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Abstract

Although school-based preventive parenting interventions have been found to promote children's social-emotional skill development and behavioral functioning, it is important to understand potential barriers to engagement in such programs to ensure that intervention access is equitable and likely to reach those who could most benefit. In the current study, we tested independent and interactive associations between parents' concerns about their child's hyperactivity behavior and their perceived stress in relation to their participation in a preventive parenting intervention, the Family Check-Up (FCU), delivered when children were in kindergarten. Participants were parents of 164 children who were randomized to the intervention group of a randomized controlled trial that took place at five elementary schools. Results indicated that parents who reported higher levels of hyperactivity in their children and high levels of perceived stress were less likely to initially engage in the FCU, but if they did engage, they were more likely to participate more intensively as measured by total treatment time. Parents' motivation to change mediated the association between high parent stress and child hyperactivity in relation to total treatment time. This study has important implications for the use of motivational interviewing strategies to engage parents in school-based, family-centered interventions.

Keywords: family engagement, parenting stress, home-school collaboration

Engagement in a Brief Preventive Parenting Intervention during the Transition to Kindergarten: Effects of Parent Stress and Child Behavior Concerns

The transition to kindergarten is not only an important developmental milestone but is also considered a sensitive period for subsequent school success (Rimm-Kaufman & Pianta, 2000). Children vary considerably in their readiness and preparation for kindergarten (Jiang et al., 2021), particularly in the domain of social-emotional skills (Curby et al., 2018) such as self-regulation and behavioral control. Social-emotional skill deficits and behavioral challenges in kindergarten are associated with mental health problems in adolescence and adulthood (Jones et al., 2015; Thomson et al., 2019), and are predictive of academic skill development throughout elementary school (Burchinal et al., 2020). A large body of research consistently indicates that parenting is a potent predictor of children's behavioral adjustment to formal schooling (Ferretti & Bub, 2017; McWayne et al., 2012). Therefore, understanding how to best provide support to parents of children who may be struggling during the transition to schooling is critical.

School-based preventive interventions hold great promise for promoting positive parenting skills, with ensuing benefits to children's social and emotional skills and behavioral functioning (Doyle et al., 2018). However, parents are frequently left out of school interventions and when they are included it is often done in a school-centric manner that prioritizes educators' goals and school priorities (Garbacz, McIntosh, et al., 2018). However, interventions that center on families, and their goals, hold promise for promoting home-school connections and supporting parents in engaging in interventions that emphasize their values (Sheridan & Garbacz, 2021). In addition, universal prevention programs aimed at reducing children's risk for behavioral health problems can help overcome some of the substantial barriers presented by traditional behavioral healthcare models (Reinke et al., 2009) in which treatment can be costly,

require high health literacy, and is often available only when behavioral problems have exceeded a certain threshold (Owens et al., 2002). There is some research indicating that school-based universal preventive parenting interventions effectively engage those families who may benefit the most (Winslow et al., 2016). Indeed, school-based prevention that is family-centered in nature can promote equity through identifying and overcoming barriers to access and engagement in mental health services in ways that prioritizes family values and goals. However, it is important to understand potential barriers to engagement in different types of school-based preventive parenting interventions to ensure that intervention access is equitable.

The Health Belief Model (Rosenstock et al., 1988) provides a useful framework for understanding influences on families' inclination to participate in a universally offered preventive intervention. A version of this model applied specifically to participation in parenting skills programs posits that family factors, including demographic characteristics and child problem behaviors, influence parents' perceptions of concern severity and susceptibility to future problems, and subsequently their perception of a program's potential benefits (Spoth & Redmond, 1995). These factors, along with the family's perceived barriers to participation, are hypothesized to influence parents' enrollment and engagement in parenting skills programs.

The Health Belief Model posits that the perceived severity of a problem is a major influence on the actions that individuals take to seek treatment for a health problem. Research suggests that generally, parents who perceive their children's behavior to be more problematic are more likely to participate in preventative parenting programs (Garvey et al., 2006; Heinrichs et al., 2005; Winslow et al., 2009). However, the literature has been less consistent in establishing an association between parents' perception of problem severity and their continued engagement in a parenting intervention. Some research indicates that parents' report of their

children's hyperactive and/or impulsive behavior is related to their continued involvement in mental health services (McKay et al., 2001). However, another study found that parents' report of high levels of child problem behaviors was associated with greater initial engagement in a parenting program, but these parents were also at increased risk of terminating mid-treatment (Mauricio et al., 2014). It could be that parents gain skills that result in an increase in self-efficacy and a reduction in the perceived severity of their child's behavior early in treatment, which reduces the likelihood that they will continue to attend sessions, particularly in the context of high levels of barriers to attendance (e.g., time constraints, travel challenges, perceived stress).

Parents' perceived stress is a potentially critical contextual factor for understanding families' engagement in and participation in preventive parenting programs. For the purposes of the current study, parent perceived stress is defined as parents' perceptions of the extent to which they view general aspects of their lives, which encompass parenting roles and tasks, as stressful. This definition contrasts with most prior research on parent stress and participation in parenting interventions, which has focused on measuring stress specifically associated with the parenting of a child with behavioral challenges (e.g., Werba et al., 2006; McWey et al., 2015; Lai et al., 2019; Rostad et al., 2018). Overall, evidence is mixed regarding whether parent stress, defined specifically as parenting stress or broadly as perceived challenges with coping with life events, acts as a barrier or a facilitator to engagement in preventive parenting interventions.

