

Efficacy of an internet-based version of the unified protocol for transdiagnostic treatment of emotional disorders in adolescents (iUP-A): A randomized active-controlled trial

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ABSTRACT

Background: Emotional disorders are highly prevalent among adolescents and often co-occur, underscoring the need for transdiagnostic interventions. Internet-delivered interventions offer a promising avenue to increase access to evidence-based care for youth.

Objective: This study examined the effectiveness of the self-administered internet-delivered version of the Unified Protocol for Transdiagnostic Treatment of Emotional Disorders in Adolescents (iUP-A), applied by means of the platform *Learn to Manage your Emotions* (AMtE; *Aprende a Manejar tus Emociones*).

Method: Adolescents with comorbid anxiety and/or depressive disorders (age range = 13–18 years; 80.3% girls) were randomly allocated to receive the iUP-A ($n = 30$) or the active control condition (ACC) ($n = 31$), and were assessed at baseline, post-treatment, and at 3-, 6- and 12-month follow-up. Outcome measures included self-reported symptoms of anxiety and depression, as well as parent- and clinician-rated assessments. Generalized estimating equations were used to analyze changes over time, and Hedges' g effects sizes to assess the magnitude of change.

Results: Participants in the iUP-A condition showed significant improvements from pre- to post-treatment across all self-reported and clinician-rated measures, whereas no such improvements were observed in the control condition. Substantial gains were observed across all outcomes, with large effect sizes maintained or enhanced throughout the follow-up period. Improvements were evident across multiple domains, including internalizing symptoms, anxiety and depressive disorder-symptoms, and overall functioning.

Conclusions: The iUP-A appears to be an effective and feasible digital intervention for adolescents with emotional disorders. Findings support its potential for broad implementation in clinical and community settings.

1. Introduction

Emotional disorders, particularly anxiety and depression, are among the most common psychiatric conditions in the general population and represent the most prevalent mental health issues in adolescents (Canals et al., 2018, 2019; Polanczyk et al., 2015). Anxiety and depression also exhibit high comorbidity during adolescence, with estimates reaching up to 75% (Cummings et al., 2014; Ghandour et al., 2019). This comorbidity is associated with poorer prognosis and a range of difficulties, including peer relationship problems, poor school attendance and

academic performance, emotional distress, impairment in daily functioning, and suicidal behaviors (Cummings et al., 2014; Klaufus et al., 2022). Comorbidity between anxiety and depression arises from shared vulnerability and maintenance factors, such as temperament (e.g., negative affect), clinical dispositions to experience negative reactions to emotions (e.g., anxiety sensitivity), and difficulties in emotion regulation (e.g., emotional avoidance) (Barlow et al., 2014; Sandín et al., 2020a, 2021).

Transdiagnostic cognitive-behavioral therapy (T-CBT) has emerged as an alternative to traditional disorder-specific CBT for emotional

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disorders, as it targets comorbidity by addressing shared symptoms and underlying risk and maintenance factors (Barlow et al., 2004; Craske, 2012; Sandín et al., 2012; Titov et al., 2012). The transdiagnostic approach offers several pragmatic advantages over disorder-specific treatments, including simplified treatment planning and broader applicability across patients regardless of their primary or comorbid diagnoses.

Research has shown that the efficacy of T-CBT for emotional disorders is comparable to that of disorder-specific CBT interventions, particularly in adult clinical samples and for common symptom outcomes (e.g., measures of anxiety and depressive symptom severity) (Pearl and Norton, 2017; Titov et al., 2015). However, the evidence is heterogeneous as some meta-analyses and randomized trials report small differences that may favour either transdiagnostic or disorder-specific approaches depending on the outcome domain, sample composition (e.g., comorbidity), and delivery format (face-to-face vs. internet-delivered) (Newby et al., 2017; Polak et al., 2021). In addition, although meta-analytic work on the Unified Protocol (UP) and other theory-based transdiagnostic programs supports their efficacy across age groups, the body of evidence in children and adolescents is smaller and findings are less consistent than in adults (Carlucci et al., 2021; García-Escalera et al., 2016); therefore conclusions about youth samples should be drawn cautiously. Taken together, the literature supports T-CBT as a viable option for treating emotional disorders, but treatment effects vary by disorder, outcome, comorbidity, and format; these moderators should be considered when interpreting comparative effectiveness findings and when selecting interventions for specific populations or implementation contexts.

The Unified Protocol for Transdiagnostic Treatment of Emotional Disorders in Adolescents (UP-A) is a version of the UP (Barlow et al., 2011) developed by Ehrenreich-May et al. (2018a, 2018b) specifically for adolescents. As the UP, the UP-A targets shared etiological mechanisms, high comorbidity, and overlapping emotional, cognitive, and behavioral processes across emotional disorders. The UP-A is an evidence-based transdiagnostic program for adolescents that has shown efficacy in both clinical and subclinical adolescent populations (Bähr et al., 2025; Carlucci et al., 2021; Roberts et al., 2025; Sandín et al., 2025; Schäpermeier et al., 2025). The UP-A was translated into Spanish (Ehrenreich-May et al., 2020, 2022) and has undergone preliminary validation in Spain by various research groups (Sandín and García-Escalera, 2025).

Internet-based psychological treatments have the potential to significantly improve access to empirically supported psychological interventions for adolescents in need. Compared to traditional face-to-face therapy, internet-delivered treatments offer several key advantages, including broader accessibility and dissemination, reduced stigma associated with seeking psychological help, and enhanced cost-effectiveness (Andersson and Titov, 2014). Research has demonstrated that internet-based cognitive behavior therapy (iCBT) produces reductions in anxiety and depressive symptoms comparable to those achieved through face-to-face CBT in children and adolescents (Bevilacqua et al., 2024; Ebert et al., 2015; Titov et al., 2020). Several systematic reviews and meta-analyses have concluded that transdiagnostic iCBT interventions (T-iCBT) for adolescents are at least as effective as individual face-to-face transdiagnostic treatments (Carlucci et al., 2021; García-Escalera et al., 2016; Kolaas et al., 2024; Walder et al., 2025).

The internet-based version of the Unified Protocol for Transdiagnostic Treatment of Emotional Disorders in Adolescents (iUP-A), delivered via the platform Learn to Manage your Emotions [*Aprende a Manejar tus Emociones*, AMtE], represents the first self-administered transdiagnostic internet-delivered intervention designed to address anxiety and depressive symptoms in adolescents (Sandín et al., 2019). Based on the Spanish version of the UP-A (Ehrenreich-May et al., 2020, 2022), the iUP-A targets shared psychopathological processes underlying emotional disorders, such as neuroticism, anxiety sensitivity and

emotion regulation strategies. The program follows a modular approach, includes therapist support, and actively involves parents or caregivers.

A pilot study involving adolescents, primarily with comorbid anxiety and depressive disorders, found the iUP-A to be feasible and acceptable, as rated by adolescents and their parents (Sandín et al., 2020b). Initial evidence supported its clinical utility in reducing anxiety and depressive disorder symptoms, as well as in modifying core transdiagnostic mechanisms. Similarly, in an open trial with adolescents exhibiting elevated internalizing symptoms, Schmitt et al. (2022) reported significant post-intervention and 3-month follow-up improvements in self-reported anxiety and depression, clinician-rated symptom severity, and both self- and parent-reported severity of the top problems. This study also demonstrated significant improvements in key transdiagnostic factors, including anxiety sensitivity and emotional avoidance.

More recently, Espinosa et al. (2024) conducted a randomized controlled trial (RCT) with adolescents diagnosed with anxiety or depressive disorders, most of them with comorbid anxiety or depressive diagnoses. The study showed that both forms of the UP-A, i.e., the standard procedure (telehealth via video call) and the internet-based version (iUP-A via the AMtE platform) were similarly effective in treating emotional disorders. Both interventions led to significant reductions in self-reported anxiety and depressive symptoms, with improvements observed over time across outcome variables and effect sizes ranging from low/medium to large. Likewise, both approaches were effective in improving transdiagnostic variables, except for positive affect. Notably, clinician-rated outcome measures (i.e., anxiety and depressive symptom severity and clinically significant change) showed greater treatment effect than self-report measures.

The RCT of Espinosa et al. (2024) aimed to determine whether the efficacy of the iUP-A was comparable to that of the traditional UP-A, thus focusing on the equivalence of delivery formats for the same therapeutic model. However, such a design does not allow for isolating the effects of specific therapeutic components from nonspecific factors common to psychological interventions. The present study extends this line of research by incorporating an active attention control condition, enabling a more rigorous evaluation of the specific efficacy of the iUP-A beyond general therapeutic support.

However, to date, no published RCT has yet examined the efficacy of the iUP-A using an active control group in adolescents with anxiety and/or depressive disorders. To address this gap, the present study investigates the efficacy of the iUP-A compared to an active control condition (ACC) in a sample of adolescents diagnosed with anxiety and/or depressive disorders. The following hypotheses were tested: (a) adolescents receiving the iUP-A intervention should exhibit greater pre- to post-treatment improvements across all outcome measures of anxiety and depression (both general and disorder-specific) compared to those in the active control condition (ACC) (first hypothesis); (b) when considering all adolescents who received the iUP-A treatment as a single group (i.e., including participants from the active condition after receiving the delayed-iUP-A treatment), participants should maintain the treatment gains across all anxiety and depressive outcome measures over time (second hypothesis); and (c) The online AMtE platform should be rated as feasible and acceptable, based on self-reported and parent-reported measures (third hypothesis).

2. Method

2.1. Design

This study employed a two-arm, parallel-group RCT design. The study included a randomized controlled pre-post phase and a subsequent longitudinal follow-up phase; therefore, CONSORT reporting applies primarily to the randomized phase (Fig. 1). The protocol was approved by the Research Ethics Committee of the Universidad Nacional de Educación a Distancia (UNED) and preregistered on [Clinicaltrials.gov](https://clinicaltrials.gov) (Identifier: NCT04182061). However, several protocol amendments

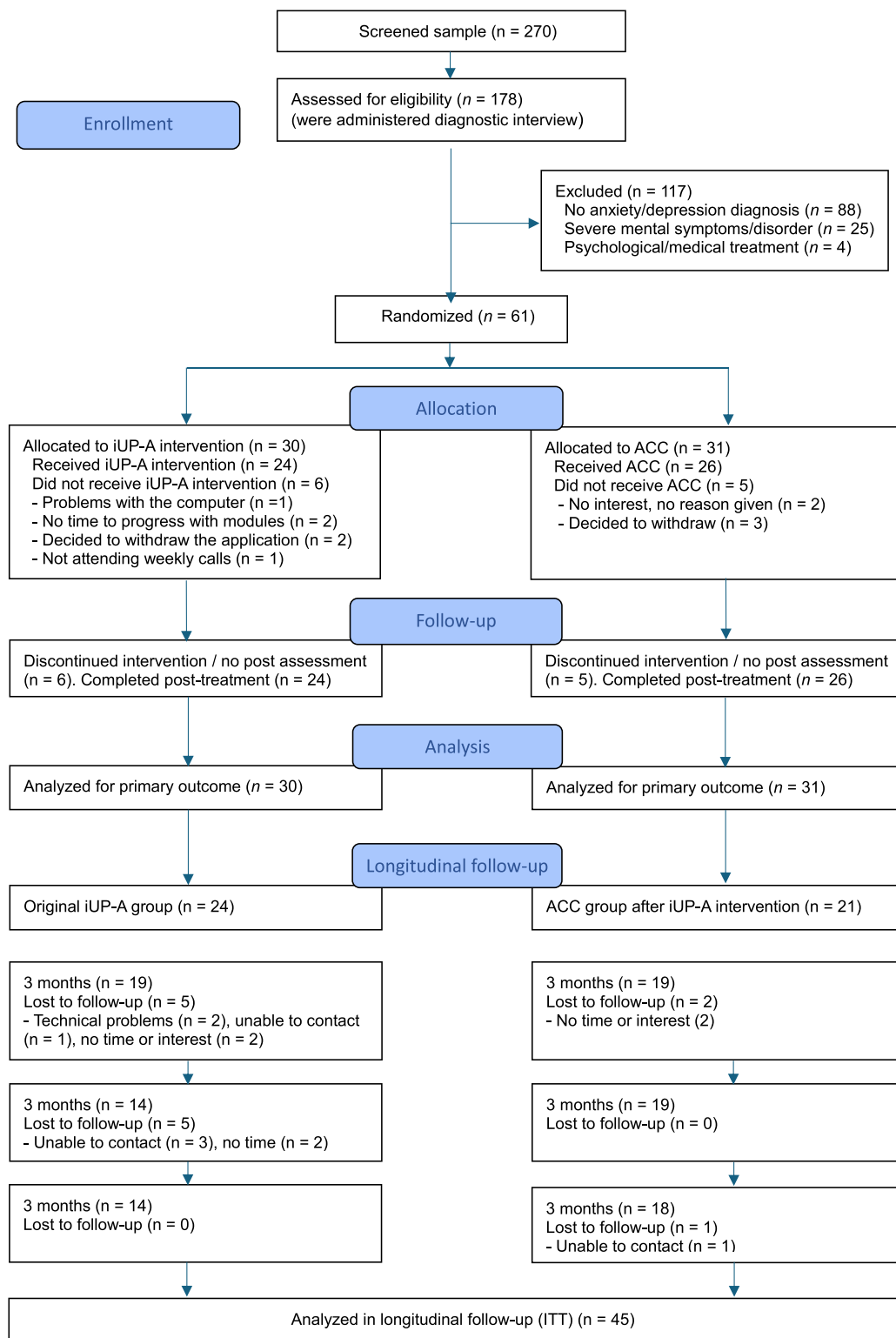


Fig. 1. CONSORT 2025 flow diagram.

