

ABSTRACT

PATHWAYS TO UPPER ELEMNTARY SCHOOL STUDENTS' INTERNALIZING AND EXTERNALIZING SYMPTOMS: A LOOK AT ACHIEVEMENT AND CONTEXT

by Katelyn Elizabeth Wargel

One in six elementary school students experience emotional or behavioral difficulties that can impact their functioning at school and as they develop through adolescence and adulthood. Low academic achievement has been identified as a potential factor associated with increased internalizing and externalizing symptoms. However, the link between academic achievement and internalizing or externalizing symptoms receives mixed support in the literature. The current study explored potential moderating factors that might account for these inconsistent findings among a sample of upper elementary school students. Results did not support the hypothesis that individual (gender and social emotional competence), social (peer problems), or environmental (classroom diversity acceptance) factors might moderate the relation from reading achievement to internalizing or externalizing symptoms. Baseline internalizing and externalizing symptoms were the strongest indicators of future increased symptoms in each respective domain. The findings emphasize the importance of screening children for early signs of symptoms and providing early prevention and intervention programs at elementary schools to help mitigate the development of internalizing and externalizing behaviors before they become well-established, increase, or become resistant to intervention.

Keywords: early intervention, externalizing symptoms, internalizing symptoms, reading achievement, school-based mental health,

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Introduction

Internalizing symptoms (characterized by anxious or depressive feelings) and externalizing symptoms (characterized by aggressive, impulsive, or oppositional behaviors) affect approximately one out of every six children in the United States (Centers for Disease Control and Prevention, 2019). Among children ages 3 through 17, a recent review found that 3.2% of children met criteria for depression, 7.2% for anxiety, and 7.4% for conduct disorders (Ghandour et al., 2019). Many other children experience subclinical levels of these symptoms, impacting their social, academic, and emotional functioning. Internalizing and externalizing symptoms in middle childhood are linked to negative consequences in adolescence and adulthood such as school drop-out, delinquency, substance use, mental illness, and poor financial or occupational outcomes (Belfer, 2008; Daniel et al., 2006; Masten et al., 2005). Once established, children's internalizing and externalizing tendencies can become resistant to treatment, especially as they approach adolescence (Kazdin, 1987; Walker et al., 1996).

Despite the high prevalence and severe consequences associated with poor emotional and behavioral health, approximately one-third (36%) of children experiencing internalizing and externalizing symptoms receive treatment for these symptoms (Merikangas et al., 2010). Treatment for internalizing or externalizing symptoms can be difficult for families to seek on their own due to stigma, lack of resources, limited insurance coverage, or lack of recognition of a mental health need (Fontanella et al., 2015; Kazdin, 2000). Schools provide a unique opportunity to address this gap by providing services to children who might not otherwise receive treatment for emotional or behavioral difficulties. Because of this opportunity, school-based mental health prevention and intervention has been a prominent topic of research and practice (Paternite, 2005; Stiffler & Dever, 2015). Despite growth in this field, however, schools face barriers in providing adequate mental health support for students including lacking resources, difficulty identifying students with internalizing or externalizing symptoms, or lacking knowledge of effective points of intervention (Kratochwill & Shernoff, 2004; Ringeisen et al., 2003).

The purpose of the current study is to examine factors that might relate to increases in upper elementary school students' internalizing or externalizing symptoms. Specifically, a wide body of literature has explored the role of academic achievement in upper elementary students' emotional and behavioral well-being, but support for a direct relation between these factors is mixed. The current study will further examine the role of reading achievement in the

development and maintenance of upper elementary students' internalizing and externalizing symptoms. The goal of this analysis is to identify the contexts in which low reading achievement leads to increased internalizing and externalizing symptoms. Findings will point to specific contexts upon which schools can target interventions to help promote more positive emotional and behavioral outcomes for students with lower academic achievement.

Reading Achievement and Internalizing Symptoms

A large body of literature has examined the role of reading achievement in the development and maintenance of upper elementary students' internalizing symptoms. For children as young as pre-school age, verbal acquisition levels have been shown to be negatively associated with students' internalizing symptoms in first grade (Halonen et al., 2006). Similar findings have been reported among older elementary students. Across various samples of students ages 7 through 15, students with higher levels of literacy difficulty and lower overall academic achievement have reported higher levels of anxious and depressive symptoms than their peers (Carroll et al., 2005; Maughan et al., 2003). Similar findings were supported by students who rated their moods as more negative on days they experienced a perceived "academic failure" (Repetti, 1996). A longitudinal analysis found that students with low reading achievement had higher levels of internalizing symptoms 1 year later (Moilanen et al., 2010). This finding remained significant after accounting for baseline differences in internalizing symptoms.

Negative social feedback (linked to peer rejection, comparisons between peers, and bullying victimization), negative self-image, and increased negative affect have emerged as possible mechanisms that maintain the association between low academic or reading achievement and students' increased internalizing symptoms. Peer-, teacher-, and self-reports of fifth graders' social statuses have indicated that low achieving students are more likely to be categorized as rejected, neglected, or controversial (as opposed to average or popular) than higher achieving peers (Lopes et al., 2002). Students with low writing proficiency in third grade reported experiencing higher levels of peer victimization in fifth grade and had higher rates of absenteeism (perhaps linked to avoidance and alienation) in grades 5 through 7 (Vaillancourt et al., 2013). Low academic achievement also impacts students' self-image, which can contribute to increased internalizing symptoms. In an exemplary study, third graders with lower reading achievement rated themselves as more lonely, sad, and unpopular in third grade and 2 years later

in fifth grade compared to higher achieving peers (Morgan et al., 2012). Feelings of low perceived self-control and distractedness have also been identified as potential mechanisms that facilitate the association between low academic achievement and increased internalizing symptoms (Herman et al., 2008; Morgan et al., 2012).

Inconsistent Support in the Literature

Although the studies summarized above provide support for an association between academic achievement and internalizing symptoms, several others have found inconsistent support or failed to find evidence supporting this relationship. In reviewing longitudinal trends between academic achievement and internalizing symptoms, a study found that academic achievement at age 8 negatively predicted internalizing symptoms 1 year later, above and beyond the impact of socioeconomic and special education status (Deighton et al., 2018). Within this study, however, the trend was not supported for students whose baseline measures were taken at ages 11 and 12, perhaps because older students gained more positive reinforcement from extracurricular activities or because they received less damaging social feedback related to their academic achievement (Deighton et al., 2018).