Some research indicates that stress may be a barrier to engagement, with parenting or family stress having been associated with attrition/early dropout (Werba et al., 2006) and missed appointments (McKay et al., 2001) in clinically referred children and parents involved with the child welfare system (McWey et al., 2015). Parents' endorsement of economic and family stress has also been found to predict reduced likelihood of enrollment (Wong et al., 2013) and

subsequent participation (Perrino et al., 2018) in preventive parenting interventions. In addition, in a study of clinically referred families, parents endorsed their own stress as a significant barrier to treatment engagement (Salloum et al., 2016).

Several other studies have found that parental stress is associated with *higher* likelihood of engagement in treatment and preventive interventions. Researchers have found that parents' stress related to parenting and managing child behavior is associated with greater treatment retention (Lai et al., 2019; Williamson et al., 2016) in clinically referred children and higher rates of parenting program completion in a child welfare-referred sample (Rostad et al., 2018). Interestingly, parents' endorsement of personal or family stressors as a barrier to participation in a preventive parenting program has been associated with increased rates of enrollment in the program (Dumas et al., 2007). A potential explanation for these mixed findings is that interactions between parent stress and other variables are infrequently tested (Lai et al., 2019). It could be that for parents experiencing greater stress, perception of child adjustment problems must exceed a certain threshold before the benefits of participation outweigh the costs (Webster-Stratton, 1998).

Very few studies have tested the interaction between parent perceptions of their own stress and concerns about their children's behavior in relation to parenting program engagement. One study using a sample of parents of children referred to an ADHD clinic found that child hyperactivity/impulsivity was positively associated parents' readiness for change, but only at low levels of parenting stress (Jones et al., 2017). Rather, at high levels of parenting stress, parents' readiness for change was high regardless of the levels of child behavior concerns. Understanding how family contextual stress moderates the association between parents' behavioral concerns and intervention participation is critical, as it has important implications for adapting

interventions to ensure the highest likelihood that they will be delivered to those families who can most benefit. One parent intervention that is specifically focused on promoting engagement while considering parent stress is the Family Check-Up.

Family Check-Up

The Family Check-Up (FCU) is a school-based intervention that uses a family-centered orientation to assessment and treatment. The FCU is grounded in a developmental ecological model that emphasizes the role of home, school, as well as the connections between those settings, in promoting children's learning and development (Stormshak et al., 2000). Families in schools that use the FCU provide all families with parenting resources and educational materials about supporting their child's schooling. The FCU intervention is brief and includes an initial interview, an ecological assessment, and a feedback session. Within the FCU, the focus is on identifying goals relevant for the family, understanding family strengths that can serve as catalysts to help families reach their goals, and direct support to families as they implement strategies at home and with their child's teacher to promote academic, social, emotional, and behavioral competencies for their children (Stormshak et al., 2011; Stormshak & Dishion, 2009). The FCU incorporates motivational interviewing (MI) and tailored intervention options to promote an emphasis on family goals and strengths, as well as on the promotion of positive child outcomes (Stormshak et al., 2021).

Prior research on the FCU has demonstrated the relevance of this family-centered intervention for promoting positive child and parent outcomes. In the context of randomized controlled trials (RCTs) during early childhood, findings suggest improvements based on assignment to the FCU condition on children's self-regulation and behavior problems (Dishion et al., 2008). Findings from RCTs during early elementary school suggest that based on random

assignment to the FCU (relative to a school-as-usual condition), findings suggest improvements in effective parenting skills and reductions in child emotional and behavior problems (Garbacz et al., 2020; Stormshak et al., 2021). During middle school, findings from RCTs suggest impacts of the FCU on child self-regulation, school engagement, depression, and substance use (Stormshak et al., 2005, 2010, 2011), for ethnically and socioeconomically diverse students and families (Dishion et al., 2002, 2003).

In addition to main effects of the FCU on outcomes, findings from FCU research have also suggested differential effects and effects based on risk. For example, FCU effects during elementary school on parenting skills have been found to be moderated by parenting contextual stress such that as stress increases, so do effects of the FCU on effective parenting strategies (Stormshak et al., 2020). In addition, findings from FCU studies in early to middle childhood (Smith et al., 2018) and middle school (Stormshak et al., 2009) have suggested that families with the highest risk are most likely to engage.

Current Study

In the current study, we aimed to test independent and interactive associations between parents' concerns about their child's behavior and their perceived stress in predicting their participation in a preventive parenting intervention, the FCU, delivered when children were in kindergarten. We addressed these aims using two complementary measures of intervention participation: completion of the feedback session of the FCU and total treatment time. The feedback session is considered the critical ingredient of the FCU intervention (described in detail below) and total treatment time was used to capture the intensity of parents' intervention participation following the feedback session.

We also included parents' motivation to change, a critical variable in understanding intervention participation, as a mediating variable in our model. Only one other study was found to have previously tested the interaction between child behavior concern and parent stress, with researchers using parent motivation to change as the outcome of interest (Jones et al., 2017). Including caregiver motivation to change in models predicting intervention participation is also specifically relevant to the FCU, of which MI is a fundamental component (Stormshak et al., 2021). A prior study of the FCU suggests that caregiver motivation to change predicts improvements in youth behavior concerns (Fosco et al., 2014), however, it is not known whether caregiver motivation to change also predicts FCU engagement.