Note. Of the 26 participants who completed the active control condition (ACC), 21 subsequently initiated the iUP-A treatment. Participants with baseline-only data contributed to model estimation but not to within-subject change. The randomized controlled comparison is restricted to the pre-post phase. Follow-up longitudinal analyses correspond to participants of both groups after receiving the iUP-A intervention.

ITT = intention-to-treat.

were introduced due to feasibility and recruitment constraints. These adjustments are documented in the updated preregistration record (submitted on January 19, 2026).

Participants were randomized to an experimental intervention condition (i.e., the iUP-A) or to an active control condition (ACC). For ethical reasons, participants in the ACC group were offered the opportunity to receive the iUP-A intervention following the completion of the post-treatment assessment. Outcome measures were assessed at five points: baseline (pre-treatment), post-treatment, and 3-, 6- and 12-month follow-up. Self-reported outcomes were assessed online via the AMtE platform (due to technical issues, these outcomes were not available at the 12-month follow-up for adolescents in the ACC). The remaining outcome variables were assessed either through video call (clinician-rated measures) or via the Qualtrics platform (adolescent and parent-reported feasibility and acceptability).

2.2. Participants

The total sample consisted of 61 Spanish adolescents with anxiety and/or depressive disorders (80,3% females), who ranged in age from 13 to 18 years ($M = 16.40$, $SD = 1.87$). The inclusion criteria were the following: (a) 12 to 18 years of age, (b) meeting the diagnostic criteria for any anxiety and/or depressive disorder, (c) having access to the internet through a computer or electronic tablet, (d) stability of psychotropic medication (if applicable) for at least three months, and (e) Spanish language proficiency. The exclusion criteria were: (a) having a diagnosis of a severe psychopathology, (b) being at moderate or severe risk for suicide, and (c) receiving on-going psychological treatment. See Fig. 1 for the participant flow through the study. The study included a randomized controlled pre-post phase and a subsequent longitudinal follow-up phase.

All adolescents were residing in Spain, with 91.8% born in the country. Regarding the living conditions, 46 adolescents (75.4%) were living with both parents. The family's economic status was estimated based on annual household income, yielding the following distribution: less than €10,000 ($n = 9$; 14.8%), from €10,000 to €25,000 ($n = 20$; 32.8%), from €25,000 to €40,000 ($n = 21$; 34.4%), from €40,000 to €75,000 ($n = 10$; 16.4%), and more than €75,000 ($n = 1$; 1.6%). In most cases the parent who completed the assessment was the mother (83.6%), and most of them were married (77.0%). Participants' clinical characteristics at pre-treatment are shown in Table 1. The most common primary diagnosis was major depressive disorder ($n = 22$, 36%) and most participants had at least one comorbid diagnosis ($n = 41$, 67.2%).

Table 1
Clinical characteristics of the sample at baseline.

Variable	iUP-A ($n = 30$)	ACC ($n = 31$)	Total $n = 61$
<i>Principal diagnosis, n (%):</i>			
Social phobia	6 (20)	8 (25.8)	14 (23)
Major depressive disorder	10 (33.3)	12 (38.7)	22 (36)
Panic disorder with or without agoraphobia	6 (20)	3 (9.7)	9 (14.8)
Generalized anxiety disorder	6 (20)	4 (12.9)	10 (16.4)
Depressive disorder	1 (3.3)	1 (3.2)	2 (3.3)
Obsessive-compulsive disorder	0 (0)	1 (3.2)	1 (1.6)
Specific phobia	0 (0)	1 (3.2)	1 (1.6)
Separation anxiety disorder	1 (3.3)	0 (0)	1 (1.6)
Dysthymic disorder	0 (0)	1 (3.2)	1 (1.6)
<i>Number of comorbid disorders, n (%):</i>			
0	12 (40)	8 (25.8)	20 (32.8)
1	4 (13.3)	11 (35.5)	15 (24.5)
2	5 (16.7)	7 (22.6)	12 (19.7)
3 or more	9 (30)	5 (16.1)	14 (23)

Note: iUP-A = Internet Unified Protocol for Transdiagnostic Treatment of Emotional Disorders in Adolescents; ACC = active control condition.

2.3. Measures

2.3.1. Self-report anxiety and depression measures

Revised Child Anxiety and Depression Scale-30 (RCADS-30; Sandín et al., 2010). The RCADS-30 is a 30-item self-report measure designed to assesses anxiety and depressive disorder symptoms in children and adolescents according to DSM-IV/5. Each item is rated on a 4-point scale ranging from 0 ("never") to 3 ("always"). The RCADS-30 comprises six subscales (5 items each): major depressive disorder (MDD), generalized anxiety disorder (GAD), social phobia (SP), separation anxiety disorder (SAD), panic disorder (PD), and obsessive-compulsive disorder (OCD). In addition to subscale scores, a total score (RCADS-30-total) and a general anxiety score (RCADS-30-ANX –excluding MDD and OCD items) were computed. The reliability (α coefficient) of the scales was as follows (total sample at baseline): 0.90 (RCADS-30), 0.92 (RCADS-30-ANX), 0.78 (GAD), 0.88 (SF), 0.84 (SAD), 0.86 (PD), 0.60 (OCD), and 0.89 (MDD).

Depression Questionnaire for Children (CDN; Sandín et al., 2016) [*Cuestionario de Depresión para Niños y Adolescentes*]. The CDN is a 16-item self-report instrument developed in 1998 to assess symptoms of major depressive disorder and dysthymic disorder in children and adolescents, in accordance with DSM-IV/5 criteria. Respondents rate the frequency of each item on a scale from 0 ("never or almost never") to 3 ("many times or almost always"). The reliability for the questionnaire (α coefficient; total baseline sample) was 0.91.

Social Anxiety Scale for Children-Revised (SASC-R; La Greca and Stone, 1993; Spanish version by Sandín et al., 1999). The SASC-R is an 18-item self-report questionnaire that evaluates social anxiety symptoms using a scale ranging from 1 ("never") to 3 ("a lot of the time"). The scale includes three subscales: (1) fear of negative evaluation (FNE; 8 items), (2) social avoidance and distress-specific to new peers (SAD-N; 6 items), and social avoidance and distress-general (SAD-G; 4 items). The reliability (α coefficient) of the scale was as follows (total baseline sample): 0.92 (SASC-R), 0.88 (FNE), 0.90 (SADN) and 0.77 (SADG).

Panic Disorder Severity Scale-Self-Report (PDSS-SR; Houck et al., 2002; Spanish short version by Sandín, 2010). The PDSS-SR is a 7-item self-report measure that assesses the severity of panic disorder symptoms. Items are rated on a scale from 0 ("not at all") to 4 ("very much"). The reliability of the scale (α coefficient; total baseline sample) was 0.88.

2.3.2. Clinician-rated measures

Mini International Neuropsychiatric Interview for Children and Adolescents (MINI-KID; Sheehan et al., 2000; Spanish version by Colón-Soto et al. (2005). The MINI-KID is a structured diagnostic interview designed to assess psychiatric disorders in children and adolescents according to DSM-IV and ICD-10. It was adapted to align with DSM-5 diagnostic criteria for anxiety and depressive disorders.

Children's Global Assessment Scale (CGAS; Shaffer et al., 1983; Spanish version by UIICF, 2012). The CGAS assesses overall functioning in children and adolescents, with scores ranging from 0 (maximum impairment) to 100 (optimal functioning), using 10-point increment guidelines. Higher scores indicate better functioning, with scores above 70 considered indicative of normal functioning. For analytical purposes, CGAS scores were grouped into deciles, ranging from 1 (scores 1–10) to 10 (scores 91–100).

Clinical Global Impression Scale (CGI; Guy, 1976). The CGI was designed to assess symptom severity (Clinical Global Impression-Severity scale; CGI-S) and treatment response/improvement (Clinical Global Impression-Improvement scale; CGI-I). Symptom severity was rated on a single item ranging from 1 ("normal, not at all ill") to 7 ("extremely ill"). Treatment improvement was assessed using a separate item (CGI-I) ranging from 1 ("very much improved") to 7 ("very much worse"). In this study, treatment response was defined as a CGI-I score of 1 or 2, classifying the participant as a "responder".

2.3.3. Adolescent- and parent-reported measures

Feasibility and Acceptability Questionnaire (FAQ; Sandín et al., 2020b). The FAQ was developed to assess (a) user's experience with the online application, including usability; (b) program's acceptability, encompassing satisfaction and perceived usefulness; and (c) therapeutic alliance. The questionnaire includes parallel, separate forms for adolescents and parents, respectively, and responses are rated on a 11-point scale ranging from 0 ("totally disagree") to 10 ("totally agree"). The reliability of the instrument (α coefficient) for the total baseline sample was 0.89.

2.4. Interventions

2.4.1. iUP-A condition (AMtE platform)

The iUP-A is an internet-based intervention with minimal clinical support (before and during the intervention), designed for the treatment and prevention of emotional disorders in adolescents. The program is based on the Spanish version of the UP-A (Ehrenreich-May et al., 2020, 2022). Although previous research has shown that fully self-guided internet-based cognitive behavioral therapy (iCBT) can be effective for the treatment of anxiety and depression (Dear et al., 2025; Krieger et al., 2023), the inclusion of human therapeutic guidance before and during the intervention appears to provide additional benefits in terms of clinical outcomes and treatment adherence (Krieger et al., 2023). In most guided iCBT programs, therapist support is provided on a weekly basis, typically involving approximately 15 min of contact per participant (Andersson, 2016).

Like the UP-A, the iUP-A was designed to improve emotional reactivity and emotion regulation and to reduce anxiety and depressive symptoms through a range of evidence-based therapeutic techniques, including exposure, emotional awareness, behavioral activation, and cognitive restructuring. The iUP-A consists of six core modules (Modules 2–7) delivered via the AMtE platform, and two complementary modules (Modules 1 and 8) delivered outside the platform by a therapist through secure video calls with the adolescent and one parent. A detailed description of the modules is provided in Table 2.

Module 1 was delivered through a therapist video call with the adolescent and one parent, lasting approximately 15–20 min. During this session, the therapist provided information about emotional problems and disorders, explained the characteristics, objectives and benefits of the intervention, identified the adolescent's main emotional difficulties, and enhanced motivation to participate in both the intervention and the assessments. After this session, participants were given access to the AMtE platform to complete the pre-treatment assessment.

