Teachers' Characteristics and Ratings for Evidence-Based Behavioral Interventions

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ABSTRACT: The vast majority of schools today are not prepared to support children's social behavior needs. One challenge is that teachers may not be knowledgeable of evidence-based practices that can be utilized with children. This study explored teachers' agreement ratings for evidence-based and nonevidence-based behavior management practices for children with emotional and behavior needs, and whether specific teacher characteristics (educational level, amount of education and training using behavioral interventions, and position as a special or general educator) yielded differences in ratings. A survey was developed based on an extensive review of the literature in this area. The survey questions that were the main focus for this study were taken from an Institute for Educational Sciences practice guide. A total of 363 teachers of early childhood and elementary-age students served as participants. Overall, special educators had higher ratings for evidence-based practices and lower ratings for nonevidence-based practices than general educators' ratings. Special educators also reported more confidence in their interventions. Graduate level of education was associated with lower ratings for nonevidence-based practices than undergraduate level. Teacher-rated level of training and education implementing behavior interventions was not associated with agreement with evidence or nonevidence-based practices. These findings are discussed.

■ Research-based interventions to prevent or ameliorate emotional and behavioral problems are available and could be utilized by school professionals (Greenberg, Domitrovich, & Bumbarger, 2001; Hoagwood et al., 2007). With the current emphases on prevention and using evidence-based practices in schools it is critical to investigate teachers' knowledge of evidence-based practices and characteristics of teachers associated with knowledge. For the prevention of behavior disorders, it is critical that teachers' use effective practices for working with children with behavior problems. However, teachers, who are critical primary prevention interventionists, have reported both a lack of preparation and knowledge of interventions for supporting children with social behavioral needs (Reinke, Stormont, Herman, Puri, & Goel, 2011). The purposes of this study are to further investigate teacher knowledge of specific evidence-based practices and to determine if specific teacher characteristics are associated with agreement ratings for evidence-based and nonevidence-based behavioral interventions.

One teacher characteristic that has been documented as an important variable associated with ratings and use of evidence-based behavioral supports is educational level. For example, in research with preschool teachers, teachers with graduate-level education backgrounds rated behavior supports for children with behavior problems as more important than teachers with a high school level education (Stormont, Lewis, & Covington, 2005). Recently, teachers' level of education has also been found to be associated with researchers' independent ratings of severity of behavior problems in the classroom (Kim & Stormont, in press). Teachers with lower educational levels had more severe observed behavioral problems for children in their classroom than those with higher educational levels. However, other research has not documented that early childhood teachers' educational level was associated with stronger classroom management practices (Early et al., 2006). Overall, there is limited research with teachers of elementary aged students and their use of evidence-based behavioral practices for children with behavioral needs (Zentall & Stormont-Spurgin, 1995). The majority of available research with educational level has focused on the impact this variable has on academic practices (Early et al., 2006; Early et al., 2007).

It is also critical to evaluate knowledge of evidence-based behavioral practices for different types of educators. There has been a clear

emphasis on increased collaboration between general and special educators to support children with diverse learning characteristics and special needs (Turnbull, Turnbull, Erwin, Soodak, & Shogren, 2011). However, little research has explored whether special educators have more knowledge and skills of evidence-based practices to support children with behavioral needs than general educators (Martinussen, Tannock, & Chaban, 2011). Given the importance of accountability for all students and the current focus on tiered systems of support for identifying children who need more academic and behavioral support, it is important to know if specific personnel may be better suited to support other professionals in implementing effective practices for children. Special education teachers often have specialized training in data collection and in conducting functional behavioral assessments, which are key evidence-based strategies for supporting children with behavioral problems (Misra, 2006). General educators have identified many needs for additional training, including behavioral management and assessment (Buell, Hallam, & Gamel-McCormick, 1999). If special educators do have more knowledge of such practices, then they could be utilized when making decisions regarding school-wide and classroom level practices.

However, the limited literature on special and general educators' feelings of preparedness to support inclusion, social skills development, and evidence-based practices does not clearly support the notion that special educators are indeed in a role to provide this support (Buell et al., 1999; Jones, 2009; Misra, 2006; & Pavri, 2004). For example, research on general and special educators' feelings of preparedness to support children with social behavior needs did not find that special educators reported more preservice education than general educators, and the vast majority of both types of educators reported a need for additional training (Pavri, 2004). Also, recent research found that 41% of special educators (compared to 76% of general educators) reported they had no training in the area of supporting children with attention deficit hyperactivity disorder (Martinussen et al., 2011).

