



# Apps For Adolescent Anxiety: Creating a Resource For Primary Care Providers

Jacob Gabbay, MS4, Paritosh Kaul, MD, Bethany Kwan, PhD



School of Medicine  
UNIVERSITY OF COLORADO  
COLORADO SPRINGS BRANCH

Funding received from the University of Colorado Department of Family Medicine, No other financial ties or conflicts of interest

## Background

### Adolescent anxiety epidemiology:

- Anxiety disorders are the most common mental health disorders of adolescence<sup>1</sup>
- 1 in 3 adolescents will meet criteria for an anxiety disorder by 18<sup>2</sup>

### Prevalence of mental health apps:

- Apple voted Calm App of the year in 2017
- 1 in 5 Americans admits to using these apps<sup>3</sup>

### Benefits of Apps:

- Pragmatic option for those with: limited transportation, limited finances, rural settings, intervention after disaster<sup>4</sup>
- Treatment is available 24/7
- Smartphone delivery especially relevant to adolescents<sup>4</sup>

### Why are providers not recommending now?

- Lack of confidence in modality<sup>5</sup>
- Concern for privacy and confidentiality<sup>5</sup>
- Lack of knowledge about apps<sup>5</sup>

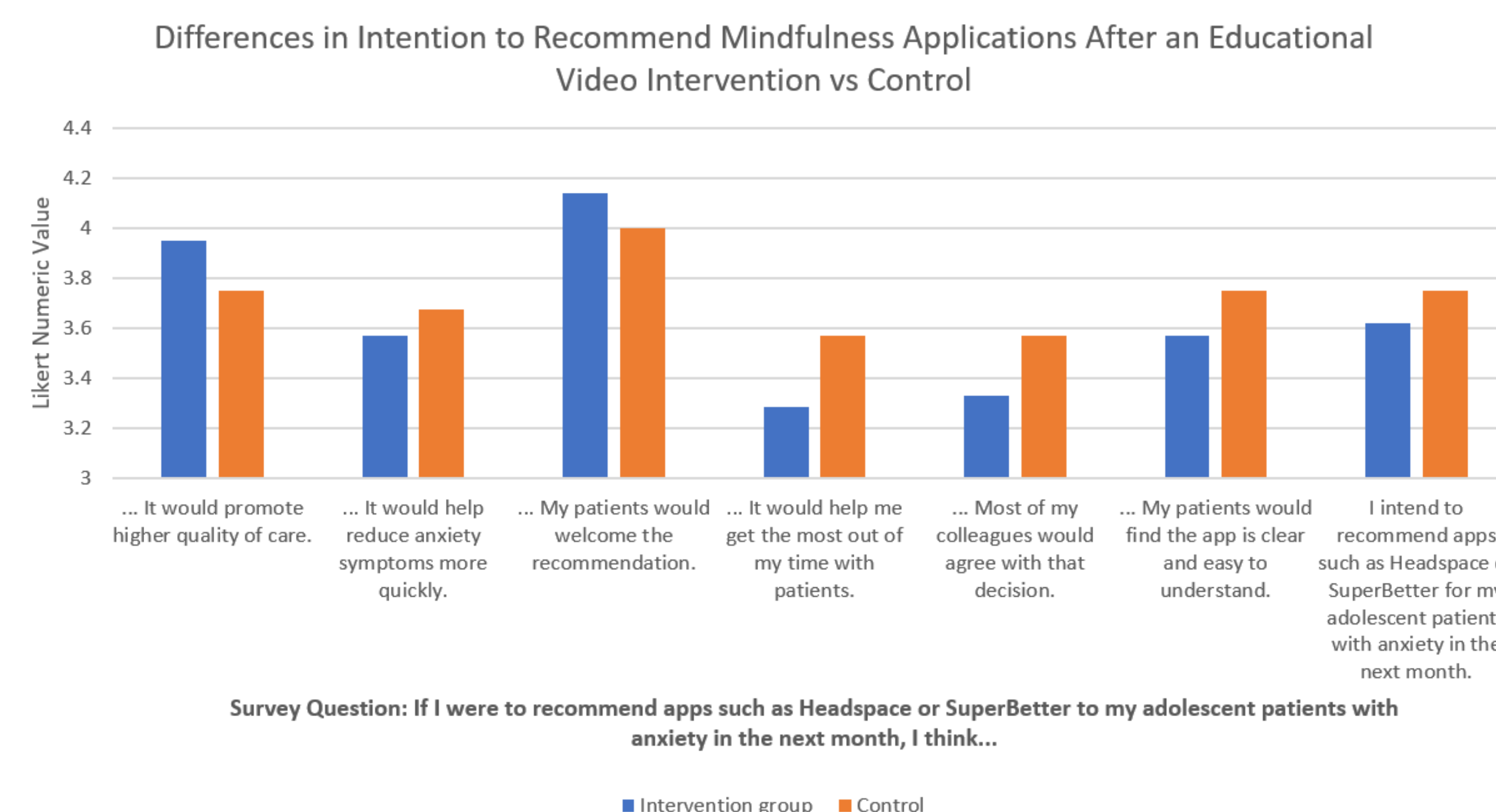


## Provider Survey

If I were to recommend apps such as Headspace or SuperBetter to my adolescent patients with anxiety in the next month, I think...	Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree
	1	2	3	4	5
1. ... it would promote higher quality of care.	1	2	3	4	5
2. ... it would help reduce anxiety symptoms more quickly.	1	2	3	4	5
3. ... my patients would welcome that advice.	1	2	3	4	5
4. ... it could help me get the most out of my time with patients.	1	2	3	4	5
5. ... most of my colleagues would agree with that decision.	1	2	3	4	5
6. ... my patients would find the app is clear and easy to understand.	1	2	3	4	5
7. I intend to recommend apps such as Headspace or SuperBetter for my adolescent patients with anxiety in the next month.	1	2	3	4	5

## RESULTS

- No Statistically significant results achieved- p values >0.05 for all data collected



## Discussion

### Expectations:

- Would have expected increase in intention to recommend based on previous literature showing knowledge surrounding apps is a significant barrier to provider recommendation

### Lack of statistical significance related to:

- Small sample size
- Small effect of intervention
- Inherent difficulty in measuring changes on Likert scale

## Future Directions

### Future Directions:

- Gain more participants by offering incentives for survey completion