In another study with mixed results, academic achievement for girls ages 6 through 9 was negatively related to internalizing symptoms 1 and 2 years later, but this trend was not significant for boys (Panayiotou & Humphrey, 2018). In a cross-sectional analysis of fourth graders' depressed mood and academic skills, a significant association between the two factors was found for only two out of three samples reviewed (Patterson & Stoolmeyer, 1999). A longitudinal analysis of a sample of boys found no association between students' academic skills in third grade and depressed mood in sixth grade (Cole et al., 1996). Another study found that students' internalizing symptoms in third and fifth grades were significantly associated with characteristics measured in kindergarten such as, gender, socioeconomic status, family structure, and baseline internalizing symptoms but not with academic achievement (Morgan et al., 2009). Finally, a recent study found an association between students' academic achievement and internalizing symptoms only when students reported on internalizing symptoms and teachers reported on academic achievement but not when others reported on these factors (Van der Ende & Verhulst, 2016).

Impact of Context in Relation between Reading Achievement and Internalizing Symptoms

Overall, although several prior studies support a relation between low academic achievement and subsequent increased internalizing symptoms for elementary-aged students (possibly mediated by peer rejection, victimization, negative self-image, or increased negative affect), inconsistencies exist between samples. These discrepancies make it difficult for schools to use the information to efficiently respond to students' behavioral and emotional needs. The differences may also indicate that contextual factors play a role in whether children with low reading or academic achievement will develop internalizing symptoms. The impact of contextual factors on the relation from academic achievement to internalizing symptoms has not yet been investigated in the literature.

The ecological systems theory describes how individual (such as gender, personality, or temperament) or contextual factors (such as family environment, peer relations, or school climate) interact to contribute to children's physical, emotional, social, and cognitive development (Bronfenbrenner, 1992). Given the saliency of context in children's development, it could be that differences across contexts contribute to the different findings in the literature investigating the development of internalizing symptoms in relation to academic achievement. Individual or environmental differences may impact the feedback children receive from parents, peers, and teachers regarding their academic achievement or how children interpret that feedback, affecting whether struggling students develop internalizing symptoms over time. The current study seeks to identify such contextual factors that may affect this relationship. These findings could provide information about potential points of intervention, upon which schools may be able to respond and promote more positive emotional and behavioral development for students.

Gender. In the United States, girls and boys in middle childhood are often socialized to attend to social information and respond to distress in different ways. Girls are more likely to respond to distress with internalized emotional experiences while boys are more likely to respond with externalized behaviors (Hoffman, 1972; Pomerantz et al., 2002). Girls are also more likely to maintain harsh judgments of their own performance or be more concerned with pleasing parents and teachers than boys in the same age group (Pomerantz et al., 2002). This tendency to be a harsh self-critic may increase girls' vulnerability to negative emotional consequences following academic difficulties compared to boys. Children in middle childhood

begin to be more aware of social feedback and make stronger links between this feedback and their identities (Zahn-Waxler et al., 2000). Failure to show competence on academic tasks that parents and teachers expect children to be able to complete (or perform well on) may result in negative psychosocial consequences including increased internalizing symptoms (Cole, 1997). Because of the support from prior literature showing that girls may be more attuned to this feedback and prone to negative emotional responses to negative feedback, the current study hypothesizes that girls (rather than boys) with low reading achievement will be more likely to exhibit internalizing symptoms.

Social Emotional Competence (SEC). Social and emotional competence refers to children's ability to show appropriate levels of emotional knowledge, resilience, empathy, and effective coping and problem-solving abilities for their developmental level (Merrell, 2011). Children with higher levels of SEC illustrate fewer conduct problems and more positive adjustment, emotional well-being, behaviors, self-concept, and coping skills (Wigglesworth et al., 2017). These competencies are associated with more positive reactions to stress, frustration, negative feedback, and failures (Roeser et al., 1998; Kaplan, 1975). Students with higher SEC are also more likely to ask teachers and peers for help when they are struggling with schoolwork, perhaps improving their achievement and reducing negative outcomes of low academic achievement (Miles & Stipek, 2006; Wentzel, 1993). Because prior studies show evidence linking academic difficulties with increased failure emotions, embarrassment, and frustration (which can contribute to internalizing symptoms [Lopes et al., 2002; Morgan et al., 2012]), it is hypothesized that students who have better ability to cope with these difficult emotions will be less likely to develop internalizing symptoms as a result of low reading achievement. The current study hypothesizes that students with higher SEC will be more skillful in managing their emotions and reactions to academic-related difficulties. Therefore, having higher SEC will be protective for students with low reading achievement and reduce the risk of these students developing internalizing symptoms compared to peers with similar reading achievement and lower SEC.

Peer Problems. Students' negative interpretations of academic failures and negative social feedback related to academic difficulties have been highlighted as factors that maintain the relation from low achievement to increased internalizing symptoms (Lopes et al., 2002; Morgan et al., 2012; Vaillancourt et al., 2013). However, studies have suggested that students who lack

positive feedback in the classroom may be able to make up for that gap if they perform well in extracurricular activities outside of the classroom and receive positive feedback in those environments (Deighton et al., 2018). The current study proposes that success in social relationships with peers could also offer an avenue of positive feedback that may counteract negative academic feedback students may receive. Therefore, students with strong peer relations or an absence of peer problems may receive positive social feedback which may increase self-esteem or the individual's ability to tolerate or cope with negative feedback in another domain such as reading achievement.

In addition to providing a protective source of positive feedback, a positive peer network is related to less victimization, loneliness, or feeling unpopular at school (Morgan et al., 2012; Vaillancourt et al., 2013). These benefits of positive peer relationships may protect lower achieving students against peer rejection or negative social feedback that can accompany low academic achievement and lead to increased internalizing symptoms. Given the positive role of supportive peer relationships and negative risks associated with peer problems that may compound problems related to low academic achievement, the current study hypothesizes that students with low reading achievement and increased peer problems will experience more internalizing symptoms than similar achieving peers who have more positive peer networks.

Classroom Environment. Prior research shows that the classroom environment is a salient factor related to students' academic achievement and mental, emotional, and behavioral well-being (Sutherland et al., 2008). Levels of diversity acceptance in the classroom (referring to the degree to which the environment promotes, accepts, and celebrates unique differences between students) in particular are related to students' emotional and behavioral development (Anderson-Butcher et al., 2015; Sutherland et al., 2008). Classroom environments that promote and accept students' differences are associated with students' positive self-esteem, increased belongingness, and fewer feelings of loneliness and alienation (Morgan et al., 2012; Sutherland et al., 2008). A classroom that promotes diversity acceptance may take a strength-based approach to recognizing students' positive contributions to the classroom environment and may be less likely to prompt explicit or implicit comparisons between students' academic abilities. Because of this, students with low academic achievement may be protected from negative social consequences of low reading achievement in classrooms with high diversity acceptance. In this environment, children may also be more likely to hold a wholistic view of their strengths and

weaknesses versus fixating on one specific deficit such as reading achievement (Anderson-Butcher et al., 2015). Due to these protective factors of a classroom environment with high levels of diversity acceptance, the current study hypothesizes that students with low reading achievement will be less likely to report experiencing internalizing symptoms when they perceive their classroom to be highly accepting of diversity, as this may protect them from negative social comparison consequences of low reading achievement that can increase students' risk to developing internalizing symptoms.

