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Behaviorally at-risk African American students: The importance of student–teacher relationships for student outcomes

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Abstract

The purpose of this exploratory study was to examine the associations between the student–teacher relationship and outcomes for African American students who were behaviorally at-risk for referral to special education. Students were identified by their teachers as having behavior problems. Participants were 44 students and 25 teachers from two suburban and three urban elementary schools in a mid-western state. A multi-rater, multi-method approach was used. As teacher-reports of student–teacher relationship quality increased, there were also increases in positive social, behavioral, and engagement outcomes for students. Similarly, as student-reports of student–teacher relationship quality increased, there were increases in positive behavioral, engagement, and academic outcomes. Additional analyses of dyadic relationship patterns showed that as the relationship pattern improved (moving from negative concordance to discordance to positive concordance), there were increases in positive social, behavioral, and engagement outcomes for students. Implications for school practice are discussed.

Keywords: Student–teacher relationships; At-risk students

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Introduction

The disproportionate representation of African American students in special education has been documented for over 30 years (Chinn & Hughes, 1987; Dunn, 1968; Finn, 1982; Mercer, 1973). Referral to special education has been recognized as an important step in determining eligibility for special education services. In particular, some have argued that teacher referral is the most important step of the assessment process because large percentages of referred students are tested, and large percentages of tested students are determined to be eligible for special education (Ysseldyke & Algozzine, 1983). One study found that about 92% of students who are referred are evaluated, and about 73% of evaluated students are placed in special education (Algozzine, Christenson, & Ysseldyke, 1982). Moreover, these rates were reexamined 13 years later and were found to be consistent with earlier results: 90 to 92% of referred students were tested, and 70 to 74% of tested students were determined to be eligible (Ysseldyke, Vanderwood, & Shriner, 1997).

Given that teacher referral is important in determining eligibility, questions have been raised as to whether racial bias exists in the referral process and contributes to the disproportionate number of minority students placed in special education. Numerous studies have examined whether racial bias exists within teachers' referral decisions using a wide variety of research methodologies. Case study simulations have been used in which teachers are asked to read a case study of a child experiencing academic or behavioral difficulties and judge whether special education placement is appropriate for the student, with the investigators manipulating the race of the student in the case study (Prieto & Zucker, 1981; Tobias, Cole, Zibrin, & Bodlakova, 1982; Tobias, Zibrin, & Menell, 1983; Zucker & Prieto, 1977; Zucker, Prieto, & Rutherford, 1979). Some researchers have criticized that these methods are limited in their generalizability (Hosp & Reschly, 2003), and have pointed out that teachers may respond differently to real children that they interact with compared to hypothetical students in case studies (Bahr, Fuchs, Stecker, & Fuchs, 1991).

Subsequently, researchers have examined whether there are differential rates of referral based on student race when teachers nominate actual students in their classrooms who are at-risk for special education referral and/or placement (Bahr et al., 1991; Kelly, Bullock, & Dykes, 1977). Furthermore, methods investigating whether differential rates of referral occur for students who were actually referred by their classroom teachers for prereferral interventions or assessment have also been employed (Gottlieb, Gottlieb, & Trongone, 1991; Hosp & Reschly, 2003). Although designs utilizing real students are more authentic, they fail to control for actual achievement or behavior problems exhibited by the students that could influence referral decisions independent of the race of the student (National Research Council, 2002).

While a number of different methodologies have been employed to examine the question of racial bias in the referral process, the evidence appears to point in a consistent direction: African American students are more likely to be judged as appropriate for special education than Caucasian students (Bahr et al., 1991; Kelly et al., 1977) and are referred disproportionately compared to Caucasian students (Gottlieb et al., 1991; Hosp & Reschly, 2003; Shinn, Tindal, & Spira, 1987). Positive student–teacher relationships may be a protective factor in preventing referral to special education. A study conducted by Pianta, Steinberg, and Rollins (1995) found that students at high risk for special education referral or grade retention, who were not actually referred or retained, had relationships with teachers that

were less conflicted, closer, and more positive than did high-risk students who were referred or retained. Having a positive relationship with one's teacher may be a factor that promotes positive outcomes and ameliorates risk for students who may be considered at-risk for negative outcomes such as school dropout. However, having a negative relationship with one's teacher may further promote negative outcomes for at-risk students as well.

Few researchers have studied the quality and impact of the student–teacher relationship for students who are considered to be "at-risk" for negative outcomes. This exploratory study seeks to examine the quality of student–teacher relationships from both the student's perspective as well as from the teacher's perspective for a sample of African American students who were considered to be at-risk for special education referral due to teachers' concerns about behavior. Additionally, this study seeks to determine whether the student–teacher relationship is associated with social, behavioral, engagement, and academic outcomes for these students.

Student–teacher relationships and student outcomes

Throughout the last decade, there has been a particular emphasis on understanding how teachers' relationships with students are related to student outcomes (Pianta, 1999). In particular, the majority of the research has focused on investigating student–teacher relationships with elementary-aged populations, which may be most appropriate given that research indicates students and teachers tend to have closer relationships when students are younger. Some studies suggest that student–teacher relationships change as students advance in grade level, particularly as they transition from elementary to middle school. For instance, Lynch and Cicchetti (1997) found differences in children's patterns of relatedness to teachers between elementary and middle-school students. More specifically, middle-school children were more likely than elementary-school children to have a disengaged pattern of relatedness with their teachers. However, middle-school children were also more likely to report having secure patterns of relatedness with peers than were elementary-school children. Lynch and Cicchetti (1997) suggested that this might reflect a developmental shift from an adult orientation to a peer orientation.

