

Caregivers and Their Children Benefit from Online Executive Function Supports

Katie C. Alexander¹, Tennyson Dahlman², Jessica V. Smith³, Jessica Holmes², A. Chelsea Armour⁴, Alyssa Verbalis⁴, Allison B. Ratto⁴, Kristina K. Hardy⁴, Meredith Gunn⁵, Kaitlynn Decker⁵, Dennard Brown⁶, Te'Andis Elliott², Monica A. Werner⁷, Lynn Cannon⁸, Bruno J. Anthony², Lauren Kenworthy⁴, Laura G. Anthony²

¹Private Practice, ²University of Colorado Anschutz Medical Campus, ³University of Virginia, ⁴Children's National Hospital, ⁵University of Connecticut School of Social Work, ⁶Made to Move Productions, ⁷Monica Werner Counseling, ⁸The Ivymount School and The Maddux School

Introduction

- Executive Functions (EFs) are a set of interrelated, but distinct self-regulatory abilities that include working memory, inhibition, flexibility, organization, and planning (Gioia et al., 2002).
- EFs enable the regulation of thoughts, feelings, and behaviors in order to reach a goal or carry out a multi-step task.
- Executive Functioning (EF) challenges predict lower quality of life, co-occurring psychiatric conditions or symptoms, and poorer adaptive functioning (de Vries & Geurts, 2015; Snyder et al., 2015).
- Considering these clinical outcomes, the development of interventions targeting EFs is critical, and caregiver-mediated interventions and psychoeducation programs have been effective for caregiver- and child-related outcomes.

Objectives

- Develop, produce, and deliver a suite of caregiver support videos in English and Spanish.
- Conduct a preliminary study of the video suite to evaluate the feasibility and accessibility for caregivers

Methods

Participants:

- N = 102 caregivers in both Colorado and the DC metro area
- Caregivers of children with symptoms of ADHD ($n = 43$), autism ($n = 21$), or both ($n = 38$) enrolled in grades 3 – 5
 - Caregiver demographics:
 - Hispanic/Latino (18%); Asian (2%); Black (14%); Pacific Islander (1%); White (63%); and Multiracial (3%)
 - Female (91%); Male (8%); and Non-binary (1%)
 - Reviewed both English and Spanish videos ($n = 14$)

Measures

Knowledge Questions

- Measured before and after video review
- Targeted key themes from corresponding video
- Total number of correct answers (max score = 12) before (baseline) and after (post) video review

Feasibility & Efficacy

- Feasibility**- Indicate strategies used in daily life
- Efficacy**- Rated degree the videos changed views on child's difficulties from 1 "Not at all" to 5 "Very much"

Acceptability

- Two acceptability questions rated on a 5-point Likert scale where a higher score indicates higher acceptability

Caregiver Strain

- The Caregiver Strain Questionnaire-Short Form 7 (CSQ-SF7)
- Seven-item rated on a 5-point Likert scale (1 "not at all" to 5 "very much"; baseline and post)
- Higher scores indicate greater strain (max score = 35)

Caregiver Competence

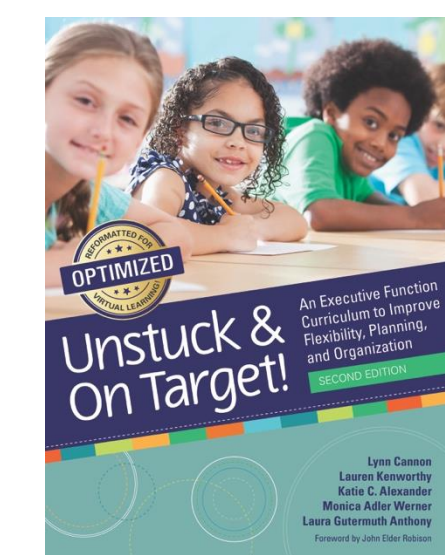
- Competence subscale of the Family Empowerment Scale (FES)
- Eight questions rated on a 5-point Likert scale (1 "Never" to 5 "Very often"; baseline and post)

EF Challenges Experienced by Child

- Two global EF items adapted from the Flexibility Interference Scale, assessing degree and frequency of EF challenges on a 10-point Likert scale where higher scores indicate greater challenges (max score = 10)

Video Suite Development, Production, & Delivery

Based on *Unstuck and On Target!*



Teaches Students Ages 8 - 11

- Flexibility
- Goal Setting & Achievement
- Emotional Regulation
- How to Be Flexible
- Planning
- Organization
- Relationship Skills

Features

- Small groups
- 30 – 40 min/lesson
- 21 lessons
- Catchy scripts
- Engaging activities
- Memorable visuals

The *Unstuck* author team partnered with the CAB (described below) to choose the most salient topics from *Unstuck* for the videos.

