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Attention Problems and Mindfulness: Examining a School Counseling Group Intervention With Elementary School Students

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Abstract

The researchers examined the effectiveness of a mindfulness-based attention group with elementary school students struggling with attention problems. The results revealed that students in the intervention group were more likely to improve their on-task behavior and decrease their attention problems during the group compared to students in the comparison group. The intervention group demonstrated improvements ranging from debatably effective to very effective for improving mindfulness. We discuss implications for using the intervention.

Keywords

attention problems, elementary school, mindfulness, on-task behavior, school counseling,

Attention has an important role in students' success in academic, personal, and social development (Bellanti & Bierman, 2000; Petersen & Posner, 2012; Pope & Bierman, 1999; Rabiner, Coie, & Conduct Problems Prevention Group, 2000). Therefore, addressing attention problems and providing a supportive environment to facilitate students' development are important. Attention is a complicated concept with models encompassing several components including alerting, orienting, executive functions (Petersen & Posner, 2012), dorsal system functions, ventral system functions (Corbetta & Shulman, 2002), directed attention, and involuntary attention (Kaplan & Berman, 2010). These components are important in learning and may affect academic success and social/emotional development. In developing the attention aystem model, Petersen and Posner (2012) proposed that our attention system is divided into several networks including alerting, orienting, and executive control (Petersen & Posner, 2012). Alerting is the ability to achieve and maintain a condition of sensitivity to incoming stimuli. The orienting network aims to choose information from the stimuli for further processing. The executive control network manages the ability to resolve conflicts that result from competing stimuli, helping us act in goal-directed, flexible, intentional ways. These abilities are essential for student learning. Therefore, addressing students' attention deficits may help prevent academic and social difficulties.

Attention Problems

Researchers report that early identification of attention problems may help prevent children from later experiencing achievement failures (Rabiner et al., 2000). Attention problems can not only mediate the relationships between academic achievement and problem behaviors, including withdrawing, somatic complaints, delinquent behavior, and aggressive behavior (Barriga et al., 2002), but also predict children's reading achievements after controlling for IQ, previous reading achievement, and other behavioral issues (Rabiner et al., 2000). Scholars also found a relationship between attention problems and prosocial skills deficits, aggressive behavior, and disruptive behavior (Bellanti & Bierman, 2000). Furthermore, researchers found that irritable-inattentive behaviors were associated with peer difficulties including peer rejection, victimization, and antisocial activities (Pope & Bierman, 1999).

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Addressing Attention Problems

School counselors have an important role in helping children succeed in school. They may work with students on individual, small group, and classroom levels and through indirect ways such as consultation and collaboration. According to the American School Counselor Association National Model (2012), school counselors should spend at least 80% of their time delivering services to students. Moreover, school counselors are expected to demonstrate the effectiveness of the school counseling program to justify funding and retention of school counseling programs as necessary components within the education system (Gysbers, 2004).

School counselors are trained in human relations, problem-solving, career development, learning theories, and program evaluation (Borders & Shoffner, 2003). Therefore, school counselors can assist teachers and other personnel in addressing attention issues in a systematic manner. Scholars classify interventions to address attention problems in two categories: (a) attention training (AT) and (b) attention state training (AST; Tang & Posner, 2009). AT includes computer-based interventions and curriculum-based programs, whereas AST includes mindfulness interventions and interaction with nature.

Mindfulness

Mindfulness is rooted in Buddhist and other contemplative traditions that encourage conscious awareness and attention. Scholars describe mindfulness as "the awareness that emerges through paying attention on purpose, in the present moment, and nonjudgmentally to the unfolding of experience moment by moment" (Kabat-Zinn, 2003, p. 144). The main concepts of mindfulness include curiosity, kindness, gratitude and generosity, acceptance, nonjudging, nonstriving, letting go, patience, humor, trust, and a beginner's mind, which refers to a baby's perspective that is without judgment and prejudice (Wolf & Serpa, 2015). Each concept has an important role in the human mind and in reaching the goal of living mindfully. Scholars have found that mindfulness-related interventions have several benefits including improving students' executive functions (Flook et al., 2010). Flook et al. (2010) explored the effectiveness of an 8-week intervention with second and third graders ($N = 64$) that focused on the effect of mindful awareness practices (MAPs) on children's executive functions. The MAPs included exercises that help increase receptive attention to the here-and-now moment. Through different types of mindfulness exercises, the children learned to initiate, monitor, and shift their attention (Flook et al., 2010). The results of this study showed that the students who had poor executive function improved their behavioral regulation and overall executive control after participating in MAPs. Their improvements also generalized across different settings (i.e., home, school). Researchers have also discussed school counselors using mindfulness concepts to help students practice self-awareness and empower them to take ownership of their thoughts, feelings, and behaviors (Tadlock-Marlo, 2011).

Purpose of the Current Study

Scholars have found support for using mindfulness to improve students' attention problems. However, the interventions involved nonschool personnel or were facilitated outside of school (Taylor, Kuo, & Sullivan, 2001). Therefore, the need exists for school counseling mindfulness interventions. To meet this need, the first author adapted an existing mindfulness intervention used by community providers for school counselors to use in addressing attention problems. This study examined the effectiveness of this mindfulness-based, small-group intervention using a single-case research design (SCRD). The research question was: What are the treatment effects of using a mindfulness-based attention group for children (MBAG-C) on third and fourth graders' on-task behaviors, attention behaviors (i.e., attention problems, inattentive behaviors, hyperactivity–impulsivity behaviors), and level of mindfulness?