Modules 2 to 7 were delivered through the AMtE platform (Sandín et al., 2019). These modules include the core therapeutic components of the intervention, targeting negative affect and aversive emotional responses, positive affect, mindful awareness, cognitive distortions, anxiety sensitivity, and avoidant behavior (see Table 2). The intervention delivered through the platform lasted from seven to eight weeks, with one module per week (and an additional week allocated to Module 5). Each module included psychoeducational content (videos, texts, and downloadable support materials), instructions for practicing newly acquired skills and completing assignments, and a summary section. On average, each module requires approximately 30 min to complete. This schedule has been shown to be appropriate for digital interventions in adolescent populations (Espinosa et al., 2024; Sandín et al., 2020b; Schmitt et al., 2022). Although the intervention through the AMtE platform is primarily self-administered, it is not entirely unguided, as it includes therapist support through weekly video calls with the adolescent and one parent (approximately 15 min each). The objectives of these calls were to revise each completed module, provide encouragement, monitor progress, give feedback on assignments, resolve technical or procedural difficulties, and reinforce adherence to the program. A key purpose of this support was to emphasize the importance of completing all modules and associated tasks, which were recorded on the AMtE platform. In addition, participants received secure automated email

Table 2
Contents of the iUP-A (AMtE platform).

Module (M) name	Main contents
M1. Motivation enhancement [1 call to adolescent/parent]	Introduce AMtE as an emotion management platform for adolescents. Obtaining top problems, severity ratings, and a goal for each problem. Find reasons to change and enhance motivation. Psychoeducation about emotions and their function. Understand the three parts of emotional experiences and how each interacts with the others. Learn about emotional behaviors and the cycle of avoidance.
M2. Getting to know your emotions [1 week]	Psychoeducation about opposite action and behavioral experiments. Come up with a list of enjoyable activities. Engage the adolescent in behavioral experiments (behavioral activation). Rationale for present-moment and nonjudgmental awareness. Awareness of bodily sensations. Mindful emotional awareness. Practice present-moment and nonjudgmental awareness to emotional experiences. Connections of thoughts and emotions. Learn and practice flexible thinking. Learn about the concept of "thinking traps" (cognitive distortions), automatic thoughts and alternative more flexible thoughts. Generate alternative appraisals of emotion-eliciting situations. Learn detective thinking and problem-solving skills.
M3. Enjoy positive activities* [1 week]	Psychoeducation about body sensations, their relationship to intense emotions and their harmlessness. Identify attempts to avoid physical sensations. Conduct exposures to bodily sensations to become aware of them and increase tolerance. Review the cycle of emotional avoidance and introduce situational emotion exposures. Identify emotionally relevant situations (create an exposure hierarchy). Conduct situational emotion exposures. Apply learned skills.
M4. Mindful emotion awareness* [1 week]	Review skills that have been most useful for each adolescent. Make an individualized relapse prevention plan.
M5. Learn to be flexible in your thinking* [2 weeks]	
M6. Cope with your physical sensations* [1 week]	
M7. Cope with emotional situations* [1 week]	
M8. Maintain your gains [1 call to adolescent/parent]	

Note. AMtE = Learn to Manage your Emotions [*Aprende a Manejar tus Emociones*]; iUP-A = internet-delivered Unified Protocol for Transdiagnostic Treatment of Emotional Disorders in Adolescents.

* Core modules.

reminders encouraging them to complete their assignments and to progress through the module. The modules were delivered weekly (users had to work with one module for at least a week before being able to access the next one) and sequentially in a highly structured format, and completion of each module and its associated assignments was required before accessing the next module. However, participants could access content on the platform related to modules they had already completed at any time.

Module 8, like Module 1, was delivered through a video call with the adolescent and one parent, lasting approximately 45–60 min. During this session, the therapist reviewed the final module of the platform and provided relapse prevention guidelines and recommendations. Participants and parents were also informed about and encouraged to complete the subsequent assessments delivered through the AMtE platform, including post-treatment and follow-up assessments (at 3-, 6- and 12 months), as well as to complete the FAQ questionnaire (applied this to adolescents and parents). Finally, participants were informed about the upcoming diagnostic interview to be conducted via video call by an

independent therapist.

2.4.2. Active control condition (ACC group)

The ACC condition was matched in format (eight modules) and overall duration to the experimental condition, although it did not include the specific therapeutic components of the iUP-A core modules (Modules 2–7). Modules 1 and 8 were similar in content, format, and duration to those in the experimental group, although some elements were adapted to the characteristics of the control condition. For example, in Module 1, participants were informed that the intervention would consist of weekly sessions, each including a 15-min video call with the adolescent and a similar call with one parent. In Module 8, participants in the ACC group were informed that, if they wished, they could subsequently continue with the treatment, now by means of the AMtE platform (i.e., the iUP-A). They were informed that it would be delivered via the internet and that they could continue treatment through this program in order to improve their condition. No additional explanation or information was provided at that time. As in the experimental group, the FAQ was completed by the ACC participants only after receiving the delayed iUP-A treatment.

With respect to Modules 2–7, each module consisted of a video call between the therapist and the adolescent and a separate call with one parent. As in the experimental condition, each session included a 15-min conversation with the adolescent and a 15-min conversation with one parent. Each session was structured around a specific topic introduced by the therapist and discussed with both the adolescent and the parent. All topics were closely related to adolescent mental health, with a particular focus on anxiety and depression. At the beginning of each session, the therapist asked the adolescent to reflect on their emotional experiences during the previous week, including any difficulties encountered in interactions with peers or family members. The thematic content of the sessions included: family environment (Session 2), school context (Session 3), peer relationships (Session 4), health and illness (Session 5), coping strategies and problem-solving (Session 6), and emotion regulation strategies (Session 7). If an adolescent missed a session, its main content was addressed in the following session. Sessions were delivered weekly and followed a fixed sequential structure, such that participants progressed through the intervention in a standardized order.

Overall, the ACC group constituted an active intervention that, like the experimental condition, included real non-specific therapeutic ingredients such as attention, emotional support, implicit psycho-education, motivation, and a minimal therapeutic alliance. Thus, the control condition functioned as an active attention control, controlling for therapist contact and support but not for the treatment-specific mechanisms of the iUP-A. This design goes beyond a passive or wait-list control by including an active condition, thereby providing a more stringent test of the intervention effects.

2.5. Procedure

The procedure was conducted as follows. First, the research team contacted secondary schools to present the program, describe its main characteristics, and invite them to participate in the study. In schools that agreed to participate, school counselors informed adolescents and their families within the school setting, providing general information about the aims of the study, its voluntary nature, and data confidentiality. In some schools, this information was additionally disseminated through the school's virtual platform, allowing the invitation to reach families directly. Schools then facilitated contact with the research team, and interested parents contacted the researchers directly. Subsequently, an initial call with the families was scheduled to provide more detailed information about the study and to verify whether the adolescent met the basic inclusion criteria. If participants did not meet the inclusion criteria, they were excluded from the study or, when necessary, referred to mental health services.

Eligible participants then proceeded to the screening phase, which included the completion of self-report questionnaires and a diagnostic interview conducted via video call. Participants received a link to the screening questionnaires via e-mail. Adolescents who exceeded the cut-off scores established by Piqueras et al. (2017) for the RCADS subscales (major depressive disorder = 4, panic disorder = 5, social phobia/social anxiety disorder = 5, separation anxiety disorder = 8, and generalized anxiety disorder = 7) on at least one subscale other than obsessive-compulsive disorder were invited to the diagnostic interview.

Diagnoses were established using the MINI-KID, a brief structured clinical interview that does not require specialized training. The interviews were conducted by psychologists or advanced psychology students and supervised by RMV, SA, JCS and JG-E experts in the diagnosis and treatment of emotional disorders. The interview with the adolescent lasted approximately 90 min. To better understand the adolescent's difficulties and to support the diagnostic process, the legal guardian (typically the mother) was also interviewed for approximately 30 min. Adolescents who were diagnosed with an emotional disorder were included in the study. Those who did not meet criteria for a diagnosis of an emotional disorder were excluded from the study and offered participation in another study focused on subclinical symptoms of anxiety and depression.

The selected adolescents were randomly assigned in a 1:1 ratio to either the experimental (iUP-A) or the control (ACC) group using a stratified randomization procedure based on primary diagnosis (anxiety vs. depressive disorder). Two diagnostic strata were defined a priori, and participants were allocated sequentially within each stratum using computer-generated random sequences. Randomization sequences were generated by an independent collaborator who was not involved in participant recruitment or assessment. Group assignment was performed prior to the baseline assessment; however, baseline measures were collected using an automated web-based platform (AMtE), minimizing the risk of assessment bias. The randomization sequence was concealed from participants and from the researchers responsible for screening and outcome assessment.

After randomization, adolescents and their parents were informed during the first session (Module 1, via video call) that they would participate in an intervention aimed at improving emotional regulation and emotional well-being. The format of the assigned intervention was explained (internet-based program vs. weekly therapist calls), but participants were not informed that one condition was expected to be more effective than the other.

Both clinician-rated and self-reported measures were applied at pre-treatment, post-treatment and follow-up (3, 6 and 12 months). ACC participants who later received the iUP-A (delayed-treatment) were also assessed at iUP-A post-treatment and follow-up. The MINI-KID was applied at pre-treatment and post-treatment via video call to determine whether participants met DSM-5 criteria for anxiety and/or depressive disorders. Therapists rated the CGAS and CGI following the diagnostic interviews at pre-treatment and post-treatment, as well as during the follow-up calls. To minimize methodological bias, the diagnostic interviews and clinician-rated scales were conducted by a therapist who was blind to the participant's group assignment. The FAQ was administered after participants completed the internet-based iUP-A intervention. Consequently, participants in the ACC condition completed the FAQ only if they subsequently received the iUP-A in the delayed-treatment phase.

2.6. Statistical analysis

Data were analyzed using SPSS version 27. Initially, chi-square tests were used for categorical variables and *F*-test (ANOVAs) for continuous variables to confirm that there were no significant baseline differences between groups concerning sociodemographic or clinical characteristics.

The sample size was calculated a priori using G*Power (version

3.1.9.7; Faul, 2020). Assuming a moderate effect size (Cohen's $d = 0.50$), an alpha level of 0.05, and a statistical power of 0.80, the estimated minimum total sample size was 34 participants. This estimation was based on conventional power calculations for two-group repeated measures designs. For the single-group longitudinal analyses including five repeated measurements, an a priori power analysis was conducted using a repeated measures analysis of variance for within-subject effects. Assuming a moderate effect size (Cohen's $d = 0.50$), an alpha level of 0.05, a power of 0.80, and a correlation of 0.50 between repeated measures, the estimated minimum required sample size was 21 participants. Sixty-one adolescents were recruited and completed the baseline assessment, exceeding the initial sample size requirements.

To examine the differential effect of the two treatment conditions and changes in outcome measures over time, we used intent-to-treat GEE models. This method has gained increasing acceptance in recent years as a robust approach for longitudinal data analysis, particularly in RCTs, due to its advantages over other established statistical procedures, such as mixed-effects models (Zhang, 2013). Although the total sample comprised 61 participants, 50 participants provided at least two observations and thus contributed to the estimation of longitudinal change. GEE analyses included all randomized participants. Individuals with baseline-only data contributed to estimation of model parameters but not to within-subject change over time. Though modest, the sample size is at the lower bound of what is generally considered acceptable for GEE. Methodological literature indicates that GEE parameter estimates can retain reasonable statistical power even with relatively small sample sizes (Liang and Zeger, 1986), particularly in longitudinal designs with multiple measurements (Ma et al., 2012). Likewise, simulation studies suggest that estimates become reasonably stable with small to moderate sample sizes (above 40), particularly when using working correlation structures such as exchangeable matrices (Mancl and DeRouen, 2001; McNeish and Stapleton, 2016).

GEE allows for the specification of different probability distributions for the dependent variable, accommodates various correlation structures among repeated measures, and handles missing data effectively (Melo et al., 2022). GEE estimates are adjusted using a working correlation matrix to account for within-subject correlations over time, and the method does not require homoscedasticity (Wang, 2014). Simple working correlations structures have been shown to enhance model stability and to perform more reliably in small to moderate samples, particularly designs with multiple time points (Diggle et al., 2002; McNeish and Stapleton, 2016). Furthermore, GEE offers the advantage of accommodating the most appropriate distribution for the dependent variable without requiring data transformation, thereby preserving the original nature of the data.

An exchangeable working correlation structure was used in all models, which is a conservative approach when the true correlation pattern is unknown. A gamma distribution with a log link function was selected for the outcome variables to account for positive skewness (the gamma distribution can assume different shapes). To improve model fit and reduce measurement error, we assumed that changes were proportional to pre-treatment values. The robust ("sandwich") estimator was used for the covariance matrix, providing consistent estimates even when the working correlation structure was misspecified. Maximum likelihood estimation was used for the scale parameter. To examine changes in treatment responders over time (binary data), a negative binomial probability distribution and a log link function was employed.