Reading Achievement and Externalizing Symptoms

Prior research also shows some support for a relation between low academic achievement and increased externalizing behaviors. In a large sample of elementary and middle-school aged boys, significant associations were found between students' reading problems and symptoms of conduct disorder or attention-deficit/hyperactivity disorder (Maughan et al., 2003). In another study, parents were more likely to describe their child's behavior as demanding or aversive when the child reported experiencing an "academic failure" on that same day (Repetti, 1996). Longitudinal designs have supported associations between verbal achievement at school entry and increased conduct problems 2, 3, and 5 years later across various samples (Bennett et al., 2003; Morgan et al., 2009). Poor reading literacy in first through third grades has been shown to predict higher levels of aggressive and "problem" behaviors in third, fifth, and seventh grades (Fleming et al., 2004; Miles & Stipek, 2006; Wigglesworth et al., 2017). Among slightly older samples, lower grade point averages in grades 5, 6, and 7 were associated with higher levels of externalizing symptoms 1 year later (Vaillancourt et al., 2013).

Studies using mediation analyses have identified task-avoidance, deviant peer association, peer rejection, and negative reactions to failure as factors that maintain the relation between low academic achievement and externalizing symptoms. Students who struggle in school tend to find school tasks aversive and are often motivated to seek escape via task-avoidant behaviors such as acting out in the classroom or avoiding schoolwork (Morgan et al., 2008). Often, these behaviors are rewarded when children are removed from the classroom due to an office referral, suspension, or time-out. As students leave the classroom, they fall further behind and are motivated to exhibit further avoidant behaviors, reinforcing a cycle of reduced academic instruction and increased externalizing behaviors (Morgan et al., 2008; Metsapelto et al., 2015).

Children with lower academic achievement are also often placed into classrooms with higher exposure to deviant peers (Stormshak et al., 1999; Moilanen et al., 2010; Maughan et al., 2003). Within these settings, struggling students may seek positive reinforcement via social relationships with these peers to counter the negative academic feedback they receive. Pursuit of these relationships may encourage students to exhibit more aggressive or deviant behaviors, increasing their acceptance among this deviant group (Halonen et al., 2006). Finally, the negative impact of low academic achievement on students' mood, self-perceptions, and frustration may lead a child to resort to externalizing behaviors as an attempt to cope with these difficult feelings. In one study, for example, students with poor reading skills in third grade were more likely to rate themselves as angry and unpopular in fifth grade compared to peers with stronger reading skills (Morgan et al., 2012). Some children may also interpret academic difficulties as being the fault of teachers, parents, or peers who failing to meet their needs. These interpretations can lead to aggressive behaviors directed at the parties perceived to be at fault for the child's inability to meet academic expectations (Roeser et al., 1998).

Inconsistent Support in the Literature

Despite the support demonstrated by these studies for a relation between low academic achievement and externalizing symptoms, inconsistent findings exist. In a large, cross-sectional sample of children and adolescents, there were no significant differences in rates of oppositional defiant disorder and conduct disorder between poor and average reading groups (Goldston et al., 2007). In an early elementary sample, authors failed to find a significant association between reading performance and behavior problems or social skills 2 years later (Algozzine et al., 2011). In a sample of students ages 8 to 9, there was no association between reading performance and externalizing symptoms 1 year later, once socioeconomic and special education status were controlled for in the analysis (Deighton et al., 2018). Another study found that academic achievement was only associated with externalizing symptoms when teachers (but not parents or students) rated students' achievement and externalizing symptoms (Van der Ende et al., 2016).

Impact of Context in Relation from Reading Achievement to Externalizing Symptoms

The inconsistent support for the contributing role of academic achievement on externalizing symptoms leads to similar conclusions as the literature investigating internalizing symptoms and academic achievement. Given the impact that individual and contextual differences have on emotional and behavioral development (Bronfenbrenner, 1992), it may be

that these differences also affect the way in which academic difficulties impact students' mental health, attitudes, and behaviors. These differences may explain why some students with low achievement develop more externalizing symptoms while others do not. The context may impact the relation academic achievement has on students' behavioral tendencies. In addition to identifying relevant contextual factors in the relation between reading achievement and internalizing symptoms, this study seeks to identify contextual factors that impact the relation between reading achievement and externalizing symptoms, further identifying points of intervention that schools can capitalize on to promote better long term outcomes for students.

Gender. As stated above, boys and girls are often socialized within the United States to attend to social information and respond to distress with different methods. Boys are more likely to respond to distress with externalizing symptoms than girls (Hoffman, 1972; Pomerantz et al., 2002). Given the prior research showing that low academic achievement can lead to ongoing stress, frustration, peer rejection, negative feedback, and negative mood (Morgan et al., 2012; Roeser et al., 1998), the current study hypothesizes that boys will be more likely than girls to exhibit externalizing behaviors related to distress that may accompany low reading achievement.

Social Emotional Competence (SEC). Similar to the case with internalizing symptoms, the current study hypothesizes that students with higher social emotional competence will be more skilled in reacting to academic distress (Merrell, 2011; Wigglesworth et al., 2017). Students who use inefficient coping strategies to deal with failure emotions are more likely to engage in deviant behavior as an alternative way to improve their self-worth (Dodge et al., 2003; Kaplan, 1975; Roeser et al., 1998;). Students with higher SEC will be more likely to use positive coping strategies to manage negative emotions related to low academic achievement. Therefore, the current study hypothesizes that children with high SEC will be more skilled at navigating negative emotions and social feedback that could accompany low academic achievement and will be less likely to exhibit externalizing symptoms following low reading achievement compared to peers with similar reading achievement and lower levels of SEC.

