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Barriers and Facilitators to Teachers' Use of Behavioral Classroom Interventions

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Abstract

Multi-tiered behavioral classroom interventions are particularly important for students with or at risk for ADHD or other externalizing behaviors. Teachers often use these interventions infrequently or not as designed, and little is known about the barriers and facilitators to their use, especially from the teachers' perspective. Using an exploratory sequential approach, we first used semi-structured qualitative interviews to identify teacher-reported barriers and facilitators to using three Tier 1 and one Tier 2 behavioral classroom interventions with students with ADHD symptoms (Study 1). Then, we identified which barriers and facilitators were most frequently endorsed on a survey (Study 2). The types of barriers and facilitators that emerged from semi-structured interviews included teachers' beliefs about behavioral classroom interventions (i.e., about their effectiveness or the consequences of using them) that motivated teachers or reduced their motivation to use them, as well as factors that interfered or assisted with execution in the moment. The most frequently endorsed barriers were being distracted or forgetting due to competing demands, and feeling "stressed, frustrated, or burned out;" frequently endorsed facilitators included having a strong student–teacher relationship and having built the habit of using the intervention. Together, these results identify specific, malleable factors that can be targeted when supporting teachers in using Tier 1 and Tier 2 behavioral classroom interventions for students with ADHD symptoms.

Keywords Behavioral Classroom Interventions · ADHD · PBIS · Teachers

Introduction

Schools increasingly use multi-tiered systems of support, such as Positive Behavior Interventions and Supports (PBIS; Sugai and Horner, 2006), to promote positive student behavior. These programs include the classroom teacher delivering a wide range of positive, antecedent- and contingency-based management practices. Teachers can deliver these practices class-wide (Tier 1, such as delivering frequent behavior-specific praise to all students in the class) or to specific students needing extra support (Tier 2, such as using a daily behavior report intervention with one or two students who demonstrate frequent disruptive or inattentive behavior).

It is particularly important that students with or at risk for attention-deficit/hyperactivity disorder (ADHD) or other disruptive behavior problems receive effective classroom interventions. ADHD is a common (Visser et al., 2014) and impairing (Power et al., 2017) condition among school aged children. Compared with their peers, children with ADHD tend to obtain lower grades, have more conflict in relationships with their teachers, and are at increased risk for grade retention (Molina et al., 2009). Fortunately, behavioral classroom management interventions, such as Tier 1 and Tier 2 antecedent- and contingency-management practices, are a well-established psychosocial treatment for children with ADHD (Evans et al., 2018).

Unfortunately, Tier 1 and Tier 2 behavioral classroom interventions are commonly used infrequently or not as designed (Danielson et al., 2019; Martinussen et al., 2011). Approaches to support their use are most likely to be effective when they target the specific malleable factors that

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influence teacher' use of the intervention (Lewis et al., 2018). Thus, it is critical to better understand the malleable facilitators and barriers that promote or interfere with teachers' use of such interventions.

Several frameworks categorize factors influencing implementation of school-based interventions. For example, Domitrovich et al (2008) organized these factors into the macrolevel (e.g., policies and financing), school level (e.g., school leadership, school climate), and individual level (e.g., characteristics or the implementer or the intervention). Sanetti and Kratochwill (2009) organized 37 types of hypothesized implementation barriers into four levels: external environment (e.g., consistency of the intervention with policies), organization (e.g., funding, staffing), intervention (e.g., ease of implementation), and implementer (e.g., willingness to try the intervention).

Long et al. (2016) asked teachers on a survey to list implementation barriers "to a typical intervention they are asked to implement in their classrooms" and coded the responses into the hypothesized barriers that Sanetti and Kratochwill (2009) proposed. The most frequently reported barriers were at the intervention level and included intervention compatibility, time/duration required, and materials/resources required (Long et al., 2016). Importantly, these results pertained to "a typical intervention," and it is not clear the extent to which the findings apply to any specific interventions, or to any specific population such as students with ADHD.

Other studies have examined barriers and facilitators to teachers' use of behavioral interventions by coding teacher comments made during coaching or implementation planning sessions (Collier-Meek et al., 2019; Shernoff et al., 2020). These studies focused on class-wide interventions or implementing behavior support plans rather than applying interventions with students with ADHD symptoms. Using the approach of coding comments made during implementation planning sessions, Collier-Meek and colleagues (2019) found that barriers to implementing classroom management plans were most frequently at the implementer level, and included barriers "related to managing problem behaviors," "remembering to implement," and "competing responsibilities related to other activities" (Collier-Meek et al., 2019). The barriers they found to using behavior support plans were similar, although "competing responsibilities related to other students" emerged most frequently. The most common strategies to overcome barriers identified through implementation planning sessions were re-teaching the intervention, modifying the intervention, or scheduling implementation (Collier-Meek et al., 2019). Shernoff et al. (2020) used a similar approach and identified three themes related to barriers across both the intervention and implementer levels: praise interfering with instruction; praise conflicting with teachers' education, beliefs, or training; and challenges

with consistently using praise (e.g., the ease or usefulness depends on the lesson or student; Shernoff et al., 2020). They also identified themes related to facilitators to using praise (measured as positive statements made during coaching sessions): praise enabling the teacher to give feedback to peers without having to criticize; praise eliciting positive student reactions; and deliberate planning and reminders (Shernoff et al., 2020).

In a separate study focused on a Tier 2 intervention, McLennan et al., (2020) interviewed teachers who participated in a pilot trial in which they implemented a daily report card intervention aided by an interactive website regarding their experiences with this intervention. They identified key constructs from the interviews, which crossed the implementer, intervention, and organizational levels, including intervention demands for the teacher (e.g., perceived time demands making implementation more challenging) and the importance of the perceived "fit" of the intervention for a given student, teacher, or school (McLennan et al., 2020).

At the implementer level, research grounded in the Theory of Planned Behavior (Ajzen, 1991) and similar theories has explored teachers' beliefs and attitudes regarding students with behavioral difficulties—including their openness and readiness to learn about the needs of these students (Elik et al., 2010) and their attributions for students' challenging behavior (Polou & Norwich, 2002). How teachers conceptualize the needs of these students may shape the practices that teachers intend to use. Other evidence suggests that norms within the school (i.e., principals' beliefs) are important for teachers' classroom practice (Stanovich & Jordan, 1998).

Specific to ADHD, Blotnicky-Gallant et al. (2015) surveyed teachers about their knowledge and beliefs about ADHD and their self-reported use of evidence-based behavior management strategies in the classroom. They found that teachers with fewer negative beliefs about ADHD reported, on average, greater use of evidence-based behavior management strategies, suggesting that negative beliefs about ADHD are a barrier to teachers using behavioral classroom interventions for these students. Similarly, another survey-based study found that general education teachers who had more training in ADHD tended to report greater use of evidence-based behavior management strategies, suggesting training in ADHD as a potential facilitator (Martinussen et al., 2011). Additionally, recent qualitative studies examined the experiences of educators in the UK (Moore et al., 2017) and teachers' assistants in Wales (Greenway & Edwards, 2021) working with students with ADHD; salient themes across both studies included the importance of positive relationships, and the idea that labeling a child as having ADHD can be both helpful for accessing support as well as stigmatizing. These studies focused on educators' general experiences working with students with ADHD and not perceptions of evidence-based classroom interventions,

highlighting the need for research on educators' perceptions of barriers and facilitators to using behavioral interventions.

Barriers and facilitators to using Tier 1 behavioral classroom interventions may vary from those to using Tier 2 behavioral interventions. Indeed, evidence suggests that teachers use Tier 1 practices more frequently than Tier 2 practices such as daily report cards (Martinussen et al., 2011). However, prior studies have not examined factors that influence teachers' use of Tier 1 and Tier 2 behavioral interventions within the same sample of teachers. Addressing this gap is important as it may illuminate key similarities and differences between barriers and facilitators to Tier 1 as compared to Tier 2 practices, and inform the development of more targeted approaches to support teachers in using both types of interventions.