Similarly, Furrer and Skinner (2003) found evidence of decreases in students' patterns of relatedness to teachers with the transition to middle school. A study was conducted with a cross-sectional sample of third-, fourth-, fifth-, and sixth-grade students. Relatedness to teachers increased significantly between third and fifth grade. However, children's sense of relatedness to teachers dropped significantly following the transition to middle school. Taken together, the findings from these two studies (i.e., Furrer & Skinner, 2003; Lynch & Cicchetti, 1997) corroborate the work of Eccles and colleagues who have suggested that a number of developmentally inappropriate systemic changes occur with students' transition to middle school, including a deterioration of student–teacher relationships (Feldlaufer, Midgley, & Eccles, 1988; Midgley, Feldlaufer, & Eccles, 1989).

When studying the student–teacher relationship with elementary-aged students, researchers have primarily examined it from the teachers' perspective (e.g., Birch & Ladd, 1997; Burchinal, Peisner-Feinberg, Pianta, & Howes, 2002; Hamre & Pianta, 2001). Particular features of the relationship have been shown to be differentially related to whether students experience positive or negative outcomes. For example, Birch and Ladd

(1997) showed that kindergarten children whose teachers reported closeness in the student–teacher relationship were more likely to demonstrate academic readiness skills, have more positive attitudes towards school, and to be more self-directed in their learning. In contrast, children whose teachers reported dependency and conflict in the relationship were less likely to demonstrate academic readiness skills, were lonelier in school, liked school less, were more school avoidant, were less self-directed, and were less cooperative.

Moreover, early student–teacher relationships marked by teacher-reported relational negativity have been associated with students' behavioral and academic outcomes longitudinally. Hamre and Pianta (2001) followed a sample of kindergarten children through eighth grade to examine the extent to which teachers' perceptions of their relationships with students predicted students' academic and behavioral outcomes. In terms of academic outcomes, kindergarten teachers' perceptions of relational negativity significantly accounted for variance in math and language arts grade composites in lower elementary, and in standardized test scores in both lower and upper elementary. In terms of behavioral outcomes, kindergarten teachers' perceptions of relational negativity predicted students' positive work habits in lower elementary, and the number of disciplinary infractions students received in upper elementary.

When students have been asked to report their perceptions of the student–teacher relationship, similar findings have emerged. For instance, Murray and Greenberg (2000) demonstrated that fifth- and sixth-grade students who were classified as having poor relationships with teachers had poorer scores on self- and teacher-ratings of social and emotional adjustment than students who were classified as having more positive relationships with teachers. Furthermore, peers' perceptions of the student–teacher relationship also have been linked to outcomes for students. Hughes, Cavell, and Willson (2001) found that peers' nominations of students who fit descriptions of having conflictual relationships and supportive relationships with teachers uniquely predicted their evaluation of social competencies and liking for children in a sample of third- and fourth-grade students.

While evidence suggests that student–teacher relationships are associated with students' academic performance (Birch & Ladd, 1997; Hamre & Pianta, 2001; Roeser & Eccles, 1998), the literature on student engagement has provided insight into how the student–teacher relationship influences students' academic performance. Furrer and Skinner (2003) found that associations between students' sense of relatedness to teachers and academic performance were mediated by their engagement in learning. Two mediator models were analyzed (one for student-report of engagement and one for teacher-report of student engagement), both of which demonstrated that engagement mediated the relationship between relatedness to teachers and academic performance. Thus, engagement may be one pathway by which positive relationships with teachers help to promote positive outcomes for students.

Student–teacher relationships and at-risk students

Some students may be more at-risk for having negative student–teacher relationships. Differences in the quality of student–teacher relationships have been documented in the literature based on several student characteristics. In particular, studies have shown that several groups of students are more likely to experience less positive relationships, including boys (Birch & Ladd, 1997; Furrer & Skinner, 2003; Hamre & Pianta, 2001; Howes, Phillipsen, & Peisner-

Feinberg, 2000; Hughes et al., 2001; Kesner, 2000), students with disabilities (Murray & Greenberg, 2001), students who are poorly adjusted at school (Blankemeyer, Flannery, & Vazsonyi, 2002), and racial and ethnic minorities (Kesner, 2000; Saft & Pianta, 2001).

Very little research has examined how the student–teacher relationship is associated with student outcomes for at-risk student populations. However, there is some evidence that suggests that the student–teacher relationship may be even more important in predicting outcomes for at-risk students. Specifically, close student–teacher relationships have been associated with better social and academic outcomes for young children. Mitchell-Copeland, Denham, and DeMulder (1997) found that children who were insecurely attached to their mother, but securely attached to their teacher, were more socially competent than children who were insecurely attached to both mother and teacher. It was thought that a secure attachment relationship with a teacher could potentially compensate for an insecure maternal attachment relationship. Further, Burchinal et al. (2002) found that children's relationships with their teachers were related to their acquisition of receptive language and basic reading skills from preschool through second grade. Importantly, teacher–child closeness was more strongly associated with receptive language scores for children of color than for Caucasian children, and this relationship changed over time. Teacher–child closeness was a substantially stronger predictor of receptive language scores during the childcare years for children of color, but was not strongly related for Caucasian children in any year.