Peer Problems. Similar to the potential role of peer relations in the association between reading achievement and internalizing problems, the current study hypothesizes that reduced peer problems will be associated with more positive behavioral outcomes for students with low reading achievement. This potential effect would be due to the positive feedback a supportive friend network could provide a child and the way this network could potentially protect a child

from experiencing negative social consequences associated with low reading achievement (Deighton et al., 2018). However, this hypothesis is cautioned based on the literature showing increases in deviant peer associations among students with lower school achievement. Higher association with this group may still provide some social protection for a student struggling at school. Alternatively, these associations may actually encourage students to display more externalizing behaviors to gain acceptance among the group (Deater-Deckard, 2001; Moilanen et al., 2010; Maughan et al., 2003). Therefore, within this study, it is expected that a lack of peer problems could be protective against the development of externalizing symptoms for students who struggle in reading but that the effect of the peer context may be small given the complex factors impacting this relationship.

Classroom Environment. The consequences of low academic achievement that result in increased externalizing symptoms such as peer rejection, negative social feedback, and increased frustration may be mitigated by increased diversity acceptance in the classroom environment. For example, if children feel that their differences in the classroom are more accepted, they may be less likely to engage in social comparison regarding their grades or achievement levels (Anderson-Butcher et al., 2015). Students in classrooms with a high degree of diversity acceptance may be less likely to experience negative social consequences of low achievement, therefore decreasing their risk of experiencing frustration emotions or low self-esteem which may prompt externalizing behaviors as mechanisms for coping. Students in classrooms with more diversity acceptance may also be more likely to develop self-esteem as their other strengths are celebrated within this environment (Anderson-Butcher et al., 2015). The acknowledgement and celebration of these strengths may lessen the potential impact of low reading achievement on their self-esteem. The current study hypothesizes that children with low reading achievement who perceive higher diversity acceptance in their classrooms will be less likely to develop externalizing symptoms (compared to peers with similar achievement and lower perceptions of diversity acceptance).

Research Questions

Prior research demonstrates a link between low academic achievement and increased internalizing and externalizing symptoms. However, a gap remains in understanding the circumstances under which this relationship varies. In middle childhood, children experience developmental, social, and environmental changes that may affect mental health outcomes, in

particular for students with low academic achievement. The purpose of this study is to further understand how individual, social, and environmental factors in middle childhood affect the relation between academic achievement and internalizing and externalizing symptoms, perhaps identifying protective factors that schools can promote to decrease children's development of behavioral and emotional difficulties and associated negative consequences. Based on the summarized literature, this study aims to answer the following questions:

1. Do individual, social, and environmental factors moderate the relation between reading achievement and fourth and fifth grade students' internalizing symptoms measured 1 year later?
2. Do individual, social, and environmental factors moderate the relation between reading achievement and fourth and fifth grade students' externalizing symptoms measured 1 year later?

Hypotheses

Hypotheses 1 and 2: Individual Factors

Gender

Gender will affect the relation between reading achievement and internalizing or externalizing symptoms such that boys (but not girls) with low reading achievement will show more externalizing behaviors while girls (but not boys) with low reading achievement will report higher levels of internalizing symptoms.

Social Emotional Competence (SEC)

Students' level of social emotional competence will affect the way in which reading achievement is associated with their emotional and behavioral health, such that students with lower levels of SEC and reading achievement will experience more internalizing or externalizing symptoms than students with low reading achievement and higher SEC.

Hypothesis 3: Social Factors

Peer Problems

This study hypothesizes that students' reports of peer problems will interact with reading achievement, significantly affecting their display of internalizing or externalizing symptoms. Students with low reading achievement and higher levels of peer problems are expected to report more internalizing symptoms than students with low reading achievement and lower levels of peer problems. Externalizing symptoms are expected to be affected less significantly by a lack of

peer problems than internalizing symptoms as this may indicate association with deviant peers which could exacerbate externalizing symptoms.

Hypothesis 4: Classroom Environmental Factors

Diversity Acceptance at Classroom

Students' reports of diversity acceptance in their classrooms will significantly interact with reading achievement, affecting students' display of internalizing and externalizing symptoms during the school year. Students with low reading achievement and lower ratings of diversity acceptance will have more internalizing or externalizing symptoms than students with low reading achievement who rate their classroom as being more accepting of diversity.

Methods

Procedure

This analysis leverages archival data collected through an evaluation of a locally-developed Social and Emotional Learning (SEL) program that was implemented in a suburban public-school district in the Midwest from 2015 – 2018. Within the evaluation, teachers completed assessments for all students whose parents provided consent, and each of these students also completed self-assessments. Fourth and fifth grade students at participating schools completed measures of reading achievement, internalizing symptoms, peer relationships, school environment, and demographics at the beginning of their academic school year. At this same timepoint, each participating student's homeroom teacher completed an additional assessment to report on the student's externalizing symptoms and social and emotional strengths, as prior research shows stronger validity of later elementary students' externalizing symptoms when reported by teachers while students' internalizing symptoms maintain stronger validity when reported via self-report (Smith, 2007).

Approximately 8 months later (in the spring of the same academic school year), participating students and teachers completed the same set of assessments. The evaluation was conducted over three academic school years and comprises data from three cohorts of students. Each year, the evaluation included schools involved in the intervention as well as a control school not participating in the intervention. As an incentive to participate as a control school, these schools were given the option to receive the SEL intervention in the academic year following their participation as a control. Each cohort comprises different schools, several who were involved with a SEL intervention and one other school that was not. Differences in

independent or dependent variables based on inclusion in the control or intervention group were explored in the pre-analysis steps. No significant differences between the control and intervention groups were observed, therefore, control/intervention status was not included in the main analyses.

Participants

In total, 723 students across three elementary schools participated in the study. Each participating elementary school is Title I eligible with 66 – 82% of students across the participating schools qualifying for free and reduced lunches (Kentucky Department of Education, 2018). This indicates that a large portion of participating students experience significant economic disadvantage, which may place them at a higher risk of developing internalizing and externalizing mental health symptoms (Bradley & Corwyn, 2002). Almost half of respondents came from one elementary school (47.5%) and the remaining respondents were split among the other two participating elementary schools (25.1% and 27.4%). Students' homeroom teachers ($n=36$) rated each student. The number of students rated by each teacher ranged from 2 to 72 (some teachers were involved in the program for multiple years and provided data for multiple cohorts of students). Twenty seven percent of responses in the analysis came from the first cohort of data collection, 47% from the second cohort, and 26% from the third. Almost two-thirds (65%) of students were included in the intervention condition of the study (receiving the social emotional learning program).

Approximately half of student participants (49%) were girls. Students' ages ranged from 8 to 11 years (mean=9.58). A majority (64%) of students identified as White, 23% as Hispanic, 12% as Black, and 1% as an "other" race or ethnicity. Almost one-third (31%) of students identified as English Language Learners (ELL). Thirty-two percent of students had never moved schools while 20% had moved one time, 11% two times, 14% three times, 8% four times, and 16% five or more times. Half of students (54%) reported living with both parents, 23% with mom or dad only, 4% with a grandmother or grandfather, 15% sometimes with both mom and dad, and 3% with someone other than mom, dad, or a grandparent.