Method

The researchers used an A-B-A SCRD. The purpose was to examine the effectiveness of a mindfulness intervention on improving third and fourth graders' attention problems, on-task behaviors, and mindfulness. The researcher chose a SCRD to accommodate completing the assessments and gaining access to students who met inclusion criteria.

Participants

The target population for this study was elementary school children in the third and fourth grades identified as having attention problems at school. Participants were four boys and four girls; six were in fourth grade and two in third grade. The intervention group had five students and the comparison group had three students. Names used in this article are pseudonyms. The children attended one of the two schools in a midsized city in the Southeastern United States, with two from one school (both placed in the intervention group at the school counselor's request) and six from the other school (three were randomly assigned to the intervention group and three to the comparison group). Eligibility involved scoring in the borderline or clinically significant ranges for attention problems on the Teacher's Report Form (TRF; Achenbach & Rescorla, 2001). Table 1 provides participants' demographic information.

Intervention and Fidelity

The first author developed the mindfulness intervention MBAG-C based on her mindfulness practice, experience teaching mindfulness within a stress and anxiety management

Table 1. Participant Demographic Information.

Participant	Group	Grade	Race	Scores for Attention Problem on the TRF
Jason	Intervention	Fourth	Multiracial	Within borderline range
Eason	Intervention	Fourth	European American	Within borderline range
Sophia	Intervention	Fourth	European American	Within borderline range
Daisy	Intervention	Third	African American	Within borderline range
Gavin	Intervention	Third	African American	Within borderline range
Brittany	Comparison	Fourth	African American	Within borderline range
Peter	Comparison	Fourth	European American	Within borderline range
Vivian	Comparison	Fourth	African American	Within borderline range

Note. TRF = Teacher's Report Form.

course, in-depth study of the mindfulness literature including children's programs, and school counseling experience. The intervention was based on concepts from the InnerKids program (Flook et al., 2010) and the Attention Academy (Napoli, Krech, & Holley, 2005). These programs emphasize mindful breathing, sensory awareness, nonjudgment, and choosing to respond versus react. Attention Academy is a 45-min, 24-week mindfulness training that focuses on helping children learn to (a) improve their attention to the current experience, (b) address each experience without judgment, and (c) view every experience with a "beginner's eye" (Napoli et al., 2005). InnerKids is an 8-week intervention with sessions held twice per week. The focus is on using MAPs to improve children's executive functions. The MAPs include exercises that help increase receptive attention to the here and now. Through different mindfulness exercises, children learn to initiate, monitor, and shift their attention (Flook et al., 2010). Although evidence supports these programs' effectiveness in improving children's attention, the interventions were facilitated by community mental health professionals over an extended time.

School counselors conducted the current mindfulness intervention in six weekly, small-group sessions lasting 30 min each. The rationale for 30-min sessions is that this is a typical time frame allotted to school counselors to facilitate small groups. The study focused on examining whether students' attention problems decreased as a result of a short-term intervention. The school counselors also encouraged students to practice mindfulness outside of the group and checked in with students during group about their practices. To ensure treatment fidelity, the first author developed a detailed manual and scheduled a meeting with the school counselors to discuss the effects of mindfulness on students' attention and the concepts of mindfulness and train them in facilitating the MBAG-C. The first author also watched sessions in person to assess the degree to which the school counselors adhered to the manual in conducting the sessions. The degree of consistency between the two group facilitators was 85%. The counselors also completed session reflection journals following sessions.

The intervention focused on mindful breathing, sensory awareness, being nonjudgmental, and choosing to respond instead of reacting. The first session focused on creating group rules and introducing mindful breathing. The second session focused on mindful listening to help students become aware of external and internal sounds. The third session focused on mindful sensory to help students increase their awareness through paying attention to their body sensations including tasting, touching, smelling, and seeing. The fourth session centered on engaging students in mindful practices with movements, which can help students apply mindfulness in their daily lives. The fifth session focused on helping students learn that everyone has different thoughts and feelings. The last session focused on reviewing all of the mindfulness strategies learned in the group. Before implementing the intervention, the first author encouraged the school counselors to personally practice mindfulness daily to help them fully understand the concepts of mindfulness.

The intervention focused on mindful breathing, sensory awareness, being nonjudgmental, and choosing to respond instead of reacting.

Instruments

TRF. The TRF (Achenbach & Rescorla, 2001) is designed for teachers to assess the problem behaviors of children aged 6–18. It contains 113 items with a Likert-type scale with responses ranging from 0 (*not true*) to 2 (*very true or often true*) and open-ended questions. The test–retest reliability after a 16-day interval ranged from .60 to .96 for all subscales, with a range of .93–.96 for attention-related problems. For internal consistency, the Cronbach's α for the scales ranged from .73 to .97, with a range of .93–.95 for attention-related problems (Achenbach & Rescorla, 2001).

Direct Observation Form (DOF). The DOF (McConaughy & Achenbach, 2009) is designed to rate the behavior of children aged 6–11. The observer records a narrative description of the child's behavior for 10 min and then rates the child's on-task behavior at ten 1-min intervals. After completing the 10-min observation, the observer rates 88 problem items. The rating scale for observed behavior ranges from 0 (*no occurrence*) to 3 (*definite occurrence with severe intensity or occurrence lasting more than 3 min*). The norm group included 661 ethnically diverse children for classroom observations. Interrater reliability ranged from .71 to .97 (McConaughy & Achenbach, 2009).