Following preliminary analyses, a series of GEE models were conducted to compare the pre- to post-treatment efficacy of the two intervention conditions (AMtE vs. ACC) across outcome measures (anxiety and depression outcomes), controlling for age, gender, and baseline scores. A significant group $\times$ time interaction denotes significant differences between groups over time. Additionally, GEE models were used to examine longitudinal changes in outcomes for the total sample (i.e., including ACC participants who later received the iUP-A intervention), also controlling for age, gender, and baseline scores. Pairwise

comparisons with Bonferroni corrections were performed based on the GEE results.

Effect sizes were calculated using Hedges' g , based on the difference between group means (or pre-post means, as appropriate) divided by the pooled standard deviation, with a correction factor applied for small sample bias. Effect sizes were computed using SPSS version 27, following standard procedures for independent and paired samples t -tests. Hedges' g was preferred over Cohen's d because it provides a less biased estimate of effect size in small samples.

To address concerns regarding missing-data assumptions in the primary GEE analyses, we conducted additional sensitivity analyses using linear mixed-effects models estimated by restricted maximum likelihood. For randomized pre-post comparisons, each outcome was modeled with fixed effects for group, time, and the group $\times$ time interaction, adjusting for age and gender, and with a participant-level random intercept to account for within-subject dependence. Baseline was modeled as part of the repeated outcome trajectory rather than entered separately as a covariate. For the total-sample longitudinal analyses, outcomes were modeled as a function of time, age, and gender, again including a participant-level random intercept. Likelihood-based mixed models were used because they can provide valid inference for incomplete repeated-measures data under a missing-at-random assumption (Detry and Ma, 2016; Gabrio et al., 2022; Pugh et al., 2021).

To further examine whether the transition from ACC to iUP-A may have influenced subsequent outcome trajectories, we conducted an additional exploratory sensitivity analysis comparing participants who received iUP-A from the outset with those who received ACC followed by iUP-A. For these analyses, assessment time was aligned to iUP-A initiation (pre-iUP-A, post-iUP-A, 3-month follow-up, and 6-month follow-up). Outcomes were analyzed using linear mixed-effects models estimated by maximum likelihood, with fixed effects for pathway, time, and the pathway $\times$ time interaction, adjusting for age and gender, and with a participant-level random intercept.

3. Results

3.1. Adherence and attrition

As shown in Fig. 1, six participants in the iUP-A group (20%) and five in the ACC group (16.1%) discontinued the intervention prior to the post-treatment assessment, with comparable dropout rates between groups ($\chi^2 = 0.15, p = .69$). All remaining participants ($n = 24$ in iUP-A and $n = 26$ in ACC) completed both the intervention and the post-treatment assessment. Additional attrition data and reasons for dropout are provided in Fig. 1.

No significant baseline differences were observed between the iUP-A and ACC groups in sociodemographic variables (e.g., age, gender, socioeconomic status) or clinical characteristics (see Table 1). Likewise, the groups did not differ significantly at baseline on any self-reported ($ps \geq 0.22$) or clinician-rated ($ps \geq 0.43$) outcome measures.

Although 61 participants were randomized and assessed at baseline, 11 discontinued participation before the post-treatment assessment and could not be reached thereafter despite contact attempts. Participation was voluntary and adolescents were allowed to withdraw at any time without providing a reason. Consistent with the intention-to-treat principle and the properties of GEE models, these participants were retained in the primary analyses, contributing baseline information but not within-subject change estimates.

GEE models assume that missing data are missing completely at random (MCAR) or missing at random (MAR). To evaluate the plausibility of this assumption, retention analyses were conducted comparing participants who completed the post-treatment assessment with those who did not, as well as participants who completed at least one follow-up assessment with those who did not. Baseline retention analyses showed no statistically significant differences between completers and non-completers on the observed variables examined. Overall,

descriptive differences and associated effect sizes appeared to be small and were not statistically significant (Supplementary Table S3). Similarly, no meaningful baseline differences were observed between participants who completed at least one follow-up assessment and those who did not, either for outcome measures ($ps = 0.14\text{--}0.98$) or socio-demographic variables ($ps = 0.56\text{--}0.94$). Thus, although these retention analyses do not establish the missing-data mechanism, they suggest that there are no associations between attrition and the observed baseline variables examined.

Treatment adherence was evaluated based on module and assigned tasks completion. Additional indicators of adherence included feasibility, acceptability, and therapeutic alliance (see Results). Regarding module completion in the iUP-A group, of the six participants who did not complete the internet-based intervention, one was unable to continue due to technical problems with the computer, and three and two participants discontinued after Modules 2 and 4, respectively (see Fig. 1). All remaining participants ($n = 24$) completed all modules and assignments (100% completion among completers), as completion of each module and weekly session was required to progress to the next module.

Regarding the five participants who discontinued the ACC group, two completed Module 2, one completed Modules 1–4, and two completed Modules 1–6. None completed the post-treatment assessment. Among the remaining participants ($n = 26$), most completed all sessions; seven missed one video call and three missed two video calls.

3.2. Sensitivity analyses using linear mixed models

Sensitivity analyses based on linear mixed-effects models yielded a largely consistent pattern of findings with the primary GEE analyses (Supplementary Tables S4, S5-A and S5-B). For the randomized pre-post comparisons, the Group $\times$ Time effects were replicated for the main outcomes, including RCADS-total, RCADS-ANX, RCADS-GAD, SASCR and its subscales, CDN-MDD/PDD, RCADS-MDD, CGAS, and CGI-S. Some pre-post effects were attenuated in the mixed-model analyses (i. e., RCADS-SAD, RCADS-PD, RCADS-OCD, and PDSS), whereas the RCADS-SP result was strengthened relative to the primary GEE analysis. Overall, however, the direction and substantive interpretation of the findings remained unchanged (Table S4). In the total-sample longitudinal analyses, the mixed-model results were also highly consistent with the original GEE findings, showing significant effects of time across the self-reported and clinician-rated outcomes examined (Table S5-A). Pairwise comparisons versus baseline showed the same general pattern of sustained improvement over time as in the primary analyses (Table S5-B).

3.3. Exploratory analyses of trajectories after iUP-A initiation

We additionally examined whether trajectories after iUP-A initiation differed between participants who received iUP-A from the outset and those who received ACC followed by iUP-A. These exploratory mixed-model analyses showed no significant pathway $\times$ time differences for any of the outcomes examined, indicating that trajectories after iUP-A initiation were comparable across the two pathways (Supplementary Table S6). Thus, we found no evidence that the transition from ACC to iUP-A materially altered the overall pattern of subsequent change.

3.4. Changes in diagnosis after treatment

Following administration of the MINI at post-treatment, 18 of 24 participants in the iUP-A group (75%) no longer met DSM-5 diagnostic criteria for any emotional disorder. In contrast, only 3 of 25 participants in the ACC group (12%) no longer met diagnostic criteria. The difference between groups was statistically significant ($\chi^2 = 19.84, p < .001$).

3.5. iUP-A vs. ACC

Table 3 presents the results of the between-group analyses, including descriptive statistics and GEE results examining the interaction between group (iUP-A vs. ACC) and time (pre- vs. post-treatment) controlling for age, gender and baseline scores. Effect sizes (pre- vs. post-treatment) comparing the impact of both experimental conditions are also reported.

As shown, except for the SP subscale (RCADS-30), the GEE analyses revealed a statistically significant group $\times$ time interaction for all outcome variables. The Wald's χ^2 interaction statistics were significant across outcomes domains, ranging from 5.35 ($p < .05$) to 7.30 ($p < .01$) for internalizing symptoms, from 3.93 ($p < .05$) to 11.78 ($p < .001$) for anxiety disorder-specific symptoms, from 6.65 ($p < .01$) to 7.44 ($p < .01$) for depressive disorder symptoms, and from 20.04 ($p < .001$) to 35.03 ($p < .001$) for clinician-rated outcomes. These findings indicate significant pre- to post-treatment differences between the two groups, demonstrating that only the iUP-A participants improved significantly at post-treatment.

Time effects were statistically significant for all outcome measures in the iUP-A group, whereas no significant time effects were observed in the ACC group. Overall, the iUP-A condition yielded large or medium to large effect sizes (Hedges' g) across most outcome variables (see Table 3). For example, large effect sizes were found for the two clinician-rated measures (CGI-S and CGAS), internalizing symptoms (RCADS-total and RCADS-ANX), and depressive disorder symptoms (CDN and MDD).

3.6. Changes during follow-up (within-group analyses)

Longitudinal changes were examined by conducting a series of within-group GEE analyses for both self-reported and clinician-rated measures. Analyses included five time points: pre-treatment (baseline), post-treatment, and 3-, 6- and 12-month follow-up. Since several ACC participants received the iUP-A after the controlled trial, both groups (i. e., immediate and delayed-iUP-A) were combined to increase sample size for the longitudinal GEE analyses. Results controlling for age, gender and baseline scores are presented in Tables 4–5 (self-reported outcomes) and 6 (clinician-rated outcomes).

3.6.1. Changes in self-reported anxiety and depression measures

Table 4 presents within-group analyses for self-reported outcomes, including descriptive statistics across four time points and GEE time effects for each dependent variable (note that the 12-month follow-up was excluded from these analyses, as no ACC participants were assessed at that time point). As shown in the table, the effect of time was statistically significant for all outcome variables, indicating that treatment effects were maintained or further improved throughout the follow-up period. Wald's χ^2 tests (overall time effect) ranged from 14.35 ($p < .001$) for obsessive-compulsive symptoms to 55.44 ($p < .001$) for anxiety symptoms (RCADS-ANX).

Pairwise comparisons based on GEE analyses with Bonferroni correction revealed significant improvements in all outcome variables from baseline to post-treatment, and from baseline to 3- and 6-month follow-up. Notably, several variables, including RCADS-total, RCADS-ANX, SF, SADCR, FNE and SADN, also showed significant improvements from post-treatment to follow-up (see Table 4). For a description of pairwise comparisons across all outcome variables and time points, refer to the table.

Figs. 2–5 illustrate patterns of change in self-reported measures across time points. The longitudinal follow-up sample includes only participants exposed to the iUP-A intervention ($n = 45$; original iUP-A group and ACC participants who crossed over), in order to represent treatment-related change over time. These figures depict changes over time for overall internalizing symptoms (Fig. 2), disorder-specific symptoms (Fig. 3), social anxiety outcomes (Fig. 4), and depressive symptoms (Fig. 5), based on z-scored predicted means from GEE estimations. As shown, all measures demonstrate substantial improvement

Table 3

Means (*M*), standard deviations (*SD*), Hedges' *g* effect sizes and results of generalized estimating equations (GEE) for comparisons between iUP-A (AMtE) and ACC groups on self-reported internalizing, anxiety and depression outcomes, controlling for baseline scores, age and gender.