- Increase participants by surveying providers for any age of patient
- Improve video quality/obtain expert video production consultation
- Use 7-point Likert scale instead of 5-point for increased sensitivity

## Reference

1. U.S. Census Bureau. (2014). Current Population Survey, annual social and economic supplement, 2014. Retrieved January 21, 2016, from <http://www.census.gov/cps/data/cpstablecreator.html>.
2. Merikangas, K., Hep, J., Burstein, M., Swanson, S., Avenevoli, S., Cui, L., Benezet, C.,... Swendsen, J. (2010). Lifetime prevalence of mental disorders in U.S. adolescents: results from the National Comorbidity Survey Replication—Adolescent Supplement (NCS-A). *Journal of American Academy of Child and Adolescent Psychiatry*, 49(10), 980-989. doi: 10.1016/j.jaac.2010.05.017.
3. JMIR Mhealth Uhealth 2019;7(6):e1319 <https://mhealth.jmir.org/2019/6/e13199>
4. Byambasuren O, Beller E, Glasziou P. Current Knowledge and Adoption of Mobile Health Apps Among Australian General Practitioners: Survey Study
5. Luxton, D. D., Nelson, E.-L., & Maheu, M. M. (2016). A practitioner's guide to telemental health: How to conduct legal, ethical, and evidence-based telepractice. Washington, DC, US: American Psychological Association.<http://dx.doi.org/10.1037/14938-000>
6. Gordon, W. J., Landman, A., Zhang, H., & Bates, D. W. (2020). Beyond validation: getting health apps into clinical practice. *NPJ digital medicine*, 3, 14. <https://doi.org/10.1038/s41746-019-0212-z>
7. Bry, Chou, Miguel, & Comer. (2018). Consumer Smartphone Apps Marketed for Child and Adolescent Anxiety: A Systematic Review and Content Analysis. *Behavior Therapy*, 49(2), 249-261.
8. Berry, R., & Lai, R. (2014). The Emerging Role of Technology in Cognitive-Behavioral Therapy for Anxious Youth: A Review. *Journal of Rational-Emotive & Cognitive-Behavior Therapy*, 32(1), 57-66.
9. Novotney, Amy. (2016)Should you use an app to help that client?. *Monitor on Psychology*, 47(10). 64. Retrieved from <https://www.apa.org/monitor/2016/11/client-app>

## Methodology

- Presentation and survey structured using Technology Acceptance Model Theory 2 (TAM2)
- Received COMIRB exemption as an educational study
- Video/survey distributed to providers via redcap, twitter and the University of Colorado Dept. of Family Medicine Newsletter
- Half of subjects received video and survey, half received survey only
- T-test analysis to determine efficacy of the video

### Technology Acceptance Model