Mindful Attention Awareness Scale for Children (MAAS-C). The MAAS-C contains 15 items with a 6-point rating scale ranging

from 1 (*almost never*) to 6 (*almost always*). Lower scores represent higher levels of mindfulness. Lawlor, Schonert-Reichl, Gadermann, and Zumbo (2014) examined the reliability and validity of the MAAS-C with 286 children in fourth to seventh grade. The results indicated strong internal consistency (Cronbach's α of .84). The MAAS-C also was positively correlated with students' self-concept, optimism, positive affect, perceived classroom autonomy, academic efficacy, and personal achievement goals; it was negatively correlated with depression, anxiety, and negative effects (Lawlor, Schonert-Reichl, Gadermann, & Zumbo, 2014).

Demographic questionnaire. The researchers also administered demographic questionnaires. The school counselors' questionnaire included items about age, race/ethnicity, and years of elementary school counseling experience. The students' demographic questionnaire included items related to age, gender, grade level, and race/ethnicity.

Procedures

Following approval from the institutional review board, the first author recruited school counselors, then obtained approval to conduct the study from the two participating school districts. Next, she provided a mindfulness training session for the two school counselors. One school counselor identified as Caucasian with 24 years of school counseling experience, and the other identified as mixed race, with 2 years of experience. During the training session, this researcher discussed the concepts of mindfulness and its effects on students' attention and distributed the materials for the group. The counselors also completed the Mindful Attention Awareness Scale (Brown & Ryan, 2003) and a demographic questionnaire.

The school counselors identified student participants for the study based on their interactions with students and through teacher consultations. The first author obtained consent from each child's parents through written (letter sent home) or verbal (phone call) response. The students' teachers then completed the TRF for these students to determine eligibility. Twenty-six items in TRF targeted attention problems (i.e., hums or makes other odd noises in class, fails to finish things he or she starts, can't concentrate, and can't pay attention for long). Students who scored within the borderline clinical range or clinical range met the criteria for participating in the study. Next, the first author randomly assigned students to the treatment or the comparison group. Due to the preference of one school counselor, one participating school did not have students in the comparison group. As a result, the treatment group had two more students than the comparison group. The students in the treatment group participated in six MBAG-C sessions, and the students in the comparison group continued with the school curriculum. Following the completion of the intervention and data collection, the students in the comparison group received a packet of mindfulness resources.

The researchers used the DOF (McConaughy & Achenbach, 2009) to obtain data regarding participants' attention problems and on-task behaviors. In following an A-B-A SCRD, the researchers collected baseline data for 3 weeks, collected data throughout the intervention, and continued data collection for 3 weeks following the intervention. Of the three raters, two were master's-level school counseling students and one was the first author. The observers rated participants 3 times each week using the DOF, and then the researchers averaged these ratings to obtain a weekly score for each student. Prior to beginning observations, the researcher provided training to the school counselors on conducting observations using the DOF. The training included watching segments of practice cases, rating them individually, and discussing the ratings. The interobserver reliability for the observers was .83 for problem items and .90 for on-task behavior. The first author also administered the MAAS-C (Benn, 2004) to the eight participants each week to assess mindfulness.

Data Analyses

The researchers used visual analysis (Morgan & Morgan, 2009) to examine data changes in means, level, trend, variability, and immediacy of effect and used percentage of data exceeding the median (PEM; Ma, 2006) to estimate the treatment effect. In using PEM, the researcher draws a line from the median baseline data point across the intervention and postintervention phases. If the intervention is effective, the data points of intervention phase and postintervention phase will be predominately on the therapeutic side of median. The researchers selected the PEM procedure due to the variance of data points in the baseline phase. To calculate the effect size of the intervention, the researcher divided the numbers of data points from the side of anticipated change during the intervention phase by six (the number of intervention data points). For interpreting treatment effect size for nonoverlap data analysis procedures, Scruggs and Mastropieri (2001) suggested that an effect size of .90 and above indicates very effective treatment; .70–.89 is moderately effective; .50–.69 is debatably effective; and below .50 is not effective.

The researchers also calculated the relative success rate (RSR; Parker & Hagan-Burke, 2007) between the treatment and comparison groups. The RSR is calculated by dividing the treatment group success rate by the comparison group success rate. To calculate the RSR for this study's treatment group, the researchers added the number of data points above the baseline median point for on-task behaviors and added the number of data points below the baseline median point for attention problem behaviors and mindfulness score in separate analyses, then divided each of these numbers separately by the total treatment data points (30). For the comparison group, the researchers used the same procedure but divided by 18 (total data points during the 6-week period). For postintervention analysis, the