Finally, perception of preparedness in the area of using behavioral interventions is another important characteristic to assess. Prior research has found that previous educational experiences, especially for early childhood educators, may be lacking in rigor (e.g., reading magazine articles) and not associated with greater knowledge of children's behavioral needs (e.g., Stormont & Stebbins, 2005). In terms of professional development needs, it is important to know if teachers' perceptions of education and training in behavioral supports predict higher agreement ratings with evidence-based practices. More specifically, if teachers perceive they have substantial education and training in this area, does that predict greater support for actual evidence-based practices? This is a critical area of need as more schools are trying to build capacity to meet the needs of children in their schools, including those with or at risk for behavior disorders.

Current Study

Overall, there is limited research in this area and, to date, research has not investigated teachers' agreement ratings for specific evidence-based and nonevidence based practices for children with emotional and behavioral needs. Research has also not explored teacher characteristics that may contribute to their ability to select evidence-based practices that are essential to use with children with behavior problems. To this end, main research questions investigated in this study include: (1) Do teachers with specific characteristics (i.e., position as special or general educator, educational level, past education and training) have statistically significantly higher importance ratings for evidence-based practices? (2) Do teachers with specific characteristics have statistically significantly higher importance ratings for nonevidence-based practices? (3) Do teachers with specific characteristics have statistically significantly higher confidence in interventions overall and specifically in their ability to select evidence-based practices? and (4) In general, do teachers rate evidence-based practices as evidence-based? Do they rate nonevidence-based as nonevidence-based?

Method

Participants

Participants for the current study included 328 general educators and 35 special educators. The participants represented rural, urban, and suburban school districts. All participants completed the survey online. Demographic information collected included teaching position, ethnicity, gender, highest education, and years of teaching experience. Most participants were female (96%) and

European American (97.9%). A small percentage of participants were African American (1.2%), multiracial (0.6%), or Asian American (0.3%). Most participants (63%) held a Master's degree and 37% held a bachelor's degree. Participants had an average of 8.98 years of teaching experience. The average years of teaching experience for the state in which teachers were surveyed is 12.2 years. Special educators and general educators did not differ in their years of teaching experience F (1, 361) = .154, $p = .695$. Special educators had a mean of 10.51 years and general educators had a mean of 8.82 years.

Measures

Mental Health Needs and Practices in Schools Survey

The authors of this study developed a 42-item survey, which includes open-ended, Likert, and multiple choice response formats. Survey items reflect three main types of categories including school and participant demographics; perceptions and attitudes toward children's mental health and the school's role in promotion; and perceptions, attitudes, and knowledge pertaining to school-based evidence-based practices. The current study investigated teachers' characteristics including educational level (graduate or undergraduate), position (special educator or general educator), and level of education and training specifically related to using behavioral interventions (none/minimal, moderate amount, substantial amount). Specific attitude questions identified for this study include: "I am confident that the interventions and practices I use have the desired impact on the student" and "I am aware of the issues that need to be considered while selecting a practice backed by research evidence." Participants rated their agreement with these items according to a 5-point Likert scale, with 5 representing strongly agree and 1 representing strongly disagree. A 5-point Likert scale was also the response format for the 15 items representing evidence-based and nonevidence-based practices, which are described next (see Table 1).

Within the survey, the following operational definition of evidence-based practices was provided: "treatment approaches, interventions, and services, which have been researched and shown to make a positive difference for children" (p. 4, Association for Children's Mental Health, 2004). Participants were asked to respond to items based on whether they were evidence-based practices for working with children with mental health issues and needs defined as "any psychological, social, emotional, or behavioral problem that interferes with the students' ability to function." Survey items were initially taken from an extensive review of the literature (Aarons, 2004; Chorpita, Becker, & Daleiden, 2007; Elliot & Trueting, 1991; U.S. Department of Education, National Center for Education Evaluation and Regional Assistance, 2003; White & Kratochwill, 2005). The focus of this study is on the question of evidence-based practices, which included 11 items from the IES practice guide from the What Works Clearinghouse (Epstein, Atkins, Cullinan, Kutash, & Weaver, 2008), with four nonexamples interspersed throughout (Alberto & Troutman, 2009). The nonexamples were selected from the authors' extensive backgrounds in the area of behavioral interventions and piloted with national experts to confirm their item nominations. This guide includes behavioral practices that are also important to consider for preschool children (Stormont et al., 2005). The internal consistency (alpha) for the 15 items in this study was .84.