Measures

STAR Reading Assessment

Students completed the STAR Reading standardized assessment as a measure of academic achievement. STAR assessments evaluate students' reading comprehension and

achievement relative to their respective state's reading standards for their grade level. The STAR assessment is administered online and takes approximately twenty minutes for students to complete. STAR reading scores demonstrate strong predictive validity, correlating strongly (Pearson's $r(2,086) = .82$) with fourth grade students' scores on Kentucky's state-administered assessment, K-PREP (Kentucky Performance Rating for Educational Progress [Renaissance Learning, 2018]). The fourth grade STAR reading assessment demonstrated convincing internal reliability (Cronbach's $\alpha = .93$) measured across a sample of 100,000 fourth grade students (U.S. Department of Education: National Center on Intensive Intervention, 2016). Raw scores on this assessment range from 0 – 1400 with higher composite scores on the STAR reading assessment indicate a higher level of reading comprehension and achievement (Renaissance Learning, 2018). The continuous raw scores are used in practice to determine a child's achievement level and were maintained for this analysis.

Strengths and Difficulties Questionnaire

Externalizing and internalizing symptoms and peer problems were measured via the Strengths and Difficulties Questionnaire (SDQ). The teacher-report Conduct Problems, student-report Emotional Problems, and student-report Peer Problems subscales were chosen to measure each respective variable of interest because of their demonstrated validity and reliability in assessing children's (aged 3 to 16 years) behaviors, emotions, and peer interactions, specifically within high-risk populations (Goodman, 2001). The brief style of the SDQ helps prevent attrition of participants. Each subscale contains five items. Respondents are asked to consider how each statement has applied to them (or the student for teacher-report versions) within the past six months and rank the statement on a 3-point scale (1 = *not true*, 2 = *somewhat true*, 3 = *certainly true*).

Students' externalizing behaviors were measured via the teacher-report Conduct Problems subscale which contains items such as "often has temper tantrums or hot tempers;" "generally is obedient;" and "often fights with other children." Prior studies show that the teacher-report Conduct Problems subscale demonstrates good reliability (ICC=.79) and validity ($r=.79$, correlated with the psychometrically valid Child Behavior Check List [Stone et al., 2010]). Students completed the student-report Emotional Problems subscale to measure internalizing symptoms and responding to statements about anxious or depressive characteristics such as, "I worry a lot" or "I am often unhappy, depressed or tearful." The student-report

Emotional Problems subscale demonstrates good reliability (Cronbach's $\alpha=.75$ [Goodman et al., 1998]). Using a similar format, the student-report Peer Problems subscale assesses students' peer problems by asking students to rate statements such as "I have at least one good friend" and "other children or young people pick on me." The student-report Peer Problems subscale demonstrates acceptable reliability (Cronbach's $\alpha=.61$) [Goodman et al., 1998]).

Ratings of each statement were coded such that responses indicating higher levels of problems were given a score of two, while responses indicating no problem were scored as zero. The ratings were summed within each subscale, with subscale total scores ranging from 0 to 10 (higher total scores indicate a higher level of difficulties). On the Conduct Problems, Emotion Problems, and Peer Problems subscales, total subscale scores greater than or equal to 5, 6, and 7 respectively indicate a high level of difficulty within that area (Goodman, 2001).

Social Emotional Assets and Resilience Scales

Teachers completed the Social Emotional Assets and Resilience Scales – Short Form (SEARS-T-SF) as a measure of students' social and emotional competence. The SEARS-T-SF is a 12-item, strength-based measure that assesses a range of children's social and emotional skills such as social and emotional knowledge, peer acceptance and relationships, resilience in the face of difficulty, effective coping and problem-solving abilities, and empathy. Teachers rated the degree to which each student's behavior aligns with statements such as "knows how to identify and change negative thoughts" and "cares what happens to other people" on a 4-point scale ranging from 0 = *never* to 3 = *always*. The sum of the teachers' rankings on each item provides a total social and emotional resiliency score for each student. Total scores range from 0 to 36 with higher scores indicating higher levels of social and emotional strength (Merrell, 2011). The SEARS-T-SF exhibits strong internal reliability ($ICC=.93$) and acceptable validity ($r=.62$ to $.78$) in correlating with similar psychometrically valid assessments (Nese et al., 2012).

Community and Youth Collaborative Institute School Experience Survey for Elementary Students

Students reported their perceptions of school environment and demographic information via the Community and Youth Collaborative Institute School Experience Survey for Elementary Students (CAYCI SES). The demographic portion of this survey collects information on students' gender, age, race/ethnicity, parenting structure, number of school moves, and English-learner language (ELL) status.

The Diversity Acceptance scale of the CAYCI SES measures students' perceptions of how their school accommodates students who are diverse or "different." On a 4-point scale (0 = *NO!*, 1 = *no*, 2 = *yes*, 4 = *YES!*), students rate five items regarding how children with differences are treated at their school. Items include statements such as, "at my school, all students are treated equally," or "at my school, it's ok to be different" Students' ratings of each statement were averaged to develop their diversity acceptance score. Average scores range from 0 to 4 with higher scores indicating that the student perceives their school environment as being more accepting and supportive of diversity. Initial review shows acceptable consistency (Cronbach $\alpha = .76$) and factor validity (with good model fit of the included items in a confirmatory factor analysis, $\chi^2(5) = 18.25, p = .00$) of the Diversity Acceptance scale (Anderson-Butcher et al., 2015).

Analysis Plan

This analysis used Statistical Package for Social Science-25 (SPSS-25). The initial plan was to use multi-level modeling to assess the proposed moderation models while accounting for pre-existing differences in the data related to its nested properties (such as data nested within classrooms [Heck et al., 2013]). Two-level models were used to control for differences in data related to being nested within classrooms. The analyses did not include school as a third level variable as there are only three schools and it is not recommended to control for a third level variable with such few groups (Heck et al., 2013). One moderation model was assessed to address each research question. After initial review of the internalizing symptoms model, Ordinary Least Squares (OLS) regression was determined to be a better fit for that analysis (see details below). Simultaneous entry of interactions was used to decrease the chances of Type II error and better allow the analyses to highlight significant contributions from each unique moderator or independent variable (Hayes, 2018). The models first included interaction variables to test the significance of the proposed moderators. Non-significant interaction terms were then dropped to allow for interpretation of main effects. Variables tested in the moderation analyses (reading achievement, social emotional competence, peer problems, and diversity acceptances) were grand mean centered to allow for interpretation of differences between overall scores of level one data (Heck et al., 2013).

