0.05). In other words, the initial differences in

Table 2. Demographic and clinical patient characteristics.

	UP-C (n=18)		C (n=16)		
	M	**SD**	**M**	**SD**	**Statistics**
Age	10.22	1.96	10.13	2.09	t(32)= 0.14, P=0.656
	No.	**%**	**No.**	**%**	
Gender					
Male	4	22.20	7	43.70	Chi^2=1.79, df=1, P=0.180
Female	14	77.80	9	56.30	
Diagnosis	**Principle diagnosis**	**Comorbid diagnosis**	**Principle diagnosis**	**Comorbid diagnosis**	
SAD	5 (27.75)	3 (10.72)	1 (6.25)	5 (18.25)	
GAD	8 (44.50)	3 (10.72)	8 (50)	0 (0)	
PD	0 (0)	4 (14.28)	1 (6.25)	3 (11.11)	
SoD	1 (5.55)	5 (17.85)	0 (0)	8 (29.64)	
OCD	1 (5.55)	2 (7.14)	4 (25)	2 (7.40)	
MDD	3 (16.65)	11 (39.29)	2 (12.50)	9 (33.33)	

C, Control group; SAD, Separation Anxiety Disorder; GAD, Generalized Anxiety Disorder; PD, Panic Disorder; SoD, Social Anxiety Disorder; OCD, Obsessive Compulsive Disorder; MDD, Major Depressive Disorder.

the pre-treatment in the NA (t (32)=1.03, P=0.309), AS (t (32)=1.47, P=0.152) and PC (t (32)= –0.70, P=0.491) was controlled.

Efficacy of intervention

ANOVA's assumptions were examined. The Kalmogorov-Smirnov test showed that the distribution of dependent variables included NA (P=0.973), AS (0.596), and PC (0.702) were normal. According to the results of Leven test, the assumption of homogeneity of variance is observed in all dependent variables [NA: F(1,32)=0.06, p=0.812; AS: F(1,32)=2.35, P=0.135; PC: F(1,32)=0.05, P=825].

To compare NA, AS, and PC in UP-C and Control in four time points, Mixed ANOVA with repeated measures 2 (group: UP-C and Control) × 4 (time: pre-treatment, post-treatment, 3-month follow-up, and 8-month follow-up) were used. The results of Mauchly's sphericity test showed that the sphericity assumption was observed for NA (P=0.739, Mauchly's W=0.915) but for AS and its components and PC and its components were not observed, Therefore, it interpret the assumption of homogeneity of variances in the mentioned variable, Huynh-Feldt correction was used.

The results of mixed ANOVA for the NA showed that the main effect of time was significant in four time points (P<0.001). In other words, there was a significant difference between the means of NA from the pre-treatment to the 8-month follow-up.

The main effect of the group was also significant, indicating a significant difference between the groups in the NA changes from the pre-treatment to 8-month follow-up (P<0.01). The interaction effect of time × group was also significant (P<0.01). This indicated that there was a significant difference between the groups in NA in post-treatment, 3-month, and 8-month follow-up.

According to Table 3, the results of independent t-test indicated that NA in post-treatment, 3-month, and 8-month follow-up in UP-C, had a significant decrease to Control group (P<0.05).

The results of mixed ANOVA for the AS and its components showed that the main effect of time in four time points of the total score of AS and physical and mental components was significant (P<0.05). In other words, there is a significant difference between the mean scores of AS and physical and mental components from the pre-treatment to the 8-month follow-up. The main effect of time on the social component of AS was not significant (P=0.321). The main effect of the group on the total score of AS and physical component was also significant, indicating a significant difference between the groups in the amount of changes between the two from the pre-treatment to 8-month follow-up (P<0.05). The interaction effect of group × time on the total score of AS and all three components was significant (P<0.05) which indicates a significant difference between the groups of these variables in post-treatment, 3-month, and 8-month follow-up (Table 3). Independent t-test indicated that the total score of AS and its components in post-treatment, 3-month, and 8-month follow-up in UP-C was significantly reduced compared to control group (P<0.05).

