

Exploring the Effectiveness of an Intensive Treatment Program for School-Age Children Who Stutter, Camp Dream. Speak. Live.: A Follow-up Study

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ABSTRACT

The purpose of this follow-up study was to explore the effectiveness of an intensive treatment program—*Camp Dream. Speak. Live.*—within older, school-age children who stutter. Twenty-three school-age children who stutter (age range: 7–14 years) attended this week-long intensive therapy program for the first time. Outcome measures included *Overall Assessment of the Speaker's Experience of Stuttering* and the *Patient Reported Outcomes Measurement Information System* Pediatric Peer Relationships Form. Findings demonstrate significant improvements in quality of life and communication attitudes can be achieved in a short period of time when increasing fluency is not a target.

KEYWORDS: stuttering, intensive treatment, attitudes, perceptions, peer relationships

Learning Outcomes: As a result of this activity, the reader will be able to (1) describe the treatment goals of Camp Dream. Speak. Live.; (2) list activities to target the affective and cognitive components of stuttering; and (3) describe potential benefits of intensive treatment for school-age children who stutter.

Stuttering is a complex, multifactorial dynamic disorder with a combination of motor, linguistic, cognitive, and emotional factors con-

tributing to its development during childhood.¹ Approximately 5% of young children stutter, and of those children, an estimated 70 to 80%

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recover on their own without any formal treatment.² At present, it is unclear which children will recover without intervention and which will persist beyond early childhood. Subtle differences in speech–language abilities and/or social–emotional development may influence the likelihood of natural recovery^{3–5} and mediate the child’s response to treatment.⁶ In addition to these constitutional factors, parental engagement plays a significant role in successful treatment outcomes for young children who stutter, regardless of approach.^{7–9} An increasing amount of data indicates that fluency gains can be attained via direct or indirect treatment approaches relatively early in life.¹⁰

Some children who stutter, however, will persist beyond 6 years of age whether they receive treatment or not. Chronic stuttering can lead to significant negative academic, emotional, social, and vocational outcomes as an adult.^{11–17} Many adults, however, report that the negative consequences of stuttering began during their school-age years (99% of 205 adults who stutter, according to one study¹⁸), and that these negative experiences, such as bullying and diminished peer relationships, continued to affect their lives decades later (42% of 229 adults who stutter).¹⁹ Negative evaluation by peers²⁰ and diminished quality of life²¹ of children who stutter also intensify during elementary school, but according to these studies, it does not necessarily depend on severity of stuttering. Thus, it is important when exploring treatment approaches for children who stutter to also address the affective and cognitive consequences of persistent stuttering early in life, regardless of the severity of a child’s stuttering. Yaruss et al²² suggested that successful stuttering therapy during the school-age years should address more than overt disfluencies and include goals related to improving overall communication attitudes, improving peer relationships, education about stuttering, desensitization, self-disclosure, and managing negative peer reactions, bullying, and teasing.^{23–25}

Historically, and perhaps unsurprisingly, school-based speech–language pathologists have considered children who stutter to be one of the most challenging clinical populations to treat.^{26–29} Unlike preschool-age children (ages 3–6), a limited amount of research has been dedicated to effective treatment approaches for

school-age children who stutter (ages 7–14).³⁰

One treatment option to address the cognitive and affective components of stuttering for school-age children is weeklong intensive camps. There has been an increased number of camps for children who stutter in recent years that include activities designed to target the cognitive and affective components of stuttering. A recent summary by Byrd et al³¹ described the common themes across four such weeklong camps (*Camp Dream. Speak. Live.*, Camp Shout Out, Stuttering U., Camp TALKS) and one intensive 1-day camp (Fluency Friday Plus). All camps were designed for children 4 to 17 years of age. Each incorporated some degree of parental involvement, which ranged from assessing parental perspectives to offering parental training and education by persons who stutter. Each program also provided varying combinations of individual and group therapy to facilitate learning among participants, and to individualize program content according to each child’s specific personality and goals. Finally, and most pertinent to this study, four of the five programs provided a variety of activities which addressed core stuttering behaviors (i.e., moments of stuttered speech) as well as the cognitive and affective aspects of stuttering such as communication confidence and overall communicative abilities. The only camp that focused *exclusively* on the affective and cognitive considerations of stuttering, and did *not* address behavioral aspects of stuttering (i.e., disfluencies), was *Camp Dream. Speak. Live.*

