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# Unified Protocol vs Trauma-Focused Cognitive Behavioral Therapy Among Adolescents With PTSD

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Harmful consequences of COVID-19, such as prolonged quarantine, lack of social contact, and especially loss of parents or friends, can negatively impact children and adolescents' mental health in diverse ways, including engendering posttraumatic stress symptoms. Our study is the first to compare the transdiagnostic Unified Protocol for the Treatment of Emotional Disorders in Adolescents (UP-A; Ehrenreich et al., 2009; Ehrenreich-May et al., 2017) with Trauma-Focused Cognitive Behavioral Therapy (TF-CBT) in terms of outcomes related to PTSD symptoms (COVID-19-related vs. COVID-19 unrelated PTSD) and comorbid symptoms (i.e., anxiety, depression) and other measures (i.e., emotion regulation, self-injury, anger). Individuals diagnosed with PTSD were randomly assigned to the UP-A ( $n = 46$ ) or TF-CBT group ( $n = 47$ ), administered the SCID-5 and a battery of measures and followed up post-treatment and then after 3, 6, and 9 months. Ninety-three adolescents with PTSD were enrolled, 45% boys and 61% COVID-19-related PTSD. We adopted an intention-to-treat approach. At the initial post-intervention assessment, except for emotion regulation and unexpressed angry feelings, in which UP-A participants reported greater reductions, no significant differences in other variables were secured between the UP-A and TF-CBT. However, at follow-up assessments, the UP-A evi-

denced significantly better outcomes than TF-CBT. We found support for the UP-A compared with TF-CBT in treating adolescents with PTSD, regardless of COVID-19-related PTSD status, in maintaining treatment effectiveness over time.

*Keywords:* PTSD; COVID-19; emotion regulation; unified protocol for transdiagnostic treatment of emotional disorders in adolescents; trauma-focused cognitive behavioral therapy

ESTIMATES INDICATE that the ongoing SARS-COVID-2 (COVID-19) pandemic has resulted in the loss of over 15 million people, with an infection rate of the virus exceeding 43% of the world population (Barber et al., 2022). Most studies have focused on psychological sequelae of depression and anxiety during COVID-19 (e.g., Choi et al., 2020). However, posttraumatic stress disorder (PTSD) symptoms are also a common long-term consequence of global pandemics (Lee et al., 2021). Tang et al. (2020), for example, reported that 1 month after the COVID-19 pandemic, the rate of probable PTSD among university students approached 3%, and Lee et al. (2021) found that at the peak of the COVID-19 pandemic, 25% of medical school students tested screened positive for PTSD risk.

This high rate of posttraumatic sequelae is perhaps not surprising given the destabilizing effects of mass trauma associated with the pandemic that encompass the following: fear of contracting the virus, traumatic loss of family members, intimate partners, and close friends; economic crisis;

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exposure to negative information and death news in cyberspace; uncertainty about the duration of the crisis; and social isolation—all of which could have highly adverse psychological repercussions among the general population. For example, [Bonichini and Tremolada \(2021\)](#) recently reported high levels of COVID-19-related psychological distress that included not only PTSD but also anxiety, emotionality, and degraded quality of life.

PTSD symptoms are especially prevalent in the countries most impacted by pandemics, which can engender traumatic loss, the threat of death, or witnessing sudden and unexpected death, thereby fulfilling the first DSM-5 criterion for PTSD ([Janiri et al., 2021](#)). Although most COVID-19 deaths occur among adults, harmful consequences such as prolonged quarantine, the lack of social contact, and loss of parents or friends can also negatively impact children and adolescents' mental health ([UNAIDS, 2004](#)). From March 1, 2020, to April 30, 2021, nearly 1,134,000 children lost their parents or primary caregivers to the pandemic ([Hillis et al., 2021](#)).

Not only does the pandemic itself produce potentially traumatic experiences (e.g., loss of a loved one due to COVID-19; [Polizzi et al., 2020](#)), but it also increases the risk that adolescents will experience other traumatic events and psychological disorders. For example, [Campbell \(2020\)](#) reported that the rates of domestic violence significantly increased during the pandemic. Witnessing interpersonal violence increases adolescents' risk for developing symptoms of PTSD ([Kolaitis, 2017](#)) associated with psychosocial difficulties and functional impairment, especially school failure and dropout and increased risk for aggression ([Marsee, 2008](#)); anger and irritability ([Panchal et al., 2021](#)); deliberate self-harm ([Viana et al., 2017](#)); major depressive disorder ([Adams et al., 2014](#)); sleep disturbances ([Bruni et al., 2022](#)); and appetite ([Hashem et al., 2020](#)) as well as anxiety disorders ([Thabet et al., 2014](#)). Given the rise in exposure to traumatic events and the adverse consequences associated with trauma-related symptoms, there is a pressing need to provide adolescents with trauma-focused treatments during this global health crisis.

A number of evidence-based trauma-focused psychotherapies have been developed for adolescents suffering from PTSD. These interventions include multimodal trauma treatment (MTT; [Amaya-Jackson et al., 2003](#)); prolonged exposure ([Powers et al., 2010](#)); seeking safety ([Brown et al., 2007](#)); narrative exposure therapy ([Schauer et al., 2017](#)); and trauma-focused cognitive behavioral therapy (TF-CBT; [Cohen et al., 2012](#)), with

TF-CBT being one of the most investigated treatments for PTSD among adolescents ([de Arellano et al., 2014](#); [Lenz & Hollenbaugh, 2015](#)). Although CBT and its disorder-specific protocols often have good response rates (e.g., 65%, [March & Vitiello, 2009](#)), these protocols typically neglect comorbid conditions and target symptoms of single disorders ([Gallo et al., 2012](#)), a limitation usually associated with relatively poor treatment outcomes among individuals with multiple or complex patterns of comorbidity ([Payne et al., 2014](#)).