Furthermore, there is a need for research using a mixed method approach to identify barriers and facilitators as articulated by teachers themselves and to better understand, via survey research, which specific types of barriers and facilitators teachers most frequently endorse as affecting implementation. Finally, although prior work has examined teachers' positive statements about praise (Shernoff et al., 2020) and strategies to overcome barriers identified in coaching sessions (Collier-Meek et al., 2019), studies have not taken a strength-based approach to identify the facilitators that teachers already use outside of the context of coaching; these facilitators may be particularly fruitful targets for implementation strategies.

Current Study

We used an exploratory sequential (Creswell & Plano Clark, 2018) mixed-methods approach, in which results from a first qualitative phase inform the development of a subsequent quantitative phase, to identify the barriers and facilitators that teachers report to three Tier 1 behavioral classroom interventions—specific praise, precorrections, brief and specific behavior corrections—and one Tier 2 intervention—daily behavior reports. In Study 1, we conducted and coded semi-structured qualitative interviews with K-8 public school teachers in a large, urban school district to identify the categories and subcategories of teacher-reported barriers and facilitators. We then used the subcodes of barriers and facilitators to create survey items. In Study 2, we administered the survey to a larger sample of K-8 teachers to determine which of the barriers and facilitators were most frequently endorsed. This exploratory sequential approach enabled us to use the qualitative data to inform the subsequent survey and capitalize on the strengths of both the qualitative approach (i.e., gathering rich, detailed accounts of barriers and facilitators as reported by teachers) and quantitative approach (i.e., examining the frequency of endorsements across a larger sample).

Study 1: Method

Procedures

All procedures for Study 1 and Study 2 were approved by the school district research board and the [masked] hospital research board. K-8 teachers from five schools in a large urban school district in the Northeast of the USA were invited to participate. The school district serves a student body that is 86% racial/ethnic minority; about 80% of students are eligible for free or reduced-price meals. Schools were recruited based on principals' interest.

All five participating schools use a school-wide Positive Behavior Interventions and Supports (PBIS) program. PBIS is a school-wide multi-tier service delivery framework that involves school systems (e.g., team meetings, data-based decision making) and positive behavior management practices (e.g., teaching positive behavioral expectations, continuum of procedures for encouraging expected behavior; Sugai & Horner, 2006).

Teachers were recruited to participate in this study following completion of a pre-study online survey that provided permission for the research team to contact them. The pre-study survey included questions about teachers' intentions to use each of three Tier 1 and one Tier 2 behavior classroom management interventions. The interventions examined were specific praise (i.e., providing frequent verbal acknowledgment by specifically labeling praise-worthy behavior; Allday et al., 2012; Cook et al., 2017), precorrections (i.e., reminding students about behavioral norms prior to a time when behaviors of concern might be likely; Colvin et al., 1997; De Pry & Sugai, 2002), brief and specific behavior corrections (i.e., consistently correcting behaviors in a clear, concise and calm way; Abramowitz et al., 1988; Lane, 2007; Owens et al., 2017), and use of daily behavior reports to provide feedback on specific behavioral goals (Fabiano et al., 2010; Owens et al., 2012).

The study team invited 128 teachers to complete the pre-study survey, and 65 teachers (53%) completed it. For Study 1, teachers were selected for semi-structured interviews with the goal of maximizing variability of intentions to use behavioral classroom management interventions. Interviews were conducted by the lead author ([initials masked for review]; a clinical psychologist) and a Master's level research assistant ([initials masked for review]) who was supervised by the lead author. We conducted the interviews using a secure virtual video platform. Participants received a $30 electronic gift card following the interview.

At the time of the interviews (Jan–March, 2021), all schools in the district were operating in a fully virtual model due to the COVID-19 pandemic. Because barriers

and facilitators to behavioral classroom interventions may differ between a virtual compared to face-to-face model, and because the focus of the study was to understand teacher behavior under usual conditions, teachers were instructed to think about their experiences prior to the pandemic.

Participants

Thirty-six teachers provided permission to be contacted for an interview; 17 completed semi-structured interviews. The sample was 88% female, 65% White, 27% African American or Black, 12% Asian, and 6% Latinx/Hispanic/Spanish. Most (65%) of the sample had a Master's degree, and had, on average, 10.4 years of teaching experience (SD = 8.1, range [1 > 20]), and 5.3 years teaching at their current school (SD = 5.5, range [1 > 20]). The sample of teachers who participated in interviews did not differ significantly on any measured demographic variables or teaching experience (all p's > 0.22) from the group of teachers who participated in the pre-survey but did not complete an interview.

Measures

Semi-structured Interview

The semi-structured interviews asked about barriers and facilitators to teachers' use of four behavioral classroom interventions—specific praise, precorrections, brief and specific behavior corrections, daily behavior reports—with a student with ADHD symptoms. On average, the interviews lasted 35.9 min (SD = 7.5 min). The interview began by asking the participant to recall when they were most recently teaching in person, and to "pull up in your mind an image of a child who showed higher levels of hyperactive, inattentive, and impulsive behavior than their peers." The participant identified the child by only the child's first initial and discussed their interactions with that child throughout the interview.

The interview protocol included a description of each of the four behavioral classroom interventions and open-ended probes about if and how teachers used each of the interventions with the selected child. For each intervention, participants were asked to elaborate about why they did or did not use the practice with the selected child, and to describe factors that "made it difficult for you to do this" and "made it easy for you to do this." Interview probes then asked about teachers' attitudes, norms, and self-efficacy related to the behavioral classroom interventions as a whole, and how teachers' use of the interventions has changed over time. Qualitative interviews were audio-recorded, transcribed, and de-identified, and de-identified transcripts were used in analyses. Interviews were stopped after reaching thematic saturation.

Data Analysis

The interview transcripts were coded in multiple stages (Saldaña, 2013). We used an integrated inductive and deductive analysis approach (Bradley et al., 2007) that involved identifying a priori constructs of interest (e.g., barriers and facilitators) and used modified grounded theory (Glaser & Strauss, 1967) in order to identify emergent themes from the interview data. After an initial review of transcripts, we developed a codebook with definitions, key words, and example codes for "barriers" and "facilitators." The codebook was refined through an iterative process in which two coders applied the codebook to transcripts, identified and reconciled any discrepancies through discussion, and updated the codebook to clarify definitions and decision rules. Two coders coded all 17 transcripts. Any discrepancies were reconciled through discussion using a consensus process in which raters met to arrive at consensus through open dialogue (Hill et al., 2005). When discrepancies occurred, the coding decision emerging through the consensus process was used. The coders were able to reach consensus through discussion in 100% of cases.

The two coders then reviewed all transcript excerpts coded as "barriers" and as "facilitators" to develop Stage 2 subcodes through a multiple-stage, iterative process. In the first cycle, both coders applied a brief, descriptive label to describe the core idea of the barrier or facilitator that was described in each excerpt, and came to consensus about the labels through discussion. The coders then reviewed the excerpts and labels, iteratively developed names and definitions for subcodes of barriers and facilitators, and applied subcode(s) to each excerpt. The coders were able to reach consensus on categorization through discussion for 100% of excerpts. Then, a member of the research team then drafted a series of second-stage analytic memos, which another member vetted and the team iteratively revised (Saldaña, 2013). The analytic memos consisted of descriptions of the subcodes, ID numbers of participants whose comments fit within the subcode, and illustrative quotes. Consistent with the grounded theory, the subcodes were grouped thematically into broader categories of barriers and facilitators, and subcodes were retained when they were salient in the data (Glaser & Strauss, 1967). The memos were revised through an iterative process of discussion and revision among the research team. See Tables 1 and 2 for simplified versions of the information in the analytic memos.

