

Can Brief Cognitive Training Reduce the Impact of Automatic Negative Thoughts in College Students?: A Pilot Study

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BACKGROUND

- College students face high levels of stress, with 87% reporting feeling overwhelmed and 61% reporting overwhelming anxiety (American College Health Association, 2017).
- Despite this, few students seek help (Eisenberg, Hunt, Speer, & Zivin, 2011).
- To address the need for accessible, cost-effective stress management interventions, the current study tested the effects of two brief, online, cognitive interventions:
 - Acceptance and commitment therapy-based **cognitive defusion** (Hayes et al., 2012) training, which encourages individuals to observe their thoughts without acting on them or treating them as factual.
 - Cognitive behavioral therapy-based **cognitive restructuring** (Beck, 2011) training, which encourages individuals to evaluate confirming and disconfirming evidence for their automatic negative thoughts (ANTs).
- Main Hypothesis:** Participants receiving either intervention will experience reduced impact of ANTs

METHOD

Participants

- University students ($N = 23$) were recruited and were randomly assigned to one of three interventions:
 - Defusion ($n = 9$): Cognitive defusion training
 - Restructure ($n = 8$): Cognitive restructuring training
 - Control ($n = 6$): Free-journaling about ANTs
- Gender: 4 Males (17.4%) and 19 Females (82.6%)
- Age: $M = 21.17$ years ($SD = 5.78$; Range = 18-43)
- Race/ethnicity: 39.1% Hispanic, 30.4% Asian, 21.7% White, and 8.7% mixed race/ethnicity
- 30.4% of participants indicated they had previously been in psychological counseling.

METHOD

Procedure

- Data were collected using an online survey hosted on Qualtrics.
- All participants watched a short video lesson providing psychoeducation on the effects of stress.
- In the intervention conditions, the video lessons also instructed participants on how to apply the cognitive technique (defusion or restructuring) on an accompanying diary.
- The Defusion group learned to allow an ANT to occur, recognize it as a thought by thinking “I am having the thought that __,” allow the thought to exist in their mind without judgement, then let the thought go.
- The Restructure group learned how to identify ANTs, evaluate evidence for and against them, and challenge their ANTs by replacing them with an alternative thought that is more realistic.
- In the Control group, participants were asked to journal freely about the most stressful event they encountered that day.
- Participants in all three conditions completed daily diaries for 7 days following the video lesson. Diaries in the intervention conditions asked participants to apply the cognitive technique they were taught to address an ANT regarding the most stressful event they had encountered that day.

Measures

- Participants rated one daily ANT on how uncomfortable (U), believable (B), and important to not have (I) it was, on a 1 to 100 scale where 100 represented “very uncomfortable,” “very believable,” or “very important.” All participants rated their ANT two times: immediately prior to the diary entry (pre-intervention) and immediately after completing the diary entry (post-intervention).
- The diaries used in the three conditions were created for the study. The instructions for what to write was tailored for each condition.