Purpose of study

As mentioned previously, it has been documented that African American students are less likely to have positive relationships with their teachers than Caucasian students (Kesner, 2000; Saft & Pianta, 2001). In addition, research has shown that students with negative relationships with their teachers are more likely to be retained or referred to special education than students with positive relationships (Pianta et al., 1995). This exploratory study examines student–teacher relationship quality for a sample of African American students who are considered by their teachers to be behaviorally at-risk for referral to special education. Specifically, this study addresses the following questions for a sample of behaviorally at-risk African American students:

- What does the quality of the student–teacher relationships look like from both the student's and the teacher's perspective?
- Is the quality of the student–teacher relationship predictive of students' social, behavioral, engagement, and academic outcomes? If so, for which outcomes is the relationship most important?
- Further, are both student and teacher perspectives important in predicting students' outcomes in these areas? If so, whose perspective is most important in predicting outcomes?
- Are there dyadic patterns of students' and teachers' perceptions of the student–teacher relationship? If so, does the type of dyadic relationship pattern predict students' outcomes?

By examining how both students and teachers feel about their relationships with one another, we hope to obtain a better picture of what is happening with this group of students.

Do students and teachers feel the same way about one another? Additionally, studying several types of outcomes for students (i.e., social, behavioral, engagement, academic) will allow us to better determine which types of student outcomes are most related to the nature of the student–teacher relationship. It is anticipated that it will become clearer as to how the student–teacher relationship most impacts this group of students. This information will be important in learning about the ways in which success can be promoted for behaviorally at-risk African American students.

Method

Participants

Participants were 44 students (26 males and 18 females) and 25 teachers (2 males and 23 females) from two first-ring suburban schools and three urban elementary schools in a mid-western state. The sample included students in kindergarten through sixth grade (kindergarten, $n=15$; grade 1, $n=5$; grade 2, $n=4$; grade 3, $n=5$; grade 4, $n=3$; grade 5, $n=6$; grade 6, $n=6$). All of the students were African American. Teachers included in the sample taught kindergarten through sixth grade (kindergarten, $n=7$; grade 1, $n=3$; grade 2, $n=3$; grade 3, $n=4$; grade 4, $n=2$; grade 5, $n=3$; grade 6, $n=3$). Teachers were Caucasian ($n=23$) and African American ($n=2$). Some teachers had multiple students in their classroom who participated in the study. The majority of teachers had only one student in their classroom ($n=12$); however, 10 teachers had two students in their classroom, two teachers had three students in their classroom, and one teacher had six students in his or her classroom.

This study was part of a larger research effort involving the prevention of overrepresentation of African American students in special education led by the second author. Teachers at each of the five schools were invited to participate in the study and were asked to identify students in their classrooms who met four criteria. The qualifying students: 1) were African American, 2) were not receiving special education services, 3) had consistently demonstrated behaviors that the teachers considered inappropriate in the school environment (often resulting in the student being sent to the behavior support room or receiving a suspension), and 4) were considered at-risk for referral to special education for behavior. The third criterion was left broad because some teachers (particularly those teaching kindergarteners) indicated that they did not send children to the behavior support room and that the incidence of suspension was fairly infrequent at this age level. However, all teachers provided a description of the behaviors that they believed placed the child at-risk for referral. Sample behaviors described by teachers included: fighting, swearing, crying, pouting, bothering others, difficulty controlling anger, talking back to adults, and being hyper.

Once teachers identified students meeting these criteria, they talked to the guardians about the study either in person or by phone. If the guardians indicated that they were interested in allowing their child to participate, the teacher provided a consent form for them to sign and return. Guardians who were interested but had additional questions received follow-up phone calls from one of the research assistants or the project investigator (after teachers had asked guardians for their permission to give their phone number to a member of the research project).

Measures

Student–teacher relationship

Student–Teacher Relationship Scale (STRS; Pianta, 2001). The STRS, a 28-item scale, measured teachers' perceptions of their relationship with a particular student. In particular, the STRS measured relationship patterns of closeness, conflict, and dependency. It is currently the only standardized and validated instrument available for assessing teachers' perceptions of the student–teacher relationship. Examples of items included: "My interactions with this child make me feel effective and confident" and "This child feels that I treat him/her unfairly" and "This child asks for my help when he/she really does not need help." Teachers rated each item on a scale of 1 (*definitely does not apply*) to 5 (*definitely applies*). The internal consistency reliability coefficient was .80 for this sample.