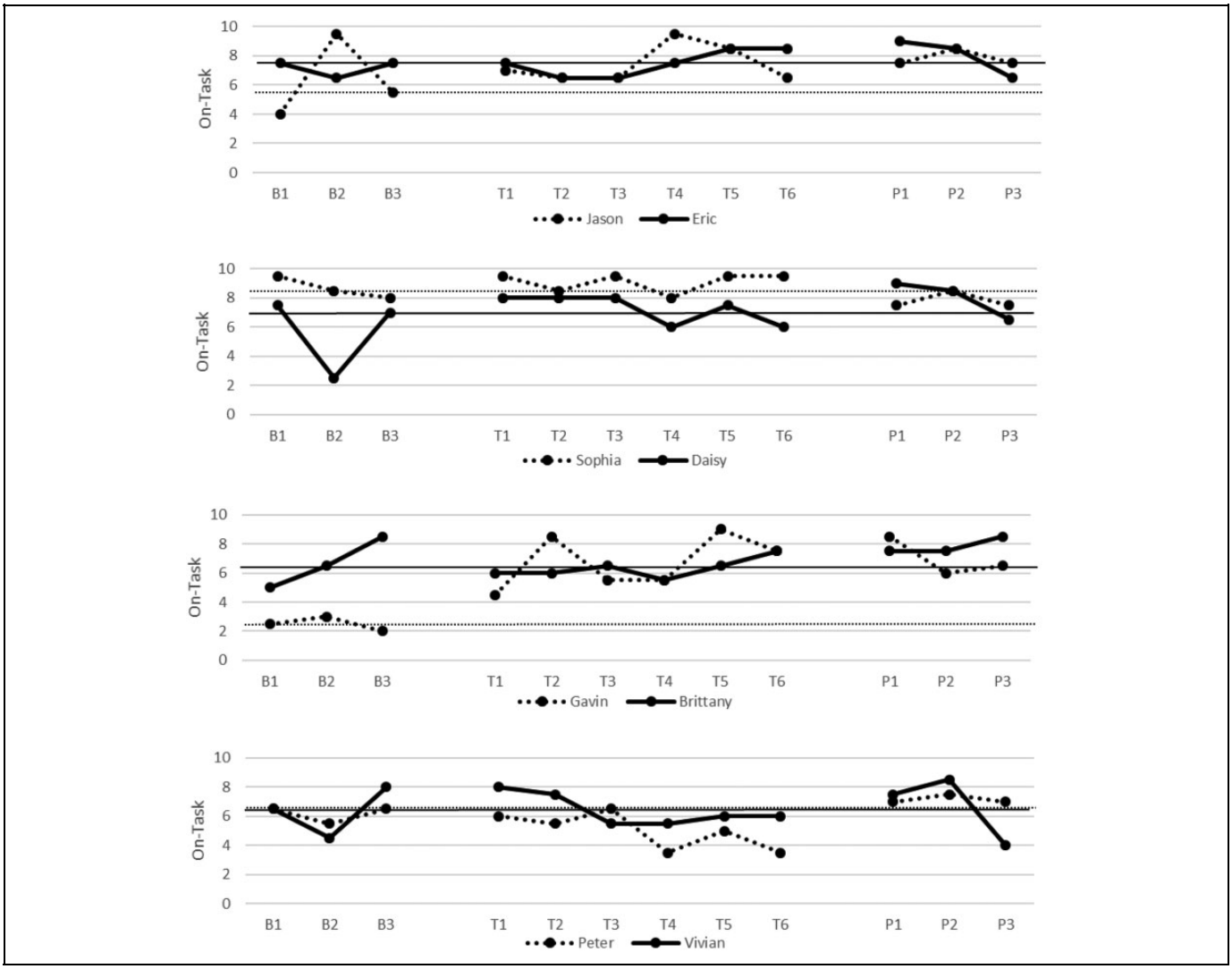

Figure 1. On-task behavior.

researchers used this procedure but divided the numbers by 15 for the treatment group and 9 for the comparison group.

To account for missing data, the authors applied the expectation-maximum (EM) likelihood algorithm (EM procedure; Dempster, Laird, & Rubin, 1977). Smith, Borckardt, and Nash (2012) recommend using this procedure in time series studies because it does not affect the ability to infer a significant effect. Researchers can use the EM procedure to accurately estimate data with up to 40% missing data (Velicer & Colby, 2005). This study had a total of four missing scores: baseline data during Week 1 for Gavin and a mindfulness score for Daisy during Week 2.

Results

The data for each participant are presented below. Figure 1 illustrates the results regarding on-task behavior, Figure 2 illustrates the attention problems scores, and Figure 3 illustrates the mindfulness data.

Participant 1: Jason

Jason is a 10-year-old fourth grader who is multiracial. His teacher described him as smart and aware of how his behavior affects others. He scored in the borderline range on the TRF for attention problems; his teacher reported that he disrupts and distracts others often, sometimes sharing strange ideas in response to a question to get his peers' attention. Items in the TRF on which he scored high included not being able to concentrate, having difficulty with directions, and being inattentive. The subscale ratings for Jason illustrate that the MBAG-C intervention was very effective for improving on-task behavior (PEM statistic of 1.00 with all data points exceeding the baseline median of 5.5), debatably effective for improving attention problems (PEM statistic of 0.67 with four data points below the baseline median of 6), and moderately effective for improving mindfulness (PEM statistic of 0.83 with five data points below the baseline median of 58). For the postintervention phase, all data points were above the baseline median for on-task