Table 1 Subcodes about barriers to using behavioral classroom interventions with children with ADHD symptoms

Subcode	Illustrative comment
Beliefs about behavioral classroom interventions that weaken intentions	
Believing that the intervention would take too much time to use	*So, I think time is one of the biggest factors of like why things are difficult as a teacher, just like there's too much curriculum to get through. There's not enough time in the day, right?*
Believing that the intervention would not be effective	*So, some I really didn't think would be effective, and specifically with this age. Even the stickers, right? I mean, third grade is—they are getting a little older, so it's like, do they really want this, do they really—is this something that they're really gonna enjoy, is this something they're gonna do every single day, is this something their parents are gonna sign every day? And really—at first, I really wasn't sure if I really wanted to do this. I don't know if it's gonna work.*
Believing that the intervention would have negative social or emotional consequences	*I think I would also say that I don't want a student to feel like I'm just targeting them.*
	But an average fifth-grade behavior. I wouldn't compliment you or thank you for sitting at your desk. And you did sometimes see a little animosity from other students who were like, well, what about me?
Believing that the intervention would have negative academic consequences	*I think there is always issues of time restraints, like if we're running late on an activity and I really want to get through something it's like the teacher—right—I sometimes had to make decisions about are we going to have time to do this or are we going to have time to do that?*
Believing that it is not appropriate, helpful, or needed to use the intervention	*I think some people are saying well that's silly. Why would I have to give specific praise for things that they should know what to do, or the things they should do without me saying it?*
Challenges that interfere with executing the interventions	
Being distracted or forgetting to use the intervention due to demands in the classroom or school	*But there are sometimes where we—I had a missed prep and another student ran out of the classroom and another student walked into the classroom and tried to fight one of my students and now we have a fire drill and some—no one's coats are anywhere and also four people are calling me and I have no other support and then someone peed their pants. And that's all happening. So sometimes [student] doesn't get those precorrections and doesn't get the specific praise.*
Feeling stressed, frustrated, or burned out	*Well, there were times where I was like, this isn't working, like I'm frustrated. I have so much going on and I can't compliment her for picking up a pencil off the ground that she threw on the ground. So there was definitely days where I got frustrated and would ignore the behavior or not use specific praise*
Student challenging behavior making it harder to use the intervention	*Because it was rare that he would be on track for me to give him a positive praise, so I had to constantly keep my eye out for whatever he did correctly or nicely or transition right, you know what I mean?*
Having difficulty managing time demands	*And the goal is that we're all talking about this stuff that's going well and not so well. And so, it really was quick and rushed. It was really mostly me reading it. Sometimes he would read it instead, but it was pretty sloppy, so I would read it out loud and maybe we would say a couple of words about it, but ideally it would be a time to really truly have a conversation, but that really was not the case.*
Not having had enough practice using the intervention	*But they are challenging. One, it takes practice, and I don't think I got good at them until literally January, after Christmas break. That's when I was like, oh, okay, I'm kind of good at this. So I think it takes practice.*
Being outside of the regular routine	*It was days it didn't work because some days he came in late where I actually had to give him his form, and I didn't see him until—some days I didn't see him until almost lunch time.*

Table 2 Subcodes about facilitators to using behavioral classroom interventions with children with ADHD symptoms

Subcodes	Illustrative comment
Beliefs about behavioral classroom interventions that strengthen intentions	
Believing that the intervention would be effective	*So just like a belief in like the research and like this is going to work if I keep doing it.*
	…of course, once I started my own classroom and started doing that [using specific praise], I obviously saw how effective it was. So, then I just continued to do it.
Believing that it is important or appropriate to use behavioral interventions	*Especially—I personally feel, in the—in third grade, it's a very big year that I've noticed for students and children in general.That's kind of like their defining year. They [students] tend to define themselves and they're really shaping themselves into a little person. And their values, their morals, and how they're going to act later on going up in grades. So, I really personally feel like it is really beneficial for students.*
Believing that the interventions are supported by school leaders	*but I think it [principal support of the practices] helps for the support if I needed support. If [principal] knew I was doing what they had envisioned the teachers to do you would get more support*
Factors that assisted with executing the intervention(s) in the moment	
Having a strong teacher–student relationship	*So, taking the time to really know your students and what they value and making sure that you are authentic with your communication to the kids because they certainly know when praise is generic and meaningful and when it is not.*
	So you know, precorrections I think are something that comes up with getting to know your students and getting to know the specific student. Because a lot of times precorrections are just restating the expectations… Like I know where[student] is going to struggle. Like I've known her for months now, I know where she's going to struggle, and I know she's going to need to be reminded before we do this, the expectations.
Using techniques to self-regulate while teaching	*And that's kinda just—I just take deep breaths, or sometimes I'm just like, I need to use the bathroom. I grab a teacher next door, can you watch them real quick, so that I can calm myself down. Kinda taking a break, just like the kids need at times.*
	And talking to myself and saying that this child is harder to reach, but that—I have to make it more of a point to reach that child. So, yeah, talking to myself to help me value that child in the moment when I realize I'm not. And just looking harder for just every little thing that they could be doing right. But that takes being intentional, as well.
Visual or auditory reminders in the classroom	*Keeping a timer, which I actually—that's—it's something new that I started doing because I was notorious for like, oh, we have to leave in two minutes to go to—so, it was suggested to me, why don't you keep a timer for—and when I can remember to do that, that's been helpful [for precorrections].*
Student(s) reminding the teacher to use the intervention	*I just—I always told students to—because he wasn't the only one, but I told him specifically remind me. You can't walk out of here without that folder. You can't go home without that folder because your parent's going to be looking for it because that was the deal that I had talked to your parent about. So, just having the child remind me too to fill it out.*
Parts of the classroom routine serving as reminders	*Yeah, it's a part of my routine. And because—when we transition to independent work, I just know that students need these reminders.*
	Because with the [daily behavior report] it's just making sure I block out the time. So you know, you want to have at least five minutes to speak to the student…
Having developed a habit through practice	*I just think practice. Like I was so used to doing it on days where there wasn't too much craziness that it became like second nature.*
Planning	*But practicing, planning out things. I used to plan out things that I could say in the beginning and sort of make myself look for different things during a lesson to praise.*

Table 2 (continued)

Subcodes	Illustrative comment
Factors that assisted with learning how to use the interventions	
Receiving trainings related to using the intervention	*I—my school was very supportive with that, just throwing in refreshers when we had PD days like, oh, we have PBIS today. And then it was like, oh, good, this is a good reminder to keep doing it. Especially in the middle of the year when we're all starting to slump a little bit.*
Observing other educators using the intervention	*But I think they do all come with watching other teachers do it, and student teaching, getting training on how to do it properly. Having those supports in place really helped me get better at those.*

Study 1: Results

Barriers

Teachers reported barriers that fit in two broad categories: (1) Beliefs about behavioral classroom interventions that weaken their intentions to use them, and (2) Challenges that interfere with executing the interventions. Sub-categories of these barriers and illustrative comments are displayed in Table 1.

Beliefs About Behavioral Classroom Interventions

Twelve out of 17 teachers identified at least one barrier related to beliefs about the Tier 1 and Tier 2 interventions that led the teacher to decide to not use the intervention. Seven teachers thought that the intervention(s) would take too much time to use. Two of these teachers noted that this was an initial barrier for them, but after using the interventions, they realized that that it took less time than they anticipated: "I think in the beginning probably I felt like it would take more time than it actually did […] when actually it didn't take that much time at all."

Six teachers thought that the Tier 1 or Tier 2 interventions would not be effective for managing student behavior. One teacher thought that they would not be effective for older elementary students; others thought a practice would not work when a student was in a dysregulated state, or described not using an intervention after trying it and perceiving it to be ineffective. One teacher related this to feeling helpless: "like whatever I do it's not going to work, so I'm just going to give up."

Six teachers reported that they choose not to use Tier 1 or Tier 2 interventions when they thought that the interventions would have negative social emotional consequences for the selected child or for the class. For example, teachers reported concerns about the selected child feeling embarrassed or stigmatized if a behavioral intervention is directed toward them alone. Teachers also reported concern about how other students in the classroom would react, including that they might tease a child for receiving praise, or feel left out for not receiving praise for the same behavior. Specific to Tier 2, three teachers expressed concern about a child feeling "stressed" if their daily behavior report did not get completed, or concern that using the daily behavior report would draw more attention to, and reinforce, negative behaviors. Teachers also reported concern about negative academic consequences, stating that using behavioral interventions might interrupt the flow of the lesson or take time away from academic content.