Outcome measure	Pre-treatment ¹	Post-treatment	Group × Time	Pre vs Post-treatment effect size
	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	Wald's χ^2	Hedges' <i>g</i> [<i>CI</i>]
<i>Internalizing symptoms</i>				
RCADS-total				
iUP-A	38.37 (14.32)	25.13 (14.12)	7.30**	1.01 [0.50, 1.47]
ACC	35.26 (14.90)	32.96 (15.97)		
RCADS-ANX				
iUP-A	25.77 (10.32)	17.58 (9.46)	5.34*	0.85 [0.38, 1.31]
ACC	22.81 (11.11)	21.65 (11.62)		
<i>Anxiety disorder symptoms</i>				
RCADS-GAD				
iUP-A	8.40 (3.51)	5.46 (2.90)	9.74**	0.89 [0.41, 1.35]
ACC	7.42 (3.52)	7.85 (3.91)		
RCADS-SP				
iUP-A	9.97 (4.24)	7.79 (4.34)	1.51	0.46 [0.04, 0.87]
ACC	8.42 (4.57)	8.46 (4.65)		
RCADS-SAD				
iUP-A	2.80 (3.24)	1.46 (2.76)	4.71*	0.70 [0.25, 1.13]
ACC	1.90 (2.72)	1.50 (2.56)		
RCADS-PD				
iUP-A	4.80 (3.92)	2.21 (2.16)	4.57*	0.58 [0.14, 1.01]
ACC	5.13 (3.97)	4.38 (3.42)		
RCADS-OD				
iUP-A	4.90 (2.96)	2.58 (2.48)	4.69*	0.57 [0.14, 0.99]
ACC	4.71 (3.16)	4.23 (2.67)		
PDSS				
iUP-A	9.40 (5.37)	5.96 (5.91)	3.93*	0.49 [0.06, 0.90]
ACC	10.10 (7.57)	8.42 (7.32)		
SASCR				
iUP-A	39.57 (9.07)	33.71 (9.41)	19.30***	0.87 [0.39, 1.34]
ACC	35.43 (8.33)	37.69 (9.13)		
SASCR-FNE				
iUP-A	18.58 (3.97)	16.25 (4.73)	10.12***	0.59 [0.15, 1.01]
ACC	16.93 (4.94)	18.00 (4.63)		
SASCR-SADN				
iUP-A	13.50 (3.85)	11.50 (3.89)	10.37***	0.71 [0.26, 1.14]
ACC	11.90 (3.39)	12.65 (3.65)		
SASCR-SADG				
iUP-A	7.23 (2.54)	5.96 (2.03)	11.78***	0.72 [0.27, 1.16]
ACC	6.60 (1.83)	7.04 (2.25)		
<i>Depressive disorder symptoms</i>				
CDN-MDD/ PDD				
iUP-A	22.37 (10.65)	12.96 (10.47)	6.65**	0.91 [0.43, 1.38]
ACC	22.35 (9.36)	20.42 (8.68)		
RCADS-MDD				
iUP-A	7.70 (3.87)	4.29 (3.21)	7.44**	0.85 [0.38, 1.31]
ACC	7.74 (3.52)	7.08 (3.20)		
<i>Clinician-rated measures</i>				
CGAS				
iUP-A	1.63 (0.49)	3.91 (1.50)	35.03***	−1.76 [−2.42, −1.08]
ACC	1.76 (0.63)	2.00 (0.80)		
CGL-S				
iUP-A	4.37 (0.49)	2.00 (1.30)	20.04***	1.88 [1.17, 2.57]
ACC	4.47 (0.51)	3.73 (0.77)		

Note. Wald's χ^2 statistic indicates the effect of time on each outcome variable. Pairwise comparisons were derived from the GEE models after applying the Bonferroni correction; means that do not share superscripts differ significantly (*ps* ranged from <0.05 to <0.001).

AMtE = Learn to Manage your Emotions [*Aprende a Manejar tus Emociones*]; ANX = total anxiety symptoms; ACC = active control condition; CDN =

Depression Questionnaire for Children and Adolescents [*Cuestionario de Depresión para Niños y Adolescentes*]; CGAS = Children's Global Assessment Scale; CGI-S = Clinical Global Impression Scale-Severity; FNE = fear of negative evaluation; GAD = generalized anxiety disorder; iUP-A = internet Unified Protocol for Transdiagnostic Treatment of Emotional Disorders in Adolescents; MDD = major depressive disorder; OCD = obsessive-compulsive disorder; PD = panic disorder; PDD = persistent depressive disorder; PDSS = Panic Disorder Severity Scale; RCADS = Revised Child Anxiety and Depressive Symptoms Scale-30; SAD = separation anxiety disorder; SP = social phobia; SASCR = Social Anxiety Scale for Children-Revised; SADN = social avoidance and distress-specific to new peer; SADG = social avoidance and distress-general.

¹ At baseline, no statistically significant differences were observed between the two groups across any of the outcome measures.

at post-treatment and during follow-up. Overall, most outcomes tend to decrease across the 3- and 6-month follow-up, although only some variables reached statistical significance.

Effect sizes for changes over time further support significant improvements across all outcomes following treatment (see Table 5). Effect sizes ranged from 0.41 to 0.93 (*M* = 0.64) for pre- to post-treatment changes, from 0.60 to 1.23 (*M* = 0.83) for post-treatment to 3 months changes, from 0.53 to 1.32 (*M* = 0.93) for post-treatment to 6 months changes, and from 0.54 to 1.55 (*M* = 0.96) for post-treatment to 12 months changes. These data reflect a progressive increase in effect sizes, suggesting continued improvement in anxiety and depressive symptomatology over time.

Additionally, separated analyses for each of the two groups were conducted on the self-reported outcome measures. For a description of these results, see Tables S1 and S2 in supplementary material.

3.6.2. Changes in clinician-rated outcome measures

GEE analyses examining changes in CGAS and CGI-S (CGI-Severity) scores over time revealed a temporal pattern consistent with that observed for self-reported anxiety and depression outcomes (see Table 6). The effect of time was statistically significant for both measures (*p* < .001). Pairwise comparisons indicated that adolescents experienced significant improvements in overall functioning (CGAS) and clinical severity (CGI-S), with gains maintained or further enhanced throughout the follow-up period. Correspondingly, all Hedges' *g* effect sizes for changes from pre-treatment to the 3-, 6- and 12-month follow-up were large, ranging from -1.24 to -1.77 for CGAS and from 1.18 to 1.70 for CGI-S, indicating robust and sustained effects of the iUP-A intervention over time. These patterns are illustrated in Fig. 6.

Clinically significant change was operationalized using the CGI-I (CGI-Improvement). Participants were classified as treatment responders if they scored 1 ("very much improved") or 2 ("much improved") at post-treatment or follow-up assessments. It was calculated the proportion of treatment "responders", defined as individuals scoring 1 or 2 on the CGI-I. Based on binary GEE analyses, the predicted probability of being classified as a responder was 71.1% at post-treatment, 73.5% at 3-month follow-up, 74.2% at 6-month follow-up, and 83.9% for 12-month follow-up. Although the data suggest a progressive increase in responders rates over time, this trend did not reach statistical significance (Wald's χ^2 = 4.10, *p* = .25).

3.7. Feasibility and acceptability of the treatment

Scores for feasibility and acceptability were high in both groups, as reported by adolescents and parents. Adolescents' ratings on the FAQ (scale range 0–10) fell within the following ranges: (a) between 7.39 and 9.00 in the iUP-A group and between 7.33 and 9.00 in the ACC group regarding their experience with the AMtE platform, including usability and the practicality of the skills taught; (b) between 8.04 and 9.13 in the iUP-A group and between 8.19 and 9.34 in the ACC group concerning program acceptability, encompassing satisfaction and perceived utility; and (c) between 9.30 and 9.78 in the iUP-A group and between 8.76 and

Table 4

Means (*M*), standard deviations (*SD*), and results of generalized estimating equations (GEE) for changes over time on self-reported internalizing, anxiety, and depression outcomes, controlling for baseline scores, age and gender. Total sample.

	Changes over time				Time effect Wald's χ^2
Outcome measure	Pre-treatment	Post-treatment	3-mth	6-mth	
<i>Internalizing symptoms</i>					
RCADS-total	36.53 (14.94) ^a	25.71 (14.92) ^b	21.16 (15.93) ^c	19.33 (13.25) ^c	53.94***
RCADS-ANX	24.26 (11.42) ^a	17.31 (10.27) ^b	14.34 (10.60) ^c	12.92 (8.16) ^c	55.44***
<i>Anxiety disorder symptoms</i>					
RCADS-GAD	7.90 (3.53) ^a	5.71 (3.57) ^b	4.95 (3.94) ^b	4.50 (3.44) ^b	39.73***
RCADS-SP	9.05 (4.34) ^a	7.49 (4.23) ^{a,b}	6.53 (4.27) ^{b,c}	6.04 (3.26) ^c	17.31***
RCADS-SAD	2.34 (2.30) ^a	1.27 (2.42) ^b	0.84 (1.55) ^b	0.46 (1.21) ^b	38.05***
RCADS-PD	4.97 (4.00) ^a	2.49 (3.16) ^b	2.03 (3.00) ^b	1.92 (2.56) ^b	36.61***
RCADS-ODD	4.80 (3.04) ^a	3.07 (2.57) ^b	2.74 (2.91) ^b	2.50 (3.56) ^b	14.35**
PDSS	9.75 (6.52) ^a	6.29 (6.39) ^b	4.81 (6.16) ^b	4.87 (5.75) ^b	14.90**
SASCR	37.50 (8.88) ^a	34.00 (9.26) ^b	31.58 (9.24) ^c	29.92 (7.79) ^c	32.43***
SASCR-FNE	17.88 (4.45) ^a	16.11 (4.85) ^b	15.32 (4.88) ^{b,c}	14.58 (4.38) ^c	20.40***
SASCR-SADN	12.70 (3.69) ^a	11.73 (3.58) ^{a,b}	10.66 (3.54) ^{b,c}	9.92 (2.87) ^c	21.04***
SASCR-SADG	6.92 (2.20) ^a	6.16 (2.18) ^{ab}	5.61 (1.93) ^b	5.42 (1.69) ^b	23.20***
<i>Depressive disorder symptoms</i>					
CDNMDD/PDD	22.36 (9.94) ^a	14.11 (9.70) ^b	13.00 (10.30) ^b	11.38 (8.93) ^b	29.11***
RCADS-MDD	7.72 (3.67) ^a	4.98 (3.18) ^b	4.08 (3.52) ^b	3.92 (2.96) ^b	42.86***

Note. The sample includes participants from the iUP-A (AMTE) condition and participants from the active placebo control (ACC; after receiving the iUP-A treatment). Wald's χ^2 statistic denotes the effect of time on each outcome variable. Pairwise comparisons were derived from the GEE models after applying the Bonferroni correction; means that do not share superscripts differ significantly (*ps* ranged from <0.05 to <0.001).

ANX = total anxiety symptoms; CDN = Depression Questionnaire for Children and Adolescents [*Cuestionario de Depresión para Niños y Adolescentes*]; FNE = fear of negative evaluation; GAD = generalized anxiety disorder; iUP-A = internet-delivered Unified Protocol for Transdiagnostic Treatment of Emotional Disorders in Adolescents; MDD = major depressive disorder; PD = panic disorder; PDD = persistent depressive disorder; PDSS = Panic Disorder Severity Scale; RCADS = Revised Child Anxiety and Depressive Symptoms Scale-30; SAD = separation anxiety disorder; SP = social phobia; SASCR = Social Anxiety Scale for Children-Revised; SADN = social avoidance and distress-specific to new peer, SADG = social avoidance and distress-general.

Table 5

Hedges'g effect sizes for changes over time in self-reported internalizing, anxiety, and depression outcomes, controlling for baseline scores, age and gender. Total sample.

Outcome measure	Hedges' g [<i>CI</i>]			
	Pre vs post	Pre vs 3-mth	Pre vs 6-mth	Pre vs 12 mth ¹
<i>Internalizing symptoms</i>				
RCADS-total	0.93 [0.58, 1.27]	1.23 [0.81, 1.65]	1.32 [0.76, 1.86]	1.40 [0.64, 2.11]
RCADS-ANX	0.81 [0.47, 1.14]	1.08 [0.67, 1.47]	1.21 [0.67, 1.72]	1.17 [0.48, 1.83]
<i>Anxiety disorder symptoms</i>				
RCADS-GAD	0.71 [0.42, 1.07]	0.95 [0.56, 1.33]	0.93 [0.45, 1.40]	1.10 [0.42, 1.73]
RCADS-SP	0.41 [0.10, 0.71]	0.61 [0.25, 0.94]	0.92 [0.44, 1.38]	0.92 [0.29, 1.53]
RCADS-SAD	0.64 [0.32, 0.95]	0.60 [0.25, 0.93]	0.73 [0.28, 1.17]	0.54 [0.02, 1.07]
RCADS-PD	0.74 [0.42, 1.07]	0.87 [0.49, 1.24]	0.85 [0.38, 1.31]	0.99 [0.34, 1.61]
RCADS-ODD	0.61 [0.22, 0.91]	0.70 [0.34, 1.05]	0.53 [0.10, 0.94]	0.81 [0.20, 1.39]
PDSS	0.53 [0.22, 0.84]	0.73 [0.36, 1.08]	0.74 [0.29, 1.18]	0.74 [0.29, 1.18]
SASCR	0.55 [0.22, 0.84]	0.73 [0.37, 1.08]	1.12 [0.61, 1.62]	0.92 [0.29, 1.53]
SASCR-FNE	0.48 [0.16, 0.78]	0.68 [0.33, 1.03]	0.85 [0.38, 1.31]	0.84 [0.23, 1.43]
SASCR-SADN	0.44 [0.14, 0.74]	0.59 [0.24, 0.93]	0.97 [0.48, 1.45]	0.73 [0.14, 1.30]
SASCR-SADG	0.50 [0.16, 0.83]	0.58 [0.23, 0.92]	0.85 [0.38, 1.31]	0.58 [0.02, 1.30]
<i>Depressive disorder symptoms</i>				
CDN-MDD/PDD	0.83 [0.48, 1.16]	1.02 [0.66, 1.41]	0.96 [0.47, 1.93]	1.10 [0.43, 1.74]
RCADS-MDD	0.74 [0.41, 1.06]	1.15 [0.74, 1.55]	0.98 [0.49, 1.45]	1.55 [0.76, 2.32]

Note. The sample includes participants from the iUP-A condition and participants from the active placebo control (ACC; after receiving the iUP-A treatment). ¹ Only participants from the experimental group.