A draft of the survey was piloted with a number of doctoral students in school psychology, counseling psychology, and special education. After revisions were made based on pilot data, content validity was established based on feedback from five nationally known scholars in the area of school-based mental health practices. The five experts verified that the items on the survey were important to assess to further understand school-based issues for supporting children with social, emotional, and behavioral needs. The survey was also administered to ten individuals representing different professions including general education teachers, special education teachers, school counselors, school psychologists, and administrators. Individuals were asked to consider the language and content of the survey and provide recommendations for changes. Data on the amount of time to complete the survey were also collected. An electronic version of the revised survey was created on Survey Monkey. This version was also piloted with 25 faculty and graduate students with expertise in the area of school based mental health. The feedback from this group was used to revise the survey a final time before it was sent to schools. Average completion time was 15 to 20 minutes.

Teacher Agreement Ratings for Evidence-Based and Nonevidence-Based Interventions ($n = 363$)

Items	A/SA	N	D/SD
1. Identify what triggers and reinforces a problem.	91%	7%	1%
2. Observe what happens before and after a problem behavior.	89%	9%	2%
3. Teach skills by providing examples, practice, and feedback.	89%	10%	1%
4. Adapt or vary instructional strategies to increase opportunities for academic success and engagement.	89%	10%	1%
5. Identify where the student needs explicit instruction for appropriate behavior.	89%	9%	2%
6. Observe and record the frequency of a behavior problem.	88%	9%	3%
7. Revisit, reinforce, and practice behavioral expectations in the classroom.	88%	11%	1%
8. Collaborate with other teachers for continued guidance and support.	87%	11%	2%
9. Modify classroom environment to encourage instructional momentum.	86%	13%	1%
10. Manage consequences so that reinforcers are provided for appropriate behavior and withheld for inappropriate behavior.	81%	17%	2%
11. Concretely describe behavior problems and the affects on student learning.	75%	21%	4%
12. Have a detailed discussion about the problem with a child following their misbehavior.	63%	27%	10%
13. Place children who refuse to participate in class instruction or activities in time out.	32%	36%	32%
14. Retain students who are struggling academically.	31%	37%	32%
15. Repeated use of in school suspension (i.e., student is held out of classroom, but still at school) for a child with behavior problems.	25%	35%	40%
16. I am aware of the issues that need to be considered while selecting a practice backed by research evidence.	61%	29%	10%
17. I am confident that the interventions and practices I use have the desired impact on the student.	44%	45%	11%

Note. A/SA = agree or strongly agree; N = neutral; D/SD = disagree or strongly disagree. Items 1–11 are evidence-based practices included in the survey, 12–15 are nonevidence-based, and 16–17 are knowledge and confidence questions.

Procedures

Participants were first recruited by the second and third authors at a meeting with a group of superintendents in the state of Missouri. The authors were presenting information to the group on opportunities for collaboration, including working to understand the needs of school districts by surveying current knowledge of evidence-based practices for mental health in schools. Eleven school districts were in attendance and invited to participate. Superintendents were informed of the purpose of the study, which was to administer a survey to early childhood and elementary staff on their perceptions and knowledge of mental health needs and specific practices for addressing mental health needs in schools. As an incentive for participation, superintendents were also told that each district would be provided with a report including data from their schools. Of the 11 superintendents at the meeting, five (45%) agreed to allow their districts to participate.

District superintendents who agreed to participate were contacted and asked to provide contact information for the appropriate administrators for primary and elementary programs and schools in their district. They were also asked to inform this contact person of the nature of the research project. School administrators were then contacted by electronic correspondence or telephone and informed of the purpose of the study and invited to participate. Permission to participate was also secured online. Additional lottery-based incentives for participation included the chance to win $500 for the school if 85% of staff completed the survey and the chance for individuals to win a $25 gift card. A total of 28 of 40 (70%) schools agreed to participate and administrators provided contact information for professionals in their schools for recruitment. Specifically related to teachers, 590 teachers were asked to participate and 292 participated for an overall response rate of 49%.