Finally, three teachers reported barriers related to believing that the Tier 1 or Tier 2 behavioral classroom interventions are not appropriate, helpful, or needed. For example, they discussed thinking that teachers should not praise a student for behaviors that are expected, or that teachers should not need to give precorrections once expectations are established.

Challenges that Interfere with Executing the Interventions

Fourteen out of 17 teachers identified at least one barrier related to challenges that interfere with executing Tier 1 or Tier 2 interventions in the moment. These barriers led to teachers not using the intervention, even though they had intended to do so. The most common barrier was classroom or school demands causing teachers to be distracted or forget to use the intervention. Teachers noted difficulty remembering to use the interventions while managing large classes, competing classroom demands, or school-related stressors. Teachers reported this impacting their use of both Tier 1 and Tier 2 interventions.

A closely related challenge was teachers feeling stressed, frustrated, or emotionally exhausted. Nine teachers reported that it is more difficult for them to use Tier 1 or Tier 2 behavioral classroom interventions when they are frustrated, either due to interactions with the selected student, or due to stressors from outside of the classroom. Four of these teachers specifically described the emotional challenges associated with working in marginalized, urban schools, in which there are higher rates of trauma exposure among students.

Six teachers described how students' challenging behavior or dysregulation made implementation more challenging.

For example, they reported having difficulty identifying appropriate student behaviors to praise, or having difficulty staying calm or keeping corrections brief when the student did not seem to respond to corrections. Specific to the Tier 2 intervention, three teachers reported difficulty implementing daily behavior report when a student would become dysregulated, or purposely lose or tear up their card after not meeting a behavioral goal.

Specific to Tier 2, teachers also described how time demands created barriers to implementing daily behavior reports. Specifically, teachers reported that there was rarely enough time to carry out the practice with fidelity, and that they therefore often rushed through completing and sharing the daily behavior report instead of providing meaningful feedback.

Regarding both Tier 1 and Tier 2, three teachers noted that the behavioral interventions were challenging for them to use initially and required practice and experience to use effectively. Finally, two teachers noted that implementation was more difficult when routines were disrupted, such as when the student arrived late or the class had a field trip.

Facilitators

The facilitators of their using Tier 1 and Tier 2 behavioral classroom interventions with the selected student that teachers shared fit in three broad categories: (1) Beliefs about behavioral classroom intervention, (2) Factors that assist with executing the interventions in the moment, and (3) Factors that assist with learning how to use the interventions. Subcodes of these facilitators and illustrative comments are displayed in Table 2.

Beliefs About Behavioral Classroom Interventions that Strengthen Intentions

Sixteen of 17 teachers described beliefs about Tier 1 or Tier 2 behavioral classroom interventions that led them to choose to use the interventions with the selected student. Most commonly, teachers described believing that the intervention is effective at managing student behavior. A few teachers talked about "hearing that it [a behavioral classroom intervention] works" or trusting the research that positive behavioral interventions are effective. More commonly, though, teachers described that they used a behavioral classroom intervention, such as specific praise, and observed that it was effective, which caused them to continue to use it.

Another facilitator was the belief that it is important for teachers to use Tier 1 or Tier 2 behavioral interventions. Nine teachers noted that they view fostering children's socio-emotional development and ability to behave positively as an important or appropriate part of their job as teachers, which motivates them to use behavioral classroom

interventions. For example, one teacher shared the belief that it is important for them to teach "the whole child," two others highlighted that they prioritize fostering students' self-regulation, and another teacher shared that idea that using positive praise with students with behavioral challenges is important to meet students' basic needs. Finally, five teachers thought that school leaders want teachers to use behavioral interventions, which served as a motivator. Namely, one teacher described paying more attention to positive behavioral interventions because the school was focusing on them.

Factors that Assist with Executing the Interventions in the Moment

Every teacher identified at least one facilitator that assisted with executing Tier 1 or Tier 2 interventions in the moment. First, 12 teachers identified having a positive relationship with the selected student as an important facilitator. They most commonly noted that strong relationships helped them use the practices more skillfully (e.g., making praise more genuine, knowing when a precorrection would be needed), helped foster student empowerment or buy-in with the intervention, or made it easier for them to use a Tier 1 or Tier 2 intervention.

Second, 10 teachers described that it was easier to use Tier 1 interventions when they used behavioral or cognitive strategies to help themselves self-regulate in the moment. For example, teachers described taking deep breaths, "getting centered," removing themselves temporarily from a stressful interaction, or using humor to diffuse a stressful situation. Four teachers also described cognitive reframing approaches they used in the moment, such as reminding themselves that "children are still learning." In four cases, teachers reported that their ability to use these self-regulation approaches was tied to broader changes in their mindset, such as increased comfort with having a limited locus of control.

Another salient facilitator was having tangible reminders in the classroom. Teachers reported that visual and auditory reminders helped them use both Tier 1 and Tier 2 interventions with greater frequency and fidelity. Teachers described using posters of behavioral expectations or sticker charts, as well as timers, alarms, or a chime that sounds when giving points on a class-wide reward system. Although a few teachers reported setting these alarms as a reminder for themselves, in most cases, these reminders were not designed as intentional reminders for the teacher, but rather were intended for the students, and incidentally reminded the teacher to use a behavioral intervention. For example, one teacher described how a poster with behavioral expectations reminded the teacher to use specific praise: "[…] putting those directions actually up on the wall like as they came in […] was not only helpful for them a reminder. It was also a reminder for me like being like

these are the exact words I could say to specifically praise this student, or really any of the students."

Ten teachers described ways in which their student reminded them to use a behavioral intervention. This was reported most frequently with daily behavior reports (Tier 2); for example, teachers described students prompting them to complete the daily behavior report when they were invested in it, or when it was assigned as the student's job to ensure it was completed. Other teachers described ways in which students reminded them to use praise or precorrections, such as assigning a student a job to remind the teacher to review expectations before a transition.

Across Tier 1 and Tier 2, another facilitator was that parts of the classroom routine served as reminders to use particular interventions. Four teachers described that they established a regular time to complete student's daily behavior reports. Five teachers noted that the classroom routine reminded them to use precorrections with the selected student.

Ten teachers reported that Tier 1 and Tier 2 interventions became easier over time as they developed a habit through practice. Finally, two teachers noted that they planned ahead of time when or how they would use the intervention as a way of helping themselves use practices like praise before they became automatic: "I used to plan out things that I could say in the beginning and sort of make myself look for different things during a lesson to praise."

Factors that Assist with Learning How to Use the Interventions

About half of the teachers identified at least one factor that helped them learn how to use Tier 1 or Tier 2 behavioral interventions. Some teachers noted that school trainings on PBIS helped them use positive behavior management practices. One teacher noted that these trainings served as a "reminder to keep doing it," particularly in the middle of the school year, and another teacher noted that training provided ideas of things to try. Three teachers reported that observing other teachers use the practices helped them learn. Finally, nine teachers described the approach they used to build their own skills in behavioral classroom interventions. These approaches included trying a new technique for at least two to three weeks before evaluating its effectiveness, working on one technique at a time, and self-reflection (e.g., thinking about praise statements they had made and identifying places where they could have been more specific).

Study 1 Summary

Results from the interviews provide rich data about facilitators and barriers to teachers' use of behavioral classroom management interventions for students with ADHD symptoms. Many of the identified factors are consistent with those reported in prior studies, such as beliefs about the interventions and difficulty managing time demands. However, this study advances the literature in two ways: first, we used qualitative interviews with open-ended probes outside of the context of coaching sessions, enabling the identification of a wide-range of factors; second, we used a strength-based approach to identify the facilitators, as well as barriers, that teachers report.

Most of the barriers and facilitators identified fell into two broad categories: beliefs that motivated teachers or reduced their motivation to use the interventions, and factors that made it easier or more difficult for them to use the interventions in the moment. This classification of barriers and facilitators provides a potential organizing framework for implementation strategies: strategies can target teachers' beliefs to promote their intentions to use interventions, or they can target factors to make it easier to use the interventions. The most effective strategies will likely depend on the extent to which a given teacher is motivated to use the interventions.