ANX = total anxiety symptoms; CDN = Depression Questionnaire for Children and Adolescents [*Cuestionario de Depresión para Niños y Adolescentes*]; FNE = fear of negative evaluation; GAD = generalized anxiety disorder; iUP-A = internet-delivered Unified Protocol for Transdiagnostic Treatment of Emotional Disorders in Adolescents; MDD = major depressive disorder; PD = panic disorder; PDD = persistent depressive disorder; PDSS = Panic Disorder Severity Scale; RCADS = Revised Child Anxiety and Depressive Symptoms Scale-30; SAD = separation anxiety disorder; SP = social phobia; SASCR = Social Anxiety Scale for Children-Revised; SADN = social avoidance and distress-specific to new peer; SADG = social avoidance and distress-general.

9.62 in the ACC group with respect to the therapeutic alliance. Parents reported similarly high scores across all assessed domains. Descriptive statistics are presented in [Tables 7 and 8](#).

The FAQ also included two open-ended questions for adolescents and parents asking about the most and least liked aspects of participation and suggestions for improvement of the AMTE platform. Adolescents frequently reported that learning practical techniques to cope with emotional reactions and everyday problems was the most valuable aspect of the program. They also highlighted the usefulness of the

module contents and the contact with the therapist during video calls. A substantial proportion of adolescents (approximately 40%) indicated that the program was comprehensive and did not require additional content. Some participants suggested including topics such as bullying, addressing additional life problems beyond emotional symptoms, and allowing greater flexibility in selecting modules.

Parents most often emphasized the noticeable improvement observed in their children, the practical and well-structured nature of the program, and the support provided through video calls and therapist

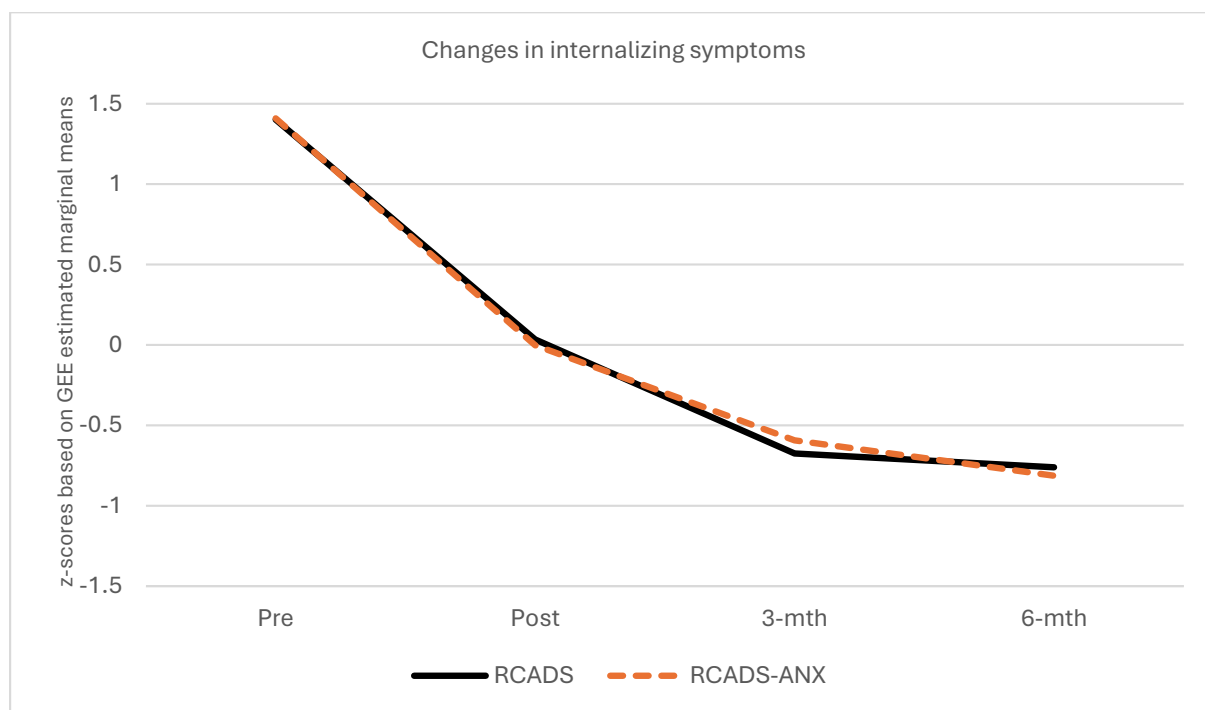


Fig. 2. Changes over time (longitudinal follow-up) in self-reported internalizing symptoms. RCADS (total score) = Revised Child Anxiety and Depression Scale-30; RCADS-ANX = anxiety symptoms of the RCADS-30. $N = 45$.

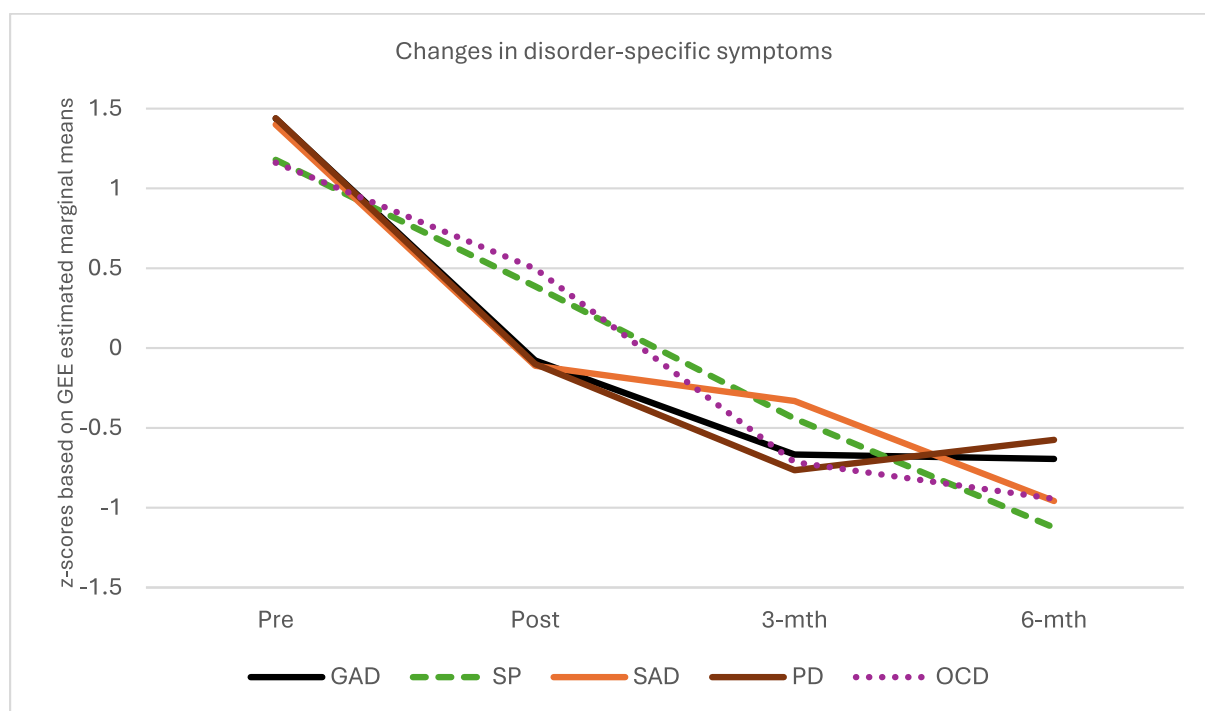


Fig. 3. Changes over time (longitudinal follow-up) in self-reported disorder-specific symptoms (RCADS-30 subscales). GAD = generalized anxiety disorder; SP = social phobia; SAD = separation anxiety disorder; PD = panic disorder; OCD = obsessive-compulsive disorder. Total sample. $N = 45$.

contact. Similarly, about 40% of parents considered the program complete and did not identify missing elements. Some suggestions included incorporating content related to sleep hygiene and extending the duration of the program, particularly increasing therapist contact.

4. Discussion

The aim of the present study was to examine the clinical efficacy and feasibility/acceptability of the self-guided online Unified Protocol for Transdiagnostic Treatment of Emotional Disorders in Adolescents delivered via the AMtE platform (iUP-A). To our knowledge, this is the

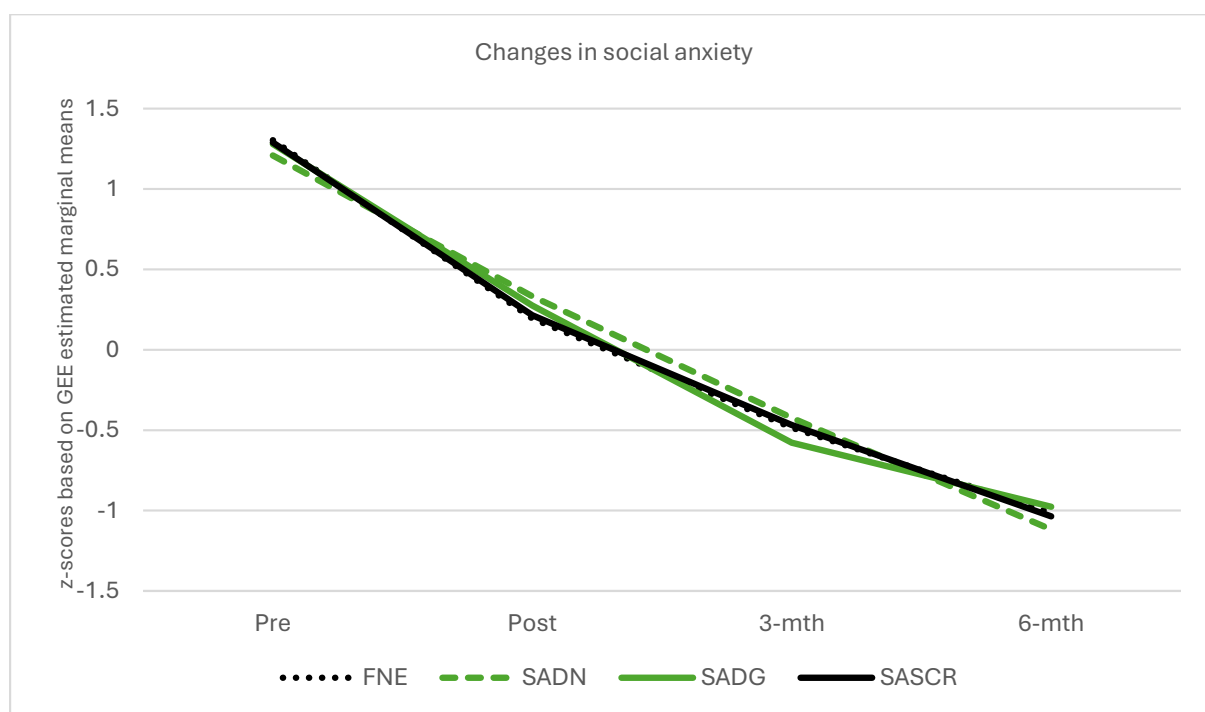


Fig. 4. Changes over time (longitudinal follow-up) in self-reported social anxiety dimensions (subscales of the SASCR). FNE = fear of negative evaluation; SADN = social avoidance and distress-specific to new peers; SADG = social avoidance and distress-general; SASCR (total score) = Social Anxiety Scale for Children-Revised. Total sample. $N = 45$.