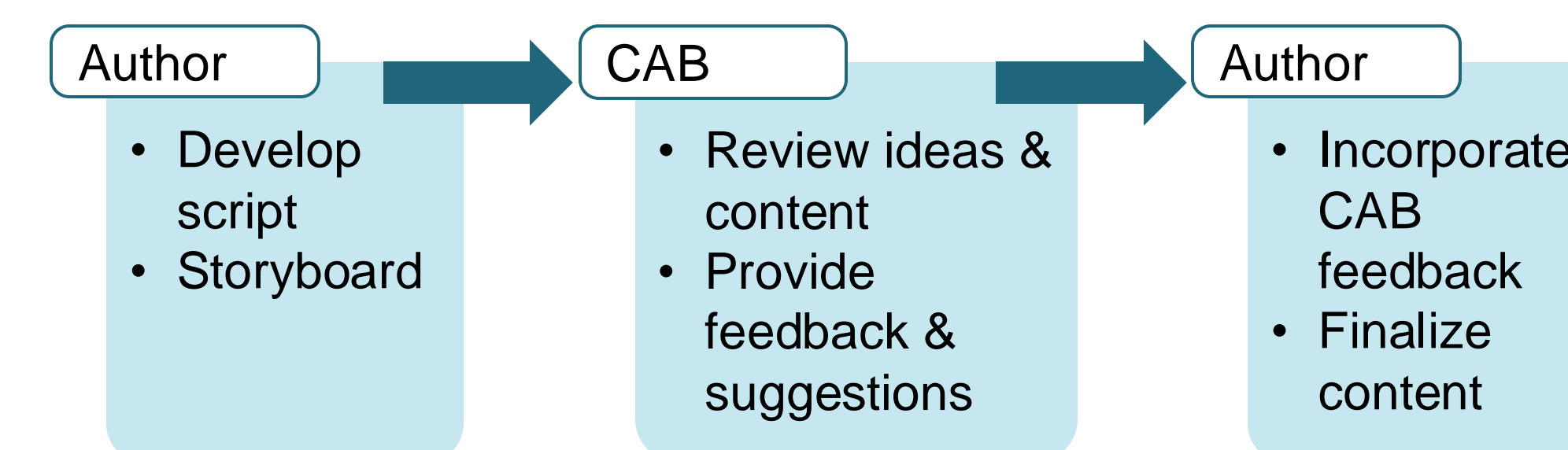
Suite of Videos:

- Understanding EF
- Motivation: Being Flexible Gives You Choices
- What to Do When What We Want Seems Impossible
- Break it Down
- Compromising So Everyone Wins
- Is it a "Can't" or a "Won't"
- Expect the Unexpected & Manage Disappointment
- Goal, Why, Plan
- Plan A/Plan B & Big Deal/Little Deal
- Talk Less/Write it Down
- Preventing Overload
- Managing Intense Feelings

Video Production

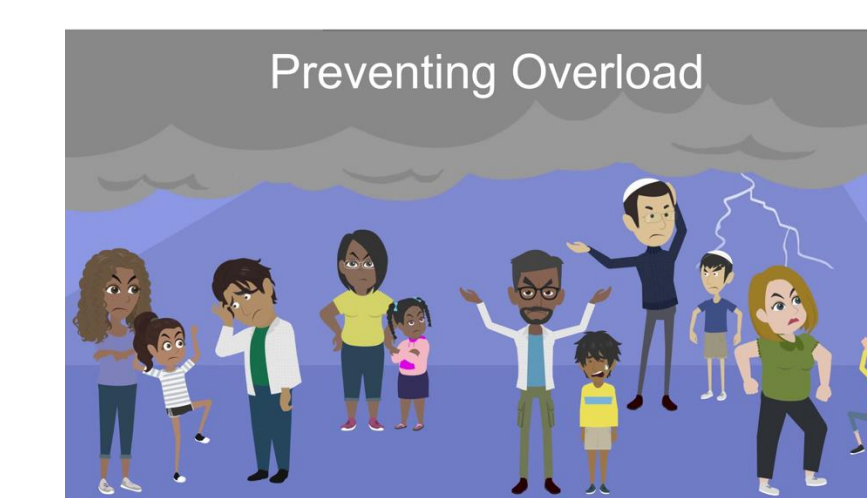
Community Advisory Board

- Consisted of teachers, school administrators, caregivers of children with autism or ADHD, autistic parent & self advocate, and cultural competence expert