As described by Byrd and colleagues,³² *Camp Dream. Speak. Live.* was developed specifically to (1) improve how children who stutter feel about their ability to communicate, (2) increase their positive perception of their ability to establish friendships, and (3) lessen the influence of stuttering on their overall quality of life. These goals were achieved via a variety of activities designed to highlight five fundamental overarching goals of the camp: (1) improve communication and increase resiliency, (2) facilitate mentorship and leadership, (3) improve peer relationships, (4) promote understanding of bullying and teasing, and (5) desensitize oneself toward stuttering. Byrd and colleagues³² reported pre-camp and post-camp communication attitudes for 23 children who attended *Camp Dream. Speak. Live.* using

the *KiddyCAT Communication Attitude Test for Preschool and Kindergarten Children who Stutter*³³ (ages 4 to 6, $n = 9$), and the *Overall Assessment of the Speaker's Experience of Stuttering*³⁴ (OASES; ages 7–14, $n = 14$). Although significant changes in communicative attitudes were not observed for preschool-age children, a marked improvement in communication attitudes was observed for the older, school-age group. An improvement in communication attitudes in school-age children who stutter was indicated by the significant reduction of scores in the *Quality of Life* section (section 4) of the OASES. This improvement suggests that the activities employed during *Camp Dream. Speak. Live.* may have greater influence on school-age children's communication attitudes and perceptions than younger children who stutter.

In addition to overall improvement in communicative attitudes and quality of life, Byrd et al³² reported significant improvement in the children's perception of their peer-to-peer relationships via the *Patient Reported Outcomes Measurement Information System (PROMIS) Pediatric Peer Relationships—Short Form 8a*.³⁵ Although parents did not attend camp activities directly, all were asked to complete a survey regarding their child's perception of social interactions. All parents who responded unanimously reported an increase in their child's perception of their ability to navigate friendships in their everyday environment following the treatment program.

These positive outcomes lend support to the assumption that intensive camps with goals and activities similar to *Camp Dream. Speak. Live.* may be particularly well suited for school-age children who stutter. Several expert clinical opinions^{23,36} note that the external and internal stressors for a school-age child who stutters are distinct from younger children who stutter. Therefore, school-age children require unique treatment goals, such as those targeted by *Camp Dream. Speak. Live.* For example, Davis et al²⁰ found school-age children who stutter are four times less likely to be considered "popular" among their classmates, two times less likely to be nominated as "leaders" by their fluent peers, and at three times higher risk for bullying. For a child who stutters, the relationship bet-

ween negative peer evaluation, social anxiety, and bullying becomes a vicious cycle. The potential negative perceptions of children who stutter, and a child's own perceived difficulties with peer relationships and social anxiety regarding communication abilities, may put the child at greater risk for being an "easy target" for bullying.³⁷ If those negative perceptions about communication decrease—consistent with the primary goal of *Camp Dream. Speak. Live.*—the child may feel less anxious in social interactions and more optimistic about establishing peer relationships, thereby reducing the likelihood of becoming a target. Additionally, children who establish peer relationships during early school-age years are less likely to face social isolation, internalizing, or externalizing problems³⁸ and less likely to develop feelings of insecurity or social inhibition.³⁹ The structure of *Camp Dream. Speak. Live.* allows children who stutter to create meaningful bonds at these critical-age periods by including activities explicitly targeting praise, encouragement, and celebration with peers. In sum, the positive outcomes of Byrd et al³² reflect, at least in part, correspondence between the goals of the program and the specific challenges faced by the school-age campers.

However, additional investigation of the effectiveness of this program is needed. First and foremost, *Camp Dream. Speak. Live.* has been implemented once yearly in the United States and once internationally, in conjunction with the European Clinical Specialization in Fluency Disorders Consortium, since the 2016 publication of program outcomes. As the program expands to reach more children who stutter, it is crucial that the outcomes continue to be evaluated and replicated, and the methods further manualized using larger cohorts. Second, the positive impact of the program upon school-age children who stutter reported in Byrd et al³² may have been mitigated by including preschool-age children in the analysis. It is possible that younger children who stutter, who have not begun school and still primarily communicate with parents rather than peers, may have reported more positive pre-camp peer relationships than school-age respondents and, unlike school-age children, reported minimal change in perceived ability to make friends pre- and post-camp. Third, Byrd et al³² did not examine

whether the benefits of camp attendance were related to the age or initial stuttering severity of the child. For example, a child who began the program with more severe stuttering may report greater change in communication after completion of the camp than children with moderate or low stuttering severity. Similarly, a school-age child who enters the camp after many years of stuttering, and arguably more entrenched negative attitudes and emotions related to stuttering, may report greater gains than a child with a shorter history of stuttering. For these reasons, the present study restricted analyses of communication attitudes and peer relationship to school-age children who stutter and interpreted data with consideration of age and initial severity. The specific primary research questions of the current study were as follows:

1. Does first-time participation in the intensive treatment program *Camp Dream. Speak. Live.* improve the communication attitudes and quality of life of school-age children who stutter?
2. Does first-time participation in the intensive treatment program *Camp Dream. Speak. Live.* increase the positive perceptions of the ability to establish friendships in school-age children who stutter?
3. Are the cognitive and affective changes reported after attending *Camp Dream. Speak. Live.* associated with age and/or initial stuttering severity?

METHOD

Participants

Twenty-three children who stutter ($n = 6$ females; $n = 17$ males) and who are between 7 and 14 years old attended an intensive therapy program at the first author's university for the first time. All participants previously received a formal diagnosis of stuttering by a certified speech-language pathologist. Additionally, parents of all participants reported that their child presented with stuttering. Approval for this study was provided by the first author's university Institutional Review Board and written, informed consent and assent were obtained for each participant.

Severity of stuttering was determined based on a video-recorded conversational speech sample collected on the first day of the camp. Each sample ($N = 300$ words) was analyzed by trained research assistants using the *Stuttering Severity Instrument-4*.⁴⁰ The mean severity rating for all 23 participants who stutter was 18.20 (standard deviation [SD] = 8.20), with five participants receiving severity ratings of "very mild," nine participants receiving ratings of "mild," seven participants receiving ratings of "moderate," one participant receiving a rating of "severe," and one participant receiving the rating of "very severe."

Procedures

Byrd et al³² provided a comprehensive description of the five core principles and activities included in *Camp Dream. Speak. Live.*, and each component will be succinctly described later.

1. *Improve communication attitudes and increase resiliency.* Activities designed to improve overall communication were guided by the principle of speaking freely, rather than fluently, across communication exchanges which may vary in difficulty (refer to Byrd and Hampton⁴¹ for access to the treatment manual). Such activities included frequent open mike events, both in front of the camp participants and highly trafficked areas of campus. Perseverance and resiliency toward self-expression across a variety of environments were also targeted through diverse performance activities, such as a magic show, breakdancing, and improvisation sessions.
2. *Facilitate mentorship and leadership.* To facilitate mentorship and leadership, participants were assigned leadership roles, such as leading group activities. They were given opportunities to mentor others about stuttering by creating informative and educational messages for parents and peers about stuttering.
3. *Improve perception of their ability to establish friendships.* To improve peer relationships, participants engaged in complex team problem-solving activities. Daily open mike activities were designed for reflective peer-to-peer feedback: participants were required to share thoughts and feelings of peers, or to

provide feedback on peers' specific talents or traits that make them unique.

4. *Address bullying and teasing.* A motivational speaker and mascot pair were utilized to promote understanding and navigation of bullying. Participants engaged in activities with the speaker mascot pair designed to identify bullying moments, and brainstorm solutions to navigate different teasing situations.
5. *Desensitization toward stuttering.* To desensitize each child toward stuttering, participants learned about and engaged in daily activities such as self-disclosure and voluntary stuttering. Additionally, participants were required to reflect upon their speech, completing sentences such as "I love my speech because...."

Outcome Measures and Analysis

The assessment tools used to measure outcomes for participation in *Camp Dream. Speak. Live.* included two child reports. To assess change in communication attitudes, participants completed the OASES (*OASES-S* [ages 7–12], *OASES-T* [ages 13–17])³⁴ before and after their participation in *Camp Dream. Speak. Live.* Overall impact scores were calculated for each participant, as well as scores for each subsection (Section 1—*General Information*; Section 2—*Your Reactions to Stuttering*; Section 3—*Communication in Daily Situations*; Section 4—*Quality of Life*). To assess change in perception of their ability to make friends, participants also completed the *PROMIS* Pediatric Peer Relationships—Short Form 8a³⁵ prior to and after their participation in the camp. *PROMIS* scores have a mean of 50 and SD of 10. That is, a score of 40 is 1 SD below the average for the general population, indicating less positive perception about ability to form meaningful peer relationships.