Results

Missing Data

The multi-level modeling used for this analysis can account for missing data at the lower (individual) level (Heck et al., 2013). Within this study, all missing data was contained within lower level variables. In total across all dependent and independent variables, 12.7% of data was missing. Little's MCAR test revealed that there may be significant patterns within the missing data ($\chi^2(109) = 154.38, p = .003$), indicating that data is not missing at random. The multi-level model analysis can account for this type of missingness because of the way the model accounts for variation within the data and because the missingness is contained within individual level of data. Therefore, within the multi-level model analyses, missingness was addressed within the models was not further imputed. However, following initial analysis steps, it was determined that Ordinary Least Squares (OLS) regression should be used for the analysis involving internalizing symptoms (rationale detailed below). For the OLS model, missing data was imputed using multiple imputation. However, the OLS analysis run with the imputed data had no significant differences from the model run without imputed data. To keep consistent comparisons in data between the internalizing and externalizing analyses, the OLS model without imputed data was used for the following analysis and interpretation of internalizing symptoms.

Preliminary Analyses and Bivariate Correlations

All independent and dependent variables were within ± 2 , indicating that they could be assumed to have a normal distribution and be valid for analysis (George & Mallery, 2010; Gravetter & Wallnau, 2012). Table 1 shows the descriptive statistics for all independent and dependent measures. Bivariate correlations indicated that multicollinearity between independent variables was not a concern (see Table 2). Reading achievement was associated with time 2 internalizing symptoms ($r(707) = -.175, p < .000$) and externalizing symptoms ($r(706) = -.169, p < .000$). Analysis of Variance (ANOVA) was used to assess for significant differences in outcome variables among all demographic groups. Number of moves and parenting structure were significantly associated with different levels of externalizing symptoms, such that students who had moved schools more times and students who did not live with one or both parents were more likely to have higher externalizing symptoms. These factors were included in the analysis of externalizing symptoms. No demographic variables were significantly associated with

students' levels of internalizing symptoms and were therefore not included in subsequent analysis of internalizing symptoms.

Table 1

Descriptive Statistics for Independent and Dependent Variables

Variable			
Baseline Measures	Mean (SD)	Range	Skewness (SE)
Reading achievement	485.94 (185.735)	39 – 1320	.445 (.085)
Diversity acceptance	17.47 (2.587)	5 – 20	-1.319 (.084)
Peer problems	2.76 (1.914)	0 – 10	.554 (.083)
Social emotional competence	20.46 (8.901)	0 – 36	.024 (.080)
Externalizing symptoms	1.32 (1.904)	0 – 9	1.641 (.080)
Internalizing symptoms	4.14 (2.393)	0 – 10	.185 (.083)
Time 2 Measures			
Externalizing symptoms	1.5480 (2.098)	0 – 10	1.558 (.089)
Internalizing symptoms	3.7830 (2.389)	0 – 10	.348 (.089)

Table 2

Bivariate Correlations between Dependent and Independent Variables

Variable								
Baseline Measures	1	2	3	4	5	6	7	8
1. Internalizing symptoms	-							
2. Externalizing symptoms	.068*	-						
3. Reading achievement	-.229**	-.123**	-					
4. Peer problems	.401**	.199**	-.172**	-				
5. SEC	-.087*	-.590**	.165**	-.203**	-			
6. Diversity acceptance	-.184**	-.143**	.034	-.302**	.126**	-		
Time 2 Measures								
7. Internalizing symptoms	.623**	.060	-.174**	.261**	-.083*	-.167**	-	
8. Externalizing symptoms	-.076*	.474**	-.169**	.137**	-.274**	-.144**	.095*	-

* Indicates statistically significant at $\alpha = .05$ level.

** Indicates statistically significant at $\alpha = .01$ level.

The outcomes of externalizing and internalizing symptoms were analyzed in separate moderation analyses. For these analyses, reading achievement (RdgAch), social emotional competence (SEC), diversity acceptance (DA), and peer problems (PeerP) were grand mean centered. Grand

mean centering is appropriate when testing a level one moderation model when the means are not significantly related to the grouping structure (Enders & Tofighi, 2007).

Research Question 1: Internalizing Symptoms

The intraclass correlation coefficient (ICC) of a two-level model examining the effect of classroom grouping on time 2 internalizing symptoms was .009. This shows that less than 1% of variation in internalizing symptoms was attributed to classroom assignment. This low effect negated the need to use multi-level modeling for analysis of internalizing symptoms and the following moderation model was assessed using OLS regression. Baseline internalizing symptoms (IntSympBase) did significantly relate to time 2 internalizing symptoms (IntSymp) and were therefore controlled for within the analysis ($b = .628$ (SE = .030), $t(686) = 20.88$, $p < .000$). The following model was run to test for significant interactions among hypothesized variables.

$$IntSymp = 1.206 + RdgAch + DA + PeerP + SEC + Gender + RdgAch*DA + RdgAch*PeerP + RdgAch*SEC + RdgAch*Gender + IntSympBase + e$$

In testing this original model, no interaction terms emerged as significant. The interactions were removed, and the regression model was re-run to assess for significant main effects contained within the following simplified model:

$$IntSymp = 1.206 + RdgAch + SEC + DivAcc + PeerP + Gender + IntBase + e.$$

Table 3 shows the main effects from this analysis. Results indicate that gender and baseline internalizing symptoms were significantly associated with time 2 internalizing symptoms. Based on these results, it would be expected that girls would report higher internalizing ($b = .341$ (SE = .147), $t = 2.338$, $p = .020$) symptoms than boys. It would also be expected that students with higher baseline internalizing symptoms would be more likely than their peers to exhibit higher internalizing symptoms at the end of the school year as a one point increase in baseline symptoms may predict increased time 2 symptoms by .591 (SE = .035) points ($t = 16.968$, $p < .000$), above and beyond the other factors included in the analysis.

Table 3*Reading Achievement and Internalizing Symptoms: Main Effects*

Main Effects	<i>Estimate (B)</i>	<i>SE</i>	<i>95% CI</i>		<i>p</i>
			<i>LL</i>	<i>UL</i>	
Intercept	1.206	.166	.881	1.532	.000
Reading achievement ^a	.000	.000	-.001	.001	.363
Diversity acceptance ^a	-.028	.031	-.088	.032	.363
Peer problems ^a	.017	.045	.709	-.072	.105
Social emotional competence ^a	-.011	.009	-.028	.006	.186
Gender ^b	.344	.147	.055	.633	.020*
Baseline internalizing symptoms	.591	.035	.522	.659	.000**

* Indicates statistically significant at $\alpha = .05$ level.