Relatedness Scale (Wellborn & Connell, 1987). The Relatedness Scale, a 17-item scale, assessed two dimensions of students' relationship experiences with their teacher: Psychological Proximity Seeking (i.e., the student's desire to be psychologically closer to the teacher) and Emotional Quality (i.e., the overall emotional tone of the relationship from the student's perspective). Examples of items included: "I wish my teacher paid more attention to me" and "When I am with my teacher I feel happy." Students rated each item on a scale from 1 (*almost never*) to 4 (*almost always*) on the Psychological Proximity Seeking subscale and from 1 (*not at all true*) to 4 (*very true*) on the Emotional Quality subscale. Lynch and Cicchetti (1997) have suggested that children with optimal levels of relatedness report high scores on Emotional Quality and low scores on Psychological Proximity Seeking, indicating that they are feeling positive about their relationships and secure with the current level of closeness. Reliability analyses were conducted and two items were dropped from the Emotional Quality subscale. The internal consistency coefficients were .86 and .77 for the Psychological Proximity and Emotional Quality subscales, respectively, for this sample.

Social and emotional functioning

Social Skills Rating System: Teacher-Report (SSRS-TR; Gresham & Elliot, 1990). The SSRS-TR, a 57-item standardized and norm-referenced instrument, measured teachers' perceptions of students' social skills, behavior problems, and academic competence. Examples of items included: "Initiate conversations with peers" and "Joins ongoing activity without being told to do so." Teachers rated each item on a scale from 0 (*never*) to 2 (*very often*). The internal consistency reliability coefficients for the Social Skills and Problem Behavior subscales were .92 and .87, respectively, for this sample. Standardized scores were used in the subsequent analyses.

Social Skills Rating System: Child-Report (SSRS-CR; Gresham & Elliot, 1990). The SSRS-CR, a 34-item standardized and norm-referenced instrument, paralleled the teacher-report described above and measured students' perceptions of their own social skills. Examples of items included: "I smile, wave, or nod at others" and "I finish classroom work

on time." Students rated each item on a scale from 0 (*never*) to 2 (*very often*). The internal consistency reliability coefficient was .88 for this sample. It should be noted that for this variable raw scores were used since students below third grade were not included in the standardization sample.

Disciplinary infractions. Teachers were asked in a short survey to report the number of times that the student was sent to the behavioral support room and the number of times the students was suspended during the school year.

Engagement

Engagement vs. Disaffection: Teacher-Report (Skinner & Belmont, 1993). The engagement vs. disaffection: teacher-report, a 20-item scale, examined teachers' perceptions of students' ongoing engagement in learning, including behavioral and emotional engagement. In a review of the literature, Fredricks, Blumenfeld, and Paris (2004) proposed that engagement is a multifaceted construct consisting of three components: behavioral engagement (i.e., students' participation or involvement in academic and social or extracurricular activities), emotional engagement (i.e., students' affective reactions in the classroom), and cognitive engagement (i.e., students' motivation, efforts, and strategy use). Examples of items included: "When we start something new in class, this student is enthusiastic" and "In my class, this student works as hard as he or she can." Teachers rated each item on a scale of 1 (*not at all true*) to 4 (*very true*). Reliability analyses were conducted and two items were dropped from the scale. The internal consistency reliability coefficient was .91 for this sample.

Engagement vs. Disaffection Scale: Student-Report (Skinner & Belmont, 1993). The engagement vs. disaffection scale: student-report, a 20-item scale, measured students' perceptions of their own behavioral and emotional engagement in learning; it paralleled the teacher-report form described above. Examples of items included: "I try hard to do well in school" and "I enjoy learning new things in class." Students rated each item on a scale of 1 (*not at all true*) to 4 (*very true*). Reliability analyses were conducted and seven items were dropped from the scale. The internal consistency reliability coefficient was .71 for this sample.

Academic engaged time. Academic engaged time refers to the amount of student the student spends actively engaged in instructional activities (Lane et al., 2003). Given that the accountability movement (e.g., No Child Left Behind) has placed an increased focus on improving reading performance for at-risk students, it seemed appropriate to select reading as an academic area of focus for this study. Additionally, conducting observations during the same instructional content area helped to ensure that academic engaged time was being measured in similar situations across classroom environments.

Observations were conducted by school psychology graduate research assistants with training in assessment (including observational techniques). The graduate students prearranged times with the teachers when they could enter the classroom unobtrusively and monitor the students. At the onset of 30-second intervals, the observer alternated between observing the target student and a randomly selected, same-sex and same-race (if

available) peer. The target student was determined to be on-task if he or she was attending or orienting to the relevant educational stimulus. Examples included: attending to the instructional materials and engaging in the required activity (e.g., writing). The number of on-task intervals were added and divided by ten, and then multiplied by 100 to determine the percent of time on-task. Three ten-minute observations were conducted on each student during reading instruction. The median score was obtained and was used in the analyses. A number of inter-rater reliability checks were conducted during data collection. Percent agreement between the raters ranged from 95% to 100%.

Academic performance

Academic Performance Rating Scale (APRS; DuPaul, Rapport, & Perriello, 1991). The APRS, a 19-item scale, assessed teachers' judgments of students' academic performance. Examples of items included: "How frequently does the student accurately follow teacher instructions and/or class discussion during large-group instruction?" and "How quickly does this child learn new material?" The internal consistency reliability coefficient was .91 for this sample.