The subcategories of barriers and facilitators were generally consistent across Tier 1 and Tier 2 interventions. For example, teachers described how having a strong student–teacher relationship helped them use both Tier 1 and Tier 2 interventions with greater fidelity. The relationship helped them have more empathy for a student, and thus, stay calm when providing feedback; teachers had an easier time remembering to use a daily behavior report when the student–teacher relationship was strong. However, several subcategories of barriers were specific to Tier 2 daily behavior reports, such as students becoming upset when receiving feedback.

The goal of Study 1 was to identify the range of barriers and facilitators that teachers reported across the behavioral classroom interventions. We then administered a survey, using items developed from the Study 1 results, to identify which barriers and facilitators occur most often across the Tier 1 and Tier 2 interventions.

Study 2: Method

Procedures

We invited all K-8 teachers in each of the five schools to participate in an online survey, in which they were asked to report on the extent to which the barriers and facilitators to using behavioral classroom interventions made them more or less likely to use each of the Tier 1 and Tier 2 interventions. The survey items were developed based on the sub-categories of barriers and facilitators that emerged in Study 1 (see Measures). At the time of the second survey

(April–May 2021), some teachers were teaching virtually and some were teaching under a hybrid model. Given the focus of the study, teachers were again instructed to think about their experiences teaching during the previous school year, prior to the COVID-19 pandemic.

Participants

All general education classroom teachers from five schools (n = 126) were invited to participate in this survey; this included the 17 teachers who participated in interviews. Fifty-six teachers (44% response rate) responded to the survey, with 55 completing all questions and 1 completing at least 50% the survey; 14 teachers previously participated in interviews and 41 teachers did not. An additional nine teachers initiated the survey but did not provide enough data to be analyzed; data from these teachers were discarded. The sample was 85.7% female, and 69.6% White, 28.6% African American or Black, 3.6% Asian, and 1.8% Latinx/Hispanic/Spanish. Four in five teachers had a Master's degree and teachers had, on average, 12.8 years of teaching experience, and 5.4 years teaching at their current school. Teachers in the sample were similar to teachers in the school district as a whole in terms of race/ethnicity, although the sample had a somewhat greater percentage of female teachers compared to the school district as a whole (74% female).

Measures

Barriers and Facilitators Questionnaire

Teachers were asked about 12 potential facilitators and 10 potential barriers to their use of each of the four behavioral classroom interventions. These barriers and facilitators were identified from the level 2 Subcodes that emerged from the coded interview data (see Study 1). Teachers rated each facilitator's impact on their use of the intervention on a 4-point scale (1 = *No more likely to use the intervention* to 4 = *Much more likely to use the intervention*). Similarly, teachers rated each barrier's impact on their use of the intervention on a 4-point scale (1 = *No more likely to use the intervention* to 4 = *Much more likely to use the intervention*). The questions about daily behavior reports also included four additional barriers that emerged from the interviews as specific to that intervention, for a total of 14 potential barriers in the daily behavior report section. The questionnaire items are shown in supplemental materials.

Data Analysis

Quantitative data were analyzed using descriptive statistics. We examined the percent of teachers in the sample who provided each response (*much less likely*, *less likely*, *a bit*

less likely, and *no less likely*) for each potential barrier, as well as the percent of teachers who provided each response ("much more likely," "more likely," "a bit more likely," and "no more likely") for each potential facilitator, with the aim of determining which barriers and facilitators were most frequently endorsed for each intervention. We integrated quantitative data with the qualitative data from Study 1 by organizing the figures displaying the quantitative results into the overarching categories identified based on the qualitative interviews.

Study 2: Results

Barriers

Table 3 shows the percent of teachers in the sample who endorsed each potential barrier, organized by overarching category, for each of the Tier 1 interventions. Table 4 displays these results for daily behavior reports. These results are also displayed graphically to facilitate interpretation; the results for specific praise (i.e., one example Tier 1 intervention) and daily behavior reports (i.e., Tier 2) are displayed in Fig. 1 and the results for precorrections and brief and specific behavior corrections are displayed in the Supplemental Materials (as the patterns are similar but we include them for future study replicability purposes).

The top three most frequently endorsed barriers across all three Tier 1 practices consisted of being distracted or forgetting, and feeling stressed, frustrated, or burned out. For specific praise, believing the intervention would have negative social and emotional consequences was also among the most frequently endorsed barriers. For precorrections, students displaying challenging behavior was also among the most frequently endorsed, and for brief and specific behavior corrections, believing the intervention would have negative academic consequences was among the most frequently endorsed.

For daily behavior reports, the three most frequently endorsed barriers were believing there is not enough time, believing the intervention would not be effective, and forgetting.

Facilitators

Table 5 displays the percent of teachers in the sample who endorsed each potential facilitator, organized by overarching category, for each of the Tier 1 interventions, and Table 6 displays these results for daily behavior reports. These results are also displayed graphically in Fig. 2 (for specific praise and daily behavior reports) and the Supplemental Materials (for precorrections and brief and specific behavior corrections).

Table 3 Survey results for barriers to Tier 1 interventions: percent of teachers who endorsed each barrier

	Specific praise				Precorrections				Brief and specific behavior corrections			
	% Much Less Likely	% Less Likely	% A Bit Less Likely	% No Less Likely	% Much Less likely	% Less Likely	% A Bit Less Likely	% No Less Likely	% Much Less likely	% Less Likely	% A Bit Less Likely	% No Less Likely
Beliefs that weaken intentions												
Believe negative social/emotional consequences	**28.6**	**12.5**	25.0	33.9	14.3	12.5	30.4	42.9	21.4	23.2	23.2	32.1
Believe negative academic consequences	16.1	17.9	25.0	41.1	14.3	14.3	26.8	44.6	**23.2**	**25.0**	19.6	32.1
Believe not effective	12.5	14.3	23.2	50.0	12.5	14.3	25.0	48.2	16.1	21.4	19.6	42.9
Believe not appropriate or helpful	8.9	12.5	26.8	51.8	12.5	21.4	14.3	51.8	17.9	17.9	21.4	42.9
Believe not enough time	3.6	17.9	21.4	57.1	10.7	21.4	19.6	48.2	10.7	21.4	19.6	48.2
Challenges that interfere with execution												
Being distracted or forgetting	**19.6**	**26.8**	30.4	23.2	**14.3**	**19.6**	35.7	30.4	**12.5**	**33.9**	30.4	23.2
Feeling stressed, frustrated or burnt out	**12.5**	**30.4**	37.5	19.6	**16.1**	**26.8**	28.6	28.6	**16.1**	**28.6**	35.7	19.6
Student(s) displaying challenging behavior	5.4	32.1	28.6	33.9	**8.9**	**28.6**	17.9	44.6	12.5	23.2	33.9	30.4
Being outside routine	3.6	26.8	21.4	48.2	10.7	19.6	19.6	50.0	14.3	23.2	21.4	41.1
Not enough practice	3.6	21.4	25.0	50.0	3.6	26.8	19.6	50.0	12.5	17.9	26.8	42.9

Percent values of the sample responding "much less likely" and "less likely" are displayed in bold for the three barriers that were most frequently endorsed (defined as those with the largest percent of the sample indicating "much less likely" or "less likely") for each Tier 1 intervention

Table 4 Survey results for barriers to the Tier 2 intervention: percent of teachers who endorsed each barrier

	Daily behavior reports			
	% Much less likely	% Less likely	% A bit less likely	% No less likely
Beliefs that weaken intentions				
Believe not enough time	**23.6**	**29.1**	21.8	25.5
Believe not effective	**23.6**	**29.1**	14.5	32.7
Believe negative academic consequences	23.6	25.5	18.2	32.7
Believe negative social/emotional consequences	23.6	21.8	23.6	30.9
Believe not appropriate or helpful	18.2	23.6	27.3	30.9
Challenges that interfere with execution				
Being distracted or forgetting	**23.6**	**27.3**	23.6	25.5
Being outside routine	25.5	23.6	20.0	30.9
Feeling stressed, frustrated, or burnt out	21.8	25.5	23.6	29.1
Not enough practice	20.0	21.8	27.3	30.9
Students upset by feedback	12.7	27.3	21.8	38.2
Students lose card	16.4	23.6	29.1	30.9
Difficult to identify mentors	14.5	23.6	27.3	34.5
Student(s) displaying challenging behavior	23.6	12.7	20.0	43.6
Students can't find mentor	10.9	23.6	25.5	40.0

Percent values of the sample responding "much less likely" and "less likely" are displayed in bold for the three barriers that were most frequently endorsed (defined as those with the largest percent of the sample indicating "much less likely" or "less likely") for daily behavior reports

The top three most frequently endorsed facilitators across all three Tier 1 practices consisted of having a strong student–teacher relationship, and having built the habit. Additionally, for specific praise and brief and specific behavior corrections, believing it is an important or appropriate part of one's job was also a top facilitator; for precorrections, believing the intervention is effective was also a top facilitator.