Transdiagnostic treatments, which target core underlying vulnerabilities present across diverse diagnostic categories, have been developed that address the needs of patients with co-occurring mental health concerns. For example, emotion dysregulation plays a significant role in a variety of manifestations of psychopathology, including PTSD ([Goldsmith et al., 2013](#); [Jiang et al., 2020](#); [John et al., 2017](#)). One such transdiagnostic treatment is the Unified Protocol for Transdiagnostic Treatment of Emotional Disorders (UP; [Barlow et al., 2017](#)), which is predicated on the model that emotional disorders (e.g., anxiety, depression, PTSD) are maintained by (a) frequently experiencing intense emotions; (b) perceiving these emotions as intolerable, unacceptable, or uncontrollable; and (c) engaging in efforts to escape or avoid these emotions, which provides short-term relief but maintains difficulties with emotion regulation in the long term ([Sauer-Zavala & Barlow, 2014](#)). To intervene in this pattern, the UP teaches emotion regulation skills to increase willingness to experience strong emotions without relying on self-defeating escape or avoidance strategies. Accumulating evidence supports the success of the UP in reducing symptoms of heterogeneous emotional disorders ([Cassidello-Robbins et al., 2020](#)); self-harm ([Bentley, 2017](#)); anger ([Cassidello-Robbins et al., 2020](#)); irritability ([Grossman & Ehrenreich-May, 2020](#)); and, particularly germane to the present study, PTSD ([Gutner et al., 2022](#); [Hood et al., 2021](#); [Kato et al., 2021](#); [O'Donnell et al., 2021](#); [Varkovitzky et al., 2018](#)).

The adolescent version of the UP (UP-A, [Ehrenreich et al., 2009](#)) also targets shared vulnerability and symptom maintenance factors across disparate disorders. Researchers have demonstrated the efficacy of the UP-A compared with wait-list conditions in many studies across emotional disorders, including generalized anxiety disorder, social anxiety disorder, and major depressive disorder ([Ehrenreich-May et al., 2017](#); [Seager et al., 2014](#)).

An important objective of our exploratory research is to directly compare the UP-A, a new transdiagnostic treatment, and TF-CBT to address their effectiveness in treating PTSD and in mitigating symptoms of other disorders as well. Although The UP-A is not a specifically trauma-centered intervention, it nevertheless includes (a) a component of exposure applicable to potentially trauma-related stimuli, and (b) has proven useful in treating a variety of conditions often comorbid with PTSD (e.g., anxiety, depression). Moreover, the UP, which is not adapted to treating adolescents, has shown demonstrable success in treating PTSD, as we noted earlier. Determining the relative effectiveness of the TF-CBT and the version of the UP adapted to treat adolescents will potentially have important treatment implications.

#### AIMS AND DESIGN

We thus contend that a strong rationale exists for an exploratory trial that compares TF-CBT and the UP-A during the pandemic with adolescents with PTSD and other disorders. To do so, we compared the UP-A with the TF-CBT in terms of outcomes related to PTSD symptoms and comorbid symptoms (e.g., anxiety, depression) over pretreatment, posttreatment, 3-, 6- and 9-months follow-up to determine whether UP-A was therapeutically similar to TF-CBT. In secondary analyses, we compared individuals with COVID-19-related PTSD (i.e., infection, witness of loss of loved one) with PTSD related to other highly adverse events (e.g., sexual abuse) across treatments and

follow-up periods. We believe our study is the first to examine the efficacy of evidence-based interventions across COVID-19-related PTSD vs. COVID-19-unrelated PTSD to evaluate the specificity of treatment effects across different adverse events. To achieve these aims, we conducted a randomized trial in which we assigned participants to the UP-A and TF-CBT conditions based on a 1:1 allocation ratio. The Structured Clinical Interview for DSM-5 (SCID-5; [First et al., 2016](#)) and questionnaires were completed by participants through assessment phases that included posttreatment, 3-, 6-, and 9-month follow-up.

#### Method

##### PARTICIPANTS

One hundred forty-seven Iranian participants were recruited via referrals from private psychological and psychiatric clinics and self-referrals through Instagram and Telegram advertisements, which took nearly 4 months, and with the use of G-power at least 82 participants were needed. Ninety-three individuals met inclusion and exclusion criteria and were randomly assigned to the UP-A ( $n = 46$ ) or TF-CBT group ( $n = 47$ ). See [Table 1](#) for demographic information.

Inclusion criteria required that participants (a) met diagnostic criteria for PTSD based on the SCID-5 interview ([First et al., 2016](#)); (b) were between 12–17 years old; and (c) met criteria for at least one comorbid emotional disorder, including an anxiety disorder (e.g., social anxiety disorder).

Table 1  
Demographic and Comorbidity Condition of UP-A and TF-CBT

Variables	UP (%) = 46(49)	TF-CBT (%) = 47(51)	X <sup>2</sup> /t value
Age			.32
	Mean (SD)	14.86(1.21)	14.78(1.20)
Sex			.26
	Boy	22(48)	20(42)
	Girl	24(52)	27(57)
Traumatic events			.87
	Physical Abuse	1(2.20)	2(4.25)
	Sexual Abuse	12(26.08)	12(25.53)
	COVID-19 Infection	12(26.08)	10(21.27)
	COVID-19 Traumatic loss	16(34.78)	19(40.42)
	Car or Motorcycle accident	5(10.86)	4(8.53)
Comorbidity			1.50
	MDD	8(17.39)	9(19.14)
	GAD	10(21.73)	11(23.40)
	SAD	5(10.86)	7(14.89)
	Specific Phobia	5(10.86)	4(8.55)
	Separation anxiety	10(21.78)	6(12.76)
	OCD	4(8.69)	5(10.63)
	Substance use disorder	4(8.69)	5(10.63)

