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Initial Test of the Feasibility and Social Validity of a Transdiagnostic Cognitive Behavioral Intervention with Children with, or At-Risk for, Disabilities

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Abstract

This study sought to determine the feasibility and social validity (acceptability) of a new cognitive behavioral intervention (CARE) for students in the upper elementary grades. Results of the study showed the program to be both feasible and acceptable by school stakeholders. Overall, the program seemed to be more acceptable to teachers and students in the 5th and 6th grades compared to those in the 3rd and 4th grades. Student outcomes were varied, with 3 of the 5 students experiencing visually compelling reductions in problem behaviors, while the other two maintained their baseline problem behaviors. In the following we will discuss the results with respect to the research questions and provide limitations and future directions for research.

Keywords: Cognitive behavior intervention, anxiety, depression, conduct disorder, school

Öz

Engelli veya Engel Riski Altındaki Çocuklar için Transdiyagnostik Bilişsel Davranışçı Müdahalenin Fizibilite ve Sosyal Geçerlilik Ön Testi

Bu çalışma, ilköğretim sınıflarındaki öğrenciler için yeni bir bilişsel davranışsal müdahalenin (CARE) uygulanabilirliğini ve sosyal geçerliliğini (kabul edilebilirliği) belirlemeye çalışmıştır. Çalışmanın sonuçları, programın okul paydaşları tarafından hem uygulanabilir hem de kabul edilebilir olduğunu göstermiştir. Genel olarak, program 5. ve 6. sınıftaki öğretmenler ve öğrenciler için 3. ve 4. sınıflardakilere göre daha kabul edilebilir gibi görünmektedir. Öğrencilerin sonuçları değişkendir, 5 öğrenciden 3'ü görsel olarak zorlayıcı problem davranışlarında azalmalar yaşarken, diğer ikisi temel problem davranışlarını sürdürmüştür. Aşağıda araştırma sorusuna ilişkin sonuçları tartışacak, çalışmanın kısıtlılıklarından ve gelecek çalışmalara verebileceği yönlerden bahsedeceğiz.

Anahtar Kelimeler: Bilişsel davranış müdahalesi, kaygı, depresyon, davranış bozukluğu, okul

INTRODUCTION

Transdiagnostic Cognitive Behavioral Interventions (CBIs) are a relatively novel approach where the intervention is not tailored to a specific disorder; rather the research-based components are delivered in such a way as to account for any comorbidity that may be present (Weist et al., 2017). Much of the transdiagnostic research has been conducted in clinical settings and has yet to be tested in schools, with none of the current CBI interventions examined in school settings accounting for comorbid conduct related disorders. For example, the meta-analysis conducted by Authors (2018) found that most of the manualized school-based interventions focused on anxiety, with few overlapping to depression and none involving anger management. Finally, a majority of these interventions (e.g., FRIENDS; Barrett, 2005) have been delivered as a tier 1 preventative

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intervention rather than as a tier 2 or tier 3 intervention within a multi-tiered system of support (MTSS) framework addressing the mental health issues of students more at-risk. Therefore, this study sought to assess the feasibility and acceptability of a new transdiagnostic CBI (Coping with and Responding to Emotions [CARE]) for students with mental health issues in upper elementary (3–6) grades. The CARE program has been developed as a tier 2 intervention for students with anxiety, depression, and anger. The program fills a gap in the research with a more intensive CBI for students with more intensive needs. The research questions guiding this investigation were:

RQ1: Can CARE be delivered with adequate amounts of fidelity by classroom teachers?

RQ2: How acceptable was CARE for school stakeholders and students?

RQ3: How did implementation of CARE affect students' internalizing, and total behaviors?

METHOD

The current study took place in a summer program held at an elementary school serving students with disabilities and peer models in a rural Midwestern state. Fifty-one students were enrolled in the program, divided across four classrooms; twenty-seven students were identified with autism spectrum disorder (ASD), eight students had another identified disability (e.g., other health impairment), and 17 students served as peer models. One classroom served students with moderate to severe disabilities and the other three classrooms were divided by grades (first and second grade, third and fourth grade, fifth and sixth grade). The two classrooms involved in this study (3rd–6th grades) had a total of 27 students. The third and fourth grade class was comprised of eight peer students and seven students with an ASD. In the fifth and sixth grade classroom three students were peer models, and nine had an ASD or other disability. All teachers were certified elementary special education teachers in the respective state.