The initial group of 292 teachers was included in other analyses (Reinke et al.,

2011). In order to obtain more participants for this study, especially special educators, more school districts were recruited. During a meeting in which the authors presented information to school districts about findings from the initial survey, two additional school districts that had not originally participated agreed to participate in the study. The procedures to recruit participants were the same as the first round of recruitment. The only difference was that administrators were receiving information summarizing the need for more professional development for teachers in the area of supporting children with emotional and behavioral needs. The administrators then provided the names of individuals to contact at the school level in their district. All elementary schools in each school district participated, resulting in the recruitment of an additional four elementary schools in which 100% of the teachers participated in the survey ($n = 71$).

Overall response rates for the total group include 72% of schools and 55% of teachers. A recent study found that a survey response rate of 40% or more was adequate for reliable accurate data (Kramer, Schmalenberg, Brewer, Verran, & Keller-Unger, 2009). The average response rate for online surveys across 63 studies was 40% (Cook, Heath, & Thompson, 2000). Therefore, the current study response rate is adequate and above average for online research.

Results

For the independent variable position, given the large discrepancy between numbers in groups, homogeneity of variance was analyzed to ensure parametric statistics were appropriate for the data. Levine tests for homogeneity of variance were run for both composite scores and the two confidence items. Levine tests were not significant or even approaching significance ($p < .10$) for any variable according to the means, medians, medians and adjusted degrees of freedoms or the trimmed means.

To address the purposes of this study, data were analyzed in three ways. First, responses to individual items are summarized descriptively. Second, teacher characteristics were analyzed to determine if they yielded significantly different ratings for evidence-based and nonevidence-based practices. To control for the number of tests run and Type I error, composite

scores were created for both evidence-based practices and nonevidence-based practices. Composite scores were the sum of the item scores for evidence-based and nonevidence-based items. When significant results were yielded for the composite scores for one of the independent variables, additional analyses were conducted on individual items. For the independent variable with more than two levels, perceived education and training in the area of behavioral interventions, follow-up Tukey's tests were conducted to determine if and where groups were significantly different. Third, effect sizes were calculated for significant items to determine the magnitude of effects (Cohen, 1988). Using Cohen's guidelines for interpreting scores, d scores can be interpreted as small (from 0.20 to 0.49), medium (from 0.50 to 0.79), and large (above 0.80).

Teachers' Ratings of Practices

As presented in Table 1, teachers overwhelmingly agreed or strongly agreed that the 11 evidence-based practices were indeed evidence-based. The lowest percentage (75%) was for concretely describing behavior problems and the affects on student learning. The item with the highest rating (91%) was for identifying what triggers and reinforces a problem. The four items reflecting nonevidence-based practices had the lowest ratings, ranging from 25% for use of school suspension to 63% for use of attention following misbehavior. The majority of teachers reported being aware of issues that need to be considered when selecting evidence-based practices. However, less than half (44%) of teachers reported feeling confident about the impact the interventions they select have on students.

Group Comparisons on Knowledge of Interventions

A significant finding was yielded for the ANOVA including the independent variable position and the composite score for items representing evidence-based practices F (1, 325) = 11.93, p = .001. Of the 11 items included in the composite, significance ($p < .05$) was found for 10 of the individual item analyses (see Table 2). For each of the means for significant evidence-based practices, special educators had higher ratings than general educators. Effect sizes were calculated for the significant items to determine the magnitude of the differences between general and special

TABLE 2
Univariate Statistics and Teacher Means (SDs) for Evidence-Based and Nonevidence-Based Interventions