Curriculum-Based Measurement (CBM): Oral Reading Fluency (ORF; Deno, 1986). CBM ORF is an individually administered test that provided information on students' reading progress. Students in first through sixth grade were presented with three standard reading passages at the first-grade level (differences in grade level would be controlled for statistically). Students were asked to read each passage for 1 min. Students were encouraged to read as many words as they could, and their score was the total number of words read correctly in 1 min. The median score on the three passages was used in the analyses.

Dynamic Indicators of Basic Early Literacy Skills (DIBELS): Letter Naming Fluency (LNF; Kaminski & Good, 2002). DIBELS LNF is a standardized, individually administered test that provided information on students' early literacy skills. It was used with the kindergarten students in the sample because most were not able to read yet. Students were presented with a page of uppercase and lowercase letters arranged in a random order and were asked to name as many letters as they could. Students were allowed 1 min to produce as many letter names as they could, and their score was the number of letters named correctly in 1 min. The median score on the three pages was used. The predictive validity of kindergarten LNF with first-grade CBM ORF was demonstrated to be .71 (Good et al., 2004).

Procedures

A multi-rater, multi-method approach was used to answer the research questions. Data were collected from the following sources: students, teachers, and observations. Students were taken out of class for a 30-minute period to complete the rating scales. Depending upon a student's reading level, the rating scales were either read to the student (and they were asked to indicate their response) or students completed the rating scales on their own. The rating scales addressed their perspectives on the following: their relationship with their teacher, their engagement in learning, and their social skills. Additionally, students

participated in a short curriculum-based measurement (or letter naming fluency measure for the kindergarten students). Teachers were asked to fill out the rating scales at a time that was convenient for them. The rating scales addressed their perspectives of the following: their relationship with the student, and the student's engagement in learning, social skills, academic performance, and disciplinary infractions. Lastly, observations were conducted to determine students' academic engaged time during reading.

Results

Descriptive statistics

Descriptive statistics for all variables are presented in Table 1. In examining the teacher-report measures, teachers tended to rate the students negatively. On the STRS, the mean score was 94.05. Using the STRS Professional Manual (Pianta, 2001), a raw score of a 94 for an African American student would place him or her at the 19th percentile compared to other African American students in the norm sample. Pianta (2001) stated that a Total Score percentile at or below the 25 percentile indicates significant low levels of a positive relationship. On the SSRS (Teacher-Report), the mean standard score was 83.68 for the Social Skills subscale and 118.23 for the Problem Behavior subscale, which indicated that teachers rated the students as having fewer social skills and more problem behaviors than the average for the standardization comparison group. On the Engagement vs. Disaffection Scale: Teacher-Report, the mean score on Ongoing Engagement was 2.41, which was slightly below the midpoint of 2.5 (on a scale ranging from 1 to 4).

Table 1
Descriptive statistics

	n	Mean	*SD*	Skewness	Kurtosis
Relationship variables					
Student-Teacher Relationship Scale	44	94.05	15.43	−.25	−.18
Psychological proximity seeking	42	2.73	.92	−.41	−1.20
Emotional quality	42	3.07	.66	−.81	.08
Social–emotional functioning variables					
Social skills: student-report	41	57.95	12.57	−1.14	1.75
Social skills: teacher-report	44	83.68	12.75	.12	.36
Problem behavior: teacher-report	44	118.23	11.65	.09	−.73
Number of behavior referrals	36	11.36	14.75	1.50	1.38
Number of suspensions	39	1.21	2.39	2.24	4.69
Engagement variables					
Student engagement: student-report	42	3.19	.47	−.47	−.66
Student engagement: teacher-report	44	2.41	.49	.14	1.17
Academic engaged time	34	84.26	16.79	−1.33	2.01
Academic performance variables					
Academic Performance Rating Scale	44	54.95	12.11	−.03	.13
Curriculum-based measurement	26	93.23	46.04	−.02	−.68
Letter naming fluency	15	31.33	13.18	−.34	.48

In comparison to teachers, students tended to rate themselves more positively. On the Relatedness Scale, mean scores for Psychological Proximity Seeking and Emotional Quality were above the midpoint (2.73 and 3.07, respectively), which indicated that students wanted to be closer to their teachers and viewed their relationships with their teachers positively. On the SSRS (Student-Report), the mean raw score of was 57.95 (out of a potential 68 points). On the Engagement vs. Disaffection Scale: Student-Report, the mean score of 3.19 was above the midpoint.

In examining the response variables for indicators of normality, three variables had high skewness and kurtosis scores: number of behavior referrals, number of suspensions, and academic engaged time. Number of behavior referrals and suspensions appeared to be negatively skewed with a large number of the students having no or very few behavior referrals and suspensions (which makes sense given that these are low incidence behaviors). Academic engaged time appeared to be positively skewed with a large number of the students being on-task for large percentages of the time. To address the fact that these variables had non-normal distributions, log transformations were conducted on the behavior referral and suspension variables and an arsine transformation was conducted on the academic engaged time variable in an attempt to normalize their distributions. Subsequent analyses were conducted using the transformed variables.