Participants

Student participants. Inclusion criteria consisted of: (1) parent consent, (2) full time enrollment in the summer program, (3) participant age above seven years old, and (3) a median *T*-score on the baseline (3 data points) teacher or student version of the Brief Problem Monitor (BPM; Achenbach, McConaughy, Ivanova, & Rescorla, 2011) or one of the subscales that placed the student in a risk category (T >65). Participants were five youths in the third through sixth grades who were enrolled in the summer program and whose parents gave consent for participation in the study. Participant demographics are presented in Table 1. IQ scores were not available for all students (e.g., their current evaluation data did not include this information).

Intervention agents. The CARE program was implemented in the third/fourth grade and fifth/sixth grade classroom by the classroom teachers (called facilitators). There were two teachers who co-taught the third/fourth grade class, a 27-year old White male with a year and a half experience as a special education teacher and a 35-year old White female with nine years of experience. The teacher who taught in the fifth/sixth grade classroom was 30 years old with eight years of teaching experience.

Experimental Design

The primary research question for this study involves the feasibility of implementation of CARE in an elementary

Table 1: Participant characteristics

Student	*Gender*	*Age*	*Race/Ethnicity*	*Free/ Reduced Lunch*	*Disability*	*IQ*	*BPM Total (teacher/student)*	*BPM Externalizing (teacher/student)*	*BPM Internalizing (teacher/student)*
Bert	M	10	W	N	ASD/ GIFTED		63/57	50/50	68/62
Ernie	M	9	AI	N	ASD	120	64/66	63/63	66/66
Joe	M	11	W	N	ASD		69/69	63/63	68/65
Kermit	M	11	W	N	ED	91	65/50	65/50	65/50
Lazlo	M	10	W	N	OHI	104	65/75	65/69	50/72

Note: AL: American Indian, **ASD:** Autism Spectrum Disorder, **ED:** Emotional Disturbanca, **M:** male, **N:** no, **OHI:** Other Health Impairment, **W:** White, **Y:** yes.

setting with the school personnel as intervention agents. As such, the research primarily investigated implementation fidelity and social validity (acceptability) through assessment of key stakeholders including facilitators and students. Secondary measures be assessed through a quasi-experimental single-case AB design (Kazdin, 1982) using the Brief Problem Monitor (Achenbach et al., 2011).

Measures

Implementation fidelity checklists. Implementation fidelity checklists, developed by the program developer, were used by the facilitators and fidelity observers. The checklists asked facilitators to check-off each step of the lesson as it was taught and were completed for every lesson. Implementation fidelity was also assessed by a member of the research team on 30% of the lessons as recommended by Kennedy (2005). Fidelity for both the facilitator completed sheets and observer sheets was calculated by dividing the number of completed steps by the total number of steps to arrive at a percentage of fidelity of implementation.

Social validity. Two methods were utilized to assess CARE's social validity. The program's acceptance was measured through the *Children's Usage Rating Profile* (CURP; Briesch & Chafouleas, 2009) and the *Usage Rating Profile-Intervention Revised* (URP-IR; Chafouleas, Briesch, Neugebauer, & Riley-Tillman, 2011). The CURP is a 21-item, self-report measure developed to measure internal and external influences that may impact students' usage of an intervention. Items on the CURP are rated on a scale of 1 (*totally disagree*) to 4 (*totally agree*). The URP-IR is a 29-item, self-report measure designed to measure intervention agent's attitudes and feelings towards an intervention. Items on the URP-IR are rated on a scale of 1 (*strongly disagree*) to 6 (*strongly agree*). The CURP and URP-IR were edited so statements used the name of the program and other specific aspects of the program while still maintaining the intent of each statement.

Brief problem monitor. The Brief problem monitor (BPM; Achenbach et al., 2011) is a 19-item progress monitoring assessment that covers internalizing, externalizing, attention and total behaviors. The BPM has a teacher and child self-report form, which have demonstrated adequate reliability and validity (Piper, Gray, Raber, & Birkett, 2015). The facilitators delivered the BMP to students and completed the teacher self-report forms every Monday and Thursday.