Item	Gen Ed	Sp Ed	F ratio	p	d
1. Concretely describe behavior problems and the effects problem behaviors have on learning.	3.80 (.67)	4.06 (.77)	4.25	.040	.38
2. Observe and record the frequency of problem behavior.	4.01 (.63)	4.45 (.57)	14.41	.000	.70
3. Observe and record what happens before and after problem behavior.	4.05 (.60)	4.45 (.62)	12.18	.001	.65
4. Identify what triggers and reinforces problem behavior.	4.14 (.60)	4.58 (.56)	15.27	.000	.72
5. Revisit, reinforce, and continue to practice behavior expectations for classroom.	4.18 (.66)	4.48 (.63)	6.29	.013	.46
6. Modify classroom environment to encourage instructional momentum.	4.07 (.65)	4.39 (.56)	6.71	.010	.50
7. Adapt or vary instructional strategies to increase opportunities for academic success and engagement.	4.13 (.61)	4.35 (.55)	3.71	.055	-
8. Identify where the student needs explicit instruction for appropriate behavior.	4.08 (.63)	4.32 (.54)	4.29	.039	.39
9. Teach skills by providing examples, practice, and feedback.	4.12 (.64)	4.42 (.62)	6.20	.013	.47
10. Manage consequences so that reinforcers are provided for appropriate behavior and withheld for inappropriate behavior.	3.95 (.73)	4.26 (.73)	4.91	.027	.42
11. Collaborate with other teachers for continued guidance and support.	4.12 (.67)	4.42 (.67)	5.38	.021	.44
12. Retain students who are struggling academically and behaviorally.	3.02 (1.02)	2.39 (.76)	11.26	.001	.62
13. Repeated use of in school suspension (i.e., student is held out of classroom, but still at school) for a child with behavior problems.	2.86 (1.03)	2.39 (.92)	5.90	.016	.46
14. Place children who refuse to participate in class instruction or activities in time out.	2.99 (1.03)	2.71 (1.04)	2.07	.151	-
15. Have a detailed discussion about the problem with a child following their misbehavior.	3.67 (.86)	3.50 (1.27)	.96	.329	-
16. I am aware of the issues that need to be considered while selecting a practice backed by research evidence.	3.59 (.80)	3.87 (.81)	3.42	.065	-
17. I am confident that the interventions/practices I use have the desired impact on the student.	3.32 (.71)	3.65 (.66)	5.83	.016	.47

Note. Items 1–11 are evidenced-based, 12–15 are nonevidence-based, and 16–17 are issues and confidence questions.

educators; four of the effect sizes were in the medium range, from .50–.72, and six were in the small effect range (.38–.47). The three items with the largest effects (.65–.72) were ''Identify what triggers and reinforces problem behavior,'' ''Observe and record the frequency of problem behavior,'' and ''Observe and record what happens before and after problem behavior.''

The ANOVA for position and the composite score of items representing nonevidence-based practices was also significant F (1, 323) = .85, p = .004. Univariates were employed on the individual items and significant group differences were yielded for two of the four items. For each of the means for significant nonevidence-based practices, general educators had higher ratings than special educators. One effect size was medium and one was small. The medium effect was found for the item on retaining students who are struggling.

A significant finding was also yielded for the ANOVA including the independent variable educational level and the composite score for items representing nonevidence-based practices F (1, 325) = 11.93, p = .015. Two of the four individual univariate analyses yielded significant differences between undergraduate and graduate levels of education; effect sizes for both items were small (see Table 3). Differences were not found for educational level (graduate, undergraduate) and agreement ratings for evidence-based practices F (1, 325) = .374, p = .541.

Differences on ratings for evidence-based F (2, 316) = .561, p = .571 and nonevidence-based practices F (2, 314) = .018, p = .982

Univariate Statistics and Teacher Means (SDs) for Nonevidence-Based Interventions by Educational Level

Item	Master's Degree	Bachelor's Degree	F	p	d
Retain students who are struggling academically and behaviorally.	2.85 (1.00)	3.15 (.997)	7.019	.008	.30
Repeated use of in school suspension for a child with behavior problems.	2.73 (.982)	2.95 (1.09)	3.55	.061	-
Place children who refuse to participate in class instruction/activities in time out.	2.94 (1.06)	3.01 (.996)	.360	.549	-
Have a detailed discussion about the problem with a child following their misbehavior.	3.56 (.934)	3.81 (.805)	5.665	.018	.28

Note. 1 = Strongly disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree.

were not found for the variable-rated education and training on behavior interventions.

Group Comparisons on Confidence

The independent variables (position, educational level, and reported level of training and education) were also analyzed using ANOVAs for differences for the two items, ''I am confident that the interventions I use have the desired impact on students'' and ''I am aware of the issues that need to be considered when selecting practices backed by research.'' The ANOVA with position entered as the independent variable did yield significant differences for the item on confidence (see Table 2). Special educators had significantly higher perceptions of confidence with interventions selected for children than general educators. No differences were documented for the item on issues that need to be considered when selecting evidence-based practices.