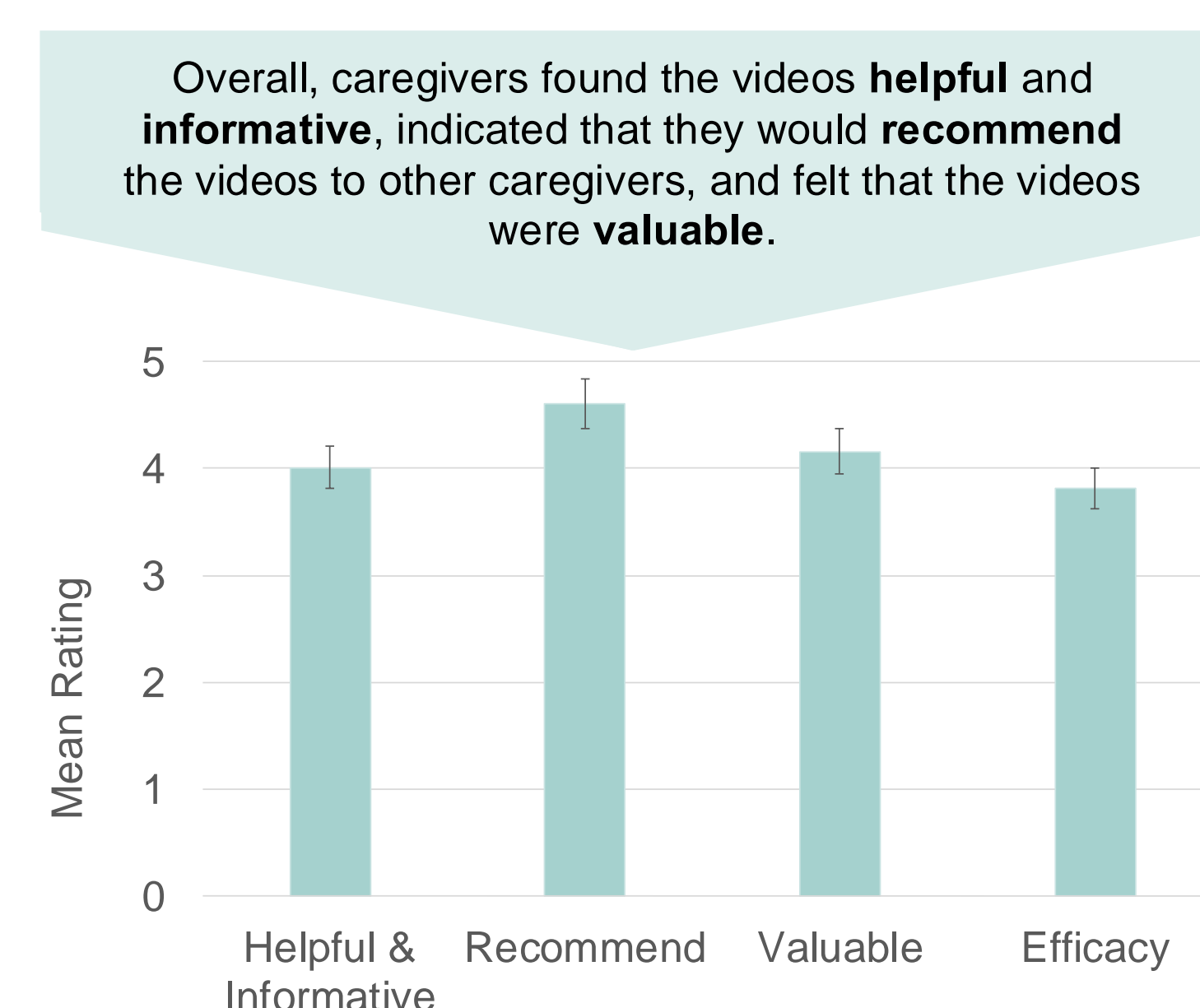
Videos Produced

- 60 min of content presented in 12 brief, free, & accessible videos (5 of which also in Spanish)
- Incorporates *Unstuck* vocabulary
- For caregivers of *any* child with EF challenges