For daily behavior reports, the three most frequently endorsed facilitators were: having a strong student–teacher relationship, students reminding the teacher, and having built the habit.

Discussion

The goal of this study was to elucidate barriers and facilitators that teachers' report to their use of behavioral classroom management interventions for students with ADHD symptoms. We expanded on prior work by using a mixed-method approach, asking about both barriers and facilitators, and assessing these constructs for Tier 1 and Tier 2 interventions separately within the same study. For our first study, unlike prior qualitative studies, we used open-ended probes, allowing greater flexibility for teachers to identify a broad range of barriers and facilitators. We then used quantitative methods to understand which specific factors were endorsed

most frequently, and the extent to which these varied across Tier 1 and Tier 2 interventions.

Taken together, the results suggest that key barriers interfering with teacher's use of behavioral interventions include both factors that interfere with execution in the moment (e.g., stress, forgetting due to competing demands), as well as beliefs about behavioral classroom interventions (e.g., concerns about negative social/emotional or academic consequences). According to the framework described by Sanetti and Kratochwill (2009), the barriers identified here were predominantly at the level of the implementer (i.e., teacher beliefs and attitudes), although many were closely tied to the intervention (e.g., beliefs about the intervention) and organizational context (e.g., school or district- level demands contributing to stress and burnout). The current results are broadly consistent with the Theory of Planned Behavior (Ajzen, 1991) and expand on prior findings regarding teachers' beliefs about students with ADHD (e.g., Elik et al., 2010; Poulou & Norwich, 2002) by examining the role of teachers' attitudes regarding the classroom interventions themselves.

Many of the barriers identified were consistent with implementer-level barriers reported in prior work about classroom-wide behavioral interventions, such as competing responsibilities and difficulties managing problem behaviors (Collier-Meek et al., 2019), and implementer- or intervention-level barriers such as teachers' concerns about praise interfering with instructional time or reducing students'

Fig. 1 Results from survey about barriers to use of behavioral classroom interventions. 1A. Specific praise: percent of teachers who endorsed each barrier B. Daily behavior report: percent of teachers who endorsed each barrier
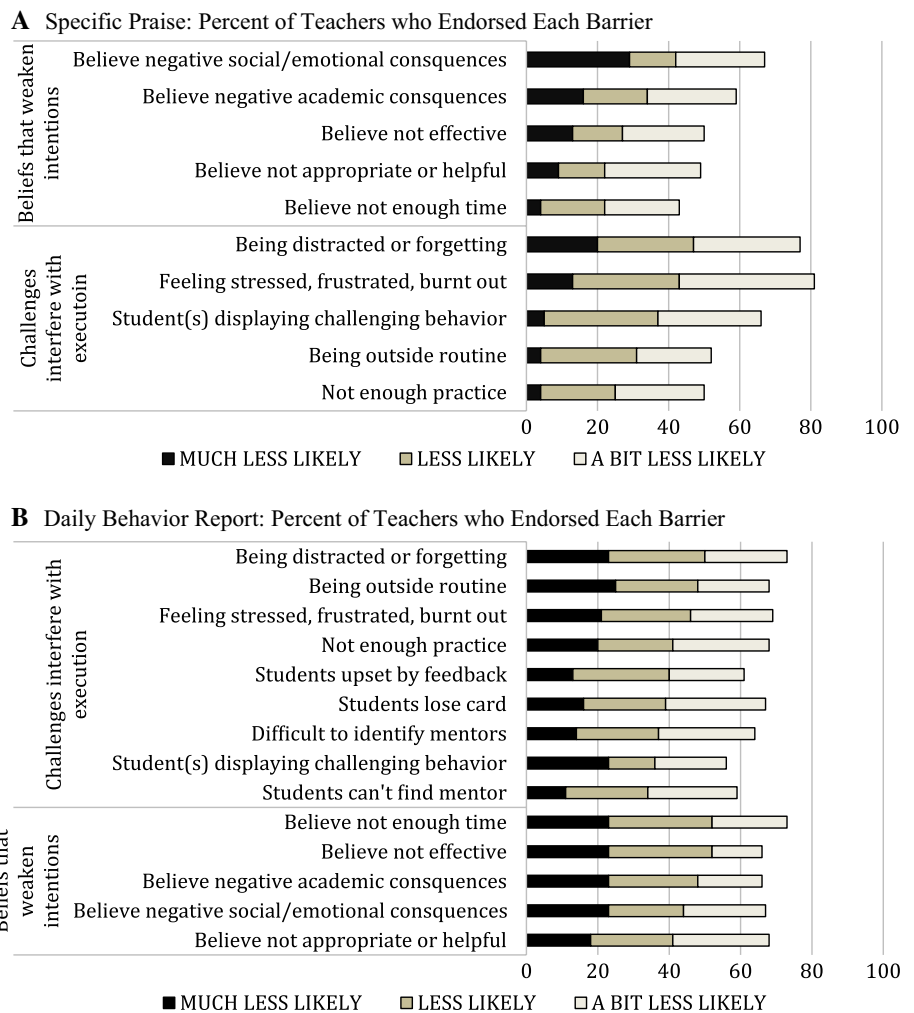
intrinsic motivation (Shernoff et al., 2020). Notably, intervention-level barriers that had been frequently reported in prior work, such as resources required (Long et al., 2016) were not identified by teachers in this sample. This may reflect that the behavioral classroom interventions examined in this study require few external resources to implement.

The types of barriers that teachers reported during interviews and endorsed most frequently on the surveys were largely consistent across the Tier 1 behavioral interventions. Additionally, there were several barriers that emerged only regarding the daily behavior report (Tier 2) intervention. Notably, concern about time was frequently endorsed as a barrier to daily behavior reports, but not Tier 1 interventions. Time is a commonly reported barrier to school-based interventions (e.g., Bambara et al., 2009), including daily report cards (McLennan et al., 2020). It is therefore striking that believing there is not enough time was the *least* frequently endorsed barrier about specific praise and behavior corrections and emerged as a top barrier only for the Tier 2 intervention. These results suggest that the relatively little time needed to implement Tier 1 interventions for ADHD is

a strength of these interventions, and addressing time-related barriers may be important for Tier 2 interventions.

Taken together, the mixed-method results regarding facilitators also suggested that key facilitators include both factors that assist with execution in the moment (e.g., building the habit, strong student–teacher relationship) as well as beliefs that lead teachers to intend to use the interventions. The teacher beliefs identified as facilitators consisted of both specific beliefs about the interventions' effectiveness, as well as more global, values-driven beliefs about their importance. Consistent with prior work about the importance of principals' beliefs (Stanovich & Jordan, 1998), teachers' beliefs that school leaders supported the interventions were also a facilitator.