Also, for the ANOVA with the independent variable rated education and training using behavioral interventions, significant differences were also yielded for the confidence variable $F(2, 319) = 10.928$, $p = .000$. Follow-up Tukey's comparisons were conducted given the three levels of education/training (none/minimal, moderate, substantial). Tukey's mean comparisons indicated that each group differed significantly ($p < .05$) from each other, and the group with rated no/minimal education and training had the smallest mean for confidence ($n = 57$, $M = 3.02$; $SD = .767$) followed by the moderate training group ($n = 179$, $M = 3.35$; $SD = .697$). The substantial group had the highest mean for confidence ($n = 86$, $M= 3.57$; $SD = 624$). The effect size for

the mean differences between groups follow: the effect size for the no/minimal education group and the moderate group was medium ($d = .46$), the effect for the moderate to substantial group was small ($d = .31$), and the effect size for the no/minimal and the substantial group was large ($d = .77$). No differences were documented for this variable and issues to consider when selecting practices backed by evidence $F(2, 319) = 2.336$, $p = .098$.

The ANOVAs with educational level entered as the independent variable did not yield significant differences for the confidence items $F(1, 326) = .332$, $p = .565$ or issues and evidence-based practices items $F(1, 326) = .016$, $p = .900$.

Discussion

It is important to understand potential barriers to teacher adoption and implementation of evidence-based interventions for children with behavior problems. Determining whether teachers can identify or feel confident in their selection and use of evidence-based interventions can inform the field and be useful in bridging the gap between research and practice. Overall, descriptive data indicate that, in this study, most teachers positively identified the 11 evidence-based practices published in the IES practice guide for reducing behavior problems. The ratings for nonevidence-based practices were more variable. The nonevidence-based practice with the highest percentage of educators agreeing or strongly agreeing that it was an evidence-based practice was ''Have a detailed discussion about the problem with a child following their misbehavior,'' with 63% of educators agreeing that this was an

evidence-based practice. At least one in four educators rated they agreed that the other three nonevidence-based practices were evidence-based. Furthermore, only 44% of educators were confident that the interventions they use have the desired impact on their students, and 63% were aware of issues that need to be considered while selecting a practice backed by research evidence.

The additional research questions for this study included examining if there were significant differences on agreement with evidence-based practices, nonevidence-based practices, and confidence ratings for teachers with different characteristics. Findings include the teacher characteristic of being a special educator was the only characteristic that yielded both higher ratings for evidence-based practices and lower ratings for nonevidence-based practices. Special educators were also more likely than general educators to endorse that they felt more confident in their intervention selections. These findings contradict similar past research. One study did not find that special educators had higher ratings than general educators for preferred instructional or behavioral management practices specifically for children with ADHD (Martinussen et al., 2011). Furthermore, past qualitative research found that only 4 of 10 new special education teachers were ''definitive supporters'' of using research to guide the selection of practices (Jones, 2009).

Educational level was not associated with ratings for evidence-based practices but small effect sizes were found for lower ratings for two nonevidence-based practices. For these two items, teachers with graduate degrees had lower ratings than teachers with undergraduate degrees. It may be that teachers with graduate level degrees have taken more recent coursework or have read more in research journals that have clearly identified these practices (attention following misbehavior, retention) are not research based; however, it is also important to note the effect sizes for these items were small. Past research found teachers with graduate-level education backgrounds rated behavior supports for children with behavior problems as more important than teachers with a high school level education; however, no differences were documented between teachers with graduate and undergraduate levels of education (Stormont et al., 2005). Other past research yielding differences for educational level with early childhood educators also includ-

ed a wider range of educational levels (e.g., associates degree; Kim & Stormont, in press). In the current study, only undergraduate and graduate levels of education were represented. Thus, our findings corroborate extensive research that has been done in the development of early academic skills that has found that teachers' educational level is not as predictive of children's achievement as other variables (Early et al., 2006; Early et al., 2007).

Interestingly, teachers' ratings of the amount of education and training they have received in using behavioral interventions were not associated with ratings of evidence-based or nonevidence-based practices. Thus, teachers with no/mimimal reported education and training did not differ in their agreement ratings from those who reported substantial (or moderate) levels of training. However, teachers did differ in their confidence levels in relation to their perceptions of the impact of their interventions for students. This supports the need to both specifically assess teacher agreement ratings for specific practices and use direct observation of teachers (where feasible) to determine teachers' use of behavior supports for children with behavior problems. However, more research is needed in this area. Other research in this area found that teachers' ratings of their level of training on ADHD was associated with greater reported use of recommended practices (Martinussen et al., 2011). It may be that the type of training and education teachers in the current study had surrounding behavioral practices did not support increased knowledge of the specific practices in the IES guide on evidence-based practices.

