# Effects on self-reported anxiety and depressive symptoms of the self-applied transdiagnostic online program *Learn to Manage your Emotions* (AMtE) in clinical adolescents: A randomized controlled trial

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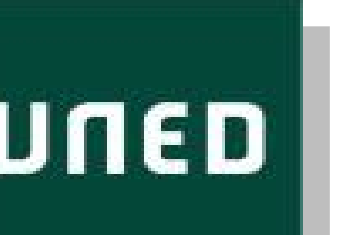
INTRODUCTION

One of the most noteworthy **effects of the COVID-19 pandemic** was its impact on **symptoms of anxiety and depression in young people.**

However, **many adolescents** with emotional disorders **do not benefit** from evidence-based **psychological treatments.**

Learn to Manage your Emotions [Aprende a Manejar tus Emociones, **AMtE**] is the first transdiagnostic, internet-delivered intervention (T-iCBT) designed to adress anxiety and depressive symptoms in adolescents.

AIM

Examine the **efficacy of AMtE** compared to the *Unified Protocol for Transdiagnostic Treatment of Emotional Disorders in Adolescents* (UP-A) applied face-to-face via telehealth for the treatment of emotional disorders.
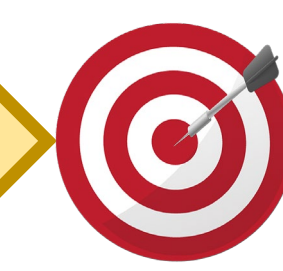
METHOD

- Two-arm **randomized controlled trial** in which participants were randomly allocated to 1 of 2 conditions: (1) **AMtE** and (2) **UP-A** control condition.
- A total of **58 adolescents** | AMtE n = 30 | UP-A n = 28 |

(82% females, age range: 12–18 years, M_{age} = 14.93, SD_{age} = 1.83).

- **Main inclusion criteria:**
  - 12-18 years of age
  - Meet diagnostic criteria for an anxiety and/or mood disorder
- **Questionnaires**:

PRE-POST-3M FU — Revised Child Anxiety and Depression Scale–30 (RCADS-30; Sandín et al., 2010)

PRE-POST — A structured clinical interview (MINI-KID; Sheehan et al., 1998; Spanish version by Colón-Soto et al., 2005)

INTERVENTIONS

AMtE

Table 1. Main characteristics of AMtE

Module 1: Building motivation (*motivation enhancement*)
Module 2: Getting to know your emotions (*psychoeducation*)
Module 3: Enjoy positive activities (*behavioral activation*)
Module 4: Awareness of your emotional experiences (*mindfulness*)
Module 5: Learn to be flexible in your thinking (*cognitive restructuring*)
Module 6: Cope with your body sensations (*exposure*)
Module 7: Cope with emotional situations (*exposure*)
Module 8: Maintain your gains (*relapse prevention*)

- **Parents log in** to a separate section of the platform and have access to a summary of each module.
- The therapists log in to a **therapist section** where they can monitor the progress of each adolescent in the treatment and see the adolescent's answers to the home learning assignments.
- The adolescents complete **self-report questionnaires** on the AMtE platform.
- Adolescents and parents receive a **weekly telephone call** from their therapist.

UP-A via teletherapy

Delivered through weekly individual therapy sessions via TEAMS (M = 12.73; SD = 1.71; sessions' range = 11-17).

RESULTS

Intention-to-treat analyses revealed that **AMtE and the UP-A showed significant improvements or trends** towards significance over time in self-rated **anxiety and depressive symptoms.**

Table 2. Means (M), standard deviations (SD), F-tests, effect sizes η_p^2 and Cohen's d.