Based on literature suggesting that parents' concerns about child behavior predicts participation in parenting programs, we hypothesized that parents' report of their children's hyperactive behaviors would be positively associated with their engagement in a preventive parenting program. Hyperactive symptoms were selected as children with hyperactive/impulsive symptoms at the transition to kindergarten are at particularly high risk of impaired school readiness (Perrin et al., 2019). Given mixed findings in the literature on the association between parents' perceived stress and participation in preventive parenting programs, we did not specify a hypothesis for the direct effect of perceived stress on engagement. Regarding the interaction between parent concern about child hyperactivity and perceived stress in relation to intervention engagement, we anticipated that at high levels of parent stress, the association between child hyperactivity and FCU participation would be attenuated due to the cumulative nature of multiple sources of stress (Bagner & Graziano, 2013) acting as a barrier to participation.

A final aim was to understand the role of parents' motivation to change as a mechanism in the association between parent stress, child hyperactivity, and/or the interaction between these

two variables in relation to FCU participation (see Figure 1). Based on previous literature (Jones et al., 2017), we predicted that the relationship between parent behavior concerns and motivation to change would be strongest at low levels of parent stress. We predicted that parent motivation to change would also be a significant mediator in the moderation model, based on research suggesting that parent motivation is associated with greater treatment participation (Bloomquist et al., 2012; Nock & Photos, 2006).

In summary, the current study sought to address gaps in the literature regarding how parents' perceived stress moderates the association between their concerns for their child's hyperactive behaviors and their participation in a school-based preventive parenting program, as the extent to which parent stress is associated with intervention participation has been quite mixed in past research. We sought to specifically address the following research questions: (a) What are the independent associations between parent stress and child hyperactive behaviors in predicting initial engagement and continued participation in the FCU? (b) Do parents' perceptions of their life stress alter the association between their report of their child's hyperactive behaviors and their engagement and continued participation in the FCU? (c) Are associations between parent stress/hyperactivity and FCU participation mediated by parents' reported motivation to change? (d) Do associations between parent stress, child hyperactivity, parents' motivation to change, and FCU participation vary depending on the type of participation that is being measured: initial engagement versus continued participation?

Method

Participants

Three hundred sixty-five parents provided their consent to participate in this study and 190 were randomized to the intervention group. Of the 190 families who were randomized to the

intervention group, 26 families did not complete any of the assessments, nor did they participate in the FCU. The current sample is therefore limited to those families who were randomly assigned to the intervention group *and* for whom baseline data are available (n = 164). Children attended one of five elementary schools in a city in the Northwest region of the U.S. Four of the schools were Title I schools. Average student enrollment across the five schools was 442 (SD = 98.9). Approximately 65% of the student body across all five schools were eligible for free or reduced-price lunch.

Measures

Child hyperactivity was measured using the Hyperactivity subscale of the Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997). Prior research indicates that the parent-reported SDQ Hyperactivity subscale is a brief and effective screener for ADHD in preschool and early school-age children (Algorta et al., 2016; Øvergaard et al., 2018), making it an ecologically valid measure for use in the current study. The Hyperactivity subscale consists of five items assessing child hyperactive behaviors (e.g., "restless, overactive, cannot stay still for long"). Parents were asked to indicate to what extent each item was true of their child's behavior in the past month using a 3-point scale (*not true*, *somewhat true*, *certainly true*). The internal consistency of the Hyperactivity subscale in the current sample was $\alpha = .84$. The SDQ has been found to have satisfactory reliability and validity (Goodman, 2001).

Parents' perceived stress was measured using the 10-item Perceived Stress Scale (PSS) (Cohen et al., 1994). The PSS was designed to measure the extent to which individuals perceive their current life situations as stressful by collecting information about how unpredictable, uncontrollable, and overloaded they have been feeling in the past month (e.g., "in the last month, how often have you felt that you were unable to control the important things in your life?). Given

that the extent of parents' concerns about their children's behavior and their perceived stress could plausibly be related to one other, we elected to use a broad measure of parents' perceived stress, focusing on perceptions of daily life as being stressful, rather than a more specific measure of stress related to the parenting role or child behavior, to attempt to minimize the overlap between these constructs. The PSS has been used previously in studies measuring perceived stress in samples of parents (e.g., Achterberg et al., 2021; Savari et al., 2021; Wang et al., 2019). The 10-item PSS (i.e., the version used in the current study) has been demonstrated to have adequate validity and reliability (Cohen and Williamson, 1988). Items are rated on a scale from 1 (*never*) to 5 (*very often*). Internal consistency in the current sample was $\alpha = .86$.

Parent motivation to change was assessed using the mean score on three questions regarding their motivation to improve their child's behavior, their parenting practices, and their family interactions (e.g., "how much would you like to see your family interactions change?"). Parents were asked to respond to each item using a scale of 1-10 (where 1 corresponds to *no change needed* and 10 corresponds to *working hard to change*). This measure, which is consistent with Prochaska and DiClemente's theory of change processes (1983), has been used in prior published work on the FCU (Berkel et al. 2021; Fosco et al., 2014). These three items demonstrated internal consistency in this sample at $\alpha = .87$.

As noted above, FCU participation was assessed using two variables. The first was participation in the Feedback; the second was total treatment time (in minutes). These variables are described in more detail below.

Procedures

This study received approval from the appropriate institutional review boards. The study is a registered clinical trial under the name, "The Positive Family Support Project: Partnering

with Families for a Successful Transition to School" (NCT02289092). This study was implemented as a cluster randomized, controlled trial to test the efficacy of the FCU.