The mixed ANOVA on PC and its components showed that the main effect of time for its total score and components was significant (P<0.001). In other words, there is a significant difference between the mean scores of PC and the internal and external components from the pre-treatment to the 8-month follow-up. The main effect of the group on the total score of PC and its components was significant, indicating a significant difference between the groups in the amount of changes in the total score of PC and components from the pre-treatment to 8-month follow-up (P<0.01). The interaction effect of group × time on the total score of PC and its components was significant (P<0.01), meaning that there was a significant difference between the groups in the total score of PC and its components in the post-test period, 3-month and 8-month follow-up.

According to the independent t-test, the total score of PC and its components in post-treatment, 3-month, and 8-month follow-up in the UP-C had a significant improvement compared to Control group (P<0.001).

Maintenance of treatment gains

The least significant difference test (LSD) shows how long the therapeutic effects persist over time. Has the UP-C been able to maintain its effects or not? The LSD showed that in the UP-C, NA in the post-test, 3-month, and 8-month follow-up was significantly reduced compared to the pre-treatment (P<0.01). The mean of NA increased significantly from post-treatment to 8-month follow-up (P=0.006). No significant difference was found in the two-by-two comparison of post-treatment with 3-month follow-up and also the comparison of 3-month follow-up with 8-month follow-up in NA (P>0.05). The trend of change can be seen in Figure 2.

The results of LSD test on AS variable showed that in UP-C, the mean total score of AS and physical and mental components in post-treatment, 3-month, and 8-month follow-up decreased significantly compared to pre-treatment (P<0.01). No significant difference was found in two-by-two comparisons of the time points (P>0.05) (Figure 2).

The results of LSD test showed that in the UP-C the mean of the total score and components of the PC in the post-treatment, 3-month, and 8-month follow-up were significantly higher than the pre-treatment (P<0.01). The mean total score of PC and internal control component in the 3-month follow-up increased significantly compared to the post-treatment (P<0.05). The mean score of the external control component in the 8-month follow-up increased significantly compared to the post-treatment (P=0.049). No significant difference was found in other two-by-two comparisons of time points (P>0.05) (Figure 2).

Table 3. Outcome measures at each assessment.