Comparisons with normative samples

Given that two of the scales used in this study (i.e., STRS and SSRS) provided means and standard deviations for their normative sample in the test manuals, analyses were conducted to determine if the students in this study differed significantly from the students in normative samples provided in the test manuals. Students were compared to the overall normative sample of the STRS, to the African American students in the normative sample of the STRS, and to the normative sample (K-6) of the SSRS on the Social Skills and Problem Behaviors Subscales (Teacher-Report). The SSRS (Child-Report) was not used since its normative sample included only students from grades 3 to 6, while the sample of this study included students from K-6. Similarly, the APRS normative sample did not include kindergarteners, while the sample of this study included kindergarteners.

Before testing to see if the mean differences between the two groups were significant, tests were conducted to determine if the variances were equal (an assumption of t distributions is that there is homogeneity of variance). On the STRS, there was not a significant difference between the variance of the overall normative sample and the variance obtained in this study, $F(1534, 43) = 1.01$. Similarly, there was not a significant difference between the variance for the African American students in the STRS normative sample and the variance obtained in this study, $F(275, 43) = 1.13$. On the SSRS Social Skills Subscale (Teacher-Report), there was not a significant difference between the variance of the overall normative sample (K-6) and the variance obtained in this study, $F(906, 43) = 1.23$. For the SSRS Problem Behavior Subscale (Teacher-Report), there was not a significant difference between the variance of the overall normative sample (K-6) and the variance obtained in this study, $F(899, 43) = 1.11$. Given that the assumption of homogeneity of variance was met, independent t-tests were performed.

On the STRS, results indicated a significant difference between the mean for the overall normative sample and the mean for this study, $t(1577) = 8.53$, $p < .001$, $d = 1.31$. Cohen

characterized $d=.20$ as a small effect size, $d=.50$ as a medium effect size, and $d=.80$ as a large effect size (Howell, 2002). The mean for the overall normative sample was 114.23 ($SD=15.47$), while the mean for this study was 94.05 ($SD=15.43$). Thus, the normative sample teachers rated their relationships with students more positively than the teachers of the students in this study. Similarly, results indicated a significant difference between the mean for the African American students in the normative sample and the mean for this study, $t(318)=5.47$, $p<.001$, $d=.89$. The mean for the African American students in the normative sample was 108.50 ($SD=16.40$), while the mean for this study was 94.05 ($SD=15.43$). Thus, the normative sample teachers rated their relationships with African American students more positively than the teachers of the students in this study.

On the SSRS Social Skills Subscale (Teacher-Report), results indicated a significant difference between the raw score mean for the normative sample and the raw score mean for this study, $t(949)=8.16$, $p<.001$, $d=1.26$. The mean raw score teacher rating for the students in the normative sample was 41.54 ($SD=10.49$), while the mean raw score teaching rating for the students in this study was 28.39 ($SD=9.46$). Thus, the normative sample teachers rated their students as having more social skills than the teachers of the students in this study. On the Problem Behavior Subscale (Teacher-Report), results indicated a significant difference between the raw score mean for the normative sample and the raw score mean for this study, $t(942)=9.47$, $p<.001$, $d=1.46$. The mean raw score teacher rating for the students in the normative sample was 8.91 ($SD=6.09$), while the mean raw score teacher rating for the students in this sample was 17.84 ($SD=6.42$). Thus, the students in this study were rated by their teachers as having more problem behaviors than the teachers of the students in the normative sample.

Intercorrelations

Bivariate correlations used in the following regression analyses are shown in Table 2. Almost all of the teacher-report rating scale variables were significantly correlated with one another (with exception of the STRS Total and APRS). Similarly, a number of the student-report rating scale variables were significantly correlated with one another. In terms of the student–teacher relationship variables, only STRS Total and Emotional Quality were significantly correlated. Within the construct of social and emotional functioning, a number of social and emotional functioning variables were significantly correlated with one another. Across constructs, there were a number of student–teacher relationship variables that were correlated with the social and emotional functioning and engagement variables. Likewise, there were a number of significant correlations between the social–emotional functioning variables and the engagement variables.

The student–teacher relationship as a predictor of student outcomes

Hierarchical multiple regression analyses were conducted to predict students' social, behavioral, engagement, and academic outcomes. The response variables were divided into two sets of analyses: (1) those examining the student–teacher relationship from the teacher's perspective as a predictor of students' self-reports of outcomes and of teacher-reports of outcomes; and (2) those examining the student–teacher relationship from both

Table 2
Intercorrelations

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Student-Teacher Relationship Scale	–													
2. Psychological proximity seeking	.11	–												
3. Emotional quality	.42**	.30	–											
4. Social skills: student-report	.34*	.32*	.35*	–										
5. Social skills: teacher-report	.47***	−.02	.16	.11	–									
6. Problem behavior: teacher-report	−.34*	.11	−.21	−.24	−.58***	–								
7. Number of behavior referrals	−.34*	−.02	−.51**	−.07	−.34*	.38*	–							
8. Number of suspensions	−.47**	−.18	−.51***	−.30	−.46**	.36*	.79***	–						
9. Student engagement: student-report	.42**	.22	.52***	.31*	.27	−.26	−.33*	−.22	–					
10. Student engagement: teacher-report	.38**	.06	.23	.19	.66***	−.69***	−.54**	−.52**	.22	–				
11. Academic engaged time	−.13	−.24	.30	−.05	−.03	−.21	−.28	−.08	.06	.10	–			
12. Academic Performance Rating Scale	.20	.07	.05	.06	.53***	−.46**	−.32	−.43**	.14	.74**	.00	–		
13. Curriculum-based measurement	−.03	−.36	−.13	−.25	−.01	.06	.06	.22	−.06	.09	.32	.34	–	
14. Letter naming fluency	−.09	.73**	−.06	.16	.44	−.27	.04	−.03	.18	.49	.06	.59*	–	–

Note. Dashes are inserted where correlations could not be computed. *$p \leq .05$, **$p \leq .01$, ***$p \leq .001$.

the teacher's and the student's perspectives as predictors of non-rating scale indicators of student outcomes (i.e., number of behavior referrals, number of suspensions, academic engaged time, curriculum-based measurement, and letter naming fluency).