Analyses

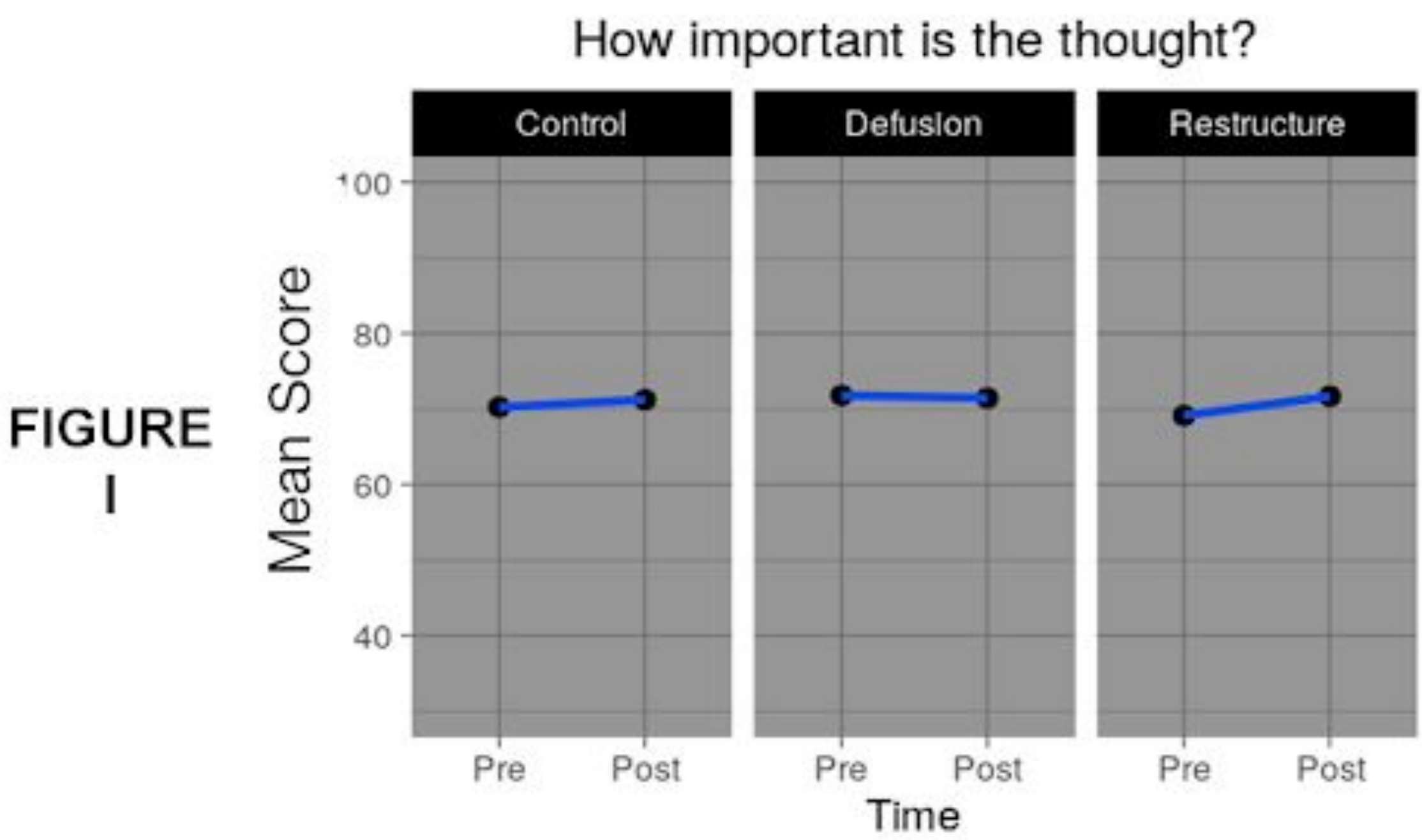
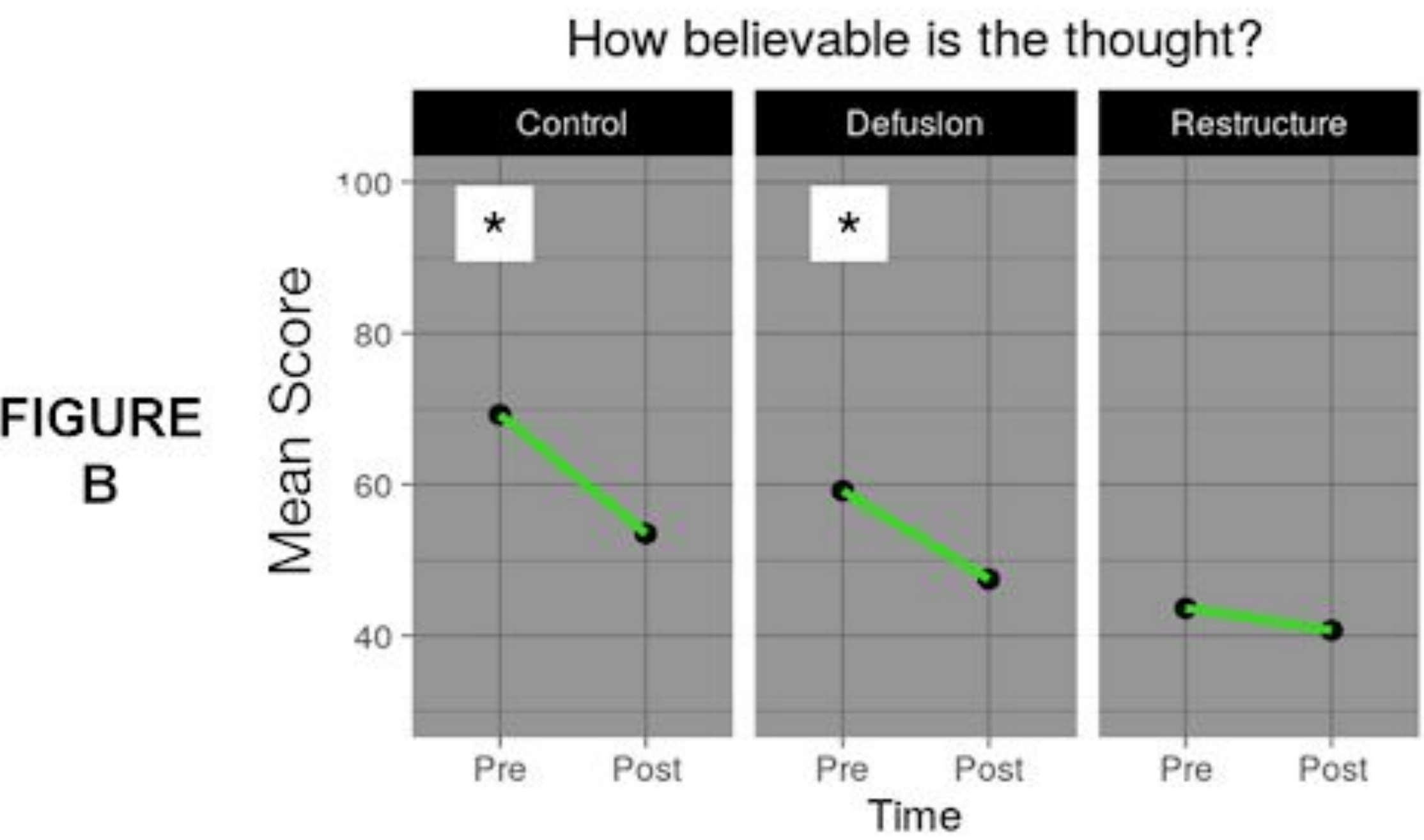
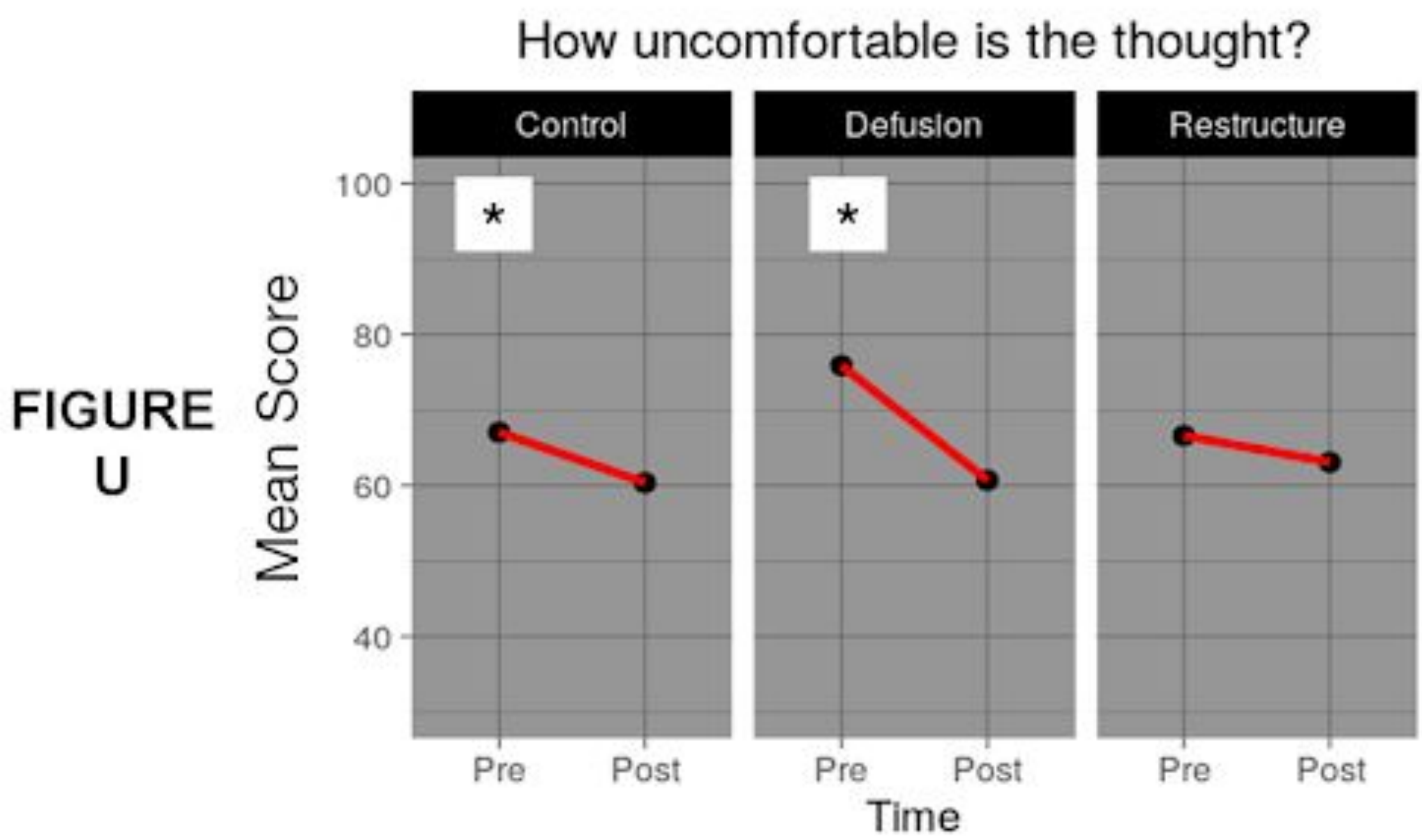
- The mean difference scores between pre- and post-intervention of all daily ANT ratings from the intervention and control groups were analyzed using repeated measures t-tests.
- Mixed-factorial ANOVAs were used to compare significant changes in ratings over time (pre vs. post) across the three conditions.