	UP-C		Control		t (df)	F (df)	F (df)	F (df)
	M	SD	M	SD	Pre-treatment comparison	Within-group comparison	Between-group comparison	Interaction time × group
PANAS (NA)								
Pre-treatment	16.06	3.21	15.00	2.68	t(32)=1.03, P=309			
Post-treatment	9.44	3.38	15.75	2.29		F(3,96)=21.83, P<0.001	F(1,32)=28.44, P<0.001	F(3,96)=48.99, P<0.001
Follow-up 1	10.00	2.40	16.62	2.91				
Follow-up 2	10.94	3.01	17.75	3.02				
CASI								
Physical								
Pre-treatment	18.17	4.00	17.06	3.15	t(32)=0.88, P=382			
Post-treatment	14.89	3.69	18.44	4.27		F(2.66,85.15)=3.23, P<0.031	F(1,32)=5.62, P<0.024	F(2.66,85.15)=15.71, P<0.001
Follow-up 1	15.06	3.17	19.19	4.99				
Follow-up 2	15.72	3.00	2.37	4.13				
Mental								
Pre-treatment	8.28	2.11	7.31	1.62	t(32)=1.48, P=148			
Post-treatment	6.44	1.54	7.69	1.62		F(2.59,82.95)=3.33, P<0.029	F(1,32)=3.28, P<0.080	F(2.59,82.95)=12.12, P<0.001
Follow-up 1	6.33	1.24	7.94	2.21				
Follow-up 2	6.56	1.58	8.31	1.96				
Social								
Pre-treatment	6.78	1.44	6.12	1.59	t(32)=1.26, P=217			
Post-treatment	5.83	1.20	6.81	1.47		F(2.65,85.94)=1.18, P<0.321	F(1,32)=1.98, P<0.179	F(2.68,85.94)=6.27, P<0.002
Follow-up 1	6.06	0.87	7.12	1.67				
Follow-up 2	6.33	1.49	7.12	1.50				
Total								
Pre-treatment	33.22	6.25	30.50	4.23	t(32)=1.47, P=152			
Post-treatment	27.17	5.28	32.94	5.12		F(2.47,79.17)=3.33, P<0.023	F(1,32)=7.25, P<0.11	F(2.47,79.17)=19.02, P<0.001
Follow-up 1	27.44	4.39	34.25	6.67				
Follow-up 2	28.61	5.09	35.81	5.31				
ACQ								
Internal								
Pre-treatment	9.00	6.03	10.25	5.67	t(32)= –0.62, P=540			
Post-treatment	20.05	3.38	9.44	5.90		F(2.65,84.90)=20.66, P<0.001	F(1,32)=16.19, P<0.001	F(2.65,84.90)=29.51, P<0.001
Follow-up 1	17.78	4.53	8.68	5.85				
Follow-up 2	18.72	6.20	9.56	6.52				
External								
Pre-treatment	4.50	2.50	5.19	3.01	t(32)= –0.73, P=473			
Post-treatment	8.94	1.55	4.31	2.24		F(2.02,64.54)=13.68, P<0.001	F(1,32)=20.12, P<0.001	F(2.02,64.54)=32.17, P<0.001
Follow-up 1	8.61	1.46	4.44	2.45				
Follow-up 2	8.06	2.48	3.94	2.20				
Total								
Pre-treatment	13.50	7.98	15.43	8.21	t(32)= –0.70, P=491			
Post-treatment	29.00	4.78	13.75	7.70		F(2.31,73.88)=21.77, P<0.001	F(1,32)=19.12, P<0.001	F(2.02,64.54)=37.18, P<0.001
Follow-up 1	26.39	5.45	13.12	8.01				
Follow-up 2	26.78	8.36	13.50	8.17				

PANAS (NA), Positive and Negative Affect Schedule (Negative Affect); CASI, Childhood Anxiety Sensitivity Index; ACQ, Anxiety Control Questionnaire.

Effect sizes

The Hedge effect size was conducted to estimate the effect of treatment more accurately at four time points. Hedges reported small, medium, and large effect sizes of 0.2, 0.5, and 0.8, respectively. The effect size of the UP-C on the NA of children with emotional disorders from pre-treatment to post-treatment (hedges'g=2.01), pre-treatment to 3-month follow-up (hedges'g=2.13) and pre-treatment to post-treatment (hedges'g=1.64) was large (Table 4).

The effect size of the AS and a two-by-two comparison showed that in the UP-C, the total AS score of children with emotional disorders ranged from pre-treatment to post-treatment (hedges'g=1.05), pre-treatment to 3-month follow-up (hedges'g=1.07), and pre-treatment to post-treatment (hedges'g=0.81) was large.

The effect of UP-C on the total score of PC in children with emotional disorders from pre-treatment to post-treatment (hedges'g= –2.36), pre-treatment to 3-month follow-up (hedges'g= –1.89) and pre-treatment to post-treatment (hedges'g= –1.63).

Discussion and conclusions

The *triple vulnerability model* and previous research have shown that UPs can effectively treat a range of emotional disorders based on providing flexibility and convenience (Ehrenreich-May *et al*., 2017; Ehrenreich *et al*., 2009; Farchione *et al*., 2012; Kennedy *et al*., 2019; Leonardo, Aristide, & Michela, 2021; O'donnell *et al*., 2021; Sakiris & Berle, 2019; Steele *et al*., 2018). Previously, the studies on the effectiveness of the UP on transdiagnostic factors have yielded promising results in adolescents and adults (Khakpoor, Bytamar, & Saed, 2019). In the present study, we aimed to evaluate UP effectiveness specifically in the paediatric population, by selecting three key transdiagnostic constructs (NA, AS, PC).