To our knowledge, this is the first study using a qualitative interview approach to identify the factors that teachers report helping them use behavioral interventions. Importantly, although some of the facilitators identified here represented 'positive opposites' of barriers (e.g., "having developed a habit through practice" as compared to "not having had enough practice"), other facilitators provide

Table 5 Survey results for facilitators to Tier 1 interventions: percent of teachers who endorsed each facilitator

	Specific praise				Precorrections				Brief and specific behavior corrections			
	% Much More Likely	% More Likely	% A Bit More Likely	% No More Likely	% Much More Likely	% More Likely	% A Bit More Likely	% No More Likely	% Much More Likely	% More Likely	% A Bit More Likely	% No More Likely
Beliefs that strengthen intentions												
Believe important or appropriate	**53.6**	**41.1**	5.4	0	48.2	33.9	10.7	7.1	**48.2**	**35.7**	14.3	1.8
Believe effective	51.8	39.3	8.9	0	**44.6**	**42.9**	7.1	5.4	35.7	50.0	10.7	3.6
Believe supported by school leaders	25.0	37.5	21.4	16.1	28.6	35.7	19.6	16.1	32.1	37.5	19.6	10.7
Factors that assist with executing												
Student–teacher relationship	**67.9**	**28.6**	3.6	0	**58.9**	**28.6**	8.9	3.6	**60.7**	**30.4**	8.9	0
Having built the habit	**50.0**	**42.9**	7.1	0	**46.4**	**39.3**	12.5	1.8	**41.1**	**46.4**	10.7	1.8
Visual/auditory reminders	28.6	44.6	16.1	10.7	28.6	37.5	21.4	12.5	28.6	41.1	17.9	12.5
Class routine reminds me	35.7	33.9	17.9	12.5	48.2	33.9	12.5	5.4	33.9	39.3	12.5	14.3
Use techniques to calm self	23.2	42.9	21.4	12.5	28.6	35.7	17.9	17.9	16.1	53.6	16.1	14.3
Planning ahead of time	21.4	28.6	19.6	30.4	32.1	19.6	23.2	25.0	25.0	25.0	14.3	35.7
Students remind me	21.4	26.8	25.0	26.8	19.6	28.6	26.8	25.0	17.9	32.1	19.6	30.4
Learning how to use												
Observing other educators	32.1	39.3	19.6	8.9	33.9	32.1	19.6	14.3	35.7	32.1	21.4	10.7
Receiving trainings	25.0	35.7	19.6	19.6	25.0	30.4	25.0	19.6	25.0	26.8	28.6	19.6

Percent values of the sample responding "much more likely" and "more likely" are displayed in bold for the three facilitators that were most frequently endorsed (defined as those with the largest percent of the sample indicating "much more likely" or "more likely") for each Tier 1 intervention

Table 6 Survey results for facilitators to the Tier 2 intervention: percent of teachers who endorsed each facilitator

	Daily behavior reports			
	% Much more likely	% More likely	% A bit more likely	% No more likely
Beliefs that strengthen intentions				
Believe important or appropriate	20.0	34.5	29.1	16.4
Believe effective	20.0	34.5	29.1	16.4
Believe supported by school leaders	21.8	30.9	30.9	16.4
Factors that assist with executing				
Student–teacher relationship	**36.4**	**25.5**	21.8	16.4
Students remind me	**32.7**	**25.5**	25.5	16.4
Having built the habit	**25.5**	**30.9**	27.3	16.4
Class routine reminds me	29.1	23.6	27.3	20.0
Planning ahead of time	27.3	21.8	25.5	25.5
Use techniques to calm self	10.9	21.8	23.6	43.6
Visual/auditory reminders	23.6	25.5	25.5	25.5
Learning how to use				
Observing other educators	21.8	27.3	30.9	20.0
Receiving trainings	18.2	27.3	23.6	30.9

Percent values of the sample responding "much more likely" and "more likely" are displayed in bold for the three facilitators that were most frequently endorsed (defined as those with the largest percent of the sample indicating "much more likely" or "more likely")

unique information beyond being the opposite of an identified barrier (e.g., 'opposite' barriers were not identified for the facilitators having a strong student–teacher relationship, believing the interventions are supported by school leaders, and observing other educators). Further, the survey results for facilitators provided unique information beyond the survey results for barriers, highlighting the importance of examining teacher-reported facilitators.

Some of the individual-level facilitators identified here were consistent with those reported by past studies, such as planning and reminders to use praise (Shernoff et al., 2020). The current results expand on this prior work by demonstrating the many factors that teachers find helpful during their regular instructional practice, rather than when they are receiving consultation or coaching support. This highlights the importance of using a strength-based approach when developing implementation supports. In particular, the teachers in this sample identified a range of facilitators that they are already using to support their use of behavioral classroom interventions; implementation supports can leverage these facilitators to draw on and replicate existing teacher strengths.

When interpreting these results, it is important to consider the role of both teachers' and students' backgrounds, cultures, and lived experiences. The samples of teachers who participated in both studies were predominantly White and female, which is consistent with the demographics of the teaching workforce in this school district and in the USA (Feistritzer, 2011). The school district in which this study took place serves students predominantly of minoritized backgrounds. Therefore, differences between teachers' and students' cultural backgrounds, experiences of racism, and other lived experiences may have influenced how teachers' identified students with ADHD symptoms, perceived the cultural fit of behavioral interventions, or considered other barriers or facilitators to their use of these interventions.

Limitations

Several limitations are important to consider when interpreting these results. First, data were collected during the COVID-19 pandemic when teachers were engaged in fully remote or hybrid instruction. Because the ultimate goal of this work is to better support teachers in using behavioral interventions for traditional, in-person instruction, teachers were instructed during the interviews and surveys to report on their experiences during their most recent face-to-face instruction. During the interviews, teachers showed little difficulty in doing this. Nevertheless, teachers may have varied in the accuracy of their recall. Second, all data included in this study relied on teacher self-report; there was no observational component. Self-report data are subject to a number of biases (e.g., social desirability bias, Paulhus, 1984) and there is evidence that teacher self-report may overestimate use of strategies compared to observer-reported use (e.g., Lane et al., 2008). However, the goal of this study was to elucidate teacher-reported barriers and facilitators to Tier 1 and Tier 2 interventions, rather than to describe the rate at

Fig. 2 Results from survey about facilitators to use of behavioral classroom interventions. 2a. Specific praise: percent of teachers who endorsed each facilitator B. Daily behavior report: percent of teachers who endorsed each facilitator