FIGURES

Differences in ANT Scores between Pre and Post Treatment

	Control	Defusion	Restructure
Uncomfortable (U)	6.683*	15.177*	3.519
Believability (B)	15.732*	11.709*	2.926
Importance (I)	-0.976	0.338	-2.555

*. The mean difference is significant at the .05 level.



RESULTS

- Cognitive defusion and control conditions showed significant reductions in Uncomfortable and Believable ratings.
- Cognitive restructuring condition did not show significant reductions in either rating.
- None of the conditions showed statistically significant reductions in Importance ratings.

DISCUSSION

- Cognitive defusion and free-journaling might help reduce deleterious effects of ANTs.
 - Results are consistent with previous studies suggesting that cognitive defusion reduces the impact of ANTs (Hinton & Gaynor, 2010; Moffitt et al., 2012).
 - Previous research has explored the beneficial effects of journaling in a therapeutic context (Graf, Gaudiano, & Geller, 2008; Kerner & Fitzpatrick, 2007), consistent with our results.
- Our hypothesis was not fully supported by the results, since cognitive restructuring training did not reduce the impact of ANTs.
 - Those in the cognitive restructuring condition may have been primed to discount the impact of ANTs, as they reported lower “Believable” ratings at baseline than the other conditions (Figure B). Thus, there’d be less room to improve on these ANT scores.
- Limitations:
 - Our sample size is still relatively small, and data collection is ongoing.
 - As this is a pilot study, a larger effectiveness study is needed to fully examine the effects of these interventions.
- Exploratory analyses suggest that past history of counseling may be associated with greater reduction of Believability ratings in the control condition. Thus, prior treatment may yield long-term benefits for some college students in managing ANTs.

REFERENCES

American College Health Association. (2017). American College Health Association National College Health Assessment II: Reference group executive summary. Spring 2017. Hanover, MD. Retrieved from https://www.acha-ncha.org/docs/NCHA-II_SPRING_2017_REFERENCE_GROUP_EXECUTIVE_SUMMARY.pdf

Beck, J. S. (2011). *Cognitive behavior therapy: Basics and beyond*, 2nd ed. Guilford Press.

Eisenberg, D., Hunt, J., Speer, N., & Zivin, K. (2011). Mental health service utilization among college students in the United States. *Journal of Nervous and Mental Disease*, 199(5), 301-308. <https://doi.org/10.1097/NMD.0b013e3181f15123>

Graf, M. C., Gaudiano, B. A., & Geller, P. A. (2008). Written emotional disclosure: A controlled study of the benefits of expressive writing homework in outpatient psychotherapy. *Psychotherapy Research*, 18(4), 389-399. <https://doi.org/10.1080/10532520701618194>

Hayes, S. C., Strosahl, K. D., & Wilson, K. G. (2012). *Acceptance and commitment therapy: The process and practice of mindful change*, 2nd ed. Guilford Press.

Hinton, M. J., & Gaynor, S. T. (2010). Cognitive defusion for psychological distress, dysphoria, and low self-esteem: A randomized technique evaluation trial of vocalizing strategies. *International Journal of Behavioral Consultation and Therapy*, 6(3), 164-185. <https://doi.org/10.1037/a0010066>

Kerner, E. A., & Fitzpatrick, M. R. (2007). Integrating writing into psychotherapy practice: A matrix of change processes and structural dimensions. *Psychotherapy: Theory, Research, Practice, Training*, 44(3), 333-346. <https://doi.org/10.1037/0033-2904.44.3.333>

Moffitt, R., Brinkworth, G., Nokes, M., & Mohr, P. (2012). A comparison of cognitive restructuring and cognitive defusion as strategies for resisting a craved food. *Psychology & Health*, 27(Suppl 2), 74-90. <https://doi.org/10.1080/08870446.2012.694436>