In this study, participants who were formerly diag-

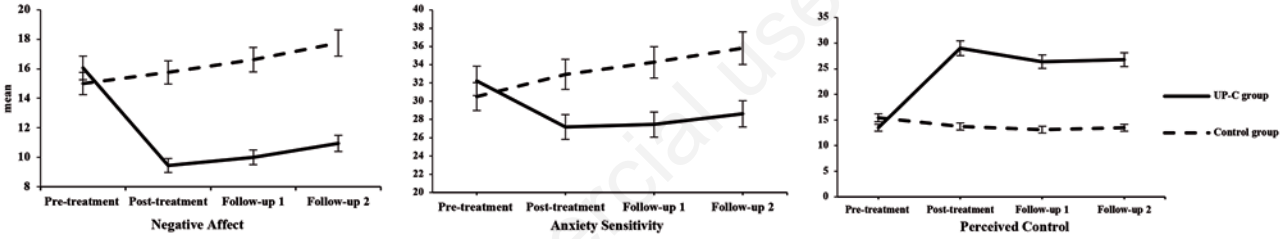

Figure 2. Comparison of outcomes in pre-treatment, post-treatment, 3-month follow-up, and 8-month follow-up for NA, AS, and PC.

Table 4. Effect sizes.

	Group	Pre-Post	Pre-F1	Pre-F2	Post-F1	Post-F2	F1-F2
PANAS (NA)	UP-C	2.01	2.13	1.64	–0.19	–0.47	0.03
	C	–0.30	–0.58	–0.96	–0.33	–0.75	–0.38
CASI							
Physical	UP-C	0.85	0.86	0.69	–0.05	–0.25	–0.21
	C	–0.37	–0.51	–0.90	–0.16	–0.42	–0.23
Mental	UP-C	1.00	1.01	0.92	0.08	–0.08	–0.16
	C	–0.23	–0.23	–0.56	–0.13	–0.34	–0.19
Social	UP-C	0.72	0.61	0.31	–0.22	–0.37	–0.22
	C	–0.45	–0.62	–0.65	–0.20	–0.21	0.00
Total	UP-C	1.05	1.07	0.81	–0.06	–0.28	–0.25
	C	–0.52	–0.67	–1.11	–0.22	–0.55	–0.26
ACQ							
Internal	UP-C	–2.18	–1.60	–1.56	0.57	0.27	–0.17
	C	0.14	0.27	0.11	0.13	–0.02	–0.15
External	UP-C	–2.13	–2.01	–1.43	0.22	0.43	0.27
	C	0.33	0.27	0.47	–0.06	0.17	0.21
Total	UP-C	–2.36	–1.89	–1.63	0.51	0.33	–0.06
	C	0.21	0.29	0.24	0.08	0.03	–0.05

C, Control group; PANAS (NA), Positive and Negative Affect Schedule (Negative Affect); CASI, Childhood Anxiety Sensitivity Index; ACQ, Anxiety Control Questionnaire.

nosed with emotional disorders were randomly and blindly assigned to the UP-C and control groups. The UP-C group showed a significant decrease in NA (hedges'g=2.01) and AS (hedges'g=1.05), and a significant increase in PC (hedges'g= –2.36), after 15 group sessions. The results showed that these changes (compared to the pre-test assessment), were still significant at the 3 and 8 months follow-up.

These results indicated the maintenance of therapeutic effects (along with efficacy) - a feature that is an important and expected feature of transdiagnostic therapies. In contrast, the control group does not show any improvements in these factors. The decline experienced by the control group not only hints at the importance of treating childhood emotional disorders but also ascribed to the threatening and ambiguous conditions caused by the pandemic and quarantine.