Procedures

Once consent was obtained from parents and students, the BPM was administered to the students to establish a baseline. The instructions of the BPM were read to students and they were prompted to ask if they wanted the statements on the survey read aloud and to ask for help if any statements were confusing. Facilitators also begin completing the teacher rated BPM at this time. Eligible students were identified through their teacher rated BPM T-scores. Following the collection of baseline data, the CARE lessons were started in the classroom. All lessons were taught by the facilitator to the whole class during the daily 30-minute social skill time. If facilitators were unable to complete the activities in the 30-minute period, they completed the lesson later in the day.

CARE (see blinded website for study materials) consists of multiple research-based CBI components for anxiety, depression and conduct related disorders and is intended to be delivered as a tier 2 intervention for students with or at-risk for emotional or behavioral disorders. School personnel delivering the CARE program are provided tools to aide in the delivery of the intervention which include a teacher's manual and intervention fidelity checklists. There are 16 30-minute lessons which focus on systematic learning of concepts, practicing skills, and applying skills to real life situations. Additionally, students have weekly homework in encourage the mastery of the skills taught in each lesson.

CARE is designed to take place over a sixteen-week period, teaching one lesson per week. However, since the summer camp was only eight weeks long, the implementation schedule was adjusted, with lessons being taught every other day. Additionally, the homework portion of the program was completed at camp on the days lessons were not being taught. The entire program was completed over a 7-week period, after which social validity surveys were administered.

Data Analysis

Feasibility and social validity data were primarily descriptive in nature. For analysis of the student outcome measures (BPM), we used visual analysis of graphed data noting changes in level, trend, and variability of data points (Kazdin, 1982). Specifically, we visually analyzed the total behavior *T*-score and the internalizing subscales. Finally, we calculated the between case standard mean difference effect size (BC-SMD; Shadish, Hedges, & Pustejovsky, 2014) using the DHPS Macro (Version 1.0) for IBM

SPSS (Version 23). BC-SMD follows the interpretative guidelines established by Cohen (1988) where BC-SMD <0.20 is a small effect, 0.20<BC-SMD <0.80 is a moderate effect, and BC-SMD >0.80 is a large effect.

RESULTS

Treatment Fidelity

Treatment fidelity was completed for 100% of the lessons in both classrooms by the facilitator. The third/fourth grade facilitators and the fifth/sixth grade facilitator reported implementation of 99% of lesson elements across all 16 lessons. Additionally, a member of the research team observed 30% of the lessons as recommended by Kennedy (2005), reporting implementation ranging from 87%-100% (*M*=97%) in the third/fourth grade classroom and 96%-100% (*M*=99%) in the fifth/sixth grade classroom.

Social Validity

Using the CURP, students rated CARE in three categories: personal desirability, feasibility, and understanding (max score=4 on each category). Individual mean scores for all students can be found in Table 3. Overall students rated the understandability of CARE (*M*=3.067, *SD*=1.202) high and feasible (*M*=1.8, *SD*=1.09; lower mean scores indicate lower levels of required effort and intrusiveness). The average score for personal desirability among students (*M*=2.57, *SD*=1.220) was lower.

Facilitators provided feedback using the URP-IR, which assess six categories: acceptability, understanding, home/school collaboration, feasibility, system climate, and system support (max score=6 on each category). Scores were reported for the third/fourth grade group (the scores for the two co-facilitators were averaged) and the fifth/sixth grade group. The facilitators in both groups rated the understanding of CARE (third/fourth: *M*=5.5, *SD*=0.548; fifth/sixth: *M*=6, *SD*=0) as high. Other scores varied, based on the classroom group. The fifth/sixth grade facilitator also rated acceptability, feasibility, and system climate as high, with the third/fourth grade facilitators reporting lower scores. The fifth/sixth grade facilitator also rated home/school collaboration and system support as low, while the third/fourth grade facilitators rated these areas higher. Details of the results are found in Table 4.