A Specific Praise: Percent of Teachers who Endorsed Each Facilitator

B Daily Behavior Report: Percent of Teachers who Endorsed Each Facilitator
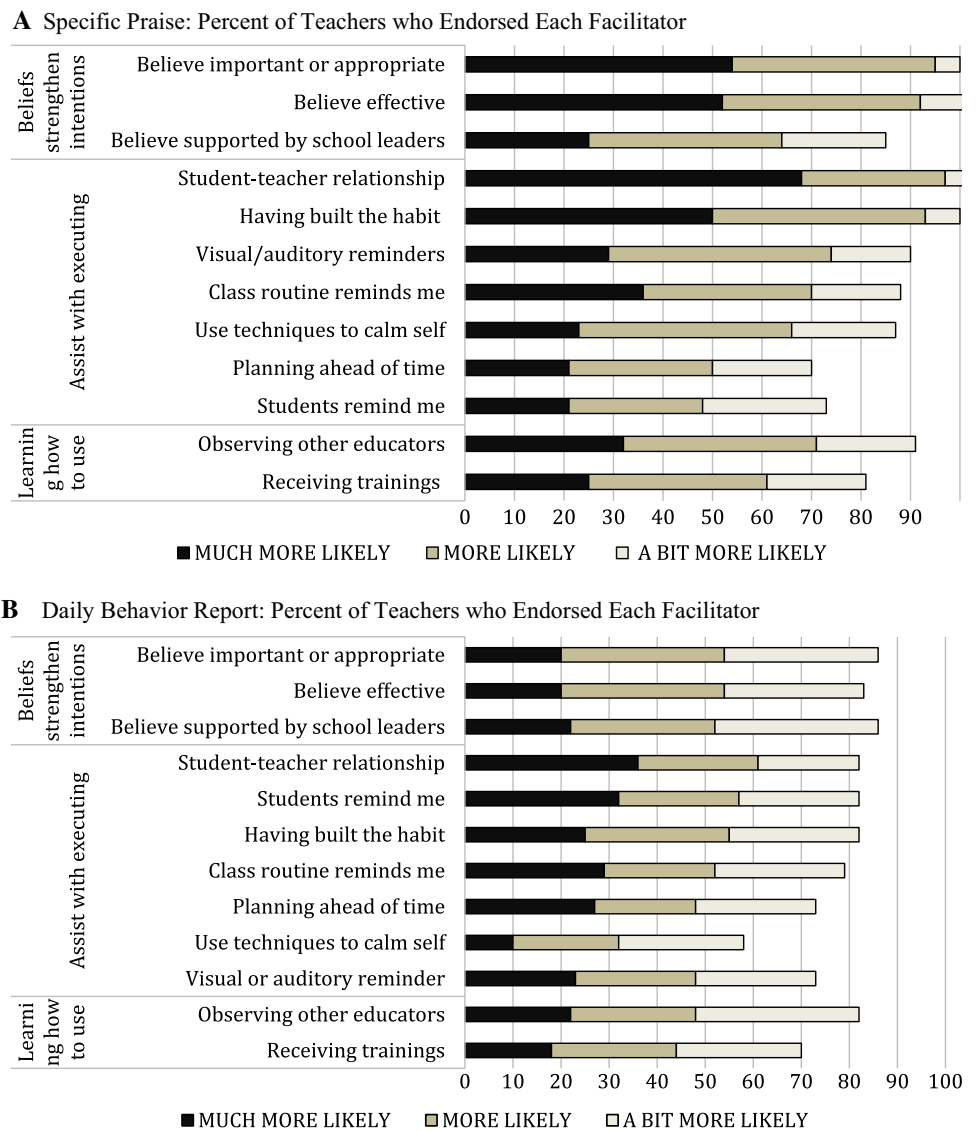
which they use these interventions, and teacher-report interviews and surveys are the most appropriate method for this purpose. Third, additional research is needed to examine the reliability and validity of the survey we developed.

Fourth, the sample was limited to teachers from five schools in a large, urban school district, and results may differ in other contexts. Furthermore, participation in interviews and surveys was voluntary, and recruitment happened remotely due to the COVID-19 pandemic, so teachers who participated in interviews and surveys may not have been representative of the school population as a whole. We addressed this concern, in part, by making an effort to recruit teachers for interviews across a range of intentions to use the behavioral interventions. The response rate for the survey was comparable to response rates obtained on other voluntary surveys (Baruch & Holtom, 2008), and teachers who participated in interviews did not differ from those who completed the pre-survey in the demographic and professional characteristic we measured. Nevertheless, only about half of the invited teachers participated in the pre-survey, and it is possible that there may have been a selection bias in the sample of teachers who consented to participate in interviews or surveys. In future studies, it would be useful to include larger samples of teachers and schools.

Finally, it is important to note that teachers did not report on their use of behavioral classroom management interventions with students with a confirmed ADHD diagnosis. Rather, they were asked to identify a student "who showed higher levels of hyperactive, inattentive, and impulsive behavior than their peers." This approach was appropriate, given that teachers may not be aware of student diagnostic status, and select classroom interventions based on presenting behavioral concerns, not diagnoses. Nevertheless, it may be important for future work to clarify whether teachers'

perceptions of behavioral classroom management interventions differ regarding a student with a confirmed ADHD diagnosis.

Implications

The current results have several implications for developing effective approaches to support teachers in using behavioral classroom interventions for students with ADHD symptoms or other disruptive behavior problems. Emerging teacher coaching models are starting to focus on teacher knowledge, skills, *and* attitudes (e.g., Owens et al., 2017; Reinke et al., 2014); the current results suggest that these approaches are indeed appropriate. These results also suggest that it is important to explicitly target factors such as habits and reminders, which are often not used as key targets in teacher coaching.

The student–teacher relationship emerged as a key factor for supporting teachers' use of evidence-based behavioral intervention for children with or at-risk for ADHD. Existing literature suggests that students with ADHD tend to have poorer relationships with their teachers than their peers do (Ewe, 2019), and that the student–teacher relationship may be important in shaping students' school engagement (Rushton et al., 2020). To our knowledge, the presence of a strong student–teacher relationship has not been previously identified as an important facilitator of teachers' use of behavioral classroom management interventions, despite the fact that positive-student teacher relationships are related to important academic outcomes (Hamre & Pianta, 2001). This finding has key implications for the development of implementation strategies and teacher coaching models, as it suggests that an explicit focus on strengthening teachers' relationship with students with ADHD may be an important way to strengthen evidence-based intervention use. Recent evidence suggests that approaches such as the establish—maintain—restore method (Cook et al., 2018), as well as the use of personal greetings, check-ins and CARE time (Mikami et al., 2020, 2021) show promise for improving student–teacher relationships at the class-wide level; the current results highlight the importance of this work and suggest opportunities to integrate approaches to supporting teachers' in both strengthening relationships with students and using behavioral classroom interventions.

Similarly, these results highlight the importance of teacher stress and wellness when developing approaches to support teachers in using evidence-based intervention. In the current study, teachers clearly expressed in interviews that feelings of stress and burnout and difficulty managing competing demands make it more difficult for them to use behavioral interventions; indeed, these barriers were frequently endorsed by the larger sample of surveyed teachers across interventions. This is consistent with findings that

teachers with higher levels of stress and emotional exhaustion use Tier 2 positive behavioral supports less frequently (Reinke et al., 2013) and implement daily report card interventions with poorer quality and shorter duration (Owens et al., 2019), compared with teachers with less stress or exhaustion. Promoting teacher wellness is important for many reasons, including reducing turnover (Simon & Johnson, 2015); the current results suggest that teacher wellness and stress management are also important for supporting teachers' use of evidence-based intervention, and indicate that it may be justified for implementation supports, including teacher coaching models, to target teacher well-being as a more explicit focus. These results also highlight the importance of policy changes to address the macro-level factors that contribute to teacher stress and burnout (e.g., Lambert et al., 2018).

Although interview and survey results were largely consistent across the Tier 1 interventions, the results suggest some need to tailor messaging and problem solving to each practice. In particular, believing that the intervention would have negative social/emotional consequences was frequently endorsed for specific praise, but this barrier was not reported as frequently for the other interventions. In semi-structured interviews, teachers shared beliefs that praising an individual student would lead to that student being teased by peers, or that other students would feel left out. Additionally, beliefs about negative academic consequences were endorsed frequently for brief and specific behavior corrections; in interviews teachers specifically described concerns that correcting behavior in this matter would interrupt the flow of instruction. These results suggest that acknowledging and addressing these teacher concerns may be important for supporting teacher use of specific praise and behavior corrections.

Finally, the results suggest that implementation strategies for daily behavior reports should involve approaches to support teacher reminders or 'building the habit'. This could occur via technology and/or assigning students responsibility for card completion. Students reminding the teacher was endorsed as making teachers "much more likely" to use this intervention by 35.7% of the survey sample, even though this facilitator was not frequently endorsed across the Tier 1 interventions. In semi-structured interviews, teachers described how they found it helpful to assign students the responsibility of bringing the card to them for completion.

Conclusion

This work adds to the literature on potentially malleable factors that influence teachers' use of evidence-based behavioral intervention in the classroom by using a mixed-method approach and identifying facilitators, as well as barriers, that teachers report during their everyday practice.

Teachers reported a wide range of barriers and facilitators that included both beliefs about the interventions and factors that impact their ability to execute the interventions in the moment, suggesting that approaches to support teachers must address both types of factors. These results also revealed specific factors—such as the student–teacher relationship, habits, and teacher stress—that are not commonly identified as targets in teacher consultation models. By suggesting these potentially fruitful targets for implementation supports, this work provides an important step toward the development of effective approaches to support behavioral classroom interventions, particularly in the context of large, urban school districts.

Declarations

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