While all measurements except the 8-month follow-up were performed at normal intervals, the 8-month follow-up results were affected by pandemic conditions. This partly explains the insignificant decline of the UP-C group likewise. For instance, while the results indicate an increase in NA at the 8-month follow-up in both groups, children in the UP-C group experienced a much smaller decline.

The promising results of the present study were somewhat reminiscent of proponents of transdiagnostic approaches, who argue that the fundamental difference between their approaches and diagnosis-specific approaches is the position that these approaches take towards the treatment of emotional disorders. The process of diagnosis-specific therapies is top-down and therefore they focus on the symptoms of the disorder. But a transdiagnostic treatment has a bottom-up process; therefore, the case formulation in these approaches prioritizes the underlying mechanisms that have caused and perpetuated patients' multiple problems (Sauer-Zavala *et al*., 2017). It is important to note that there is no explicit boundary between transdiagnostic and diagnostic approaches. In fact, it seems that transdiagnostic treatments have emerged from the diagnostic treatments that increasingly tended to be transdiagnostic. Thus, today in CBT-based diagnostic protocols, we also see case formulations based on common factors like avoidance (as one of the most fundamental mechanisms of emotional disorders).

The results showed that NA, AS and PC in the UP-C group improved over time compared to the control group (P<0.5, Table 3) These results indicate that the observed changes are the effect of the intervention. Generally, UP-C was assessed as an effective protocol on all three intended transdiagnostic factors, in children, compared with the control group.

Previously, the effectiveness of the UP and UPA on reducing NA was reported in adults (Chu, 2012; Jacobson & Newman, 2017), and adolescents (Essau *et al*., 2018; Rouquette *et al*., 2018). Decreased NA is expected to occur through the modification of cognitive biases [cognitive model (Schaffer *et al*., 2012)] followed by a decrease in avoidance (behavioural model) (Bauer *et al*., 2012; Bosman *et al*., 2019; Queen & Ehrenreich-May, 2014). In the second and third modules, UP-C employs cognitive challenge techniques to replace more adaptive ways of dealing with problematic issues and thoughts instead of avoidance. In these modules, children experience NA reduction by direct investigation of threatening and unpleasant thoughts through identifying and getting rid of thinking traps using the skill of detective thinking (collecting clues to confirm or reject emotional thought).

In this regard, UP-C provides clinicians with a range of exposure techniques to address avoidance (including exposures to general emotional states, interoceptive techniques, *in vivo* exposures, and behavioural activation exercises) to tailor them to the individual needs of the client (Crowe & McKay, 2017; Flessner & Piacentini, 2017). For example, the first modal of UP-C exposed the children to sadness (behavioural activation).

In the following, the degree to which these senses are threatening in children's perception was decreased by inducing and facing anxiety-related physical sensations.

In the fourth modal, as the heart of therapy, children were asked to deliberately perform behaviours that bring them closer to intense emotions (instead of avoiding them). It helps them to realize that emotions are not dangerous and avoiding them does not protect them from real danger. In addition to what has been said, the non-judgmental observation of emotions was taught in the first modal and practiced during the treatment. As a consequence, it facilitates patients' ability to grasp the temporary nature of emotions. In general, most treatment moments (what is going on in sessions, techniques, and exercises) focus on reducing the priority of avoidance in children's emotional, cognitive, and behavioural patterns, so that it cannot only reduce the severity of the NA but also prevent it from relapsing.

Participants in the UP-C group also experienced an increase in PC. This result is in line with the adult's study (Mychailyszyn *et al*., 2012). The UP-C, with the help of the 'Weekly Top Problems Form', tracks and reviews the rating of three basic child issues, from the perspective of the child and his or her parents (separately) and was repeated at the beginning of every session.