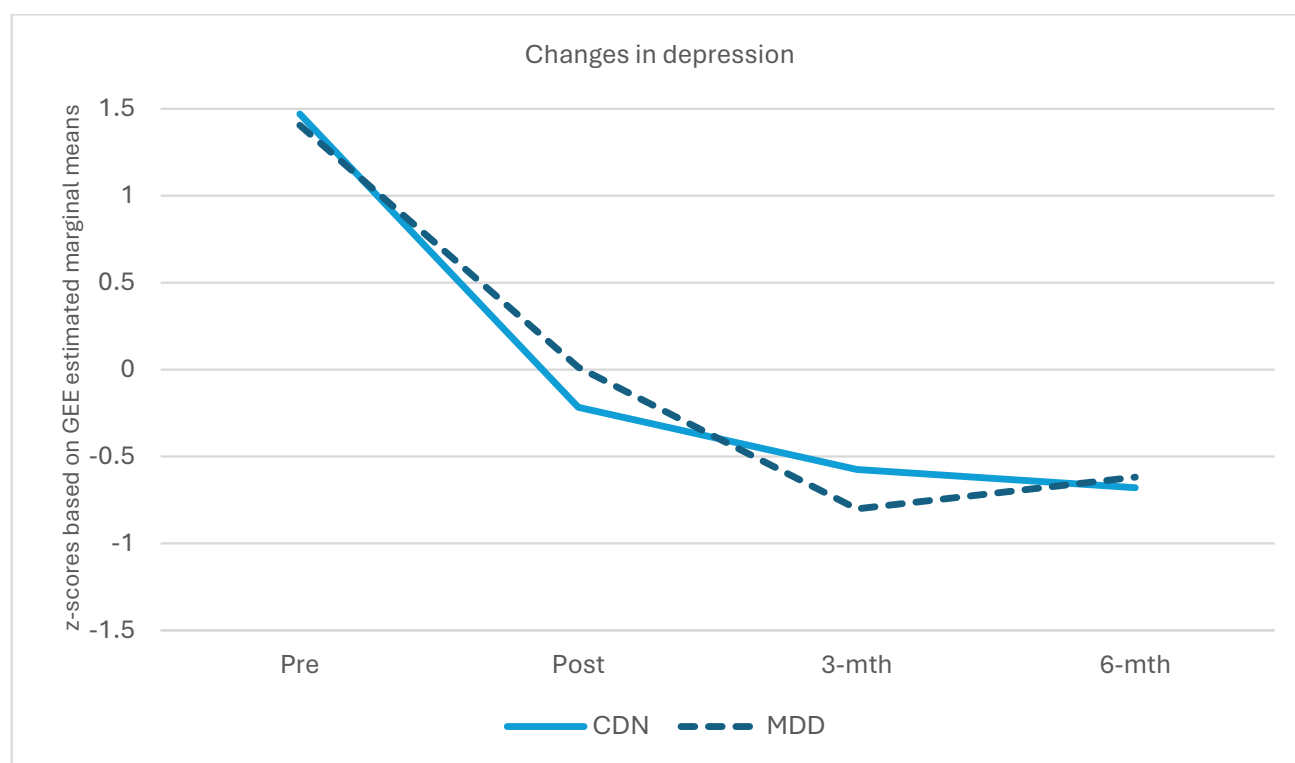


Fig. 5. Changes over time (longitudinal follow-up) in self-reported depressive disorder symptoms. CDN = Depression Questionnaire for Children [*Cuestionario de Depresión para Niños y Adolescentes*]; MDD = major depressive disorder (subscale of the RCADS-30). Total sample. $N = 45$.

first RCT studying the efficacy of the iUP-A, a transdiagnostic cognitive-behavioral intervention, using an active placebo control group to reduce anxiety and depressive symptoms in adolescents.

Consistent with our first hypothesis, participants in the iUP-A

condition exhibited significantly greater reductions in internalizing symptoms, anxiety and depressive disorder-symptoms, and improvements in clinician-rated global functioning and symptom severity, compared to those in the ACC condition. Notably, the iUP-A group

Table 6

Means (*M*), standard deviations (*SD*), Hedges'g effect sizes and GEE results for time effects on clinician rated measures, controlling for baseline scores, age, and gender. Total sample.

	CGAS	CGI-S	CGI-I Responders (%)
Time conditions (mean) (<i>SD</i>)			
Pre-treatment (baseline)	1,66 (0.54) ^a	4,41 (0.50) ^a	
Post-treatment	3,63 (1.56) ^b	2,42 (1.47) ^b	71.1% (27/38)
3-month follow-up	4,06 (1.43) ^c	2,09 (1.36) ^b	73.5% (25/34)
6-month follow-up	4,16 (1.37) ^{b,c}	2,19 (1.47) ^b	74.2% (23/31)
12-month follow-up	4,68 (1.49) ^c	1,90 (1.32) ^b	83.9% (26/31)
Time effect			
Wald's χ^2	372.75***	95.77***	
Effect size (Hedges'g) [<i>CI</i>]			
Pre vs post	-1.24 [-1.81, -0.65]	1.18 [0.62, 1.73]	
Pre vs 3-month	-1.36 [-2.00, -0.71]	1.38 [0.74, 2.00]	
Pre vs 6-month	-1.49 [-2.15, -0.81]	1.26 [0.65, 1.85]	
Pre vs 12-month	-1.77 [-2.53, -0.1.00]	1.70 [0.96, 2.41]	

Note. The sample includes participants from the iUP-A condition and participants from the active control group (ACC; after receiving the iUP-A treatment). Pairwise comparisons were derived from the GEE models after applying the Bonferroni correction; means that do not share superscripts differ significantly (*ps* ranged from <0.05 to <0.001).

CGAS = Children's Global Assessment Scale; CGI-I = Clinical Global Impression Scale-Improvement; CGI-S = Clinical Global Impression Scale-Severity.

exhibited significant improvements from pre- to post-treatment, whereas the ACC showed no significant changes during the same period. These findings underscore the specific efficacy of the iUP-A intervention beyond non-specific therapeutic factors. A significant group $\times$ time interaction was found in all but one of the outcome

measures, suggesting meaningful pre- to post-treatment differences between the two groups.

The observed effects were not only statistically significant but also clinically meaningful, as evidenced by large and medium-to-large pre- to post-treatment effect sizes across most outcome measures. The effects were robust across multiple domains, particularly for clinician-rated measures, internalizing and depressive symptoms. Importantly, no significant improvements were observed in the ACC group, underscoring the specific therapeutic effects of the iUP-A intervention.

Overall, these findings are consistent with previous research on the efficacy of the iUP-A for adolescents with emotional disorders (Espinosa et al., 2024; Sandín et al., 2020b) and subclinical symptoms of anxiety and depression (Schmitt et al., 2022). Notably, Espinosa et al. (2024) demonstrated that the iUP-A can yield outcomes comparable to the UP-A as a virtual face-to-face intervention. Our results also align with prior RCTs supporting the efficacy of the UP-A in face-to-face formats for emotional disorders (Ehrenreich-May et al., 2017; Javadi et al., 2024; Mohajerin et al., 2023; Zemestani et al., 2024) and adolescents with subclinical symptoms (García-Escalera et al., 2019, 2020; García-López et al., 2024). For a comprehensive review, see Sandín et al. (2025) and Schäpermeier et al. (2025).

It was also hypothesized that, when collapsing data of all adolescents who received the iUP-A treatment, participants would maintain the improvements achieved at post-treatment over time. Supporting this second hypothesis, within-group longitudinal analyses demonstrated that treatment gains were maintained or even enhanced across all outcome measures at 3-, 6-, and 12-month follow-up. Notably, effect sizes increased progressively over time, suggesting a substantial and potentially cumulative benefit of the iUP-A intervention. These findings are consistent with patterns of change in symptoms reported by Ehrenreich-May et al. (2017) and Queen et al. (2014), indicating that anxiety and depression symptomatology can exhibit significant improvements at follow-up.

These results contribute to the growing body of evidence supporting the efficacy of the UP-A for adolescents with emotional disorders (Sandín et al., 2025; Schäpermeier et al., 2025), and suggest that

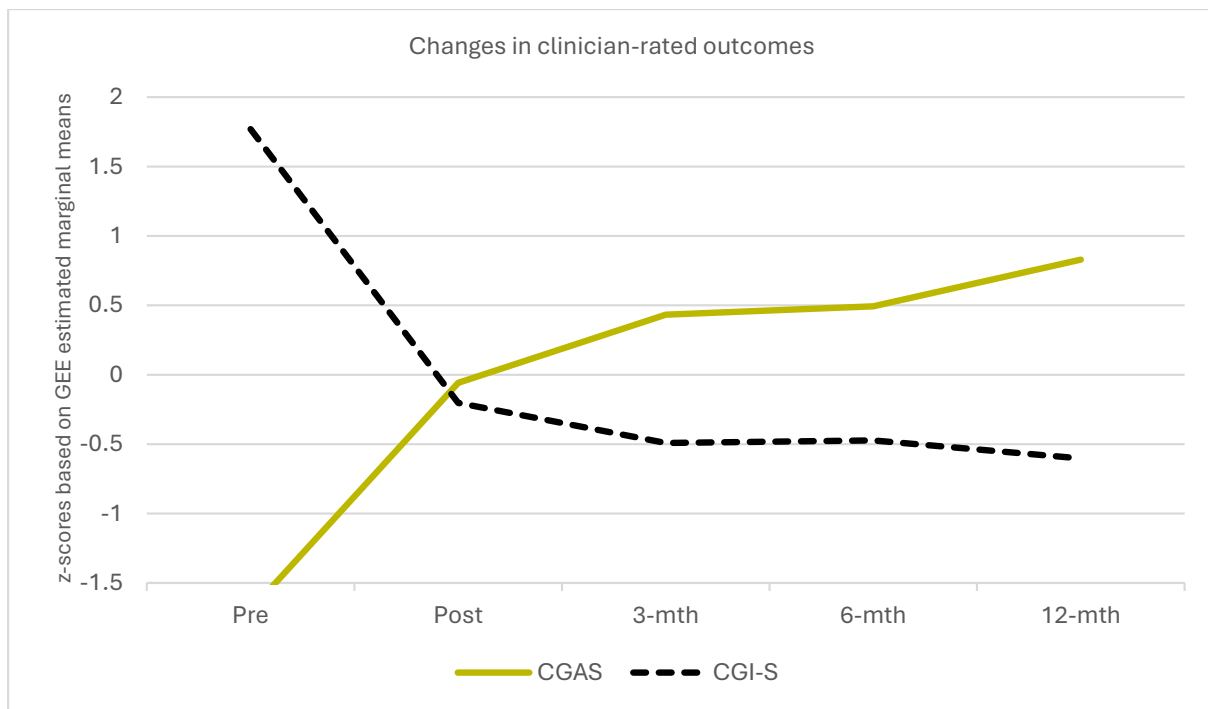


Fig. 6. Changes over time (longitudinal follow-up) in clinician-rated measures. CGAS = Children's Global Assessment Scale; CGI-S = Clinical Global Impression Scale-Severity. Total sample. *N* = 45.