der, panic disorder, generalized anxiety disorder) or major depressive disorder (see Table 1). The SCID-5 interview and questionnaire PTSD measure were administered with reference to the same event. Exclusion criteria included that a participant reported at least one of the following: (a) symptoms that met the criteria for schizophrenia spectrum disorder or a psychotic condition based on a SCID-5 interview (First et al., 2016) administered during the study (see below); (b) a history of a medical or neurological condition associated with psychiatric symptoms; (c) a history of intellectual disability; (d) consuming an unstable dose

and/or type of psychiatric medicine over a period of 4 months prior to the study; (e) participating in 8 or more pre-study sessions of CBT for anxiety or depression; and (f) engaging in suicidal behaviors directly linked with intent to die 1 month prior to or during the study (Figure 1).

#### MEASURES

*Structured Clinical Interview for Diagnostic and Statistical Manual of Mental Disorders* (SCID-5; First et al., 2016) is a widely used and well-studied semistructured interview for DSM-5 diagnoses with suitable psychometric properties (e.g.,

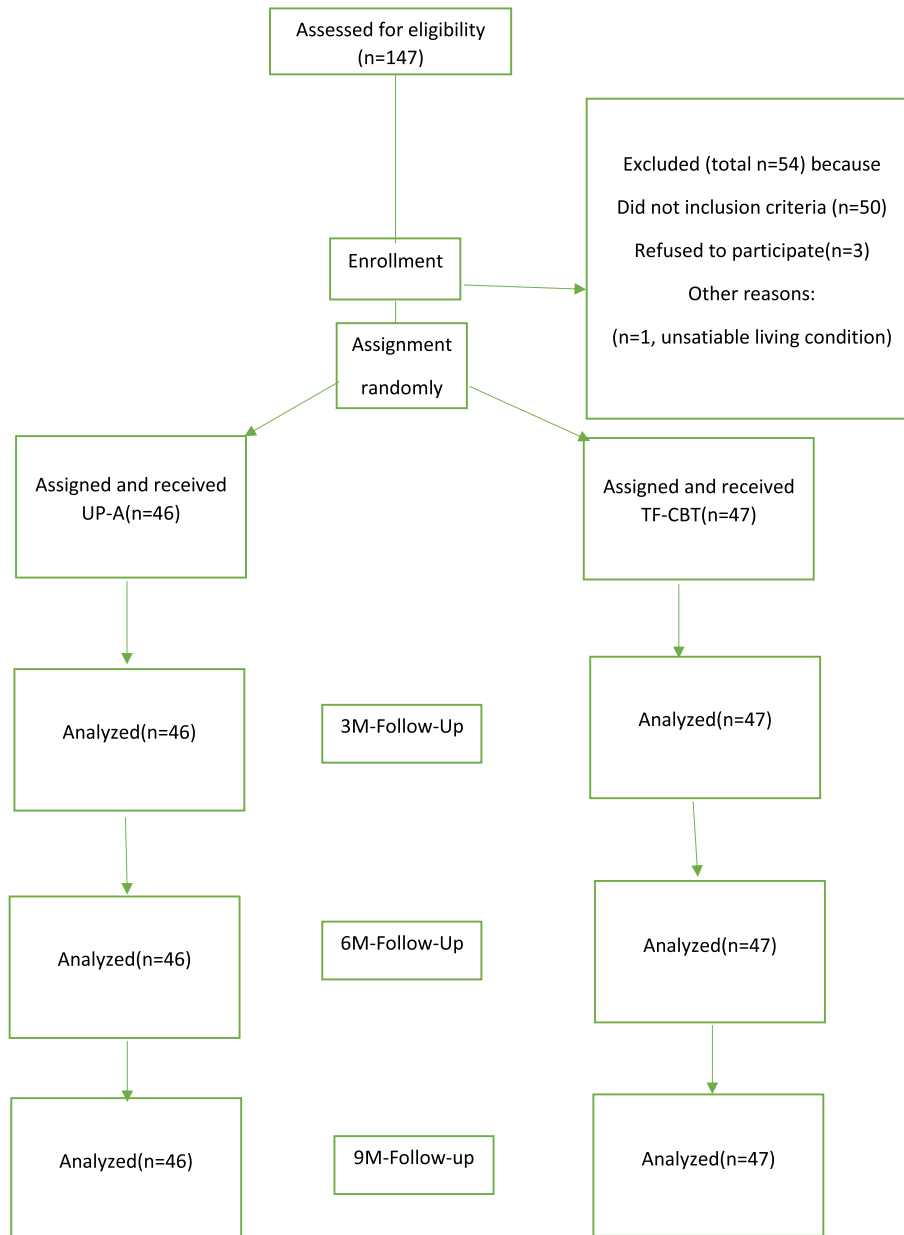


FIGURE 1

kappa > 0.70; Osório et al., 2019). We used the Persian version that evidences good reliability and validity (Shadloo et al., 2017) and Kappa reliability in the current study ranged from .65 to .78 across disorders.

The 20-item *Child PTSD Symptom Scale—Self-Report Version for DSM-5* (CPSS-5-SR; Foa et al., 2018) is a self-report questionnaire that assesses PTSD symptoms with 5-point Likert scales ranging from 0 (*not at all*) to 4 (*six or more times a week/ almost always*). Scores range from 0 to 80, and 31 is the clinical cut-point for a probable PTSD diagnosis. It has strong psychometric properties (Foa et al., 2018). We used the Persian version (Moezi et al., 2020). In our study, Cronbach's alpha was good ( $\alpha = .85$ ).