In each of the two sets of analyses, two demographic variables (i.e., gender and grade) were entered as the first step in each model to control for their effects. Research has shown that the quality of the student–teacher relationship changes as a function of these variables. However, gender and grade were not significant predictors of the rating scale outcomes (students' self-reports and teacher-reports of outcomes). Given the exploratory nature of this study, gender and grade were dropped from the rating scale outcomes analyses to preserve power. In general, power decreases as the number of predictors approaches the number of participants (Lomax, 2001).

Gender and grade were used in the analyses with the non-rating scale indicators of student outcomes. Controlling for these variables was particularly important for examining the number of behavior referrals and suspensions students received (given that teachers varied in their rates of behavior referrals and suspension; some of the kindergarten teachers indicated that they rarely used these consequences while teachers in the upper grades used them more frequently). It was also important to control for grade level differences in the curriculum-based measurement scores (students all received the same passage across grades 1 through 6).

Teacher perspective of the student–teacher relationship as a predictor of students' self-reports and teacher-reports of outcomes

The first series of regression analyses were conducted using the teacher's perspective of the student–teacher relationship to predict students' self-reports and teacher-reports of outcomes. Results are shown in Table 3. Teacher perspective of the student–teacher relationship accounted for a significant increment to R^2 for students' self-reports of social competence and engagement. The teacher's perspective of the student–teacher relationship uniquely accounted for 14% of the explained variance in students' self-reports of social competence and 18% of the explained variance in students' self-reports of engagement. Furthermore, teacher perspective of the student–teacher relationship accounted for a significant increment to R^2 for teacher-reports of social competence (22% of the explained variance) and teacher-reports of student engagement (14% of the explained variance), but not for teacher-reports of academic achievement.

Teacher and student perspective of the student–teacher relationship as predictors of student outcomes

The second series of regression analyses were conducted using both teacher and student perspectives of the student–teacher relationship as predictors of non-rating scale indicators of students' social competence, behavior, engagement, and academic performance. It should be noted that the letter naming fluency variable was used for the kindergarten students because it was found to be a more sensitive measure for students who were not able to read yet (all other students were administered CBMs). Demographic variables (i.e., gender and grade) were entered in the first step, the STRS Total Score in the second step, and Psychological Proximity Seeking and Emotional Quality in the third step. Results are shown in Table 4.

Table 3
Teacher perspective of the student–teacher relationship as a predictor of students' self-reports and teacher-reports of outcomes

Predictors	Self-Report						Teacher-Report								
	Social skills (n=41)			Engagement (n=42)			Social skills (n=44)			Engagement (n=44)			Acad Perf (n=44)		
	ΔF	R^2	β	ΔF	R^2	β	ΔF	R^2	β	ΔF	R^2	β	ΔF	R^2	β
Step 1 (teacher persp):	6.51*	.14		8.72**	.18		12.05***	.22		6.94**	.14		1.82	.04	
STRS total			.38*			.42**			.47***			.38**			.20
Total R^2_{adj}		.12			.16			.20			.12			.02	

Note. *$p \leq .05$, **$p \leq .01$, ***$p \leq .001$.

The teacher perspective of the student–teacher relationship accounted for a significant increment to R^2 for behavior referrals and suspensions, after controlling for the demographic variables in the first step. The teacher's perspective of the student–teacher relationship uniquely accounted for 11% of the explained variance in the number of behavior referrals received and 23% of the variance in the explained variance in number of suspensions received. Teacher perspective did not account for a significant increment to R^2 for academic engaged time, CBM, or letter naming fluency, after controlling for the demographic variables in the first step.

The student perspective of the student–teacher relationship accounted for a significant increment to R^2 for behavior referrals (18% of the explained variance), academic engaged time (21% of the explained variance), and letter naming fluency (48% of the explained variance), after controlling for the demographic variables in the first step and the teacher perspective of the student–teacher relationship in the second step.

In looking at the overall model (reflected in step 3), Emotional Quality was the largest significant, independent predictor of behavior referrals and academic engaged time when all variables were included in the model. STRS Total Score was the largest significant, independent predictor of suspensions. Psychological Proximity Seeking was the largest significant, independent predictor of letter naming fluency. An examination of the changes in the magnitude of the standardized betas showed that when the variables for the student's perspective of the student–teacher relationship were entered into the model, the magnitude of the standardized betas for STRS Total Score decreased for behavior referrals, suspensions, and CBM. In contrast, the magnitude of the standardized betas for STRS Total Score increased slightly for academic engaged time and letter naming fluency when the student's perspective of the student–teacher relationship was entered into the model.