Table 7

Means and standard deviations of feasibility and acceptability at posttreatment for adolescents by group (FAQ-Adolescent Version).

	iUP-A (n = 23)	ACC* (n = 21)
Experience with the online platform (range: 0–10)	Mean (SD)	Mean (SD)
1. How easy has it been for you to use the AMTE online platform?	8.83 (1.37)	8.62 (1.35)
2. How easy has it been for you to understand what the videos and Dr. AMTE were explaining?	9.00 (1.17)	9.00 (0.89)
3. How useful has the content taught by Dr. AMTE and the videos been for you?	8.91 (1.53)	8.33 (1.62)
4. How easy has it been for you to include the AMTE program in your daily routine?	7.39 (1.99)	7.33 (1.91)
5. To what extent have you been able to complete the exercises and home assignments without technical or computer problems?	7.39 (3.31)	8.24 (2.38)
6. To what extent have you applied what you learned in AMTE to your daily life?	7.87 (1.58)	8.1 (1.04)
Satisfaction with the program (range: 0–10)	Mean (SD)	Mean (SD)
1. How much did you learn in this program?	8.65 (1.23)	8.57 (1.50)
2. How effective was this program in helping you cope with your problems?	8.43 (1.31)	8.29 (1.35)
3. How much did you enjoy doing this program?	8.43 (1.44)	8.19 (1.50)
4. To what extent would you recommend the program to other adolescents?	9.13 (1.35)	9.24 (1.14)
5. How would you rate your ability to cope with emotions before the program?	3.87 (2.6)	3.86 (2.33)
6. How would you rate your ability to cope with emotions after the program	8.04 (1.46)	8.43 (1.08)
Therapeutic alliance (range: 0–10)	Mean (SD)	Mean (SD)
1. How much has your therapist helped you deal with your top problems?	9.3 (0.73)	8.76 (1.45)
2. How appreciated have you felt by your therapist?	9.65 (0.71)	9.14 (1.39)
3. To what extent have you felt that you and your therapist respected each other?	9.78 (0.52)	9.62 (1.12)
4. To what extent have you and your therapist agreed on what needs to be worked on in order to overcome your problems?	9.48 (0.85)	9.1 (1.09)
5. To what extent have you felt that your therapist cared about you?	9.65 (0.71)	9.29 (1.10)
6. How appropriate do you think the way you and your therapist worked to solve your problems has been?	9.52 (0.79)	9.24 (1.04)

Note. ACC* = ACC participants after receiving the iUP-A treatment.

transdiagnostic CBT protocols can produce enduring improvements in adolescents with anxiety and/or depressive disorders. Furthermore, our findings support the hypothesis that the internet-based transdiagnostic approach is particularly well-suited for treating comorbid internalizing symptoms in adolescents.

The progressive increase in effect sizes over time suggests that adolescents may continue to benefit from the skills acquired during treatment, potentially due to the ongoing application and generalization of emotion regulation strategies in daily life. Clinician-rated outcomes further validated self-reported improvements, indicating that changes were observable and clinically meaningful. The high proportion of treatment responders, especially at the 12-month follow-up, highlights the intervention's potential for real-world implementation and its relevance for clinical practice.

A methodological issue concerns the handling of incomplete longitudinal data. Because standard GEE may be sensitive to missing-data assumptions, and retention analyses alone cannot establish the underlying missing-data mechanism, we conducted additional sensitivity analyses using linear mixed-effects models estimated by maximum

likelihood, which are appropriate under a missing-at-random assumption. Reassuringly, these analyses yielded a largely similar pattern of results, supporting the robustness of the main findings.

In response to a reviewer's concern regarding the transition from ACC to iUP-A, we conducted exploratory analyses comparing trajectories after iUP-A initiation in participants who received iUP-A from the outset versus those who received ACC followed by iUP-A. These analyses did not show significant pathway $\times$ time differences for any of the outcomes examined, suggesting that trajectories after iUP-A initiation were broadly comparable across the two pathways. This finding is reassuring regarding the interpretation of the follow-up results.

The core modules of the iUP-A primarily target negative affect, aversive reactivity, and subsequent emotion-motivated coping. Thus, the improvements observed in anxiety and depressive symptoms may be associated with changes in transdiagnostic factors such as neuroticism, anxiety sensitivity, and maladaptive emotion regulation strategies (e.g., emotional avoidance). Recent studies have shown that these transdiagnostic factors can be effectively addressed with the UP-A (Sandín et al., 2025), and that reductions in self-reported anxiety and depressive symptoms occur parallel with reductions in transdiagnostic factors (Sherman and Ehrenreich-May, 2020). By targeting these core shared vulnerabilities, the UP-A may offer a more parsimonious and flexible alternative to disorder-specific treatments, particularly in real-world settings where comorbidity is the norm (e.g., Fonseca-Pedrero et al., 2023; Sandín and García-Escalera, 2025).

The high scores on the FAQ suggest that the iUP-A is a feasible and acceptable intervention for adolescents when delivered through digital platforms within educational settings, supporting its potential as a school-based tool for the early detection and intervention of emotional disorders. This opens the door to broader dissemination of evidence-based interventions through school systems, which may function as accessible entry points for identifying adolescents at risk and facilitating referral to appropriate mental health services, especially in contexts where access to specialized care is limited. An important implication for clinical practice is that the UP-A can be effectively adapted to digital formats without compromising clinical efficacy (Espinosa et al., 2024).

An important implication of the present findings is the potential role of digital interventions as screening and early intervention tools within academic settings. Schools represent a unique context for the early identification of emotional difficulties, as they allow access to large populations of adolescents who may not actively seek help in clinical services. The combination of web-based screening procedures with brief digital interventions may contribute to reducing barriers to care and promoting timely access to evidence-based psychological support, particularly for youth facing barriers such as geographic limitations, stigma, or scheduling constraints (Albero-García et al., 2026; Andersson and Titov, 2014; Gual-Montolio et al., 2023; Osma et al., 2022). Moreover, the sustained improvements observed across both self-reported and clinician-rated measures suggest that the program may foster long-term emotional adaptations in adolescents, potentially reducing the risk of relapse. This is particularly relevant given the negative developmental consequences of internalizing disorders during adolescence and supports the notion that self-guided online interventions with minimal support can be successful adaptations of complex emotional treatments in this age group.

Several factors may have contributed to the high adherence rate. First, participants were recruited through school settings, which may have increased trust among adolescents and families. Second, the intervention was delivered online and free of charge, two aspects highly valued by both adolescents and parents. Third, the platform was designed to be engaging, incorporating an adolescent avatar (customizable by the participant) and a physician avatar (Dr. AMTE), both of which guided and encouraged participants throughout the treatment. Fourth, the intervention was highly structured, and participants received clear information from the outset regarding the approximate duration and weekly module organization, which may have helped

Table 8

Means and standard deviations of feasibility and acceptability at posttreatment for parents by group (FAQ-Parent Version).

	iUP-A (n = 19)	ACC* (n = 20)
Experience with the online platform (range: 0–10)	Mean (SD)	Mean (SD)
1. For your child, how easy was it to use the AMTE app?	9 (1.15)	8.75 (1.25)
2. For your child, how easy was it to understand the content presented in the videos and by Dr. AMTE?	8.95 (1.08)	8.7 (1.72)
3. For your child, how useful was the material taught in the AMTE program (e.g., videos, avatar, PDFs, exercises, tasks)?	8.89 (1.56)	8.35 (2.13)
4. For your child, how easy was it to incorporate the AMTE program into their daily routine?	8.37 (2.14)	7.3 (2.36)
5. For your child, to what extent were they able to complete the exercises and tasks without technical or computer-related problems?	9 (1.49)	8.5 (1.64)
6. For your child, to what extent have they applied what they learned in AMTE to their everyday life?	8.53 (1.39)	7.45 (1.79)
Satisfaction with the program (range: 0–10)	Mean (SD)	Mean (SD)
1. To what extent did you find the parent portal useful in helping your child during treatment?	7.42 (3.76)	8.9 (2.15)
2. How much do you think your child learned from the program?	8.47 (1.68)	8.15 (1.72)
3. How effective was the program in helping your child cope with their problems?	8.63 (1.42)	8.15 (1.39)
4. How much did your child enjoy completing the program?	8 (1.83)	7.4 (2.09)
5. To what extent would you recommend this program to other adolescents?	9.05 (1.61)	9.55 (0.83)
6. Before the program, how many skills did your child have for managing their emotions?	3.95 (1.81)	3.5 (1.64)
7. After the program, how many skills does your child have for managing their emotions?	8.16 (1.61)	7.5 (1.82)
Therapeutic alliance (range: 0–10)	Mean (SD)	Mean (SD)
1. To what extent did the therapist help your child address their main problems?	9.21 (1.13)	9.15 (0.99)
2. How appreciated did you feel by the therapist?	9.32 (1.06)	9.4 (1.43)
3. To what extent did you feel that you and the therapist respected each other?	9.68 (0.58)	9.9 (0.31)
4. To what extent did you agree with the therapist about what your child needed to work on or overcome?	9.47 (1.07)	9.85 (0.49)
5. To what extent did you feel that the therapist cared about your child?	9.58 (0.84)	9.8 (0.52)
6. How appropriate do you think the approach used to address your child's problems was?	9.47 (1.02)	9.45 (0.89)

Note. ACC* = ACC participants after receiving the iUP-A treatment.

establish realistic expectations and maintain adherence. Fifth, module content addressed adolescents' everyday concerns and difficulties, likely enhancing perceived usefulness. Finally, weekly therapist video calls with both adolescents and parents may have reinforced participation and completion of homework assignments.

Open-ended feedback from adolescents and parents provided additional information regarding potential directions for improving the intervention. Participants particularly valued the acquisition of practical coping skills and the regular contact with the therapist, suggesting that guided support may be a key component of acceptability in adolescent digital interventions. This finding is consistent with evidence indicating that supported internet-based treatments show better adherence and engagement than purely self-guided formats (Andersson, 2016; Krieger et al., 2023). Several participants also suggested expanding content areas (e.g., bullying, sleep hygiene, and broader daily-life problems) and increasing flexibility in the selection of modules. These suggestions point toward the potential value of more personalized or modular intervention formats, allowing adaptation to the individual needs and concerns of adolescents. Future studies could examine whether tailoring module selection or extending the duration of therapist contact improves engagement and clinical outcomes. In addition, some parents expressed interest in longer programs and greater therapist involvement, highlighting the relevance of family engagement in adolescent interventions. Future research should explore the optimal level of parental participation and therapist guidance necessary to balance scalability with adherence. Incorporating more systematic user-experience and usability assessments, as well as platform analytics, may further help refine the program and identify which components are most strongly associated with engagement and treatment response. Taken together, these findings suggest that future iterations of the iUP-A may benefit from maintaining guided support while incorporating greater flexibility and personalization to enhance real-world implementation.

The control condition used in the present study represents an active attention control condition (ACC), as participants received regular therapist contact, emotional support, and general psychoeducational

content. This design controls for several nonspecific therapeutic factors, including attention, expectancy, and therapeutic alliance. It provides a more stringent test of treatment-specific effects than waitlist or minimal-contact control conditions, allowing stronger inferences about the added value of the core therapeutic components of the iUP-A.

Despite several strengths, some limitations of the study must be acknowledged. Although the sample size was adequate for the statistical analyses conducted, it may limit the generalizability of findings to broader population with diverse sociodemographic characteristics. Second, while self-report measures provide valuable insight into subjective experiences, they may be subject to response bias; however, the inclusion of clinician-rated assessments helps mitigate this concern. Third, the acceptability measure assessed overall satisfaction and perceived usefulness of the program but did not evaluate participants' perceptions of each specific emotion regulation strategy or treatment component (e.g., exposure, cognitive restructuring, or behavioral activation). Fourth, a limitation of the study is the lack of detailed engagement metrics (e.g., time spent on the online modules), due to technical issues with the intervention platform. Finally, the present study was not specifically designed to systematically assess adverse or negative effects, and no formal measure of possible deterioration was included as an outcome variable (although no serious adverse events were reported by participants or their families).

Future research should aim to replicate these findings in larger and more diverse samples and to examine the implementation of the iUP-A in community clinical settings. Future studies should also investigate component-level acceptability to better understand which therapeutic elements are perceived as most helpful by adolescents and their families. In line with Jiménez-Orenga et al. (2025), it would be valuable to incorporate engagement metrics, including objective measures of platform use. Based on recommendations provided by participants (adolescents and parents), future research should also examine (a) the efficacy of the iUP-A for psychological disorders beyond anxiety and depressive disorders, (b) the potential benefits of increasing flexibility in the selection and sequencing of modules, and (c) ways to optimize therapist support before and during treatment. Comparative

effectiveness trials against cost-effectiveness analyses are warranted to inform its integration into routine community clinical practice (Ehrenreich-May et al., 2025; Rodríguez-Blanco et al., 2025). Further studies that examine the etiological role of transdiagnostic emotion-focused factors during the course of treatment (e.g., neuroticism, anxiety sensitivity, intolerance of uncertainty, emotional avoidance and others emotion regulation strategies) are also warranted. Finally, dismantling studies and examination of mechanisms of change (Dobrea et al., 2026; Pons et al., 2025) could help identify the most powerful complements of the iUP-A, enabling further optimization of transdiagnostic digital interventions for adolescents.

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Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.invent.2026.100948>.

Data availability

Participants only agreed to share their data with the researchers involved in the study. If you would like to get access, please contact RMV (rmvalien@psi.uned.es).

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