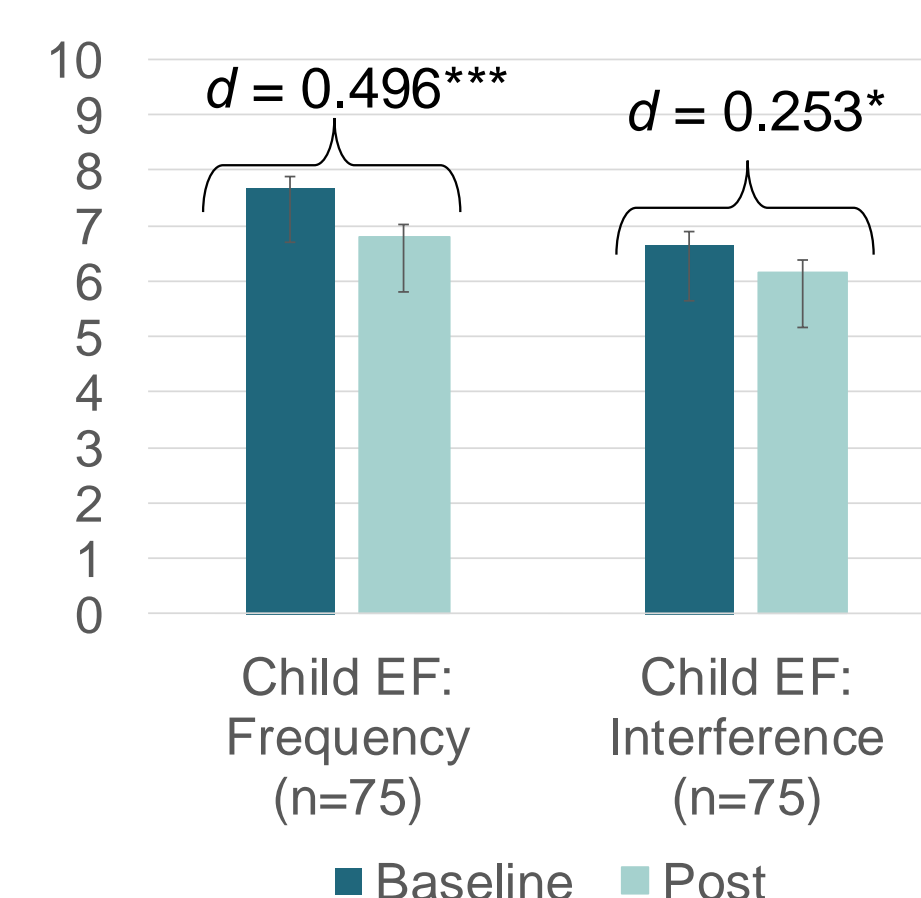
Results

Paired samples *t*-tests were used to compare baseline to post scores for all key outcome variables.