A series of paired *t*-tests were conducted to compare pre- and post-camp scores regarding their communication attitudes and peer relationships. Cohen's *d* was also calculated for significant *t* values to obtain effect sizes (0.2 indicates a small effect, 0.5 indicates a medium effect, and 0.8 indicates a large effect⁴²). Due to a relatively small sample size, Spearman's rho

correlations were completed with age and pre-camp stuttering severity in the *OASES* and *PROMIS* scores.

RESULTS

Communication attitudes. Participants' average pre-camp *OASES* score was 2.25 (SD = 0.47). The participants' scores ranged from 1.44 to 3.41. The average post-camp *OASES* score was 1.98 (SD = 0.37), with participants' scores ranging from 1.13 to 2.98. As seen in Fig. 1, *OASES* pre- and post-camp scores were found to be significantly different $t(22) = 3.89$, $p = 0.001$, $d = 0.81$ (large effect). That is, children who stutter who participated in the intensive therapy program demonstrated a significant decrease in the overall impact that stuttering has on their lives at the end of the week.

Four additional paired *t*-test analyses of the individual sections in the *OASES* revealed a significant difference between pre- and post-data for three of the four sections: *Your Reactions to Stuttering*, $t(22) = 2.75$, $p = 0.012$, $d = 0.57$ (medium effect); *Communication in Daily Situations*, $t(22) = 2.54$, $p = 0.019$, $d = 0.53$ (medium effect); and *Quality of Life*, $t(22) = 3.20$, $p = 0.004$, $d = 0.67$ (medium effect). *General Information* was not found to be significant, $t(22) = 1.59$, $p = 0.126$.

Peer relationships. Participants' average pre-camp score on the *PROMIS* peer relationship was 46.50 (SD = 8.54, range = 31.43, 64.44) and the average post-camp score was 50.25 (SD = 8.67, range = 35.64, 64.44), yielding a difference of 3.27 points. This observed dif-

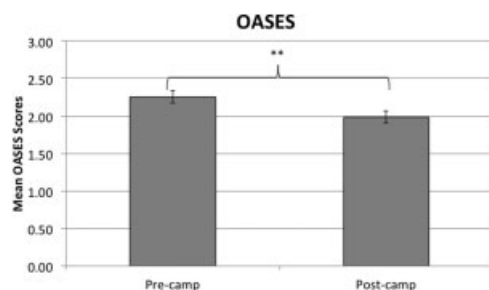


Figure 1 The mean pre- and post-camp scores for children who stutter on the Overall Assessment of the Speaker's Experience with Stuttering (OASES). Error bars represent standard error of the mean. ** $p = 0.001$.

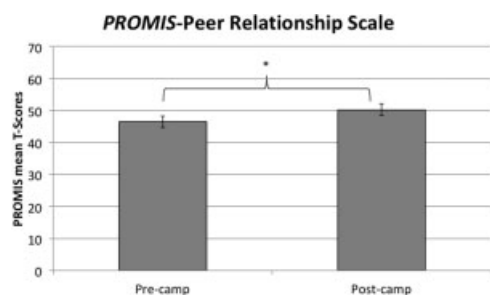


Figure 2 The mean pre- and post-camp scores for children who stutter on the Patient Reported Outcomes Measurement Information System (PROMIS) Pediatric Peer Relationships—Short Form. Error bars represent standard error of the mean.

** $p = 0.039$.

ference was found to be statistically significant $t(22) = 2.20$, $p = 0.039$, $d = 0.46$ (medium effect). As shown in Fig. 2, children who stutter who participated in the intensive therapy program demonstrated a significant improvement in their social health, social function, and sociability across peer-to-peer relationships from the beginning to the end of their participation in the program.

Age and stuttering severity influences. No significant correlation was found between age and pre- and post-camp differences on the *OASES* ($r_s = -0.12$, $p = 0.584$) or *PROMIS* ($r_s = 0.16$, $p = 0.481$). Stuttering severity also did not correlate with the change in pre- and post-camp differences on the *OASES* ($r_s = 0.27$, $p = 0.208$) or *PROMIS* ($r_s = -0.04$, $p = 0.862$). Differences within each subsection of the *OASES* pre- and post-camp were also not significantly correlated with age or severity ($p > 0.05$).

