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DOI: 10.4103/jehp.jehp_1578_22

# Effectiveness of unified protocol for trans diagnostic treatment in children with anxiety disorders: A randomized control trial

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Received: 03-11-2022
Accepted: 24-12-2022
Published: 27-11-2023

**Abstract:**

**BACKGROUND:** The Unified Protocol for Transdiagnostic Treatment of Emotional Disorders in Children (UP-C) is a theory-derived approach that can target the common underlying processes, such as the cognitive, emotional, and behavioral processes in emotional disorders in children aged 8–12 years. This study aimed to investigate UP-C's efficacy in treating children's anxiety disorders compared to cognitive behavior therapy (CBT).

**MATERIALS AND METHODS:** In this randomized control trial (RCT), with pre-test, post-test, and follow-up, 34 participants aged 8–12 with anxiety disorders were selected through the restricted randomization method and allocated to intervention (UP-C) or control (CBT) groups by random allocation rule. UP-C group consisted of 15 weekly individual sessions, and CBT included 16 weekly individual sessions. The Emotion Regulation Questionnaire for Children and Adolescents (ERQ-CA) and The Screen for Child Anxiety Related Disorders (SCARED-71) were completed in the pre-test, post-test, and three-month follow-up stages. The data of participants were analyzed using the repeated measure analysis of variance. A *P*- value under. 05 was regarded as significant.

**RESULTS:** Based on the repeated measures ANOVA, UP-C, and CBT significantly reduced anxiety symptoms ($P = .002$) and emotional suppression ($P = .032$). Moreover, UP-C and CBT significantly increased emotion regulation ($P = .000$) and cognitive reappraisal ($P = .000$).

**CONCLUSION:** The individual UP-C can be effective as anxiety-oriented CBT in treating anxiety disorders. Also, in the three months follow-up, the UP-C's effects were more stable and progressive than the CBT.

**Keywords:**

Anxiety disorders, children, cognitive behavior therapy, cognitive reappraisal, emotional suppression, unified protocol

## Introduction

The lifetime prevalence of anxiety disorders ranges from 7.5 to 31%, making it one of the most prevalent mental health issues.[1-8] Anxiety disorders persist from childhood into early adolescence at the rate of 5–13%.[9] The Diagnostic and Statistical Manual of Mental Disorders (DSM-V) states that anxiety disorders are frequently present in fear, acute anxiety, and anxiety-related behavioral abnormalities.[10] This category includes generalized anxiety disorder, panic disorder, specific anxiety disorder, social anxiety disorder, agoraphobia, selective mutism, and separation anxiety disorder, which differ in type and degree of threat.[11] Some global features are shared with anxiety disorders, including more prevalence of specific phobia, less prevalence of agoraphobia, early onset



**How to cite this article:** Ahadianfard P, Gharraee B, Aghebati A, Habibi Asgarabad M. Effectiveness of unified protocol for trans diagnostic treatment in children with anxiety disorders: A randomized control trial. J Edu Health Promot 2023;12:387.

compared with depressive disorders, chronic in nature, and gender correlation.[12] Also, they differ significantly according to age at onset (4–7 for separation anxiety and 13 for social phobia),[13] prevalence (5% for specific phobia.,5–2% for social anxiety disorder.,4% for panic disorder, 1% agoraphobia.,4 –3.6% generalized anxiety disorder, 4% separation anxiety disorder, and. 3–1% selective mutism),[14] and trajectory in older children and adolescents.[3,4,6,15]

Anxiety disorders are linked to some negative effects, including poor academic achievement, development of common anxiety disorders,[3] comorbidity with mood disorders, behavioral problems, eating disorders, and substance disorders,[4,5,16] and inter-intra personal problems.[17] Early anxiety in children increases the likelihood of later anxiety disorders,[18] depression, and poorer overall performance in adulthood.[3] Since anxiety disorders become chronic if not treated,[19] and the possibility of recurrence increases, early identification, and therapeutic interventions to prevent the following outcomes have led to several treatment protocols.[20] Therapeutic guidelines commonly refer to CBT and Medication for Serotonin Reuptake Inhibitors (SSRIs) as a standard treatment for anxiety disorders in children.[7] According to the statistics, about 40% of children and adolescents receiving short-term CBT have not shown a therapeutic response.[21,22] Also, dysfunction in 40–50% of children receiving CBT remained.[23] Moreover, studies have revealed that although relapse in CBT for anxious children is low (8%), individuals who are younger, taking psychiatric medications, and who also have associated externalizing disorders have increased risks of relapse.[24]