The 27-item *Children's Depression Inventory* (CDI; Kovacs, 1983) is a widely used self-report measure to assess depression in children and adolescents (age: 6–18 years). Scores range from 0 to 54; a higher score indicates more severe depression. It possesses strong psychometric properties (Saylor et al., 1984). We used the Persian version (Dehshiri et al., 2009) with established reliability and internal consistency. In our study, Cronbach's alpha was good ( $\alpha = .85$ ).

The *Youth Anxiety Measure for DSM-5* (YAM-5; Muris et al., 2017) assesses anxiety disorder symptoms among individuals ages 8 to 18 years old. It consists of two parts: the first, YAM-5, consists of 28 items and assesses separation anxiety disorder, selective mutism, social anxiety, panic disorder, and generalized anxiety disorder, and the second part consists of 22 items and measures specific phobias and agoraphobia. Many studies have supported its psychometric properties. We used the Persian version (Pirzad & Ahi, 2018). In our study, Cronbach's alpha was good ( $\alpha = .85$ ).

*Ottawa Self-Injury Inventory* (OSI; Nixon et al., 2015) is a 31-item self-report measure of the occurrence, motivation level, and frequency of self-injury rated on a 5-point Likert scale from 0 (*never*) to 4 (*always*). We used the Persian version with strong validity and reliability (Namazi et al., 2019). In our study, Cronbach's alpha was good ( $\alpha = .83$ ).

The 32-item *State-Trait Anger Expression Inventory for Children and Adolescents* (STAXI-2 C/A; Ng & Khor, 2018) rates anger in children and adolescents 10–18 years on 3-point Likert scales assessing state anger (10 items), trait anger (10 items), anger expression-In (AXI-5 items), anger expression-Out (AXO-5 items), and anger control (AC-5 items). Ng and Khor documented acceptable psychometric properties. We used the Persian version

(Moghaddasin et al., 2011). In our study, Cronbach's alpha was good ( $\alpha = .81$ ).

The 36-item *Emotion Regulation Scale* (DERS; Gratz & Roemer, 2004) rates emotion regulation difficulties among adolescents and adults on 5-point Likert scales. Psychometric properties among adolescents are acceptable (Weinberg & Klonsky, 2009). We used the Persian version (Mazaheri, 2015). In our study, Cronbach's alpha was good ( $\alpha = .88$ ).

#### PROCEDURE

The ethics committee of the first author's university approved all study procedures. After a phone screen, potential participants were invited to an online meeting and received information about the study, and informed consents were approved by participants and their parents/primary caregivers. Next, participants completed an in-person assessment conducted by two doctoral-level clinical psychologists (blind to study aims and design), to determine whether they met inclusion and exclusion criteria. All eligible participants were randomly enrolled either to TF-CBT or UP-A by a random sequence of numbers generated by an online website (<https://www.graphpad.com>). Moreover, all participants were blind to other intervention groups. To meet this goal, UP participants met their therapists on odd days and TF-CBT participants met on even days.

A master's-level clinical psychologist checked all measures to ensure there were no missing data prior to completing measures. Accordingly, there were no missing data. The UP-A was delivered by four Ph.D.-level clinical psychologists who participated in a 40-hour UP-A workshop and had at least 2 years of experience delivering the UP. TF-CBT was applied by two Ph.D.-level clinical psychologists who participated in a 38-hour workshop and had at least 5 years of experience delivering CBT.

#### INTERVENTIONS

TF-CBT (de Arellano et al., 2014) is a short-term manualized intervention that consists of 12 weekly 60- to 90-minute parallel or conjoint individual (or with parents) treatment sessions and includes: (a) psychoeducation and parent training, (b) training in cognitive coping, (c) gradual exposure, (d) cognitive processing of trauma-related beliefs and thoughts, (e) parent management skills, and (f) enhancing future safety and development. Based on protocols, parents/caregivers either spent 15 minutes of all sessions alone with the therapist or had one through eight joint sessions in which parents accompanied the adolescent the entire time

based on adolescents' preference. Only two participants requested that parents have separate time with the therapist.

The UP-A (Ehrenreich et al., 2009) is designed to enhance emotion regulation and decrease reactivity and consists of 12 weekly 55- to 60-minute sessions. During sessions, parents either spend 10–15 minutes alone with the therapist or attend one to eight sessions conjoint with adolescents depending on the adolescent's preference. Only one participant requested a separate time for the therapist with his mother. The UP-A incorporates an array of evidence-based techniques to enhance emotion regulation with core modules including: (a) understanding and increasing awareness of emotions and behaviors; (b) increasing cognitive flexibility, (c) emotion-focused exposure to situational and interoceptive triggers, and (d) relapse prevention. Additional modules include: (a) increasing present-focused awareness, (b) minimizing/preventing emotional avoidance, (c) increasing awareness of physical sensations, (d) keeping safe, and (e) parenting training. Because some patients in the UP-A and TF-CBT conditions who were in “traumatic loss” group (see Table 1), witnessed the death of a caregiver, many had unstable living conditions, and the parent/caregiver sessions included a focus on providing stability for them.

#### STATISTICAL ANALYSIS

We used the G\*Power software (3.1) for calculating the sample size, and all analyses were performed in SPSS 24. All participants received a free internet package (15GB monthly) during treatment and follow-up to facilitate data collection. Data were analyzed according to intent-to-treat principles and a two-sided confidence interval approach was used. To identify baseline group differences in comorbid disorders and demographic variables including age, sex, and traumatic event type, we used sample *t*-test and chi-square tests. We applied Mixed Linear modeling (Group  $\times$  Time), with Group a fixed factor and Time and its interaction (Time  $\times$  Group) as random factors to evaluate differences in the efficacy of UP-A and TF-CBT in symptom reductions. For follow-up analyses, we calculated effect size (Cohen's *d*) by comparing the effectiveness of UP-A with TF-CBT in terms of symptom reduction at the post-treatment, 3-, 6-, and 9-month follow-ups. Secondary analyses described below added COVID-19-related PTSD vs. COVID-19-unrelated PTSD to the factorial design. Moreover, we conducted Mixed ANOVAs (Treatment  $\times$  Time) and applied Bonferroni adjustments of significance levels of

multiple comparisons which can be seen in the supplementary section.