** Indicates statistically significant at $\alpha = .01$ level.

^a Variable was mean centered. ^b boy = 0, girl = 1.

Research Question 2: Externalizing Symptoms

The ICC assessing the effect of classroom groupings on variation in externalizing symptoms (ExtSymp) was .05022, indicating that approximately 5% of the variance in externalizing symptoms was related to the classroom groupings and that multilevel modeling would be appropriate for this analysis. Before testing for interaction effects, variables were tested for random components to explore whether their classroom assignment contributed to significant differences in relationships that would need to be included in interpretation of results. The analysis tested the contribution of random effects from all independent variables but concluded that the random component was not appropriate to include in the final model or interpretation. When adding an unstructured random effect of classroom variance to the model, a valid output could not be achieved. First, the model iterations were increased to 1,000 and 100 which allowed the model to converge, but the final Hessian matrix was not positive definite, and validity of results could not be established. The covariance type was changed to variance component, but the error remained. While this outcome reflects the complexity of the model, it also occurs when the random variance is too low to estimate and should not be included in analysis (Heck et al., 2014).

Upon determining that random components were not appropriate to include in the final model; the fixed effects of the proposed interactions were assessed using the following model. The model includes covariates to control for significant demographic factors; parenting structure (ParentS), number of school moves (Moves), and baseline externalizing symptoms (ExtSympBase).

$$ExtSymp_{ij} = .5428 + \gamma_{10}RdgAch_{ij} + \gamma_{20}DA_{ij} + \gamma_{30}PeerP_{ij} + \gamma_{40}SEC_{ij} + \gamma_{50}Gender_{ij} + \gamma_{60}RdgAch*DA_{ij} + \gamma_{70}RdgAch*PeerP_{ij} + \gamma_{80}RdgAch*SEC_{ij} + \gamma_{90}RdgAch*Gender_{ij} + \gamma_{100}ParentS_{ij} + \gamma_{110}Moves_{ij} + \gamma_{120}ExtSympBase_{ij} + (u_{0j} + e_{ij})$$

Review of the results of this model revealed that the interactions were not significant. The interaction variables were therefore removed, and fixed main effects were test via the revised model shown below.

$$ExtSymp_{ij} = .5401 + \gamma_{10}RdgAch_{ij} + \gamma_{20}DA_{ij} + \gamma_{30}PeerP_{ij} + \gamma_{40}SEC_{ij} + \gamma_{50}Gender_{ij} + \gamma_{60}ParentS_{ij} + \gamma_{70}Moves_{ij} + \gamma_{80}ExtSympBase_{ij} + (u_{0j} + e_{ij})$$

The fixed model of main effects was maintained for interpretation, shown in Table 4. Reading achievement, diversity acceptance, gender, moves, parenting structure, and baseline externalizing symptoms were significantly related to externalizing symptoms at time 2.

Table 4

Reading Achievement and Externalizing Symptoms: Main Effects

Main effects	Estimate (B)	SE	95% CI		p
			LL	UL	
Fixed effects					
Intercept	.5401	.1697	.2059	.8743	.002**
Reading achievement ^a	-.0010	.0004	-.0018	-.0003	.008**
Diversity acceptance ^a	-.0610	.0286	-.1171	-.0048	.033*
Peer problems ^a	.0139	.0392	-.0630	.0908	.723
Social emotional competence ^a	.0076	.0099	-.0119	.0271	.444
Gender ^b	-.3185	.1367	-.5870	-.0500	.020*
Number of school moves	.0868	.0394	.0095	.1641	.028*
Parenting structure	.1075	.0436	.0218	.1933	.014*
Baseline externalizing symptoms	.4994	.0455	.4100	.5887	.000**

*Indicates statistically significant at $\alpha = .05$ level.

**Indicates statistically significant at $\alpha = .01$ level.

^a Variable was grand mean centered. ^b boy = 0, girl = 1.

Discussion

The goal of this study was to examine contextual factors that might affect the relation between low reading achievement and behavioral or emotional difficulties. Prior research has provided some support showing that low academic achievement can play a role in the development and maintenance of poor mental health, portrayed by students' internalizing (anxious or depressive feelings) or externalizing (aggressive, defiant, or oppositional behaviors) symptoms (Bennett et al., 2009; Fleming et al., 2004; Herman et al., 2008; Maughan et al., 2003;

Metsapelto et al., 2015; Miles & Stipek, 2006; Moilanen et al., 2010; Morgan et al., 2008; Morgan et al., 2009; Morgan et al., 2012; Repetti, 1996; Roeser et al., 1998; Vaillancourt et al., 2013; Wigglesworth et al., 2017). However, the extent to which this relation is supported in the literature differs across studies, and there is little evidence explaining why the relation is seen in some samples but not others (Algozzine et al., 2011; Cole et al., 1996; Deighton et al., 2018; Goldsten et al., 2007; Halonen et al., 2006; Panayiotou & Humphrey, 2018; Patterson & Stoolmeyer, 1999; Van der Ende & Verhulst, 2016). Without clear understanding of the contributions from low academic achievement to poor behavioral or emotional health outcomes, it is difficult to for school personnel identify appropriate points of intervention or prevention for students.

Prior studies have investigated the moderating role of gender in the relation from reading achievement to internalizing or externalizing symptoms (Panayiotou & Humphrey, 2018) but have not investigated other individual, social, and environmental factors as potential moderators of this relation. Founded in ecological systems theory, the current study tested such factors to understand if contextual differences were impacting the relation between low reading achievement and increased internalizing or externalizing symptoms. The aim of this study was to identify points of intervention for students with low reading achievement who may be at a higher risk for developing internalizing or externalizing symptoms.

The results of this study did not support the hypotheses that contextual factors (gender, social emotional competence, peer problems, or perceptions of classroom diversity) would impact the relation between reading achievement to emotional and behavioral problems. Given that gender was previously identified as a possible moderator of this relation (Panayiotou & Humphrey, 2018), there could be nuances related to the characteristics of this sample affecting the findings. It is possible that other classroom, social, or individual factors (not included in the current study) do account for the inconsistent support for this relationship and could be explored in future studies. The results of this study indicate that another likely reason for the inconsistencies may be that low reading achievement may be one of many factors that might result in a child's internalizing and externalizing symptoms and that the unique effect from reading achievement alone on children's emotional and behavioral health is small. The current study's results showed that there was a minimal significant effect of low reading achievement on

later increased externalizing symptoms. The relation from reading achievement on internalizing symptoms was not significant.