Although CBT indirectly affects children's emotion regulation, emphasis on emotion regulation can optimize treatment protocols.[25] Also, when there is no access to a disorder-specific protocol, transdiagnostic treatment can be seen as a viable treatment choice.[26] One therapeutic approach targeting children's emotion regulation processes is the UP-C[27]). This theory-derived approach can target the underlying cognitive, emotional, and behavioral processes common to various emotional disorders in children.[27] According to Barlow (2011), there is a fundamental factor called neuroticism that underlies emotional disorders like anxiety, a relatively stable pattern of facing the world,[28] which causes experiencing an increased amount of negative emotions, such as anxiety, sadness, or anger.[29] High degrees of emotional responsiveness, suppressing, avoiding, escaping, and controlling such emotions to get rid of them may result from it.[28] This pattern can be maintained by a negative reinforcement cycle and inadequate efforts to regulate emotions and prevents learning alternative and valuable strategies.[28] Hence, children with higher distortion levels are stimulated by various environmental stimuli and experience different intense emotional states in the form of considerable anxiety and depression disorders.[27] The UP-C can reduce the frequency and severity of negative emotions by targeting underlying processes, disturbing reactions, and unsuccessful attempts to regulate extreme negative emotions such as repetitive negative thinking (rumination and worry) and behavioral avoidance and increasing the use of more adaptive strategies.[30] Since anxiety disorders are highly correlated with each other's, and share common genetic, neuropsychological, and environmental risk factors,[21,27] determining the appropriate treatment protocol for treating anxiety disorders in children theoretically and practically would be important. So, this study aimed to evaluate the effectiveness of the individual UP-C in anxious children aged 8–12 years and compare the UP-C with CBT in children anxiety disorders, emotion regulation, cognitive reappraisal, and emotional suppression. The Coping Cat Program (CC Program) has been chosen as the CBT protocol. It is one of the evidence-based anxiety-specific CBT protocols and is suitable for children 8–12 years old[31]; also, the UP-C is ideal for this age-group.[27] Comparing the UP-C with CC Program in children's anxiety disorders can be beneficial in understanding the underlying processes of change in children, especially the effectiveness of each treatment on cognitive and emotional components and, thereby, the effect on anxiety symptoms. Also, since the UP-C is a new treatment and there is still little research evidence about the usefulness of this treatment method concerning children's internalized disorders, investigating its effectiveness on the spectrum of comorbid anxiety disorders in children can be helpful for future clinical application of this therapeutic approach and researches in this field.

## Materials and Methods

### Study design and setting

The present study is a pre-test-post-test RCT with a three-month follow-up and a control group conducted from April 2021 to June 2022.

### Study participants and sampling

Participants were recruited from a psychiatry health center in Tehran, Iran. Participants and their parents agreed to enter the study and were asked to fill out the consent form and invited to the assessment—the form outlined ethical issues. A total of 39 children aged 8-12 years were assessed. Screening of eligible participants was done using inclusion and exclusion criteria. Children had to be included to be in the age range of 8–12, diagnosed with anxiety disorder based on the structured interview for DSM-5 (Kiddie Schedule for Affective Disorders and Schizophrenia- Present and Lifetime Version), and receiving medication in case of

Attention Deficit/Hyper Activity Disorder (ADHD). This criterion was designed to mitigate the effects of attention deficit disorder on learning and session participation. Existence of depressive disorders, autism spectrum, mental retardation, bipolar, psychosis, learning disorders, conduct and oppositional defiant disorder on the initial assessment day, also having serious suicidal thoughts, receiving any psychiatric medication to treat anxiety disorders, and a history of receiving psychotherapy in the last two years were non-exclusion criteria. Also, the exclusion criteria included the need to start medication and the absence of more than two sessions in treatment sessions.

The sample (N = 34) consisted of 19 boys and 15 girls and were randomly assigned to two groups: an experimental group (n = 17, nine boys and eight girls) and a control group (n = 17, ten boys and seven girls). By the end of the program, two children from the experimental group and three from the control group had left due to parental scheduling issues. One child from the experimental group was excluded due to exclusionary criteria data. The final sample was 28 [Figure 1]. Table 1 shows the demographic characteristics of the sample.

## Interventions

Participants assigned to the experimental group received 15 individual weekly sessions of UP-C (60 min), according to Table 2. Since this protocol is implemented individually, at the end of each session, the content related to parents is also presented. Participants in the control group received 16 individual sessions of CBT (45–60 min) based on the CC Program. In this group, parents were met in two separate sessions, as shown in Table 3.