Table 2: Treatment fidelity

	LA Completed$_1$ *M (SD)*	*Researcher Completed*$_2$ *M (SD)*	*Session Length (minutes) M(SD)*
Third/Fourth	99(0.02)	97(6.0)	36(16.45)
Fifth/Sixth	99(0.02)	99(0.02)	41(18.48)

Note. 1: 1A completed fidelity was completed for 100% of the lessons for each group; 2: researcher completed fidelity was conducted for 30% of the lessons; LA: intervention agent; M: mean; SD: standard deviation

Table 3: Student social validity

	Personal Desirability M(SD)	*Feasibility M(SD)*	*Understanding M(SD)*
Bert	3.142(0.690)	1.5(0.534)	3.333(0.516)
Ernie	2.333(1.464)	1.375(1.061)	3.167(1.329)
Joe	3.286(1.254)	1.125(0.354)	4(0)
Kermit	2.857(1.069)	1.625(0.916)	3.667(0.516)
Lazlo	1.429(0.514)	3.375(0.744)	1.167(0.408)
Total	2.571(1.220)	1.8(1.09)	3.067(1.202)

Note: Low feasibility scores indicate lower levels of required effort and intrusiveness

Table 4: Facilitator social validity

	Acceptability M(SD)	*Understanding M(SD)*	*Home/School Collaboration M(SD)*	*Feasibility M(SD)*	*System Climate M(SD)*	*System Support M(SD)*
Third/Fourth	4.222(0.732)	5.5(0.548)	5(0.894)	3.416(1.240)	4.3(0.483)	4.833(0.983)
Fifth/Sixth	5.889(0.333)	6(0)	2(0)	5.167(1.329)	5(1)	1.333(0.577)

Note: Low system support scores indicates increased ability to independently implement the intervention

Student Outcomes

Overall, results of visual analysis of graphed data showed a relationship between the introduction of the CARE intervention and reduction in symptoms on the teacher BPM total behaviors for four of five students. Results were similar for the internalizing subscale (teacher) with the same four students (out of 5) experiencing reductions in symptoms. As for student self-report, two of the students (out of 5) showed improvements on the total problems index of the BPM from baseline to intervention, with two out of five showing improvement for the internalizing subscales (see Figures 1, 2).

Effect Size Estimate. BC-SMD for student ratings on the BPM Total Behaviors Scale were 0.03 (se=0.12) suggesting a small negative effect. Teacher ratings on the BPM Total Behaviors showed a larger effect BCSMD=-0.27 (se=0.24). BC-SMD for student ratings on the BPM internalizing subscale were-0.20 (se=0.28) suggesting a