Family Check-Up Condition

The FCU was offered to all families who were randomized to the FCU condition (Stormshak et al., 2021). The FCU includes an initial interview, an ecological assessment and a feedback session. Families who agreed to participate completed an initial interview and ecological assessment during one visit. The initial interview focuses on building rapport with parents, learning about their family and their strengths, and understanding their concerns and goals. It is during this session that a collaborative working relationship with the family is established, which centers on the family and their goals. The ecological assessment includes parents' completing measures about the family context, parenting, home-school connections, and child academic achievement and behavior. The assessment also includes videorecorded observations of parent-child activities that are used to better understand the parent-child relationship, parenting skills, and child behavior.

After the initial interview and ecological assessment, families were offered a feedback session that included an individualized menu of intervention services based on their strengths, needs, and risk. Feedback sessions were also tailored based on developmental level; during early elementary school these sessions included information about early learning, parenting skills, contextual stressors, and home-to-school planning. During the feedback session, FCU therapists reviewed data from the parent-completed measures and videorecorded observations and used MI to support parents in creating goals that build on their strengths and address their concerns. After goal setting, parents were offered different intervention options, such as parent skill training and community referrals, that were linked to their goals (Dishion et al., 2011).

Following feedback sessions, parents had the option of participating in additional sessions to work on their goals. These follow-up sessions were collaborative and brief, and based on individualized family supports. The top five topics covered during meetings were (a) child behavior, (b) child academic skills, (c) positive parenting, (d) child emotional health, and (e) child peer relations (Garbacz et al., 2020). Goals were continually assessed in a collaborative manner by the FCU therapist and parent using clinical data collected, such as through follow-up measure completion, videorecorded observations, and time series data based on discrete behaviors (e.g., parent use of specific praise, child off-task behavior).

Therapist Training

FCU therapists completed a competency-based training prior to leading the FCU independently with study participants. After training, therapists received weekly supervision by licensed psychologists who had experience delivering the FCU. Weekly supervision emphasized case conceptualization, FCU implementation, and delivery of feedback to promote fidelity to the model. All therapists were master's or doctoral-level clinicians who had prior experience being trained in the FCU and working on prior projects that used the FCU. The competency-based training included three components. First, therapists participated in an all-day workshop that included training on the FCU, as well as developmental issues pertaining to academics and emotional and behavior concerns, and MI (Stormshak & Dishion, 2009). The training was led by a doctoral-level clinician with decades of experience with family-based and family-school interventions for children. This clinician was a certified FCU therapist, as well as a FCU trainer and clinical supervisor.

The second component of training included therapists observing three live FCUs inclusive of an initial interview, ecological assessment, and feedback session. After observing

the three live FCUs, the third component of training included therapists meeting criterion on two FCUs. The criterion was determined by the doctoral-level trainer observing the two FCUs and rating them using the COACH rating system. The COACH is a measure of FCU fidelity that quantifies the extent to which a therapist implements the FCU with fidelity (Smith et al., 2013) based on the Fidelity of Implementation Rating System (Knutson et al., 2003). The COACH assesses five dimensions of FCU fidelity, such as session structure, responsiveness to parent needs, and use of motivational strategies. To meet criterion, therapists had to receive COACH ratings for the two FCUs that were in the satisfactory range (minimum score of 5 out of 9). Fidelity was monitored throughout the project using the COACH, with all therapists required to be in the satisfactory range. If COACH ratings suggested that the FCU was not implemented to fidelity, supervision was increased, and additional training was provided.

School-as-Usual Control Condition

No limits were placed on participants who were randomly assigned to the school-as-usual control condition. These participants received support from schools and communities, such as behavior support plans at school and mental health support from a community agency. There were no significant differences between the FCU and school-as-usual conditions on the proportion of children who received special services in school, χ^2 (1) = 0.308, $p > .05$, or those who received mental health services, χ^2 (1) = 1.536, $p > .05$.

Analysis plan

As students were nested within five elementary schools, we first tested the necessity of adding a random intercept to account for school clustering using conventional criteria found in the literature. An intraclass correlation coefficient (ICC) of less than 5% is a common convention to assist in decision-making about the necessity of multi-level modeling (i.e., when ICC < 5%,

multi-level modeling is unnecessary; Bliese, 2000). More recent recommendations suggest that multilevel analyses are unnecessary when the design effect (DE) is less than 2.0 (Lai & Kwok, 2015). We tested the ICC and the DE using Mplus version 8 (Muthén & Muthén, 2017) to inform our decisions about whether to account for clustering in our analyses. As the ICCs in our study ranged from .000-.006 and the DEs from 1-1.16, we did not incorporate a random intercept or other multilevel modeling features into our analyses.

We used SPSS version 27 to test all hypotheses. We used logistic regression to test the outcome of feedback participation and linear regression to test the outcome of treatment time. To test the moderated mediation hypothesis, that parent perceived stress would moderate the association between child hyperactivity and parent motivation to change, and that parent motivation to change would mediate the association between child hyperactivity and FCU participation, we used Hayes' PROCESS Macro (Hayes, 2017) with bootstrapping (5000 samples).

Results

Of the 164 families who were randomly assigned to the intervention group and completed the baseline assessment, 28 (17%) families did not participate in the first feedback session. Reasons for non-participation included the following: too busy (n = 6), multiple reschedules or no-shows, followed by lack of response (n = 6), family declined/no longer interested (n = 5), co-parent or partner concerns regarding participation (n = 4), not ready to schedule (n = 4), concern about appointment location (n = 1), not interested in in-person meetings (n = 1), and other barriers, e.g., transportation issues (n = 1). Following the feedback session, 95 families completed follow-up sessions, which were voluntary and based on the feedback and needs assessment. Throughout the FCU process, total treatment time averaged 161.22 minutes (range =

0.00 to 1,120.00, accounting for some families who received no services). The average family in the intervention group received 4.36 total contacts (range = 0.00 to 26.00). At the conclusion of each contact, FCU therapists rated caregiver engagement during the session from 1 (weak) to 3 (strong), with an average of 2.81 (*SD* = 0.30).