## Results

#### BASELINE OUTCOMES

We present means and standard deviations of measures across groups and time (baseline, follow-ups) in Table 2. Traumatic loss (e.g., loss of intimate attachment relationships such as the death of a family member, close friend, or intimate partner) was the most frequently reported traumatic event (38%), although more than a fourth (25.8%) of participants reported sexual abuse histories. Independent sample *t*-tests indicated no significant differences in CPSS-5-SR ( $t_{(91)} = -1.07, p = .28$ ), CDI ( $t_{(91)} = -1.32, p = .18$ ), YAM-5 ( $t_{(91)} = -1.38, p = .16$ ), OSI ( $t_{(91)} = -1.62, p = .11$ ), DERS ( $t_{(91)} = .28, p = .77$ ), AXI ( $t_{(91)} = -.17, p = .86$ ), AXO ( $t_{(91)} = -1.70, p = .08$ ) and AC ( $t_{(91)} = -1.14, p = .25$ ) between the two treatment groups at baseline assessment. Accordingly, none of the measures were used as covariates in subsequent analyses and pretreatment was entered into the analyses as part of the Time factor.

#### INTERVENTIONS OUTCOMES

We audio-recorded all sessions, and three doctoral-level clinical psychologists randomly listened to 70% of the sessions and rated their adherence to the TF-CBT ( $M = 92.8\%$ ,  $SD = 2.14$ ) and UP-A protocols ( $M = 89.8\%$ ,  $SD = 2.75$ ) with evidence of acceptable fidelity.

In a preliminary analysis to identify whether the UP-A and TF-CBT (Group) had a significant effect on symptoms across pretreatment through follow-ups (Time) and their interaction, we applied the mixed linear model (Group  $\times$  Time) with Group as a fixed factor and Time and its interaction (Time  $\times$  Group) as random factors (see Tables 3 and 4). The fixed effect and estimate of covariance parameters indicated that both treatments produced significant effectiveness in symptom reductions in comparison to baseline assessment. Furthermore, compared with TF-CBT, UP-A participants evidenced more significant reductions in PTSD, depression, and anxiety, and significant improvements in emotion regulation strategies and anger control. Moreover, the interactions of Group  $\times$  Time showed significant improvement in all symptoms except depression and anger expression out (AXO) and in (AXI)

Further analysis indicated that UP-A maintained superiority to TF-CBT during follow-up assessments in PTSD symptom reduction at 3-month follow-up ( $M_{\text{dif}} = -2.31, p < 0.001$ ), 6-





Table 3  
Fixed Effect and Estimate of Covariance of UP-A vs TF-CBT

Measure	Fixed Effect				Estimate of Covariance parameters					
	Source	df	F	P	Estimate	Std.Error	Wald Z	P	95%IC	-2LL
CPSS-5	Group	(1,465.00)	45.17	0.00	11.45	0.75	15.24	0.00	(10.07,13.02)	2453.56
	Time	(4,465.00)	476.96	0.00						
	Group × Time	(4,465.00)	3.10	0.02						
CDI	Group	(1,465.00)	15.62	0.00	7.44	0.48	15.24	0.00	(6.55,8.47)	2253.40
	Time	(4,465.00)	324.78	0.00						
	Group × Time	(4,465.00)	3.70	0.06						
YAM-5	Group	(1,465.00)	99.32	0.00	8.03	0.52	15.24	0.00	(7.06,9.13)	2288.43
	Time	(4,465.00)	1482.64	0.00						
	Group × Time	(4,465.00)	8.91	0.00						
OSI	Group	(1,465.00)	76.88	0.00	9.41	0.61	15.24	0.00	(8.27,10.70)	2362.29
	Time	(4,465.00)	2811.57	0.00						
	Group × Time	(4,465.00)	6.74	0.00						
DERS	Group	(1,465.00)	58.16	0.00	15.94	1.04	15.24	0.00	(14.02,18.13)	2607.37
	Time	(4,465.00)	387.26	0.00						
	Group × Time	(4,465.00)	5.15	0.00						
AXI	Group	(1,465.00)	22.21	0.00	1.74	0.11	15.24	0.00	(1.53,1.98)	1578.94
	Time	(4,465.00)	100.89	0.00						
	Group × Time	(4,465.00)	1.95	0.10						
AXO	Group	(1,465.00)	25.61	0.00	2.41	0.15	15.24	0.00	(2.12,2.74)	1730.02
	Time	(4,465.00)	87.77	0.00						
	Group × Time	(4,465.00)	1.62	0.16						
ACI	Group	(1,465.00)	15.13	0.00	1.07	0.07	15.24	0.00	(0.94,1.22)	1355.13
	Time	(4,465.00)	209.74	0.00						
	Group × Time	(4,465.00)	3.29	0.01						

( $M_{dif} = .78$ ,  $p < 0.001$ ), and 9-month follow-up ( $M_{dif} = .56$ ,  $p = .01$ ).

#### COVID-19-RELATED VS. COVID-19 UNRELATED PTSD

To identify whether there was a significant difference between COVID-19-related vs. COVID-19-unrelated PTSD (Group) in PTSD symptoms and other emotional disorders and problems, we applied linear mixed analysis with Group as a fixed factor and Time and Group × Time as random factors. We found no significant differences between COVID-19-related vs. COVID-19-unrelated PTSD in measures of PTSD, depression and anxiety symptoms, self-harm, anger management, and emotional regulation (see Table 5 and Table 2 of the supplementary section).