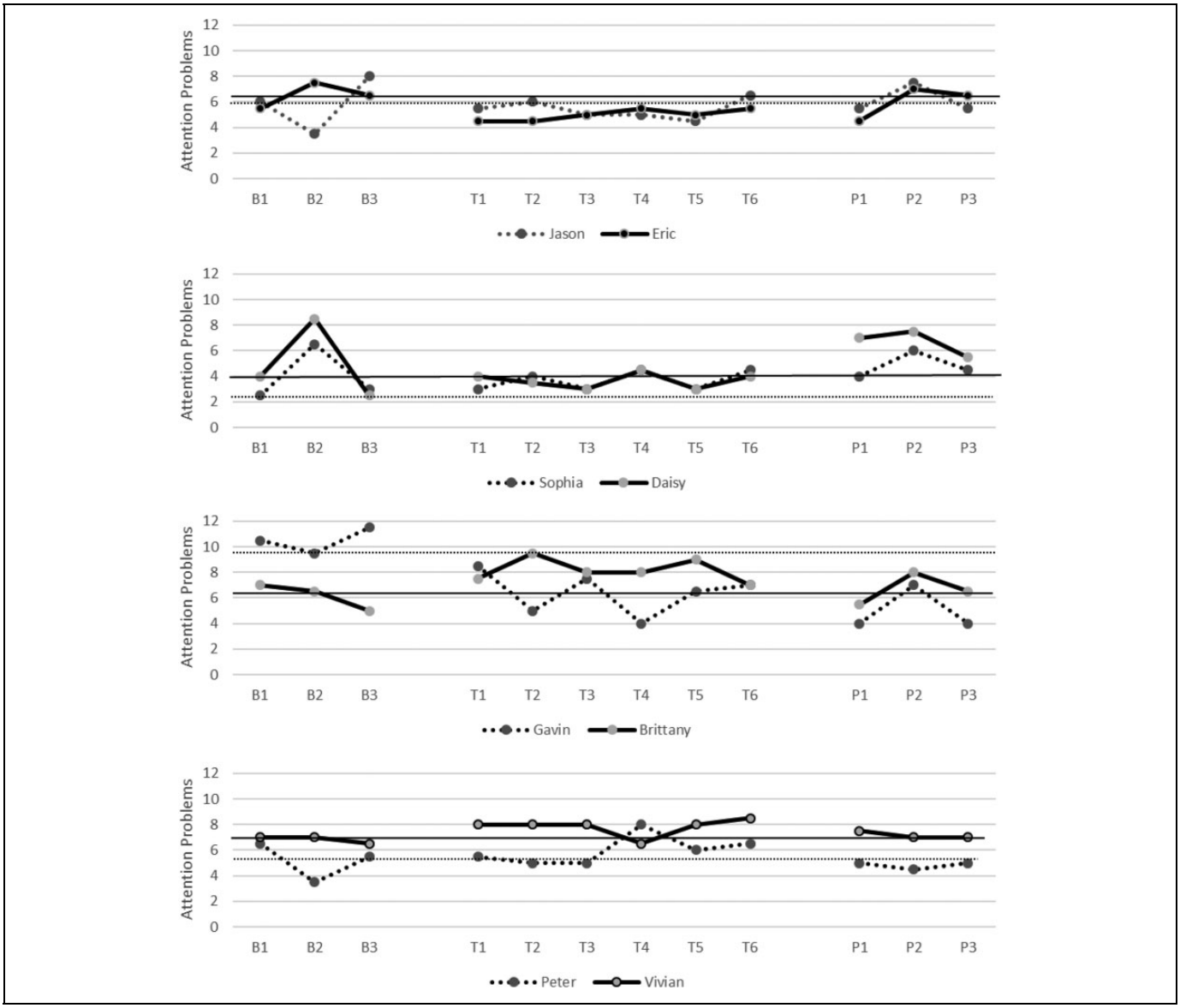

Figure 2. Attention problems.

behavior, two of the three were below for attention problems, and two were below.

Participant 2: Eric

Eric is a 10-year-old fourth grader who is European American. His attention problems score on the TRF was within the borderline range; however, his teacher reported that he has an attention deficit hyperactivity disorder (ADHD) diagnosis and his parents want to avoid giving him medication. His teacher reported that he struggles with self-awareness and managing his behaviors but is kind at times. Items in the TRF on which he scored high included not being able to concentrate, daydreaming, and fidgeting. The subscale ratings for Eric illustrate that the MBAG-C intervention was ineffective for improving on-task behavior (PEM statistic of 0.33 with two data points exceeding the baseline median of 7.5), very effective for improving attention problems (PEM statistic of 1.00 with all data points below the baseline median of 6.5), and very effective for improving mindfulness (PEM statistic of 1.00 with all data points below the baseline median of 74). For the postintervention phase, two of the three data points were above the baseline median for on-task behaviors, one was below for attention problems, and all three were below for mindfulness.

Participant 3: Sophia

Sophia is a 10-year-old fourth grader who is European American. Her TRF attention problems score was in the borderline range. Her teacher stated that she is funny, smart, and athletic; however, she teases others and seems unaware of how her behaviors affect others. Items in the TRF on which she scored