## Data collection tool and technique

Data were collected using SCARED-71[32] and ERQ-CA.[33] The interventions started one week after completing the questionnaires. The participants in the experimental group received 15 weekly 1-hours individual sessions based on UP-C. The participants in the control group participated in CC Program, a 16-weekly individual 1-hour session providing CBT. All participants completed the assessment procedure at the final treatment session and three months later at the follow-up phase. Two different therapists hold experimental and control groups. They were comparable in gender, age, education, and experience. This clinical trial was administered under the supervision of university professors who are the second and third authors. The treatment outcomes included the symptoms and signs of anxiety disorders, emotion regulation, cognitive reappraisal (CR), and expressive suppression (ES) that have been assessed by semi-structured interviews and questionnaires, including:

1. Kiddie Schedule for Affective Disorders and Schizophrenia- Present and Lifetime Version (K-SADS-PL). K-SADS-PL is a semi-structured interview guide for screening children and adolescents (6–18 years) for present and lifetime mental disorders based on DSM-5 diagnoses. This measure evaluates five diagnostic criteria: mood disorders (depressive disorders, mania, and hypomania), psychotic disorders, anxiety disorders,

**Table 1: Demographic characteristics of the sample**

| Variables | UP-C *n* (%) | CBT *n* (%) | Total *n* (%) | $\chi^2$ (*P*) |
|---|---|---|---|---|
| Gender | | | | |
| Girl | 8 (57/.1) | 4 (28.6) | 12 (42.9) | 0.57 |
| Boy | 6 (42.9) | 10 (71.4) | 16 (57.1) | (.447) |
| Age | | | | |
| 8–10 | 10 (74.1) | 11 (78.6) | 21 (75) | 0.19 |
| 11–12 | 4 (28.6) | 3 (21.4) | 7 (25) | (.819) |

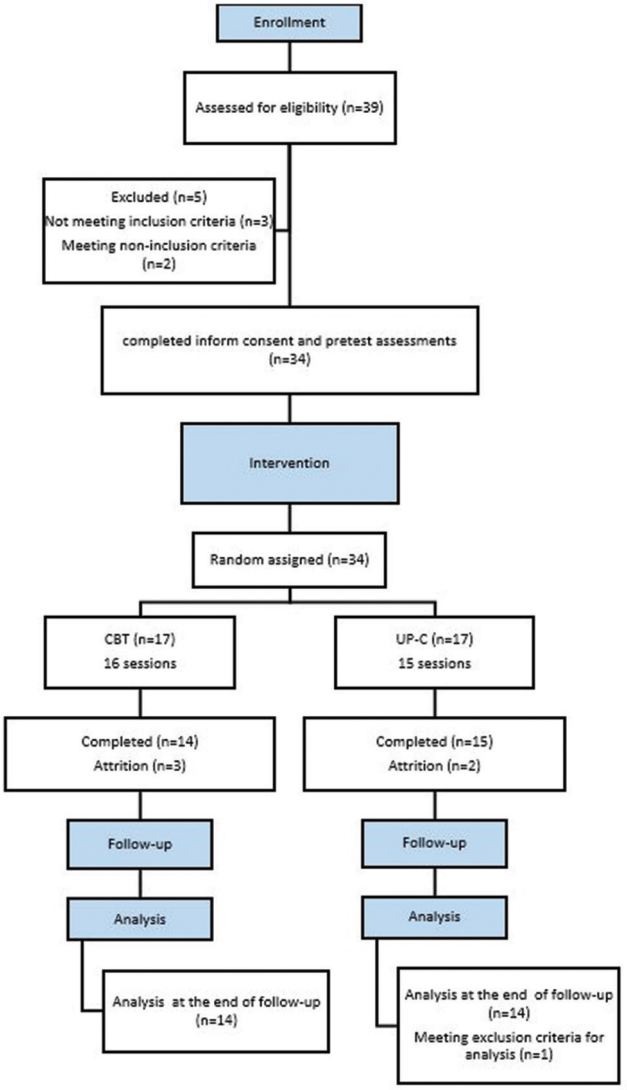


**Figure 1:** Flowchart of study

**Table 2: Content of sessions in experiment group based on unified protocol for transdiagnostic treatment in emotional disorder in children**