Descriptive statistics and correlations are reported in Tables 1 and 2, respectively. Parent-reported child hyperactivity was significantly associated with parent perceived stress ($r = .31$, $p < .05$), total treatment time ($r = .45$, $p < .05$), and parent motivation to change ($r = .40$, $p < .05$). Parent perceived stress was associated with both total treatment time ($r = .32$, $p < .05$) and motivation to change ($r = .55$, $p < .05$). Completion of the feedback session was not significantly associated with child hyperactivity or parent perceived stress.

First, we tested the independent and interactive effects of parent stress and child hyperactivity in predicting initial engagement in the FCU (i.e., completion of the feedback session). Findings from the logistic regression analysis indicated that the odds of completing the FCU initial feedback session were significantly increased at higher levels of parent-reported hyperactivity (OR = 1.60, 95% CI: 1.03-2.49). The interaction between parent-reported hyperactivity and perceived stress was also significant (OR = .77, 95% CI = .60=.99). Specifically, the strength of the association between child hyperactivity and FCU engagement was attenuated at higher levels of parental perceived stress (see Figure 2). Only the slope of the line plotted at low levels of perceived stress (1 SD below the mean) was significantly different from 0.

The linear regression analysis testing the same variables using the outcome of total treatment time also indicated a significant interaction between parent-reported hyperactivity and perceived stress ($\beta = .47$, $p < .05$). Main effects of hyperactivity and stress were not significant (β

= .06 and β = .01, *ns*, for hyperactivity and stress, respectively). Regarding the significant interaction, in the context of *higher* parent stress, the association between child hyperactivity and total treatment time was strengthened (see Figure 3). The simple slope of the line plotted at high levels of perceived stress (1 SD above mean) was statistically significant ($t = 5.05$, $p < .01$).

Finally, parent motivation to change was added as a mediator in the moderation models for both participation outcomes. Parent-reported child hyperactivity was not significantly associated with parent motivation to change, but parent stress significantly moderated the association between child hyperactivity and parent motivation to change (see Table 3). Specifically, at higher levels of parent stress, the association between child hyperactivity and parent motivation to change was strengthened. There was a significant indirect effect of child hyperactivity on total treatment time operating through parent motivation to change, only at higher levels of parent stress. The index of moderated mediation (Hayes, 2015) was statistically significant (B = 1.07, 95% CI = .02-2.93). The conditional indirect effect of child hyperactivity on initial FCU engagement operating through parent motivation to change was not significant, nor was the index of moderated mediation using initial FCU engagement as the outcome of interest (B = -.01, 95% CI = -.42-.03).

Discussion

Overall, our findings regarding the interactive effects of child hyperactivity and parent perceived stress on participation in a preventive parenting intervention depended on the specific outcome being measured. Parents with concerns about their children's hyperactive behavior who also perceived high levels of general stress in their lives were less likely to initially engage in a preventive parenting program, the FCU. However, for parents who did initially engage in the FCU, the combination of high perceived stress and concerns for child hyperactive behavior was

associated with *increased* likelihood of more intensive participation in the FCU, as measured by total treatment time. Finally, the combination of high levels of parent stress and child hyperactivity was associated with increases in parents' motivation to change, which subsequently predicted total treatment time but not initial FCU engagement.

Literature on the effect of family stress on intervention engagement is mixed, with some studies indicating that it may act as a barrier to engagement (McKay et al., 2001; Werba et al., 2006; Wong et al., 2013) and others suggesting that it facilitates participation (Dumas et al., 2007; Rostad et al., 2018; Smith et al., 2018). In the current study, we did not find a significant main effect of parent stress on initial intervention engagement; rather, our findings suggest that the combination of parent stress and elevated levels of hyperactivity behavior concern may together present a barrier to family engagement. This finding has important implications for the use of MI strategies particularly in the initial stages of working with parents in a prevention context (Frey et al., 2011). Very few studies have tested both parent behavior concerns and family stress variables, or their interaction, as predictors of intervention engagement (Lai et al., 2019). Our findings suggest that testing parent stress as a moderating variable, rather than solely as an independent contributor to intervention engagement, could help clarify the association between family stress and intervention participation. This should be a priority for future work.

Interestingly, when using the intensity of participation in the FCU as the outcome, the pattern of the interaction shifted such that those parents who participated most in the FCU as measured by total treatment time were more likely to be experiencing high levels of perceived stress combined with higher concerns for their child's behavior. As the FCU specifically assesses and emphasizes the effects of contextual family stressors on parenting and child behavior

(Metcalfe et al., 2021), it could be that the FCU is particularly well-suited for retaining parents with high levels of stress in a preventive parenting skills program.

We also found evidence for the same pattern of effects on parents' motivation to change, which was found to be a significant mediator in the association between child hyperactivity (as moderated by parent stress) and total FCU treatment time. In a previous study testing the interaction between parent stress and child behavior in relation to parent readiness to change in a clinically referred sample (Jones et al., 2017), researchers found that it was at *high* levels of stress that parent readiness to change was highest, regardless of severity of child behaviors, and only at low levels of parent stress did child hyperactive/impulsive behaviors predict motivation to change. Additional research will be necessary to help elucidate why we found a different pattern of findings in the current study, though one possibility is that in a clinically referred sample, motivation to change may be higher overall particularly among parents experiencing stress, as they have already taken substantial steps toward change by seeking treatment. Overall, findings from both studies indicate that it may be beneficial and informative to systematically evaluate parent readiness for change, consistent with the MI framework of the FCU.