#### EFFECT SIZES CALCULATION

We calculated effect sizes (Cohen's  $d$ ) for outcome measures (Table 6). We found that the effectiveness of the UP-A was significantly better maintained through the follow-up period compared with TF-CBT.

### Discussion

We conducted the first randomized control trial that compared the UP-A with TF-CBT for adoles-

cents with a PTSD diagnosis in an outpatient setting. We bolstered the ecological validity of our findings by including individuals with co-occurring disorders, and we also compared findings pertinent to COVID-19-related versus COVID-19-unrelated PTSD. We determined that both treatments reduced PTSD symptoms and symptoms of other emotional disorders (e.g., anxiety, depression) compared with baseline assessments. We found significant differences between the UP-A and TF-CBT in PTSD, depression, and anxiety symptoms reduction well as self-harm with significant improvement in emotion regulation and anger at post-treatment assessment. UP-A vs. TF-CBT participants exhibited significantly fewer indications of PTSD, depression, anxiety, emotion dysregulation and self-harm, and anger expression (internal and external expression, and anger control) across follow-up periods. Additionally, no significant differences emerged between individuals with COVID-19-related vs. COVID-19 unrelated PTSD (including PTSD related to physical or sexual abuse or car and motorcycle accidents) in the severity of symptoms at baseline, posttreatment, and follow-up assessments.

Previous studies have documented the superiority of the UP, with substantial effect sizes, over wait-list control conditions for treating PTSD

Table 4  
 Estimation of Group and Their Group  $\times$  Time Interaction Through Assessments Phases

		Group1	Time1	Time2	Time3	Time4	Time1 $\times$ Group1	Time2 $\times$ Group1	Time3 $\times$ Group1	Time4 $\times$ Group1
CPSS-5-SR	Estimate	-2.71	10.61	-9.78	-5.76	-1.51	1.46	2.13	0.39	-1.01
	Std. Error	0.70	0.69	0.69	0.69	.0.69	0.99	0.99	0.99	0.99
	Df	465.00	465.00	465.00	465.00	465.00	465.00	465.00	465.00	465.00
	T	-3.85	15.20	-14.01	-8.25	-2.16	1.48	2.15	0.39	-1.01
	P	0.00	0.00	0.00	0.00	0.03	0.13	0.03	0.69	0.30
	95%CI	-4.08, -1.32	9.24, 11.98	-11.15, -8.41	-7.13, -4.39	-2.88, -0.13	-0.48, 3.42	-0.18, 4.08	-1.55, 2.34	-2.96, 0.93
CDI	Estimate	1.76	3.91	-9.91	-6.68	-1.44	0.60	2.02	1.70	-0.53
	Std. Error	0.56	0.56	0.56	0.56	0.56	0.80	0.80	0.80	0.80
	Df	465.00	465.00	465.00	465.00	465.00	465.00	465.00	465.00	465.00
	T	-3.11	6.95	-17.61	-11.86	-2.57	0.75	2.52	2.12	-0.66
	P	0.00	0.00	0.00	0.00	0.01	0.44	0.01	0.03	0.51
	95%CI	-2.87, -6.48	2.80, 5.02	-11.02, -8.80	-7.78, -5.57	-2.55, -0.34	-0.96, 2.18	0.45, 3.59	0.12, 3.27	-2.10, 1.04
YAM-5	Estimate	-3.60	17.38	-11.91	-7.36	-0.55	2.70	2.41	1.31	-1.51
	Std. Error	0.58	0.58	0.58	0.58	0.58	0.83	0.83	0.83	0.83
	Df	465.00	465.00	465.00	465.00	465.00	465.00	465.00	465.00	465.00
	T	-6.13	29.73	-20.38	-12.59	-0.94	3.25	2.90	1.58	-1.81
	P	.000	0.00	0.00	0.00	0.34	0.00	0.00	0.11	0.07
	95%CI	-4.76, -2.44	16.23, 18.53	-13.06, -10.76	8.51, -6.21	-1.70, 0.59	1.07, 4.33	0.78, 4.04	-0.31, 2.95	-3.14, 0.12
OSI	Estimate	-4.18	30.14	-12.04	8.74	-2.36	2.76	3.23	2.65	-0.20
	Std. Error	0.63	0.63	0.63	0.63	0.63	0.90	0.90	0.90	0.90
	Df	465.00	465.00	465.00	465.00	465.00	465.00	465.00	465.00	465.00
	T	-6.57	47.63	-19.02	-13.81	-3.73	3.07	3.59	2.95	-0.22
	P	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.82
	95%CI	-5.43, -2.93	28.90, 31.39	-13.28, -10.79	-9.98, -7.50	-3.60, -1.11	0.99, 4.53	1.46, 5.00	0.88, 4.42	-1.97, 1.56
DERS	Estimate	-3.48	3.48	-15.87	-9.74	-2.95	3.74	0.91	-0.14	-1.19
	Std. Error	0.82	0.82	0.82	0.82	0.82	1.17	1.17	1.17	1.17
	Df	465.00	465.00	465.00	465.00	465.00	465.00	465.00	465.00	465.00
	T	-4.21	4.23	-19.26	-11.82	-3.59	3.20	0.78	-0.12	-1.02
	P	0.00	0.00	0.00	0.00	0.00	0.00	0.43	0.90	0.30