| Sessions | Training Content |
|---|---|
| 1–4 | Sessions related to paying attention to feelings: introducing the protocol, setting goals, psychoeducation about emotions, behavioral activation, using scientific experiments to change emotions and behaviors, paying attention to physical clues of emotions |
| | For parents: psychoeducation about emotions and emotional and opposite parenting behaviors, empathy, criticism, and positive reinforcement |
| 5 | Tracking thoughts and using detective thinking to identify cognitive distortions |
| | For parents: focus on consistent discipline |
| 6–7 | Sessions related to changing thoughts and using more flexible thoughts, problem-solving, and conflict management |
| | For parents: Staying away from over-supporting and strengthening healthy independence |
| 8–14 | Sessions related to experience present moment: awareness of experiences, familiarity with emotional exposure, facing emotions |
| | For parents: Emphasizing the importance of healthy emotional behavior role models, including exposure instead of avoidance and intense emotional reactions. |
| 15 | Reviewing, determining helpful skills, and relapse prevention |
| | For parents: psychoeducation about the lapse, relapse, and preparing a plan for relapse prevention |

**Table 3: Content of sessions in control group based on coping cat protocol for anxiety disorders in children**

| Sessions | Training Content |
|---|---|
| 1 | Communicating with children, psychoeducation the treatment, and determining treatment goals |
| 2 | Identifying feelings of anxiety and fear |
| 3 | Identifying bodily reactions to anxiety |
| 4 | The first meeting with parents: determining their treatment expectations and explaining children's treatment process |
| 5 | Relaxation training |
| 6 | Identifying anxiety-provoking self-talk and its effects |
| 7 | Reviewing anxiety-provoking self-talk, changing them, and problem-solving skills |
| 8 | Reviewing skills from the previous sessions, self-assessment, and self-rewarding |
| 9 | The second meeting with parents: managing children's anxiety and rewards for coping with anxiety |
| 10-11 | Practicing exposure tasks in situations that cause little anxiety |
| 12-13 | Practicing exposure tasks in situations that cause moderate anxiety |
| 14-15 | Practicing exposure tasks in situations that cause high anxiety |
| 16 | Practicing exposure tasks in high-anxiety situations and completing treatment |

destructive behavior disorders, substance abuse, tic disorders, eating disorders, and elimination disorders.[32] Most of the items in this tool are graded on a scale of 0–3, where a score of 0 indicates that no information is available in this area, and two indicates that the symptom is absent. A score of 2 indicates below the symptoms' cutoff points, and 3 represents the threshold criteria.[34] In the original study by Kaufman *et al*. (1997),[32] the agreement between raters in scoring and diagnoses was about 93%–100%. In many types of research, the validity and reliability of K-SADS-PL have been supported.[32,35-39] The reliability and validity of this tool have also been confirmed in Iran.[40,41] The sensitivity coefficient of this tool for GAD, panic, social, and specific phobia is 100, 90 for OCD, and 80 for PTSD.[40] A trained psychologist administered the K-SADS-PL in this investigation.

2. Emotion Regulation Questionnaire for Children and Adolescents (ERQ-CA). The Emotion Regulation Questionnaire for Children and Adolescents' major scale was developed by Gross[33] (1998) to measure children's and adolescents' thoughts and feelings about their emotions. It has ten elements and two main components: expressive suppression (ES) and cognitive reappraisal (CR). Items are rated on a 5-point Likert scale (1 = strongly disagree and 5 = strongly agree). Cognitive reappraisal is a cognitive change strategy that includes redefining the emotion-provoking situation and changing its emotional effects. Expressive suppression is also a type of response modification that includes inhibiting emotional and expressive behaviors and expressing emotions.[42] Suppression is considered a response-oriented strategy, and reappraisal is an antecedent-oriented strategy.[33] Its Cronbach's alpha has been calculated more than. 75.[7,33] The Persian version has the same two factors, with the internal consistency reported as. 68 -.79, in order.[43] In this study, Cronbach's alphas were. 75.
3. The Screen for Child Anxiety Related Disorders (SCARED-71). Birmaher *et al*.[44] (1997) established this scale. The newest version of this has been designed by Bodden *et al*. (2009) and is used to assess anxiety in children aged 8–18. It has 71 items, and responses are given on a 3-point Likert scale (1 = hardly ever true and 3 = often true). It can assess panic disorders, generalized anxiety disorder, separation anxiety, social anxiety, and fear of school. Its retest validity is. 7–.9. Its internal consistency is. 91 in a non-clinical population and. 86–.93 in a clinical population.[45] Also, in the Iranian population, Cronbach's alphas and retest validity for the major scale are. 93.,83.,57–.84, and. 61–.82 for the subscales, respectively.[46] In this study, Cronbach's alphas were. 89.