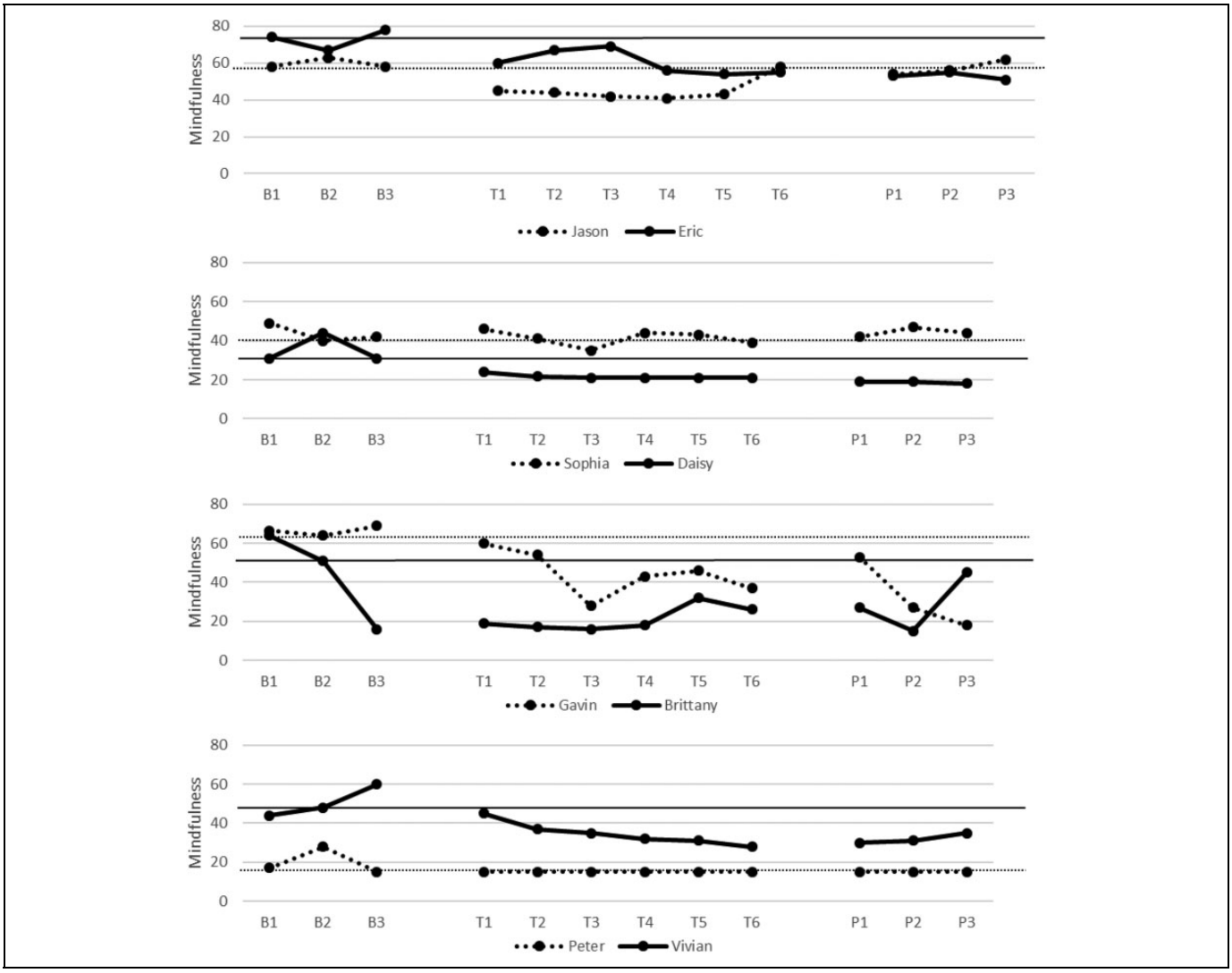

Figure 3. Mindfulness.

high included being inattentive, disturbing others, and talking too much. The subscale ratings for Sophia illustrate that the MBAG-C intervention was debatably effective for improving on-task behavior (PEM statistic of 0.67 with four data points exceeding the baseline median of 8.5), ineffective for improving attention problems (PEM statistic of 0.00 with zero data points below the baseline median of 3), and debatably effective for improving mindfulness (PEM statistic of 0.50 with three data points below the baseline median of 42). For the postintervention phase, one data point was above the baseline median for on-task behaviors, zero was below for attention problems, and zero was below for mindfulness.

Participant 4: Daisy

Daisy is a 9-year-old third grader who is African American. Her TRF attention problems score was in the borderline range. Her teacher reported that she is sweet, but her social behaviors and emotional reactions might be affecting her school performance. She also receives exceptional student education (ESE) services. Items in the TRF on which she scored high included not being able to concentrate, being inattentive, and making odd noises. The subscale ratings for Daisy illustrate that the MBAG-C intervention was debatably effective for improving on-task behavior (PEM statistic of 0.67 with four data points exceeding the baseline median of 7), debatably effective for improving attention problems (PEM statistic of 0.5 with three data points below the baseline median of 4), and very effective for improving mindfulness (PEM statistic of 1.00 with all data points below the baseline median of 31). During Week 2 of the intervention phase, she was absent for 3 days. Therefore, the mindfulness score for that week was calculated using EM procedure. For the postintervention phase, zero of the three data points were above the baseline median for on-task behaviors, zero were below for attention problems, and all three were below for mindfulness.

Participant 5: Gavin

Gavin is a 9-year-old boy in third grade who is African American. His TRF attention problems score was in the borderline range. His teacher reported that he is funny, quick-witted, and tries to make other laugh; however, he also becomes angry and hits, throws things, and yells at his peers and teacher. He receives ESE services. Items in the TRF on which he scored high included difficulty with directions, disturbing others, fidgeting, and talking too much. Gavin started the study a week late after a delay in returning the consent form. The researchers addressed the missing data using the EM procedure. The subscale ratings for Gavin illustrate that the MBAG-C intervention was very effective for improving on-task behavior (PEM statistic of 1.00 with all data points exceeding the baseline median of 2.5), very effective for improving attention problems (PEM statistic of 1.00 with all data points below the baseline median of 10.5), and very effective for improving mindfulness (PEM statistic of 1.00 with all data points below the baseline median of 66.5). For the postintervention phase, all three data points were above the baseline median for on-task behaviors, all were below for attention problems, and all three were below for mindfulness.

Participant 6: Brittany (Comparison Group)

Brittany is a 10-year-old girl in fourth grade who is African American. Her TRF attention problems score was in the borderline range. Her teacher reported that she is kind and wants to connect with others; however, at times, she exhibits immature behavior that causes difficulty with peers. Items in the TRF on which she scored high included fidgeting and talking too much. The subscale ratings for Brittany illustrate that noninvolvement in the treatment was ineffective for improving on-task behavior (PEM statistic of 0.17 with one data point exceeding the baseline median of 6.5), ineffective for improving attention problems (PEM statistic of 0.00 with zero data points below the baseline median of 6.5), and very effective for improving mindfulness (PEM statistic of 1.00 with all data points below the baseline median of 51). For the follow-up phase, all three data points were above the baseline median for on-task behaviors, one was below for attention problems, and all three were below for mindfulness.