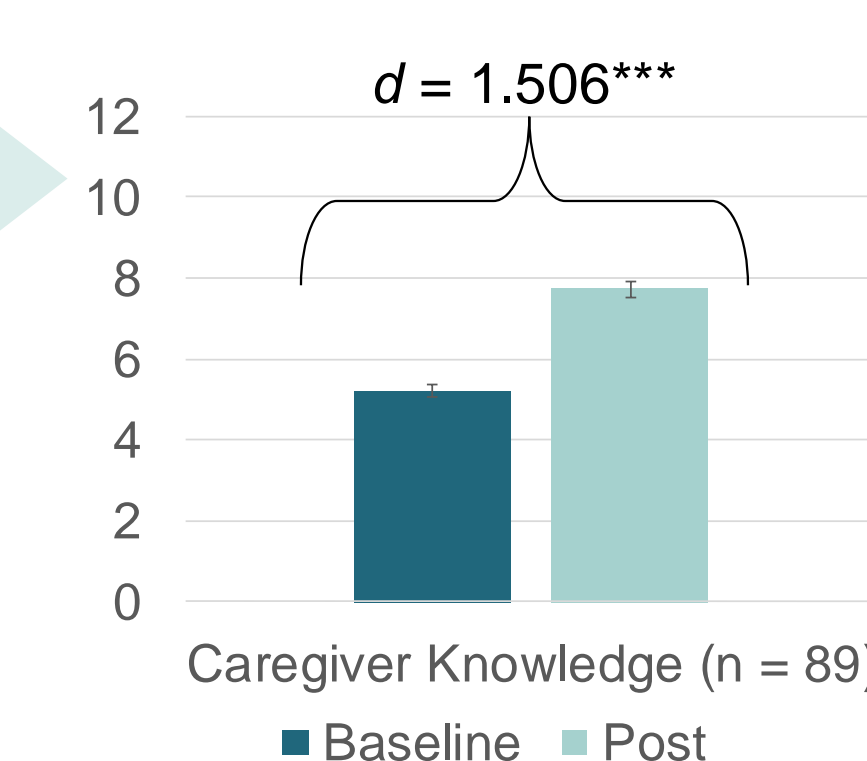


Improved Child EF: The frequency and interference of EF challenges significantly decreased from baseline to post.

EF Frequency: $t(74) = 4.48$, *** $p < 0.001$
EF Interference: $t(74) = 2.51$, * $p < 0.05$

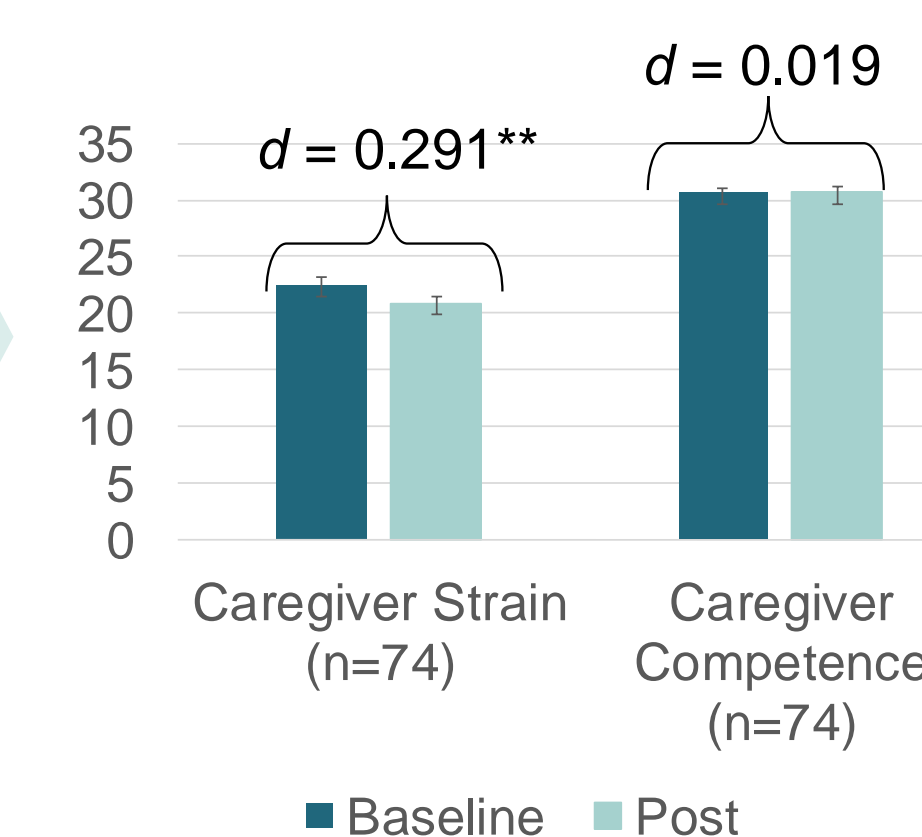


Caregiver knowledge significantly increased from baseline to post, $t(88) = -14.210$, *** $p < 0.001$