## Data analysis

The data in the current investigation was produced and analyzed using SPSS Version 24 (IBM SPSS Statistics,

IMB Corporation, Chicago, IL). The Chi-squared test was used for any differences between the experimental and control group's age and gender. For baseline scores in anxiety, emotion regulation, emotional suppression, and cognitive reappraisal between the experimental and control groups, an independent *t*-test was carried out. Analyses of repeated measurements were used to investigate the interactions between the two groups. The repeated measures were subjected to an alpha level of. 05. Each analysis employed TIME as the within-subjects variable (three levels: pre-test, post-test, and 3-month follow-up). This study's main focus was on the impacts of the GROUP x TIME interaction. Cohen's d and Eta squared formulas were used to determine effect sizes.

### Ethical considerations

The Ethics Committee approved the present study of the Iran University of Medical Sciences with a reference number of [IR.IUMS.REC.1399.1433]. Ethical approval was obtained in March 2021. After completing the informed consent by parents of participants who met the research criteria, they were assessed and entered the research. This assessment included demographic information, interview, and completing the questionnaires.

## Results

The demographic information is presented in Table 1. Age ($P$ = .819) and gender ($P$ = .447) factors did not significantly differ between the experimental and control groups according to the Chi-square test results. There were no significant differences between the two groups at baseline in demographic, diagnostic, and questionnaires and the number of sessions according to an independent *t*-test ($P$ > .05). Table 4 presents the diagnosis and comorbid diagnoses for participants in the two groups. The descriptive statistics for the pre-test, post-test, follow-up, and effect sizes are shown in Table 5.

### Anxiety

According to the results presented in Table 6, time significantly affected anxiety ($F$ = *6.75*, $P$ = .000). The average anxiety level has significantly changed from the pre-test to the follow-up stages. Also, the effect size is. 17. TIME×GROUP interaction effect showed no significant differences between the UP-C and CBT from the pre-test to follow-up ($F$ = *.035*, $P$ = .70). Figure 2 (the linear diagram of anxiety) showed a decreasing trend from pre-test to follow-up in both groups. The anxiety reduction in follow-up in UP-C continued and became stable in CBT. The UP-C group's mean was the lowest in the follow-up [Figure 2].

### Emotion regulation

For the emotion regulation variable, the sphericity assumption is not established ($P$ < .001). Therefore, in the variance analysis of the repeated measures table, the degree of freedom correction based on Greenhouse-Greaser was used to test the intra-group effects. From the pre-test to the follow-up ($F$ = *9.72*, $P$ = .002), both groups showed a significant improvement in their ability to regulate their emotions [Table 7], with an effect size of. 23. There are no significant differences between UP-C and CBT in increasing emotion regulation ($F$ = *0.29*, $P$ = .64). The increasing trend of emotion regulation in both groups is shown in Figure 3. The highest emotion regulation in follow-up is for CBT.

### Cognitive reappraisal

For the cognitive reappraisal variable, the sphericity assumption is not established ($P$ < 0.001). Therefore,

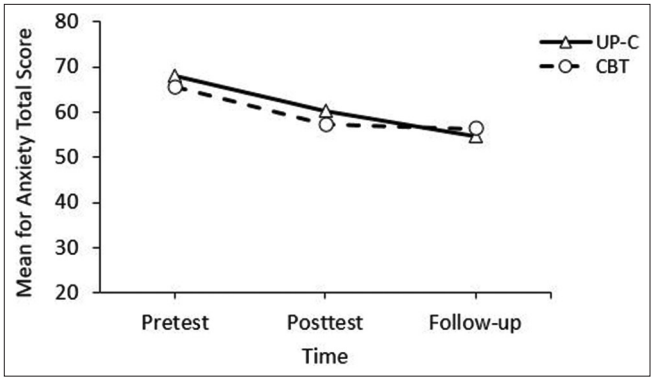


**Figure 2:** Comparison of changes in anxiety total score in the pre-test, post-test, and follow-up for UP-C and CBT

**Table 4: Diagnosis and comorbidity for participants in two groups**

| | Principal D *n* (%) | Comorbid D* *n* (%) | Principal D *n* (%) | Comorbid D *n* (%) |
|---|---|---|---|---|
| | UP-C | | CC Program | |
| Generalized anxiety disorder | 6 (35.2) | 5 (29.4) | 4 (23.5) | 3 (17.6) |
| Separation anxiety disorder | 7 (50) | 7 (50) | 10 (58.8) | 10 (58.8) |
| Social anxiety disorder | 3 (17.6) | 3 (17.6) | 4 (23.5) | 4 (23.5) |
| Specific anxiety disorder | 13 (76.4) | 8 (47.05) | 11 (64.7) | 6 (35.2) |
| Panic disorder | 1 (.07) | 1 (.07) | 1 (.07) | 1 (.07) |
| Agoraphobia | 1 (.07) | 1 (.07) | 1 (.07) | 1 (.07) |