DISCUSSION

Camp Dream. Speak. Live. was developed as an intensive, 5-day treatment program targeting the affective and cognitive components of stuttering, rather than fluency of speech production. The purpose of the present study was to replicate the positive treatment outcomes reported in the study of Byrd et al³² after completion of *Camp Dream. Speak. Live.* when participants were restricted to school-age children who stutter. Findings indicate a clear replication of Byrd et al's³² data and a

significant improvement in children's overall communication attitudes and perceptions of abilities to establish peer relationships upon completion of the camp, irrespective of individual age or stuttering severity of the child.

Communication Attitudes and Quality of Life

Similar to the school-age children who stutter who participated in *Camp Dream. Speak. Live.* in the study of Byrd et al³² (2016, $n = 14$), our larger cohort of same-age peers ($n = 23$) also demonstrated a significant improvement in their attitudes toward communication ($d = 0.81$). Average *OASES* scores reported in the study of Byrd et al³² indicated the negative impact of stuttering in their life prior to camp was rated "moderate" ($M = 2.41$), and were comparable to the pre-camp scores calculated for the respondents in the present study ($M = 2.25$, "moderate"). Similar pre-camp scores in both studies, as well as significant improvement at post-camp assessment in both studies (2016 study: $M = 2.13$, "mild/moderate"; present study: $M = 1.98$, "mild/moderate"), suggest that significant affective and cognitive gains were achieved at *Camp Dream. Speak. Live.*

Another similarity across the two studies was the significant improvement in the *Quality of Life* subsection of the *OASES*. However, a significant change was observed for the *Your Reactions to Stuttering* and *Communication in Daily Situations* subsections of the *OASES*.³² This is in contrast with the original investigation, which found that significant changes in overall *OASES* score were driven largely by improvements observed in the *Quality of Life* section. It should be noted that school-age respondents in Byrd et al³² demonstrated improvement in the three remaining subsections of the *OASES*, although these differences did not reach significance (*General Information*, $p = 0.056$; *Your Reactions to Stuttering*, $p = 0.060$; *Communication in Daily Situations*, $p = 0.110$). Nevertheless, it is possible that this more "holistic" shift in attitudes in the present study reflects the correspondence between the five fundamental components of the camp and the *specific* difficulties encountered by school-age children who stutter. As noted, school-age children have many

more opportunities to communicate with peers than they typically do as preschoolers. Through this increase in communication, school-age children begin to view who they are through the perspective of their peers, rather than that of their parents. School-age children who stutter are therefore more vulnerable to negative peer evaluation, bullying, and isolation from social-peer group activities than younger children who stutter. When there is a lack of understanding about the nature of stuttering in the child's family, or how to appropriately address the cognitive and affective aspects of stuttering at home,⁴³ this may further restrict the opportunities the school-age child who stutters has to discuss the unique challenges he or she faces on a daily basis. Given the focus of *Camp Dream. Speak. Live.* (targeting communication attitudes and resiliency, mentorship and leadership, peer relationships, bullying, and desensitization), it is not unexpected that the school-age participants responded positively to these treatment goals.

From the present data, we cannot determine if any single activity, or combination of activities, may have contributed to the positive group change reported in the study. One interpretation of our findings is that the positive outcomes of the *OASES*, and specifically the *PROMIS*, were attributable to the camaraderie formed by children throughout the week, rather than any specific activity or combination of activities. Adults who stutter often report positive cognitive or affective change after participation in social events—semistructured⁴⁴ or unstructured⁴⁵—which require interaction with others who stutter. Ongoing analysis of which aspects of the weeklong program were viewed as most beneficial to attendees will be necessary to discern the unique influence of activities within *Camp Dream. Speak. Live.*, and whether similar positive change is reported by these children upon completion of less structured events which require socialization with peers who stutter (e.g., National Stuttering Association [NSA] events, online stuttering communities). Nevertheless, replication of positive outcomes and more “holistic” reduction of negative impact in school-age children is encouraging. Quantitative or thematic analysis of these children's experiences, and maintenance of these outcomes over time, will be explored in future investigations.