Limitations and Future Research Directions

There are several limitations of this study that are important to consider when interpreting findings. This study was a randomized controlled trial of a parenting intervention in which all parents of kindergarten children in five elementary schools were invited to participate, and approximately 50% of families consented to participate in the study. Data for families who elected not to consent to study participation are not available; therefore, it is unknown the extent to which our sample is representative of the school population from which families were drawn. Future research should seek to understand reasons families decide to participate and not

participate in such interventions. Parents may have elected not to participate in the study for a variety of reasons unrelated to the intervention, including discomfort with data collection and possibility of being randomized to a school-as-usual control group. Our sample should be considered representative of those families who indicate initial interest in participating in a preventive parenting intervention, not the population of families of kindergartners in general. Additional research is needed to better understand the priorities and preferences of families about obtaining support for their family and children.

In the present study, master's and doctoral level clinicians implemented the FCU with families, which presents some unique limitations and opportunities for future research. These clinicians engaged in a rigorous training program and participated in ongoing supervision. The dedicated time these clinicians had to implement the FCU and participate in an initial training with ongoing supervision may not resemble typical conditions in schools. The training, time, and support these clinicians had may have influenced their ability to promote family engagement. It will be important for future studies to learn more about the transportability of the FCU to day-to-day school practices.

The relationship between child hyperactive behaviors and parent stress should also be acknowledged. In the current study, in which we conceptualize parent stress as a variable that moderates the effect of child hyperactive behaviors in relation to intervention participation, these variables were moderately correlated (r = .30). However, it is well established that parent stress is a likely contributor to child dysregulation (Fields et al., 2021) and that child externalizing behaviors are associated with increases in parenting stress (Beernink et al., 2012), and our models were unable to account for these potential bidirectional effects. A direction for future

research would be to use a longitudinal cross-lagged panel model, which could help to elucidate such bidirectional effects.

A unique strength of the current study is that we included parents' motivation to change in our model of family intervention engagement. The scale that we used to assess this construct, which is based on Prochaska and DiClemente's Transtheoretical Model (1983), has been used in past studies of the FCU (Berkel et al., 2021; Fosco et al., 2014). However, a limitation of the use of this measure is that it has not been validated and robust psychometric evidence is lacking. Therefore, conducting additional research on the reliability and validity of this measure will be an important future direction.

Implications

Findings from this study point to the importance of parents' experiences with their child's hyperactive behavior and perception of general life stressors in their decision about whether to engage and how much to engage in the FCU. The Health Belief Model suggests child behavior severity and general life stressors can influence a parent's decision about engagement, initially and over time. However, research findings have been equivocal in identifying precisely how child behavior and life stressors influence parents' engagement. Present study findings suggest that it may be helpful for school psychologists to describe the benefits of family-centered support during initial outreach to families. Such an approach may clarify for families the likelihood that they will benefit from services and provide assurance that the services will be tailored for them based on their availability and goals.

Among the barriers commonly cited for family-centered interventions in schools include a sense that families do not have the time or interest to engage (Garbacz, McIntosh, et al., 2018). Findings from the present study suggest that once parents initially engage in the FCU, the

combination of high perceived stress and concerns for child hyperactive behavior was associated with more intensive participation in the FCU. Findings also suggest the important proximal impact of parents' motivation to change on continued engagement in the FCU. Although the exact underlying mechanism responsible for these findings is not clear, grounding in related research (Sheridan & Garbacz, 2021) suggests that one explanation may be that once engaged, parents find the family-centered, collaborative, and goal-oriented FCU process to be feasible and effective. Indeed, parents typically rate the FCU to be highly acceptable (Garbacz et al., 2020). Another explanation for parents' continual engagement in the FCU once initially engaged may be related to the FCU's integration of MI as a method of communication for focusing on family goals and promoting change in alignment with their goals (Stormshak et al., 2021). The influence of motivation to change as a mediator on continued engagement in the present findings underscores this suggestion. School psychologists may find it useful to consider MI as an approach to communication with families as part of a collaborative and family-centered process. Such an emphasis on MI and family-centered practices that emphasize families' goals promotes equitable implementation of mental health support through an initial and ongoing commitment to families.

The creation of a family-centered climate within schools may be an effective means for promoting initial engagement and continual engagement in the FCU or related family-centered interventions. In the present study, all families in the FCU condition had access to universal supports that were aligned with school systems and practices. This universal support can provide a pathway to targeted and intensive family-centered support (Moore et al., 2016). As one part of universal supports, it can be helpful for school psychologists to convey the benefits, feasibility, and focus on family goals to families during initial outreach, though if that outreach is in the

context of a family-centered school climate, benefits on engagement may be enhanced (Sheridan & Garbacz, 2021). For example, disconnected from a family-centered climate, parents may question whether the intervention is appropriate for them (e.g., focused on their family culture and goals). Parents may also be hesitant to engage due to a lack of trust in the school (Santiago et al., 2016). However, as part of a broader family-centered school climate, information about the FCU can be shared as part of that broader orientation toward families. In addition, information can be conveyed by trusted individuals, such as a classroom teacher or other parent (Garbacz, Hirano, et al., 2018).