Note. Due to the presence of comorbid disorders, the sum of percentages is not equal to 100%. *The coexistence of disorders with each other

in the variance analysis of repeated measures table, the degree of freedom correction based on Greenhouse-Greaser was used to test the intragroup effects. According to the results in Table 7, time significantly affected cognitive reappraisal from pre-test to follow-up ($F = 13.02$, $P = .00$). The effect size is. 28, which is moderate. The increasing trend in cognitive reappraisal from pre-test to post-test was significantly similar that verified by repeated measures ANOVAs on the within-subject impact of the TIME*GROUP interaction effect. The trend of changes in cognitive reappraisal is shown in Figure 4. Both groups' trends decreased from post-test to follow-up, while the experimental group fell more.

## Emotional suppression

From the pre-test to the follow-up, there was a significant reduction in the emotional suppression score in both groups ($F = 3.65$, $P = .03$), with the effect size of. 10. TIME×GROUP interaction effect showed there are no significant differences between UP-C and CC Program [Table 7]. The decreasing trend in emotional suppression is shown in Figure 5.

## Discussion

The current study is the first RCT to compare the effectiveness of individual UP-C[27] to an anxiety-specific CBT[31] for children with anxiety disorders. We looked at potential condition-related variations in four different

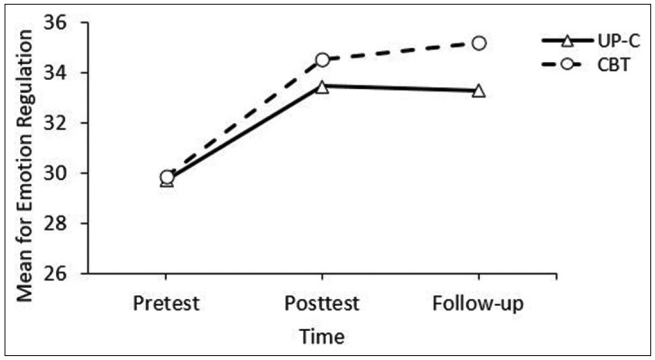


**Figure 3:** Comparison of the changes in the emotion regulation score in three evaluation stages for UP-C and CBT

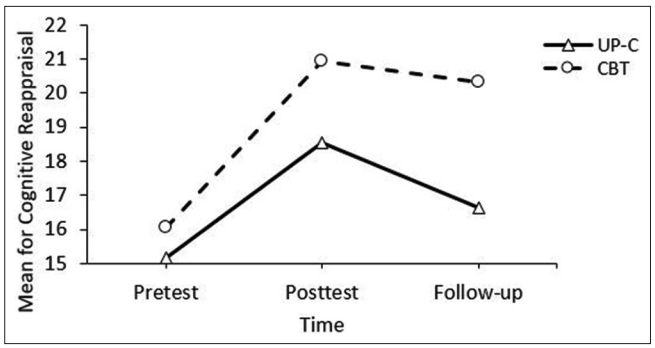


**Figure 4:** Comparison of the changes in the cognitive reappraisal score in three evaluation stages for UP-C and CBT

**Table 5: Mean and standard deviation of study variables at the pre-test, post-test, and follow-up**

| Scales | UP-C Mean (SD)[a] | CC Program Mean (SD)[a] | Between-group differences Cohen's d |
|---|---|---|---|
| ERQ-CA (Cognitive Reappraisal) | | | |
| Pre-test | 15.17 (4.90) | 16.05 (5.70) | 0.1 |
| Post-test | 18.56 (4.47) | 20.95 (4.82) | 0.45 |
| Follow-up | 16.63 (4.87) | 20.33 (4.60) | 0.64 |
| ERQ-CA (suppression) | | | |
| Pre-test | 9.47 (3.98) | 10.17 (3.82) | 0.74 |
| Post-test | 9.17 (3.73) | 10.47 (3.16) | 0.27 |
| Follow-up | 7.40 (1.78) | 9.14 (3.45) | 0.54 |
| ERQ-CA | | | |
| Pre-test | 29.17 (6) | 29.88 (6.44 | 0.54 |
| Post-test | 33.46 (6.74) | 34.52 (5.34) | 0.19 |
| Follow-up | 33.31 (4.44) | 35.22 (5.98) | 0.32 |
| SCARED-71 (Anxiety) | | | |
| Pre-test | 68.06 (21.62) | 65.71 (27.59) | 0.37 |
| Post-test | 60.38 (22.23) | 57.36 (25.31) | 0.39 |
| Follow-up | 54.60 (14.07) | 56.36 (19.80) | 0.16 |