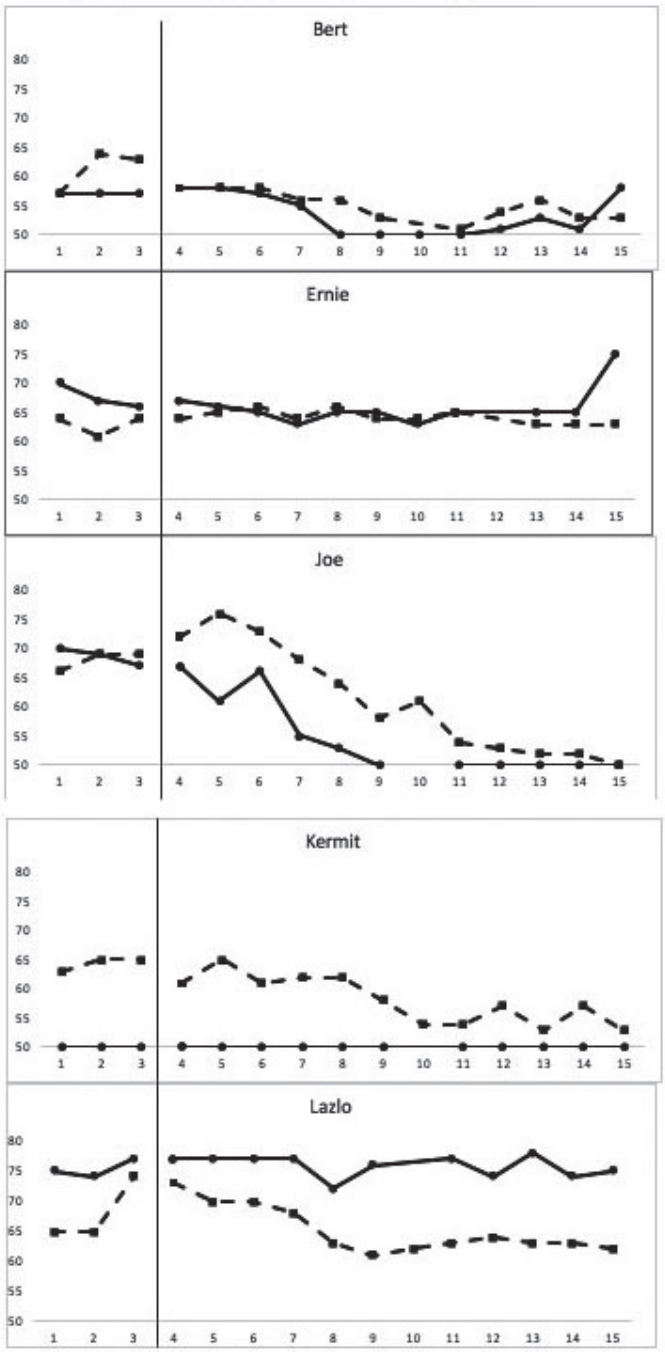

Figure 1. Results for student symptoms on the BPM total problems scale

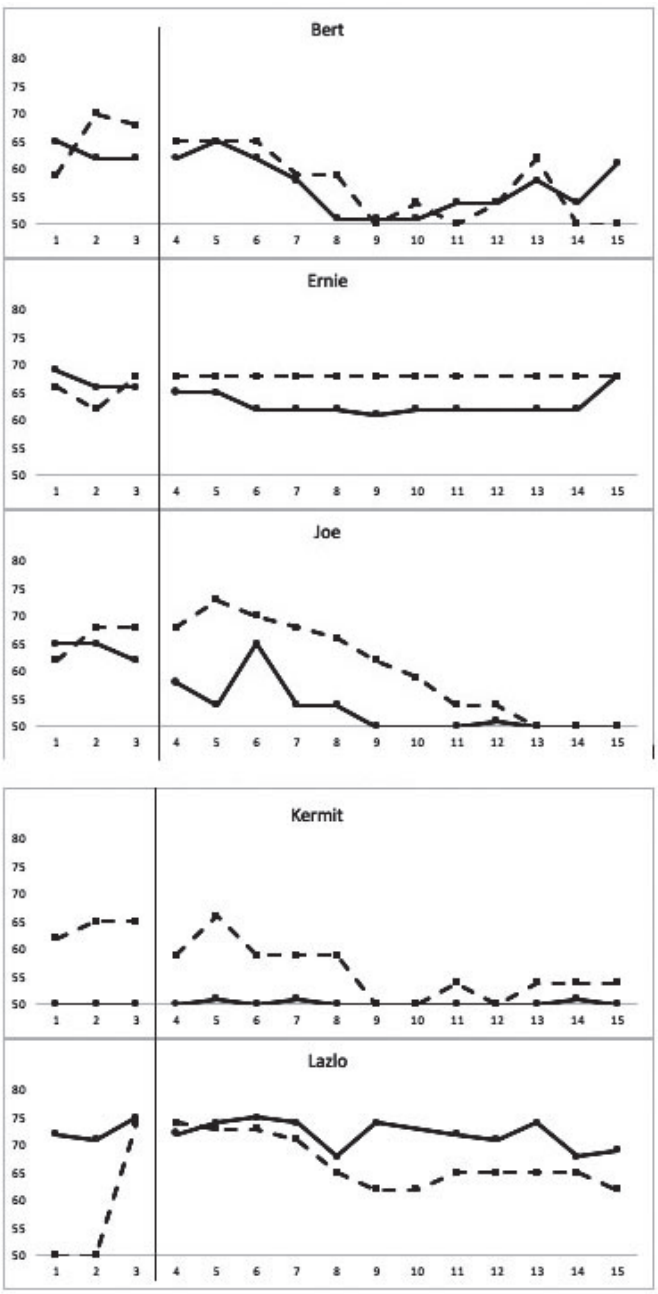

Figure 2. Student results on the BPM internalizing subscale

small effect, though once again, teacher ratings on the BPM internalizing subscale showed a slightly larger effect BCSMD=-0.24 (se=0.18).