Implications and Directions for Future Research

The findings from this study have many implications for practice and future research. First, as many as one in four to well over half of teachers positively rated nonevidence-based practices. The finding that 63% of teachers positively rated the item ''Have a detailed discussion about the problem with a child following their misbehavior'' is interesting. The reason a large number of teachers agreed with this item may be due to the fact that teachers are often advised by professionals in preservice or inservice professional development to use interviews, think sheets, and processing types of activities with children

following misbehavior. This is a problematic behavioral practice because if a child is engaging in inappropriate behavior for attention-seeking purposes, this attention following misbehavior will serve as a positive reinforcer for the child and he or she will increase that behavior to receive the attention (Alberto & Troutman, 2009).

In addition, the majority of teachers in this study did not feel confident in their intervention selections and many teachers did not feel confident selecting evidence-based practices. Confidence is important to consider as it reflects underlying knowledge and skills. If teachers do not feel confident identifying evidence-based practices, then more support is needed, given the need to identify and use evidence based practices. The complex interactions among teachers' characteristics, their support structures in schools and the broader professional community (e.g., researchers) all come into play when considering whether teachers' adopt evidence-based practices and children subsequently benefit. Perhaps the first system to impact teachers' knowledge of evidence-based practices is their preservice preparation. Accordingly, preservice general education programs should provide more training in the area of designing and interpreting research to demystify the process and make it more likely teachers could identify a practice that was evidence-based. Further, findings from this study underscore the importance of professional development opportunities for practicing teachers on identifying and evaluating their use of evidence-based practices for children with behavior problems. Past research found that ongoing professional development and support were cited as major contributors to the use of research to guide practices in the classroom (Jones, 2009).

On a broader scale, the increased use of system-wide prevention models, such as Positive Behavior Interventions and Supports (PBIS), reflects a positive response to the need for evidence-based practices and systemic changes that will need to occur to support their implementation. As more schools adopt tiered prevention models they will need to be more mindful of evidence-based practices at each tier. Tiered prevention approaches also rely heavily on using data for decision making. An important finding from this study was that special education teachers were significantly more likely to be able to identify evidence-based classroom practices and differentiate practices that were not evidence-based than general education teachers. Furthermore, on all three items addressing the importance of collecting behavior data to guide interventions, special educators reported significantly higher agreement ratings than general educators. Data collection is a critical part of most early intervention efforts when working with children with or at risk for behavior problems.

Accordingly, special education teachers could be called upon to take a leadership role in supporting classroom teachers in implementing more effective practices in their classroom. However, future research is needed to explore ways to expand the role of special education teachers to allow for consultation with teachers around increasing evidence-based classroom practices for children with behavior problems. Finding ways to expand the role of special education teachers to allow for ongoing consultation with teachers around increasing evidence-based classroom behavior support practices would be beneficial. It is important to emphasize that the results of this study are reflective of needs for one step in the process of implementing more evidence-based practices for children with social, emotional and behavioral concerns. The ultimate goal is to make sure teachers are using these practices consistently and with fidelity.

Limitations

This study has several limitations. First the generalizability of the findings may be limited, given that only teachers from Missouri were included. Furthermore, only early childhood and elementary teachers were included in the study. Secondary teachers may have a different knowledge base or perspective on evidence-based practices. Second, teacher agreement with specific practices does not necessarily reflect use of specific practices. Additional research investigating the association between teacher-reported knowledge of evidence-based practices and observed use in the classroom is an area of future research toward understanding the gap between research and practice.

Summary

Although there has been increased attention to the need for evidence-based prevention practices in schools, little is known about teachers' knowledge of specific behavioral practices and their perceptions of their pre-

paredness to select evidence-based practices. The purpose of this study was to add to the literature in this area and explore characteristics associated with agreement ratings, including comparing special educators and general educators. The limited past literature on special and general educators' feelings of preparedness to support social skills development and to choose evidence-based practices did not clearly support the notion that special educators reported more agreement with valid practices. Thus, this research adds to the literature, which highlights areas where professionals can collaborate to build capacity to meet the needs of more children, including those who need support due to social behavior problems. It is also important that more work is done on building teacher confidence in intervention choices through using data for decision making and being more familiar with how to select evidence-based practices.

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