Thus, observing the decrease in the rating during each session leads to increase patients' motivation, and improves their PC gradually. During the UP-C first module, learning about the 'Acting Opposite' to emotional behaviours and observing changes in the intensity of emotion using behaviour change (behavioural activation) as well as the weekly recording of these effects in a home exercise helps children feel their emotions in control.

As the treatment progress, the induction and exposure to anxiety-related physical sensations also alter children's perceptions of internal control, leading to a reduction in the sense of danger to these physical sensations. The per-

ception of increased internal control is experienced in another way by directly examining unpleasant automatic thoughts and not seeing the bad sequels following them. In addition, by teaching problem-solving skills, children gain the ability to take an effective approach to their problems, and with brainstorming (the second stage of problem-solving skills) they gain more flexibility toward solutions, thereby reaching a higher level of external control perception. The decisive effort to increase the overall PC in children is achieved in the fourth modal, by successfully performing situational and emotional exposures, followed by an increase in the sense of self-efficacy. This was very evident in the clinical experience of this study.

Overall, the UP seeks to best target the improvement of PC by increasing the sense of self-efficacy and decreasing the sense of danger to the internal and external anxiety evocation events.

In this regard, one of the most important components of UP-C in improving PC is through active parental involvement. In the process of treating children, parents learn and practice all skills learned by children, so they not only improve their potential emotional disorders but also reconsider their parenting styles. Therefore, children's first-hand experiences get addressed and the conditions for the development of PC change, precisely at the age when it is being formed, by intervening in the parenting style.

Another variable considered in this study was AS. UP-C was also assessed as an effective treatment for AS; these results are consistent with the studies of adolescents (Rouquette *et al*., 2018; Weisz & Kazdin, 2017) and adults (Berman *et al*., 2000; Brown & Barlow, 2009; Jacobson & Newman, 2017). Much of the improvement experience in AS in the UP-C group probably occurred as a result of the first modal. In this modal, after teaching the physical feelings related to each emotion, children are encouraged to intentionally induce these physical feelings by doing several group activities. Children then use Body Scanning skills to track the created feelings to see them gradually decrease. This experience (actually exposure) reduces the clients' sensitivity to the physical and emotion-related symptoms and thus cuts off the association between physical feelings and emotional behaviours which leads to extinction. In this way, sensitivity to the physical symptoms of anxiety decreases in both children and parents. Afterward approach strategies get reinforced (replaced) in both groups.

This study had several limitations. First, although the main effect sizes were large and analysis of follow-up periods showed relative stability but the sample size was small; which makes it difficult to generalize the findings. Therefore, repeating this study with a larger sample and more diverse ethnic groups can yield more precise findings.

Further, although the current study was performed on an extensive sample in terms of the variety of disorders, still limited. Studying in children with more behavioural disorders can produce more accurate results.

The third limitation of this study is related to the type of control group. In the present study, the control group was no-treatment control group. Unfortunately, it was not possible to provide treatment to members of the control group after the study was completed, due to the lack of facilities. This issue was informed to the individuals before conducting the research and a written consent form was received from them.

There were also some limitations in applying UPC. One of the inclusion criteria of the current study was the cooperation of at least one parent to attend parent sessions. This condition was assigned to attract the cooperation of more clients. However, it is obvious that the presence of both parents has a greater effect on the children's symptoms.

Future studies would benefit from the flexible design of UPC. For example, the modular structure of UPC makes it possible to investigate the effectiveness of each module separately. This can help to extend and improve this treatment protocol. Moreover, UPC as a group and transdiagnostic therapy based on psycho-education could be applied in the context of school-based interventions, where a group of children at the same age with various problems is gathered. On the other hand, the in-depth nature of the transdiagnostic treatments gives a good opportunity to investigate the efficacy of this protocol in preventing the development, comorbidity, and recurrence of emotional disorders, in future studies.

In general, there are more transdiagnostic factors that are still neglected in child studies. Future studies need to be done to investigate the role of these transdiagnostic factors, which can lead to improved transdiagnostic interventions.

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