Conclusion

Overall, the current study suggests that both parents' child behavior concerns and their perceived stress are important variables for understanding parents' motivation and subsequent participation in a preventive parenting intervention, the FCU, and that the effects of parent stress on participation may vary depend on the specific participation outcome that is selected. Replication of these findings is necessary, particularly with a larger sample. Researchers should continue to examine interactions between contextual factors such as parent stress in relation to participation in intervention and prevention programs, as research in this area can inform our understanding of equitable access to school-based family and behavioral health initiatives.

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Table 1

Descriptive statistics

Demographic Characteristics of Families in Family Check-Up Condition (N = 190)	M (SD) or % endorsed
Child age	5.52 (.5)
Child gender - female	46.3%
Parent race/ethnicity	
White	72.9%
Hispanic/Latinx	13.7%
Multiple races/ethnicities	7.8%
Asian	2.8%
Black/African American	1.9%
Unknown	.6%
Annual family income < $40,000	47.2%

Table 2

Correlations among study variables

Variable	1	2	3	4	5
1. Child hyperactivity (SDQ[a])	--				
2. Parent stress (PSS[b])	.30*	--			
3. FCU engagement: Y1	.04	-.07	--		
4. Treatment time (minutes):	.45*	.32*	.00	--	
5. Parent motivation to change	.40*	.55*	-.01	.32*	--

[a]Strengths and Difficulties Questionnaire. [b]Perceived Stress Scale.
* $p < .05$

Table 3

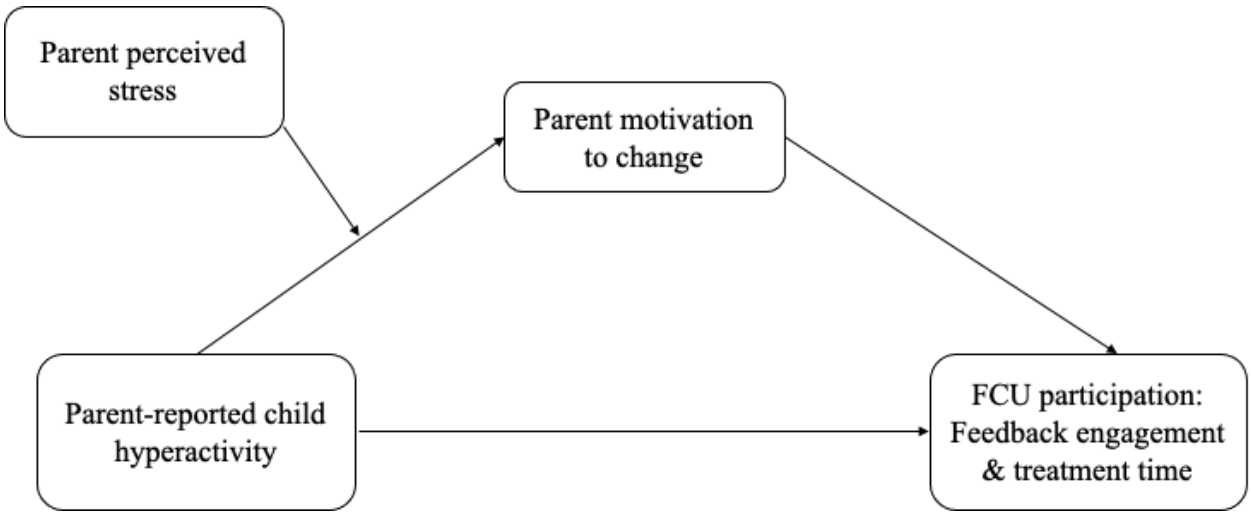
Coefficients, Standard Errors, and Summary of Moderated Mediation model

	B	*SE*	*p*
Mediator: Motivation to change			
Constant	1.59	.74	
Child hyperactivity	-.11	.17	.53
Parent stress	1.35	.56	.02*
Child hyperactivity X parent stress	.25	.12	.04*
Outcome: Treatment time			
Constant	39.67	9.89	
Child hyperactivity	9.28	1.96	.00*
Motivation to change	4.28	1.89	.03*
	Boot SE	BootLLCI	BootULCI
Conditional indirect effects of child hyperactivity on motivation to change (at 16th, 50th, and 84th %ile of parent stress)			
Low parent stress	.27	-.50	1.12
Medium parent stress	.92	.05	2.20
High parent stress	1.56	.10	4.75

Note. LLCI: lower limit 95% confidence interval; ULCI: upper limit 95% confidence interval.
*$p < .05$