Peer Relationships

Similar to Byrd et al.,³² children who completed *Camp Dream. Speak. Live.* reported significantly improved perception of their ability to interact with peers and make friends. As noted, we restricted respondents to school-age children who stutter, whereas the original investigation included preschool- and school-age children who stutter as respondents. The original motivation for this age restriction was the dissimilar opportunities in establishing peer relationships for preschool-age children compared with school-age children. That is, in the previous study, baseline pre-camp differences may have mediated the magnitude of change possible between older and younger respondents. Our findings did not support this potential methodological concern. Both the combined-age cohort in Byrd et al.³² and exclusively school-age cohort in the present study demonstrated significantly improved abilities to establish new friendships and peer interactions upon completion of *Camp Dream. Speak. Live.*

Improvements in the ability to socialize are associated with reduced likelihood of being bullied.³⁷ The positive change in socialization for children who participate in this camp may reduce the intensity, frequency, or saliency of bullying behaviors in (or out) of school. As reported by Craig et al.⁴⁶ and Plexico et al.,⁴⁷ increased alliance with peers, self-efficacy, and resilience are the most reliable factors to diminish the likelihood of secondary psychopathology in adults who stutter. The specific focus on peer relationships in *Camp Dream. Speak. Live.* may facilitate these meaningful bonds at an early age, and establish a social support network to offset the potential that the child will withdraw from participating in life, and therapy, as he or she approaches the critical adolescent years.^{48–51}

Age and Stuttering Severity

To address the possibility that greater cognitive and affective benefits from attending *Camp Dream. Speak. Live.* may have been associated with the age and/or stuttering severity of each child, we examined correspondence between the program's outcomes and age/severity. We found no significant relationship between outcomes and age or stuttering severity. Consistent

with these findings, previous studies by Davis et al²⁰ and Beilby et al²¹ reported that the negative cognitive and emotional impact of stuttering in school-age children does not correlate with increased stuttering severity. The lack of correlation with age suggests that, contrary to expectation, positive changes do not become less tractable as the child grows older, at least within the age range included in this study. Together, these data provide greater confidence that the positive outcomes of participation in *Camp Dream. Speak. Live.* were not restricted to children within a narrow age range or with a specific diagnostic profile.

Additional Considerations

A few factors may limit the generalization of outcomes from the present study and warrant consideration. First, pre- and post-camp scores were not analyzed with respect to therapy experiences of the participants. However, no child was simultaneously receiving treatment when the pre- or post-camp measures were administered or during participation. Anyone who had a treatment history had not received services for at least 4 months prior to participation in the camp. Second, baseline temperament was not considered during analysis or outcome measures. Inhibited temperament may affect the amount of gain children who stutter exhibit in affective and cognitive domains. Third, data were not collected regarding previous experiences in self-help or mutual aid groups (e.g., monthly NSA meetings or conferences), but, as with treatment, no child had participated in these activities during participation in the camp or when the pre- or post-data collection measures were completed. Nevertheless, longitudinal follow-up evaluations should include these potential mediating factors, while also providing evidence for the sustainability of changes over time. These data are currently being collected for future investigation.

CONCLUSION

The program reviewed in the present study, *Camp Dream. Speak. Live.*, is an intensive treatment program for children who stutter that explicitly targets communication attitudes

and the impact of stuttering on the child's overall quality of life. Results from two investigations demonstrate that this intensive treatment program yields significant improvements in communication attitudes, perceptions of peer relationships, and quality of life with respect to stuttering in a relatively short period of time. Findings also support that intensive camps such as *Camp Dream. Speak. Live.* may be particularly beneficial to school-age children who stutter, and uniquely address the concerns that emerge as children navigate new peer relationships and the potential negative impact of stuttering on communication.

DISCLOSURES

C.T.B. does not have any financial relationship to disclose. She serves as the founding director of the Michael and Tami Lang Stuttering Institute, and hosts *Camp Dream. Speak. Live.* annually in Austin, Texas, as well as globally at different international locations.

Z.G. does not have any financial relationship to disclose. As doctoral student under the mentorship of C.T.B., she serves as a clinical supervisor for *Camp Dream. Speak. Live.*

D.W. does not have any financial relationship to disclose. As a doctoral student under the mentorship of C.T.B., she serves as a clinical supervisor for *Camp Dream. Speak. Live.*

G.A.C. does not have any financial relationship to disclose. As a former doctoral student under the mentorship of C.T.B. and now assistant professor at Louisiana State University-Baton Rouge, he serves as a clinical consultant for *Camp Dream. Speak. Live.*

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