	95%CI	-5.11, -1.86	1.87, 5.10	-17.49, -14.25	-11.36, 8.12	-4.57, -1.33	1.44, 6.05	-1.38, 3.21	-2.44, 2.15	-3.49, 1.10
AXI	Estimate	-0.79	0.42	-2.61	-1.91	-1.06	0.85	0.24	-1.06	0.06
	Std. Error	0.27	0.27	0.27	0.27	0.27	0.38	0.38	0.38	0.38
	Df	465.00	465.00	465.00	465.00	465.00	465.00	465.00	465.00	465.00
	T	-2.88	1.56	-9.59	-7.02	-3.90	2.21	0.63	-0.27	-0.16
	P	0.00	0.11	0.00	0.00	0.00	0.02	0.52	0.78	0.86
	95%CI	-1.32, -0.25	-0.11, 0.96	-3.15, -2.08	-2.45, -1.37	-1.59, -0.52	0.09, 1.61	-0.51, 1.00	-0.86, 0.65	-0.69, 0.82
AXO	Estimate	-0.24	0.42	-3.12	-2.25	-1.10	-0.53	-0.17	-0.65	-1.04
	Std. Error	0.32	0.32	0.32	0.32	0.32	0.45	0.45	0.45	0.45
	Df	465.00	465.00	465.00	465.00	465.00	465.00	465.00	465.00	465.00
	T	-0.76	1.32	-9.75	-7.03	-3.45	-1.17	0.38	-1.44	-2.29
	P	0.44	0.18	0.00	0.00	0.00	0.24	0.69	0.15	0.02
	95%CI	-0.88, -0.38	-0.20, 1.05	-3.75, -2.49	-2.88, -1.62	-1.73, -0.47	-1.43, 0.36	-1.07, 0.71	-1.55, 0.23	-1.94, -1.49
AC	Estimate	0.54	-2.53	1.36	-0.02	-1.06	-0.81	-0.18	-0.04	0.21
	Std. Error	0.21	0.21	0.21	0.21	0.21	0.30	0.30	0.30	0.30
	Df	465.00	465.00	465.00	465.00	465.00	465.00	465.00	465.00	465.00
	T	2.51	-11.81	6.35	-0.09	-4.96	-2.67	-0.61	-0.14	0.70
	P	0.01	0.00	0.00	0.92	0.00	0.00	0.53	0.88	0.47
	95%CI	0.11, 0.96	-2.95, -2.11	0.94, 1.78	-0.44, 0.39	-1.48, -0.64	-1.41, -0.21	-0.78, 0.41	-0.64, 0.55	-0.38, 0.81

Table 5  
Linear Mixed Model: Fixed Effect and Estimate of Covariance Parameters COVID-19-Related vs. COVID-19-Unrelated PTSD

Measure	Fixed Effect				Estimate of Covariance parameters					
	Source	df	F	P	Estimate	Std.Error	Wald Z	p	95%IC	-2LL
CPSS-5	Group	(1,465)	0.08	0.77	12.84	0.84	15.24	0.00	(11.29,14.06)	2506.61
	Time	(4,465)	410.76	0.00						
	Group × Time	(4,465)	0.28	0.88						
CDI	Group	(1,465)	1.57	0.21	7.90	0.51	15.24	0.00	(6.94,8.98)	2280.78
	Time	(4,465)	292.22	0.00						
	Group × Time	(4,465)	0.13	0.96						
YAM-5	Group	(1,465)	3.34	0.06	10.25	0.67	15.24	0.00	(9.01,11.66)	2402.09
	Time	(4,465)	1105.27	0.00						
	Group × Time	(4,465)	0.38	0.82						
OSI	Group	(1,465)	1.48	0.22	11.46	0.75	15.24	0.00	(10.08,13.03)	2453.83
	Time	(4,465)	2220.25	0.00						
	Group × Time	(4,465)	0.18	0.94						
DERS	Group	(1,465)	0.03	0.86	18.55	1.21	15.24	0.00	(16.31,21.09)	2677.700
	Time	(4,465)	318.05	0.00						
	Group × Time	(4,465)	0.60	0.66						
AXI	Group	(1,465)	2.17	0.14	1.84	0.12	15.24	0.00	(1.62,2.10)	1605.29
	Time	(4,465)	91.69	0.00						
	Group × Time	(4,465)	0.14	0.96						
AXO	Group	(1,465)	1.53	0.21	2.56	0.16	15.24	0.00	(2.25,2.92)	1758.17
	Time	(4,465)	78.60	0.00						
	Group × Time	(4,465)	0.34	0.84						
ACI	Group	(1,465)	0.02	0.87	1.13	0.07	15.24	0.00	(1.00,1.29,0.73)	1379.88
	Time	(4,465)	186.15	0.00						
	Group × Time	(4,465)	0.67	0.61						

(Hood et al., 2021; O'Donnell et al., 2021; Varkovitzky et al., 2018), as well as reduced symptoms of a variety of emotional disorders as a function of treatment with the UP (Barlow et al., 2017; Sakiris & Berle, 2019). The UP-A, in turn, has demonstrated superiority over wait-list control conditions for treating depression and anxiety (Ehrenreich et al., 2009; Ehrenreich-May et al., 2017; García-Escalera et al., 2019), whereas several studies have confirmed the effectiveness of TF-CBT in treating PTSD among adults and adolescents (Goldbeck et al., 2016).

The UP-A and TF-CBT target a number of similar treatment mechanisms, including cognitive coping and gradual exposure to improve cognitive processing of trauma-related thoughts and beliefs. However, unlike TF-CBT, the UP-A, like the UP, is arguably a more encompassing and perhaps more effective treatment insofar as it targets transdiagnostic variables, including emotion dysregulation and behavioral avoidance. Indeed, these variables have a demonstrable role in developing and maintaining psychopathology in PTSD and other conditions (e.g., borderline personality disorder; Fitzgerald et al., 2018). To this point, we found that emotion regulation in UP-A exhibited more significant improvement at the end of the treat-

ment and during follow-ups compared with the TF-CBT group. We suggest that future studies address not only treatment outcomes but also potential mediators and moderators of treatment gains across the two interventions we assessed. We recommend that researchers develop iterations of the UP, including the UP-A, to more specifically target trauma processing to potentially enhance treatment outcomes and gain maintenance.