An Integrated Approach to Academic, Emotional, and Behavioral Development

Considering these findings within the context of similar studies, it may be that reading achievement does have some relation to the development of emotional and behavioral problems, but the effect is not large enough to indicate that low reading achievement will always result in future emotional and behavioral difficulties for students. A true small effect size of this relation may be the reason that studies have found inconsistent support for it, depending on the sample size and study design. Therefore, targeting students' achievement or changing the way students interpret achievement may have some small positive impact on students' emotional and behavioral health, but these strategies would not be sufficient means to reduce students' internalizing and externalizing symptoms. Similar to prior studies (Algozzine & Algozzine, 2009; Cook et al., 2015; McIntosh et al., 2006), the current results indicate that an *integrated approach* to helping children develop academic, behavioral, and emotional competence is a more effective method of supporting students' full needs than promoting *either* achievement *or* emotional and behavioral well-being and hoping that cross-over effects will be strong enough to support children's development in *both* domains without specific attention to each. Examples of an integrated approach may include Multi-Tiered Systems of Support or the Center for Disease Control's Whole Child, Whole School, Whole Community framework. Both of these approaches guide schools in supporting students' academic, behavioral, and emotional well-being (Center for Disease Control and Prevention, 2020; Goodman & McIntosh, 2016). Within such an integrated approach, certain considerations should be made to understand students' risk towards and intervene in the development of externalizing and internalizing symptoms.

Internalizing Symptoms

For internalizing symptoms, only gender (being a girl) and baseline symptoms were significantly related to elevated symptoms at the end of the study. This aligns with prior findings showing that internalizing symptoms are more common for girls at this age (Hoffman, 1972; Morgan et al., 2009; Pomerantz et al., 2002). From these findings, schools might acknowledge that girls may have a higher risk of developing internalizing symptoms. However, they should caution against over-generalizing or stereotyping students based on their gender. Providing further support for prior research findings (Goodman & McIntosh, 2016), these results indicate

that it would be beneficial for schools to assess students' risk towards developing internalizing symptoms, monitoring for initial internalizing symptoms, and providing early intervention where indicated to prevent higher levels of symptoms from developing.

Externalizing Symptoms

Related to externalizing symptoms, students living with grandparents or someone other than parents, having moved schools more than once, or perceiving low diversity acceptance in the classroom were predicted to show higher levels of externalizing symptoms at the end of the study than those with lower reading achievement. Gender (being a boy) or having higher baseline symptoms had the strongest relation to higher externalizing symptoms at the second time point. Overall, the connection between these factors and externalizing symptoms was stronger than the connection between reading achievement and externalizing symptoms. Therefore, parenting structure, school mobility, classroom acceptance perceptions, gender, and baseline symptoms could be used as more reliable indicators of future behavioral problems or points of intervention. The findings align with prior school-based mental health literature associating these factors as potential risk factors for children's emotional and behavioral development. This study provides further support and should encourage buy-in for educators to commit to school-based mental health initiatives that have gained popularity in communities such as school climate improvement, screenings for early signs of risk or externalizing symptoms, and providing early prevention and intervention programs to mitigate the development of externalizing symptoms among elementary school students (Goodman & McIntosh, 2016).

Limitations

This study examined a large sample of upper elementary school students using psychometrically sound measures of reading achievement, internalizing and externalizing symptoms, and additional contextual and demographic factors. However, there are limitations in the study design and generalizability. First, the study focused on collecting students' reading achievement but perhaps this was too narrow to assess students' full achievement at school and a broader conceptualization of students' achievement (such as GPA or math and reading scores) should be used in future analyses. Second, the time span from the beginning to end of one academic school year may not have been large enough to detect major changes in students' internalizing or externalizing symptoms related to reading achievement, gender, social emotional

competence, classroom diversity acceptance, or students' peer problems. Past studies have detected changes in these symptoms using multi-year study designs (Algozzine et al., 2011; Deighton et al., 2018; Morgan et al., 2012) and future studies may benefit from extending the range of time between the first and second measures to more easily detect changes in symptoms.

Third, the Strengths and Difficulties Questionnaire (SDQ) subscales were used in this study to increase participant attrition as the subscales are short but maintain strong psychometric properties (Goodman, 2001). However, the brief nature of the subscales may make it difficult for the ratings to accurately portray nuanced changes in students' symptomology over time. A more rigorous measure may be appropriate in further studies to perceive nuanced changes in students' symptomology. Finally, other factors may affect students' behavioral and emotional responses to reading achievement that were not included in this study. For example, students' motivation, attitudes towards school achievement, or relationship with teachers may impact how they are affected by achievement and therefore develop (or are resistant to) internalizing or externalizing symptoms based on their reading achievement. These factors could be explored in future studies to provide more information to schools on the factors that contribute to students' internalizing and externalizing symptoms that may be effective points of intervention.

Conclusion

With both internalizing and externalizing symptoms, having more problems in one of these domains at the beginning of the study was the biggest indicator of elevated symptoms within that domain at the end of the study. This is consistent with prior research stating that once these problems are established, they can escalate and become resistant to treatment (Kazdin, 1987; Walker et al., 1996). This underscores the importance of schools (a) offering early universal prevention programs for all students and (b) having processes in place to screen for early signs of internalizing and externalizing symptoms, allowing them to offer students immediate intervention before problems escalate. These efforts should be integrated into schools' processes for supporting students' academic achievement in order to address students' full range of needs and ensure efficient use of limited resources (Algozzine & Algozzine, 2009; Cook et al., 2015; McIntosh et al., 2006).

Overall, this study provides evidence that there may be a small significant relation between reading achievement and externalizing symptoms. The findings did not support a significant relation between reading achievement and internalizing symptoms. Therefore,

interventions targeting reading achievement alone would not be sufficient to prevent or lessen children's development of externalizing or internalizing symptoms. Instead, monitoring students' profiles for risk factors such as school mobility, parenting structure, and perceptions of classroom environment as indicators of possible need for secondary interventions may be more effective. The close relation between baseline symptoms and increased internalizing and externalizing symptoms illustrates the importance of early universal prevention programming as well as early monitoring for signs of developing emotional or behavioral difficulties. Efforts to support schools in conducting these screenings and providing early intervention are wide-spread but educator buy-in, school and district resources, and implementation with fidelity can be lacking, leading to weak outcomes (Adelman & Taylor, 2006; Domitrovich et al., 2008; Evans & Weist, 2004; & Rones & Hoagwood, 2000). This study underscores the importance in building schools' capacities to not only address students' academic needs, but also to implement prevention, screening, and early intervention practices related to emotional and behavioral development in order to best support students' well-being and mitigate their risk towards developing internalizing or externalizing symptoms that might contribute to difficulties for students at school and as they emerge into adulthood.

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