Participant 7: Peter (Comparison Group)

Peter is a 10-year-old boy in fourth grade who is European American. His TRF attention problems score was in the borderline range. His teacher reported that he is kind and eager to learn, but he struggles academically because he talks instead of doing his work and has difficulty with peer interactions. Items in the TRF on which he scored high included being inattentive, fidgeting, disturbing others, and talking too much. The subscale ratings for Peter illustrate that the MBAG-C intervention was ineffective for improving on-task behavior (PEM statistic of 0.00 with no data points exceeding the baseline median of 6.5) and ineffective for improving attention problems (PEM statistic of 0.33 with two data points below the baseline median of 5.5). Beginning in the third week of the baseline phase, Peter started to mark the lowest option (1 = *almost never*) for all of the MAAS-C questions and this continued throughout the postintervention phase. Therefore, his data were not analyzed for mindfulness. For the follow-up phase, all three data points were above the baseline median for on-task behaviors and all three were below for attention problems.

Participant 8: Vivian (Comparison Group)

Vivian is a 10-year-old girl in fourth grade who is African American. Her TRF attention problems score was in the borderline range. Her teacher reported that she responds well to feedback, likes to write, and is eager to please. She also lacks empathy and focuses on others' behaviors. Items in the TRF on which she scored high included talking out of turn and talking too much. The subscale ratings for Vivian illustrate that noninvolvement in the treatment was ineffective for improving on-task behavior (PEM statistic of 0.33 with two data points exceeding the baseline median of 6.5), ineffective for improving attention problems (PEM statistic of 0.17 with one data point below the baseline median of 7), and very effective for improving mindfulness (PEM statistic of 1.00 with all data points below the baseline median of 48). However, she rushed through the MAAS-C assessment starting the second week of the nonintervention phase. The researcher tried to encourage her to slow down; however, she continued to answer the questions quickly throughout every following administration of the assessment. During the follow-up phase, two of the three data points were above the baseline median for on-task behaviors, zero were below for attention problems, and three were below for mindfulness.

RSR Comparison Between Groups

On-task behavior. The proportion of intervention data points above the baseline median was 22/30 (0.67) for the treatment group and 3/18 (0.17) for the comparison group. The calculated RSR (.67/.17) was 3.94, indicating that students in the MBAG-C were 3.94 times more likely to improve their on-task behavior across the intervention than the comparison group. For the follow-up phase, the proportion of on-task data points above the baseline median was 9/15 (0.6), compared to the comparison group being 8/9 (0.89). The calculated RSR (0.60/0.89) was 0.67, indicating that students in the MBAG-C were 0.67 times more likely than the comparison group to maintain improved on-task behaviors following the intervention.

Attention problems. The proportion of intervention data points below the baseline median was 19/30 (0.63) for the treatment group and 3/18 (0.17) for the comparison group. The RSR calculation (0.63/0.17) was 3.71, indicating that students in the MBAG-C were 3.71 times more likely than the comparison group to improve their attention problems across the

intervention. For the follow-up phase, the data points below the baseline median was 5/15 (0.33) for the intervention group and 4/9 (0.44) for the comparison group. The calculated RSR (0.33/0.44) was 0.75, indicating that students in the MBAG-C were 0.75 times more likely than the comparison group to maintain improvements for attention problems following the intervention.

Mindfulness. The proportion of intervention data points below the baseline median was 26/30 (0.87) for the treatment group and 12/12 (1.00) for the comparison group. The RSR calculation (0.87/1.00) was 0.87, indicating that students in the MBAG-C were 0.87 times more likely than those in the comparison group to improve their mindfulness across the 6 weeks. For the follow-up phase, the data points below the baseline median was 11/15 (0.73) for the treatment group, compared to 6/6 (1.00) for the comparison group. The calculated RSR (0.73/1.00) was 0.73, indicating that students in the MBAG-C were 0.73 times more likely than the comparison group to maintain improved mindfulness for 3 weeks after the intervention. Based on the RSR comparison between groups, the participants in the MBAG-C were more likely to improve in attention problems and on-task behaviors during the 6-week intervention than the comparison group, but the treatment effect decreased somewhat during the 3-week follow-up period.

Discussion

This study involved an A-B-A SCRD to examine the effectiveness of a mindfulness intervention on improving on-task behaviors, attention problems, and mindfulness. The results revealed that for improving attention problems, the MBAG-C was very effective for two students, debatably effective for two, and not effective for one; for improving on-task behavior, it was very effective for two students, debatably effective for two, and not effective for one; and for improving mindfulness, it ranged from very effective ($n = 3$) to debatably effective ($n = 1$) and to moderately effective ($n = 1$). The results align with existing research showing that mindfulness positively effects children's attention (Flook et al., 2010; Napoli et al., 2005; Semple, Lee, Rosa, & Miller, 2010). However, the current study is unique in that it focused on a brief intervention (one weekly 30-min session for 6 weeks) with school counselors facilitating the intervention.

The current study is unique in that it focused on a brief intervention (one weekly 30-min session for 6 weeks) with school counselors facilitating the intervention.

For attention problems and on-task behavior, the RSR revealed that the MBAG-C group participants, across the intervention were 3.94 times more likely than those in the control group to improve their on-task behavior and 3.71 times more likely to improve their attention problems. This demonstrates promise for school counselors using the MBAG-C with students to improve their attention problems, which may support academic success. This is consistent with previous research demonstrating that students can increase their learning performance by being more focused (Langer, 1993; Rabiner et al., 2000). With mindfulness practices, students learn to initiate, monitor, and shift their attention with nonjudgmental awareness (Flook et al., 2010; Semple et al., 2010).