Our study had several limitations. First, interventions were delivered by different therapists. However, expert therapists participated in each condition, and we determined that fidelity to the procedures was high. Second, the follow-up period was limited to 9 months, thereby precluding assessments of potential longer-term effects. Third, it is unclear which components of the UP-A or their interaction contributed to the superiority of this intervention vs. TF-CBT with regard to symptoms of anxiety, anger, and self-harm. Fourth, our study was limited to adolescents and lacked a number of important comparison groups, including treatment as usual, wait-list, and placebo conditions. While we included individuals with comorbid conditions, we did not include an independent group of individuals with PTSD absent comorbid conditions, precluding examination of

Table 6  
Effect Size, Confidence Interval and Reliable Change Index of UP-A and TF-CBT

Measures	Treatments	Pre to post-treatment		Pre to 3-M FU		Pre to 6-M FU		pre to 9-M FU		Cohen's d (UP-A vs TF-CBT)			
		95% CI	RCI	95%CI	RCI	95%CI	RCI	95%CI	RCI	Post-treatment	3-MF	6-MF	9-MF
CPSS-5-SR	UP-A	-43.23, -39.99	-38.70	-25.11, -23.23	-27.28	-27.97, -26.07	-22.83	-30.48, -28.59	-18.89	0.18	0.91	1.49	1.11
	TF-CBT	19.18, 21.62	-31.89	15.06, 17.69	-25.61	10.61, 13.63	-18.95	9.01, 12.21	-16.59				
CDI	UP-A	1.38, 13.43	-21.78	8.55, 10.44	-16.66	5.60, 7.39	-11.40	3.25, 5.79	-7.94	0.12	0.02	0.98	0.69
	TF-CBT	12.62, 15.03	-24.26	9.46, 6.21	-18.59	4.50, 6.21	-9.40	2.60, 5.22	-6.85				
YAM-5	UP-A	20.00, 30.16	-41.67	25.53, 26.72	-36.80	21.43, 22.87	-31.19	19.23, 20.94	-28.29	0.38	0.82	2.18	1.24
	TF-CBT	28.72, 29.87	-41.26	24.08, 25.40	-34.86	16.88, 18.98	-25.27	1.27, .16	-24.48				
OSI	UP-A	40.64, 42.78	-63.21	37.93, 40.06	-59.09	34.37, 36.58	-53.75	31.72, 34.10	-49.87	0.30	0.53	1.73	1.73
	TF-CBT	40.91, 43.46	-63.92	37.56, 40.22	-58.93	31.18, 33.83	-49.25	28.83, 31.46	-45.68				
DERS	UP-A	21.26, 23.12	-36.98	16.19, 18.06	-28.55	10.38, 12.39	-18.98	6.07, 8.40	-12.06	0.74	0.98	1.15	0.78
	TF-CBT	18.31, 20.40	-32.26	12.26, 14.20	-22.05	5.62, 7.26	-10.73	2.33, 4.64	-5.81				
AXI	UP-A	3.23, 4.06	-5.14	2.92, 3.68	-4.66	1.19, 2.64	-3.22	.85, 1.71	-1.81	0.57	0.78	0.56	0.62
	TF-CBT	2.68, 3.39	-4.28	2.03, 2.64	-3.29	1.24, 1.73	-2.09	-.01, .85	-.60				
AXO	UP-A	2.73, 3.65	-4.77	2.40, 3.20	-4.19	1.54, 2.54	-3.05	-.54, .33	-.28	0.39	0.70	0.72	0.18
	TF-CBT	3.15, 3.94	-5.29	2.33, 3.02	-4.00	1.34, 1.71	-2.28	.01, .83	-.34				
AC	UP-A	-4.78, -4.25	6.19	-3.56, -3.00	4.49	-2.78, -2.21	3.42	-3.76, -2.92	4.58	0.39	0.54	0.68	0.48
	TF-CBT	-4.11, -3.67	5.32	-2.78, -2.37	3.43	-1.81, -1.12	2.00	-2.92, -2.14	3.42				

the specific effects of the interventions on PTSD alone. Such comparisons await future research. Moreover, because participants in the COVID-19-related PTSD group witnessed the death of their parent/s, their daily lives were unstable as a result, and part of their parent/caregiver sessions focused on providing stable conditions for them. Accordingly, we used the number of their parents-/caregiver sessions as a covariate in analyses. Finally, our analyses did not include a broad spectrum of highly adverse events (e.g., combat, terminal illness) and only included Iranian participants, thereby limiting the generalizability of our research.

Nevertheless, our study had significant strengths, as it was the first study that compared the UP-A with TF-CBT, all assessors and therapists were blind to treatment aims, we used structured interviews, and we compared findings in regard to COVID-19-related PTSD vs. COVID-19 unrelated PTSD. Our findings imply that treatment gains are, for the most part, not a function of the type of adverse event and that PTSD due to COVID-19, in specific, does not dilute the effectiveness of treatment. In fact, we detected no differences between these groups in all symptom's reductions during assessments period.

Our findings imply that mental health professionals may benefit from utilizing evidence-based treatments such as the UP-A and TF-CBT to intervene with adolescents with PTSD and comorbid conditions. Our preliminary evidence suggests that the UP-A produces outcomes superior to TF-CBT on symptoms of anxiety, self-harm, and anger. However, our findings await replication and extension to adult populations in future research that assays treatment mechanisms over longer follow-up periods.

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