Variable	Pre M (SD)	Post M (SD)	3 FU M (SD)	$F(2, 54)$ $F(2, 58)$	η_p^2	Pre vs. Post d	Pre vs. FU d
RCADS-30							
Total							
AMtE	28.36 (13.27)[a]	23.57 (11.52)[ab]	20.00 (12.79)[b]	7.91**	.22	0.39	0.64
UP-A	36.63 (12.87)[a]	25.27 (12.95)[b]	24.40 (15.96)[b]	18.34***	.38	0.88	0.84
MDD							
AMtE	5.57 (3.14)[a]	4.17 (3.17)[a]	3.67 (3.01)[b]	7.29**	.21	0.44	0.62
UP-A	6.56 (3.24)[a]	4.06 (2.94)[b]	4.70 (3.61)[b]	14.60***	.33	0.81	0.54
PD							
AMtE	3.89 (3.35)[a]	2.17 (2.62)[ab]	2.35 (3.18)[b]	4.99*	.15	0.57	0.47
UP-A	4.60 (3.30)[a]	2.23 (2.88)[b]	2.33 (3.06)[b]	15.86***	.35	0.77	0.71
SP							
AMtE	7.75 (4.55)[a]	6.64 (3.73)[ab]	5.60 (4.67)[b]	5.77**	.17	0.27	0.47
UP-A	10.70 (3.68)[a]	8.76 (3.83)[b]	8.40 (4.23)[b]	9.30***	.24	0.52	0.58
SAD							
AMtE	1.00 (1.82)	0.67 (1.18)	0.67 (1.21)	1.08	.03	0.22	0.21
UP-A	2.00 (1.94)	1.23 (1.22)	1.06 (1.38)	5.06*	.14	0.48	0.56
GAD							
AMtE	6.71 (3.48)	6.07 (3.00)	5.39 (3.30)	3.02[o]	.10	0.20	0.39
UP-A	7.80 (3.40)[a]	5.76 (3.61)[b]	5.73 (3.43)[b]	8.16**	.22	0.58	0.61
OCD							
AMtE	3.42 (2.44)	3.28 (2.82)	2.28 (1.80)	3.85*	.12	0.05	0.53
UP-A	4.96 (2.64)[a]	3.20 (2.84)[b]	3.16 (3.43)[b]	9.39***	.24	0.64	0.59
ANX							
AMtE	19.35 (9.62)[a]	16.10 (7.87)[ab]	14.03 (9.36)[b]	6.85*	.20	0.37	0.56
UP-A	25.10 (9.18)[a]	18.00 (8.57)[b]	17.53 (10.14)[b]	14.80***	.33	0.80	0.78
ANX with OCD							
AMtE	22.78 (10.93)[a]	19.39 (9.59)[ab]	16.32 (10.41)[b]	7.26**	.21	0.33	0.61
UP-A	30.06 (10.36)[a]	21.20 (10.58)[b]	20.70 (12.88)[b]	17.10***	.37	0.85	0.80

Note: ANX = total anxiety disorder symptoms subscale (the five MDD symptoms were not computed for this measure); GAD = generalized anxiety disorder subscale; MDD = major depressive disorder subscale; OCD = obsessive-compulsive disorder subscale; PD = panic disorder subscale; RCADS-30 = Revised Child Anxiety and Depression Scale-30; SAD = separation anxiety disorder subscale; SP = social phobia subscale; 3 FU = three-month follow-up. Means sharing the same letter in the superscript do not show statistically significant differences between them after applying the Bonferroni test.
* p < .05; ** p < .01; *** p < .001; [o] p < .10.

Based on ANCOVAS, **no differences were found between the treatment conditions**, evidencing similar significant improvements. **No effect of time** (post-treatment vs. follow-up) was observed either.