DISCUSSION

In order to answer the first research question concerning treatment fidelity, daily lesson checklists were completed by the facilitators. The third/fourth and fifth/sixth grade facilitators reported implementation of 99% of lesson elements across all lessons. Researcher completed fidelity checklists were also high, suggesting the facilitators, who are licensed special education teachers, were able to successfully implement CARE as it was written. On average, the lessons did last longer than the projected 30 minutes, with a large amount of variability. The lessons taught to the third/fourth grade group averaged 36 minutes (*SD*=16.45) and the lessons taught to the fifth/sixth grade group averaged 41 minutes (*SD*=18.48). Despite the lessons lasting longer than the anticipated 30 minutes, it is reasonable to infer that CARE could be implemented by school personnel within a school setting. Reasons for the sessions lasting longer than the hoped for 30 mins likely resulted from the final three lessons taking a great deal of time. These lessons focused on students writing and filming a script that addressed an issue that they currently have problems with. For example, a student who had issues reading in front of the class wrote a script, and filmed them role-playing reading in front of the class and using the strategies they learned in the program.

The results of the CURP and URP-IR are used to address the second research question, which focused on assessing the social validity (acceptability) of CARE. Overall, students indicated they had a high level of understanding of the strategies and curriculum presented in CARE. It is interesting to note that the students who rated CARE highest on understanding (Bert, Jo, and Kermit) also showed the most improvement at the end of the program. Personal desirability, which measures program likability, was slightly lower, but still indicated that students generally liked the program. Finally, students reported low scores of feasibility, suggesting the strategies taught through CARE do not require an unreasonable amount of required effort and would not be intrusive into a student's daily school schedule.

Facilitator social validity scores widely varied. While all facilitators rated their understanding of CARE and how it is implemented high, the rest of the scores were split. Both facilitators of the third/fourth grade group reported lower scores in the categories of acceptability and feasibility and voiced concerns about the amount of writing required, which could be addressed through the addition of accommodations and modifications to the program. The scores reported for acceptability and feasibility by the fifth/sixth grade facilitator were significantly higher and expressed interest in using CARE again. She shared that she "would absolutely use the program for [her] tier 2 social/emotional groups of students." Overall, facilitator scores suggest teachers were able to understand CARE, successfully teach the lessons, and with some additional accommodations and modifications, it could be a feasible, effective program to address social-emotional concerns of upper elementary students.

Effects of the CARE Program on Student Symptoms

The final research question was to assess the effects of CARE on student symptoms. Student response to CARE was varied, with Joe, Kaden, and Bert showing the most significant improvement. There are a number of variables that may have impacted the overall outcomes. First, one possible influential factor is student buy-in. Research has suggested the level of participant buy-in can influence the effectiveness of CBI (Lewin, Peris, Bergman, McCracken, & Piacentini, 2011). One student in particular, Joe, displayed high levels of buy-in throughout the program. He was observed using the strategies outside of the normal CARE lessons and even referenced his CARE workbook when faced with classroom conflicts. Joe's change in level was noted to be the greatest, suggesting student buy-in may have a positive influence on CARE's overall effectiveness. Additionally, the lower CURP scores on student acceptability reflected those students who did not respond to treatment (Ernie and Lazlo). The self-report measures may be a second factor affecting the overall results of some students as self-report measures with youth can be unreliable due to confusion over items, or because of "jokesters" who do not take the survey seriously (Fan et al., 2006). For example, Ernie's mother shared with the facilitators that he struggled to accurately self-reflect on his behaviors and emotions. Finally, severe mental health diagnoses may have made some students less responsive to the intervention (March et al., 2007). One student, Lazlo, had been diagnosed with severe depression and expressed

suicidal ideation throughout camp. It is likely the severity of Lazlo's mental health diagnoses may have decreased his responsiveness to CARE. Although CARE is designed to help students with depression, it is not suggested to be the sole treatment for severe mental health diagnoses like Lazlo's (March et al., 2007).

Limitations and Future Directions

There are a number of limitations to this study to be addressed. First, the study used a single-case AB design which did not allow for three replications of effects, thus affecting the internal validity of the findings. However, as this study was exploratory in nature, we believe the results for the three students who made improvements to be promising. Future research should examine the impact of CARE on the problem behaviors of students with a more rigorous design. A second limitation was that two of the students receiving the intervention (Ernie and Lazlo) would be more likely classified as in need of tier 3 intervention, and, as a tier 2 intervention, CARE may not be intensive enough to meet their needs. Future research should examine the impact of CARE as a tier 2 intervention, and as an intervention for those students needing the most intensive services to confirm this hypothesis. Overall, CARE showed promising results in addressing student symptoms and should be further investigated as a way to provide school personnel a feasible, effective method for addressing student social-emotional well-being.

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