[a]Standard Deviation

**Table 6: Results of repeated-measures analysis of variance within-subjects effects for variables related to anxiety**

| Variables | Changes | Sum of Squares | df | Mean Square | *F* | *P* | Effect Size |
|---|---|---|---|---|---|---|---|
| Anxiety | Time | 2348.17 | 2 | 1174.08 | 6.75 | 0.002 | 0.17 |
| | Time × Group | 123.20 | 2 | 61.60 | 0.35 | 0.70 | 0.01 |
| | Error | 11116.56 | 64 | 173.69 | | | |

**Table 7: Results of repeated-measures analysis of variance for within-subject effects for variables related to emotion regulation**

| Variables | Changes | Sum of Squares | df | Mean Square | *F* | *P* | Effect Size |
|---|---|---|---|---|---|---|---|
| Cognitive reappraisal | Time | 306.09 | 1.34 | 22807 | 13.02 | 0.00 | 0.28 |
| | Time × Group | 33.73 | 1.34 | 25.13 | 1.43 | 0.24 | 0.04 |
| | Error | 752.18 | 42.94 | 21.37 | | | |
| Suppression | Time | 54.29 | 2 | 27.14 | 3.65 | 0.032 | 0.10 |
| | Time × Group | 4.550 | 2 | 2.27 | 0.30 | 0.73 | 0.00 |
| | Error | 475.84 | 64 | 7.43 | | | |
| Emotion regulation | Time | 427.02 | 1.27 | 336.14 | 9.72 | 0.00 | 0.23 |
| | Time × Group | 21.24 | 1.27 | 10.08 | 0.29 | 0.64 | 0.00 |
| | Error | 1327.71 | 40.65 | 34.55 | | | |

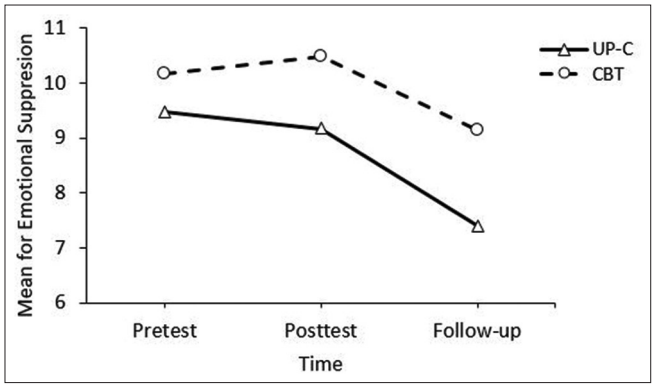


**Figure 5:** Comparison of the changes in the emotional suppression in three evaluation stages for UP-C and CBT

categories of outcomes—diagnostic response and remission, emotion regulation, cognitive reappraisal, and emotional suppression. The results of the present study indicated that UP-C is an acceptable intervention in our sample. Even though the intervention was lengthy (15 sessions), dropout rates were extremely low (11.07%). Because of their flexibility, unified protocols for transdiagnostic treatments can promote treatment fidelity and adherence.[47]

The dropout rate for CBT was also quite low (17.64%). In protocol-based or modularized treatment methods, the dropout rate decreases due to the flexibility of treatment sessions.[48] Compared to earlier research, the adherence rates in this study were higher.[49,50]

There are not many controlled studies in the field of UP-C; however, the results of this study were consistent with most studies in this area,[30] which discovered that UP-C could effectively treat anxiety in various emotional problems. Also, considerable evidence from the past acknowledges the reduction of anxiety symptoms in children and adolescents receiving CBT.[21,47,51-55] There is evidence of common cognitive and behavioral risk factors,[56] such as repetitive negative thinking[57,58] and behavioral avoidance.[59] Therefore, the same reduction of anxiety symptoms of the participants in both groups would be due to the focus of some treatment sessions of the UP-C and the CBT on cognitive restructuring and exposure to anxiety-provoking factors.[60] According to these results, treating independent or comorbid anxiety disorders with the individual performance of UP-C may be at least as successful as some of the most popular anxiety-specific CBT procedures. Similar to previous studies, the anxiety reduction in UP-C was continued at follow-up and was more stable than CBT.[30,61] The findings also suggest that a sustained response to therapy over a three-month follow-up period may come about due to the UP-C, possibly focusing on trans-diagnosis elements, which promotes the knowledge of a range of feelings and symptoms manifestations.[49] Transdiagnostic interventions often focus on the central processes of emotional disorders, including identifying emotions, their tolerance, and management.[62]