The mindfulness-based attention group for children group participants, across the intervention, were 3.94 times more likely than those in the control group to improve their on-task behavior and 3.71 times more likely to improve their attention problems.

The RSR calculation for mindfulness between treatment and comparison groups was 0.87/1.00 (0.87), indicating that MBAG-C group students were 0.87 times more likely to improve their mindfulness. Students in the MBAG-C group were also more likely to pay attention to the MAAS-C questions, while two of the three in the comparison group rushed through the questions during most administrations. Why MBAG-C did not show effectiveness in improving mindfulness is unclear. It may be related to the fact that MAAS-C was designed to capture mindfulness in slightly older age-group. Furthermore, the students in the comparison group may have also been less interested in and had less patience to complete the MAAS-C since they did not participate in the intervention.

Study Limitations and Recommendations for Research

Although this study included a comparison group to strengthen internal validity, SCRD poses threats to internal validity (i.e., maturation). Due to the small sample size, several variables may have influenced the results (e.g., students' learning styles, teachers' teaching styles). Replication studies would help address these concerns. Although the school counselors were encouraged to practice mindfulness before and during the MBAG-C, the researcher did not control for their practice. Therefore, their mindfulness practices may have affected students' learning and practices. Another limitation was that, although experts recommend that beginners start mindfulness practice in a quiet environment with few distractions because mindfulness requires attention to one's internal sounds and experiences in the moment, some sessions occurred during lunch due to scheduling difficulties. As a result, students needed to practice mindfulness while eating lunch and the room was next to the noisy cafeteria. Furthermore, having one researcher present as an observer may have affected the objectivity of the school counselor observers. The study occurred during the last few months of the school year and the intervention's schedule had variations. One teacher reported more behavioral issues during the last week of observations, which might have been due to unstructured school activities and

parties taking place before the summer break. Furthermore, the baseline data had great fluctuation for some participants (e.g., Brittany's on-task behavior). Future research may involve longer baseline data collection periods to strive toward establishing a stable baseline.

The MAAS-C has strong psychometrics for children; however, it may not be appropriate for multiple uses in a short time frame. The MAAS-C was normed with children in fourth through seventh grades (Lawlor et al., 2014), and this study involved third and fourth graders. We found no assessments measuring children's mindfulness with children younger than fourth grade or studies that required repeated administration beyond a pre-/posttest format. Furthermore, previous mindfulness studies with children (e.g., Flook et al., 2010; Napoli et al., 2005; Semple et al., 2010) did not measure the effectiveness of mindfulness.

Future research may focus on addressing the limitations identified in this study. We experienced difficulty in getting the parental consent letter returned. This may have been a particularly challenge because the participants struggled with attention problems and, therefore, with organization skills, which are affected by their ADHD diagnosis (Stormont-Spurgin, 1997). In future studies, scholars may seek to obtain verbal consent, as was also used in this study, or use other recruitment strategies. We focused on students struggling with attention problems including students with an ADHD diagnosis. However, we did not control for medication use, which researchers may examine in the future. Due to the relationship between attention problems, academic success, and prosocial skills (i.e., Bellanti & Bierman, 2000; Duncan & Magnuson, 2011), future research may also focus on examining whether the MBAG-C contributes to improved academic performance and social relationships. Researchers could also focus on examining the effectiveness of using the MBAG-C to address other constructs (e.g., stress, anxiety, self-esteem, self-regulation).

Implications for School Counselors

The results provide some support for using mindfulness to address students' attention problems and on-task behavior. With mindfulness training, school counselors can be instrumental in introducing the concepts of mindfulness in schools, and this can be beneficial for students and for school personnel. School counselors can teach mindfulness strategies through small-group sessions, classroom lessons, and individual sessions. For example, school counselors can help students practice the concepts of mindfulness (e.g., focusing on breathing, body sensations) in an individual session to help them cope with difficulty focusing in class. With continuous mindfulness practice, students can learn to direct their attention. Mindfulness may also help students learn self-management skills, which are crucial for growth and development (Semple, Reid, & Miller, 2005). With self-management techniques, children increase their ability to manage their attention, increase their self-awareness, and reduce their anxiety (Semple et al., 2005). School counselors can facilitate mindfulness small groups to practice mindfulness skills with students to enhance their self-management and self-awareness skills. This may involve facilitating the MBAG-C intervention used in this study or other mindfulness curriculums (e.g., Attention Academy [Napoli et al., 2005], InnerKids [Flook et al., 2010], and MindUP [Schonert-Reichl & Hymel, 2007; Schonert-Reichl & Lawlor, 2010]) with students. Improved self-awareness may also help decrease reactivity during challenging events (Thompson & Gauntlett-Gilbert, 2008). To help students apply what they learn to their daily life, school counselors can encourage students to practice mindfulness outside of sessions. This may include training teachers to use mindfulness with all students as a regular classroom practice in addition to using it as a classroom strategy with individual students struggling with attention. Furthermore, school counselors may offer family workshops and send information home for parents on using mindfulness at home. Mindfulness may also foster awareness for school counselors and other school personnel.

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The present study involved only six sessions to promote feasibility; school counselors may extend the intervention. They may also encourage students to practice mindfulness when they see them in the cafeteria, hallways, and classrooms. Ongoing reminders may help students integrate mindfulness and increase awareness. The study also supports school counselors obtaining data to examine interventions using SCRD. The results show promise for school counselors using the MBAG-C to address students' attention problems and on-task behavior, but more research is needed on this new intervention. Nevertheless, school counselors may seek to integrate mindfulness strategies within the school environment to strive for improving the academic success of all students including those with attention problems.

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