However, a **trend towards a significant condition x time interaction effect** for **major depressive** [$F(1, 55) = 3.38, p = .071, \eta_p^2 = .06$] and **obsessive-compulsive disorder symptoms** [$F(1, 55) = 3.03, p = .087, \eta_p^2 = .05$] was observed.
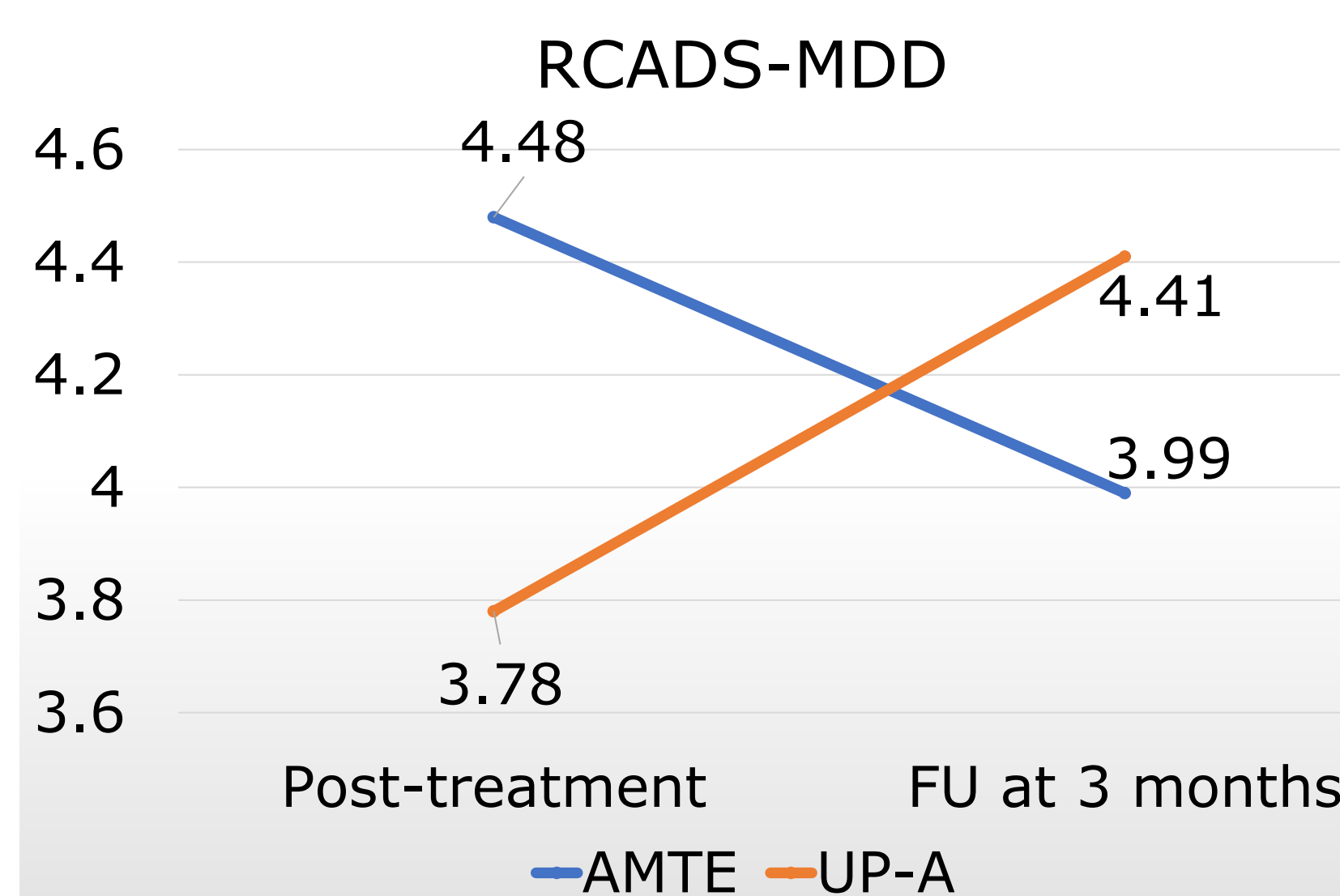