The second finding of this study is that both UP-C and CBT can improve emotion regulation in children with anxiety disorder which is similar to previous studies.[30] Although both interventions have been effective in improving children's emotion regulation, each seems to have different mechanisms. The UP-C possibly helps to accept a range of positive and negative emotions by creating emotional awareness while simultaneously preventing the suppression of negative emotions and breaking the cycle of emotional avoidance. It can lead to better emotional adaptation and reduce emotional problems.[27] One of the effective methods of CBT in children's emotion regulation is to promote the cognitive regulation of emotion.[63]

Increasing cognitive reappraisal in UP-C is similar to previous findings.[30] Transdiagnostic treatment tries to raise the frequency and effectiveness of adaptive behaviors, such as cognitive reappraisal, that people with emotional disorders commonly use seldom or ineffectively.[64] However, in one study, CBT showed no significant effectiveness in cognitive reappraisal compared to UP-C[30]; in the context of increasing cognitive reappraisal in the current study, results showed that CBT is as effective as UP-C. Consistent with

their explanation, despite their treatment groups, the presentation time of cognitive techniques in the UP-C and CBT groups was almost the same in the current study. So, in both groups, participants had enough time to learn emotional components. Also, the current research was conducted individually, so in the case of the cognitive behavioral therapy group, there was more time to challenge the individual cognitive distortions of the participants.

Inconsistent with previous studies, in which UP-C did not affect reducing suppression,[30] emotional suppression decreased in both UP-C and CBT groups. The trend of decreasing emotion suppression scores seems to differ from other research variables because emotion suppression scores have decreased from post-test to follow-up in CBT and started falling from the pre-test in UP-C. Instead of indulging in rumination or suppression, the UP-C encourages children to experience their ideas more attentively and neutrally by employing nonjudgmental awareness techniques.[27] Also, suppression depends on the circumstance, which may differ in follow-up and the combination of employed strategies.[30] Also, suppression of emotions often occurs when people change how they express their emotions but fail to mentally relieve their negative emotions,[33] so children are first expected to use cognitive reappraisal. In both UP-C and CBT, cognitive restructuring techniques and the exposure of children to anxiety-provoking situations to strengthen adaptive thoughts and reduce threatening evaluations of anxiety-provoking situations continue until the end of protocols. Thus, reducing emotional suppression is expected to be more time-consuming than the cognitive reappraisal change.

### Limitations and recommendations

Despite some significant findings, one of the limitations of this study was the sample size. Also, determining whether a predictor's importance changes over time or if new predictors arise might be advantageous with a longer-term follow-up. A larger sample size is recommended.

## Conclusions

This study aimed to assess individual UP-C's efficacy in treating comorbid anxiety disorders in children and compare it to CBT. The current investigation findings provide evidence that the individual UP-C, a transdiagnostic approach for emotional disorders, is appropriate and effective in comorbid anxiety disorders in children by reducing anxiety and promoting emotion regulation. It offers a suitable alternative to single-disorder therapy for childhood comorbid anxiety disorders because therapists do not need to be trained in numerous therapies and are sufficiently adaptable to handle a variety of difficulties. Also, by knowledge of the theory behind UP-C, the individual treatment could be applied without sacrificing adherence to the manual. One of the advantages of the individual implementation of the treatment protocol for children is that each participant has more time to focus on the implemented techniques and their formulation, especially in the case of cognitive techniques. Also, the UP-C could be considered as effective as an anxiety-oriented CBT protocol in treating various anxiety symptoms in children by enhancing cognitive reappraisal and decreasing emotion suppression. Our findings suggest that increasing cognitive reappraisal first occur then could lead to less emotional suppression. In light of this study, it is possible to view UP-C as a viable therapy with a low dropout rate and superiority in the progress of therapeutic effects in a three-month follow-up, particularly in cases with comorbid anxiety disorders.

### Ethical approval statement

Iran University of Medical Sciences ethics committee approved this study [IR.IUMS.REC.1399.1433]. This study was drawn from the first author's Ph.D. dissertation, Pantea Ahadianfard, from the Iran University of Medical Sciences.

### Clinical trial registration

IRCT Code: IRCT20210723051963N1 (http://www.irct.ir).

### Participants consent statement

All participants were informed about the study.

### Financial support and sponsorship

Nil.

### Conflicts of interest

There are no conflicts of interest.

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