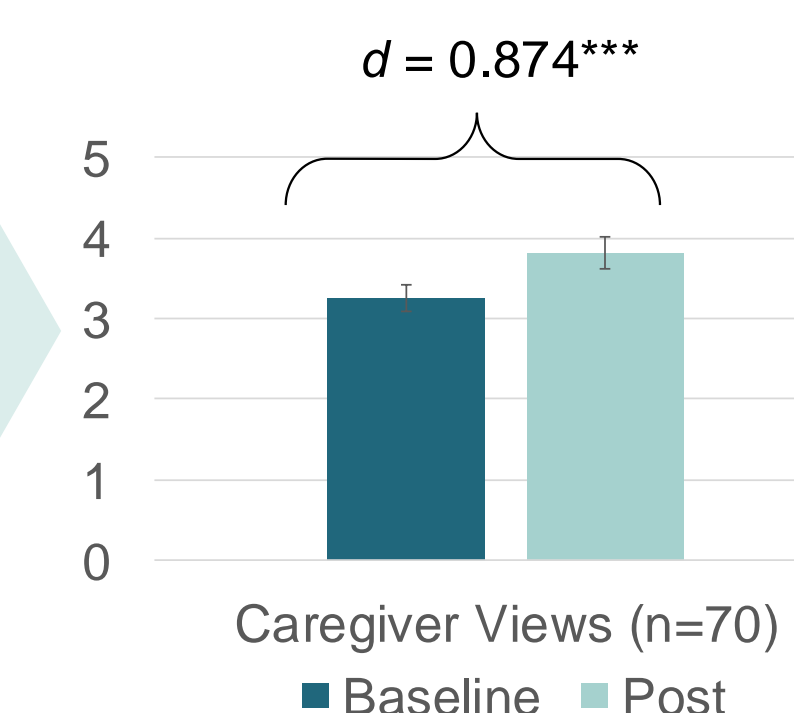


Caregiver strain significantly reduced from baseline to post, $t(73) = 3.80$, ** $p < 0.01$

Caregiver competence did not significantly change from baseline to post, $t(73) = -0.20$, $p > 0.05$



Improved Caregiver Views: Caregivers reported that the videos changed they way they viewed their child's difficulties and these views significantly changed between the first group of videos released and post, $t(69) = -7.313$, 95% CI [-0.746, -0.426], *** $p < 0.001$



Caregiver Feedback

“*The videos made me feel less alone...*”

Caregiver comments were generally positive (75%). Feedback and suggestions (18%) were incorporated into revisions as quickly as possible and before public dissemination.

Conclusions

Through qualitative and quantitative feedback, caregiver found the videos feasible, acceptable, informative, and valuable. In addition, caregiver knowledge of EF concepts and strategies improved, and caregivers reported using key EF strategies following their review of all video content. Results suggested that this suite of videos reduced caregiver-reported sense of strain and EF challenges experienced by their children; however, caregiver competence did not improve. This preliminary feasibility study supports the possibility that low-cost, high quality, and accessible online caregiver support tools can help caregivers connect to trustworthy information and strategies that they can use to make a meaningful difference in their lives and the lives of the children, particularly when targeting a potent childhood difficulty like EF challenges.

Limitations:

All outcomes were based on caregiver self-report without a control condition; thus these findings should be considered preliminary.

Future studies would benefit from a randomized controlled trial with multiple informants.

All the support videos, including those in Spanish, are freely available on YouTube. Scan the QR code on the right to watch them.



References

- de Vries, M., & Geurts, H. (2015). Influence of Autism Traits and Executive Functioning on Quality of Life in Children with an Autism Spectrum Disorder. *Journal of autism and developmental disorders*, 45(9), 2734–2743.
- Gioia, G. A., Isquith, P. K., Kenworthy, L., & Barton, R. M. (2002). Profiles of everyday executive function in acquired and developmental disorders. *Child neuropsychology: a journal on normal and abnormal development in childhood and adolescence*, 8(2), 121–137.
- Smith, J. V., Dahlman, T., Holmes, J., Armour, C. A., Verbalis, A., Ratto, A. B., ... & Anthony, L. G. (2024). "The Videos Made Me Feel Less Alone": Feasible Executive Function Supports for Families. *Journal of Child and Family Studies*, 1-16.
- Snyder, H. R., Miyake, A., & Hankin, B. L. (2015). Advancing understanding of executive function impairments and psychopathology: bridging the gap between clinical and cognitive approaches. *Frontiers in psychology*, 6, 328.

Additional Information

Correspondence to: kt.c.alexander@gmail.com
This work was supported by the Patient-Centered Outcomes Research Institute (PCORI) #DI-2019c2-17605.
Additional references available upon request.