Fig 1. Graphical representation of the interaction between treatment and time condition for the RCADS-MDD variable, with baseline score as a covariate.
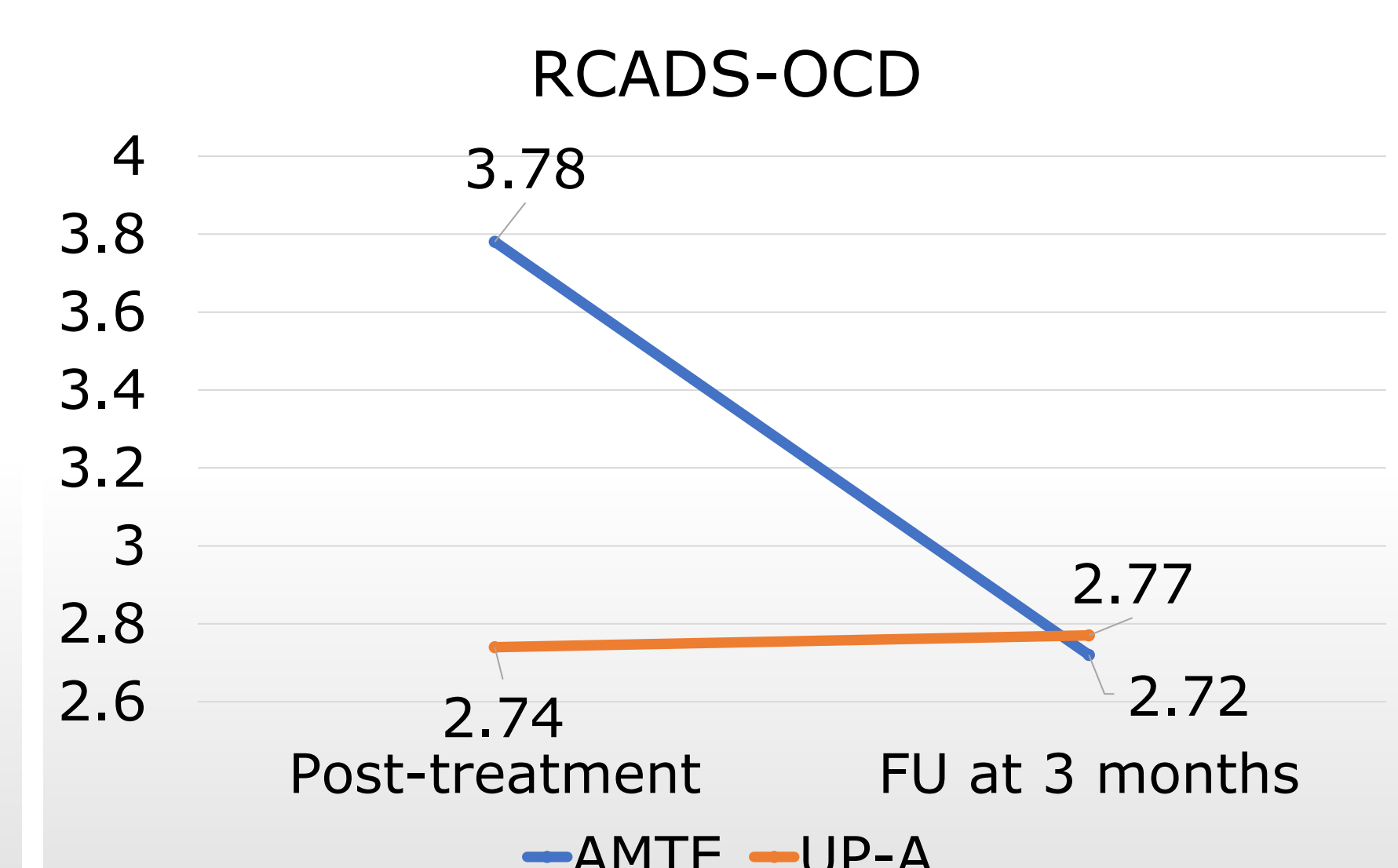

Fig 2. Graphical representation of the interaction between treatment and time condition for the RCADS-OCD variable, with baseline score as a covariate.

Results suggest that **AMtE** participants **displayed greater changes in these outcomes** at three-month follow-up compared to those in the UP-A condition.

DISCUSSION

- This is the **first study of a T-iCBT program for the treatment of anxiety and depression in adolescents.**
- An innovative and important implication of this investigation is that **AMtE is as effective as the UP-A** for the treatment of anxiety and depressive disorders in adolescents, since the UP-A is a well consolidated transdiagnostic program for this population.
- The **main limitations** are the sample size and the limited follow-up period.