Figure 1

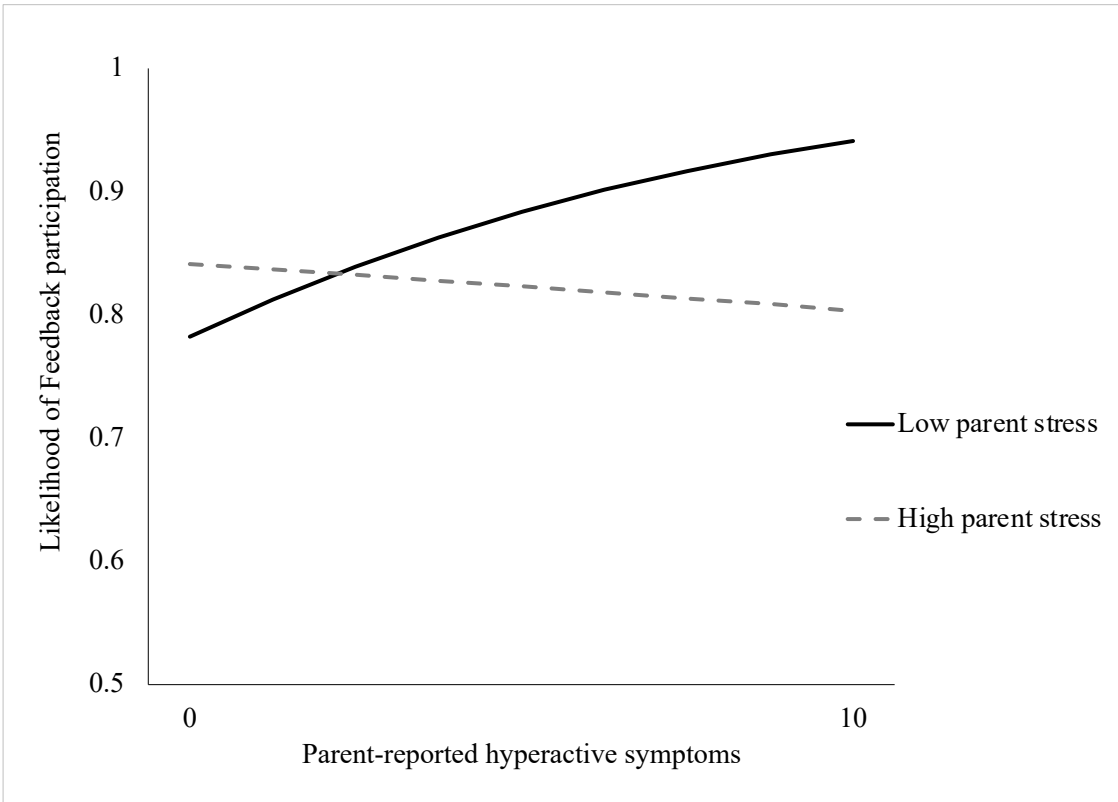
Moderated mediation theoretical model



Note. Theoretical model noting the influence of parent-report of child hyperactivity behavior on participation and engagement in the FCU through parent motivation to change as moderated by parent perceived stress.

Figure 2

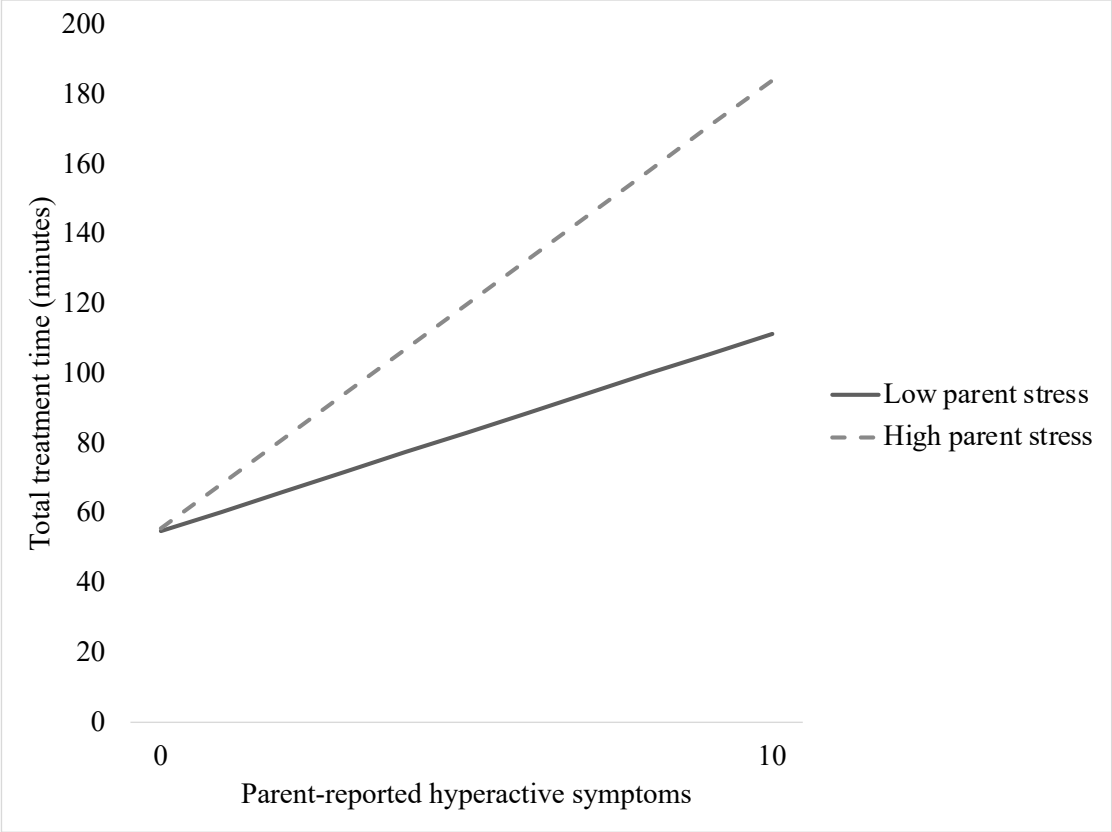
Interaction between Child Hyperactivity and Parent Stress in relation to Likelihood of Family Check-Up Feedback Participation



Note. Graphical depiction of the interaction between child hyperactivity and parent perceived stress with participation in the Family Check-Up.

Figure 3

Interaction between Child Hyperactivity and Parent Stress in Relation to Total Family Check-Up Treatment Time



Note. Graphical depiction of the interaction between child hyperactivity and parent perceived stress with engagement in the Family Check-Up based on total treatment time.