Relationship patterns

Relationship patterns between student and teacher perspectives of the student–teacher relationship were examined (i.e., Was there concordance or discordance in how

Table 4
Teacher and student perspective of the student–teacher relationship as predictors of student outcomes

Predictors	Behavior						Engagement			Academic					
	Behavior referrals (n=36)			Suspensions (n=39)			Acad Eng Time (n=34)			CBM (n=26)			LNF (n=15)		
	ΔF	ΔR^2	β	ΔF	ΔR^2	β	ΔF	ΔR^2	β	ΔF	ΔR^2	β	ΔF	ΔR^2	β
Step 1 (demographics):	3.97*	.19		4.03*	.18		1.45	.09		11.72***	.51		1.02	.07	
Gender			−.14			−.18			−.30			−.05			.27
Grade			.39*			.36*			−.03			.70***			–
Step 2 (teacher persp):	5.08*	.11		13.93***	.23		1.35	.04		.56	.01		.06	.00	
Gender			−.19			−.24			−.34			−.05			.26
Grade			.36*			.35**			−.05			.73***			–
STRS total			−.34*			−.49***			−.21			.11			−.07
Step 3 (student persp):	5.41**	.18		2.69	.08		4.37*	.21		.36	.02		5.44*	.48	
Gender			−.30*			−.29*			−.26			.02			−.03
Grade			.38**			.31*			−.03			.70***			–
STRS total			−.19			−.38**			−.37*			.10			−.11
Psych prox seeking			.36*			.14			−.27			−.15			.77**
Emotional quality			−.41**			−.31*			.49**			.10			.15
Total R^2		.49			.50			.33			.53			.56	
Total R^2_{adj}		.40			.42			.21			.42			.38	

Note. CBM = curriculum-based measurement; LNF = letter naming fluency. Standardized beta weights are shown for each variable at each step of the model. ΔR^2 represents the increment to R^2 associated with each block of variables when they are entered into the equation. *$p \leq .05$, **$p \leq .01$, ***$p \leq .001$.

students and teachers dyadically viewed the relationship?). STRS Total (teacher perspective) and Emotional Quality (student perspective) were selected for these analyses. Theoretically, both variables examine the affective quality of the student–teacher relationship, and the correlation coefficient between these two variables was significant (.42***), indicating a moderate relationship between the variables.

The distributions of these two variables were examined and divided into two groups based on where the 50% percentile fell. For STRS Total, a score below 95 was considered to be "low" in student–teacher relationship quality and a score above 95 was considered to be "high" in student–teacher relationship quality (from the teacher's perspective). For Emotional Quality, a score below 3.22 was considered to be "low" in student–teacher relationship quality and a score above 3.22 was considered to be "high" in student–teacher relationship quality (from the student's perspective). Based on the student's perspective (low or high) and the teacher's perspective (low or high), student–teacher pairs were assigned a category: 1) low (student)/low (teacher), 2) low (student)/high (teacher), 3) high (student)/low (teacher), and 4) high (student)/high (teacher).

The low/low group represented a type of student–teacher relationship where both the student and the teacher indicated low levels of positive affect in their relationship; therefore, there was negative concordance in the relationship pattern. The low/high and high/low groups represented a type of student–teacher relationship where one individual indicated high levels of positive affect but the other individual indicated low levels of positive affect; hence, there was discordance in the relationship pattern. The high/high group represented a type of student–teacher relationship where both the student and the teacher indicated high levels of positive affect in their relationship; there was positive concordance in the relationship pattern.

For the student–teacher pairs, 12 pairs were classified as having negative concordance (low/low), 15 were classified as having discordance (low/high or high/low), and 15 were classified as having positive concordance (high/high). A variable called "relationship pattern" was created and groups were coded as follows: 1 = low/low, 2 = low/high or high/low, and 3 = high/high. Analyses were conducted using relationship pattern as a predictor of outcomes.

Relationship pattern as a predictor of student outcomes

Hierarchical multiple regression analyses were conducted using relationship pattern to predict students' social, behavioral, engagement, and academic outcomes. The response variables were divided into two sets of analyses: (1) those examining relationship pattern as a predictor of students' self-reports of outcomes and of teacher-reports of outcomes; and (2) those examining relationship pattern as a predictor of non-rating scale indicators of student outcomes (i.e., number of behavior referrals, number of suspensions, academic engaged time, curriculum-based measurement, and letter naming fluency).

In each of the two sets of analyses, two demographic variables (i.e., gender and grade) were entered as the first step in each model to control for their effects. Similar to the previous analyses, gender and grade were not significant predictors of the rating scale outcomes (students' self-reports and teacher-reports of outcomes) and were dropped from these analyses.

Table 5
Relationship pattern as a predictor of students' self-reports and teachers-reports of outcomes

Predictors	Self-Report						Teacher-Report								
	Social Skills (n=41)			Engagement (n=42)			Social Skills (n=42)			Engagement (n=42)			Acad Perf (n=42)		
	ΔF	R^2	β	ΔF	R^2	β	ΔF	R^2	β	ΔF	R^2	β	ΔF	R^2	β
Step 1 (relationship):	6.82**	.15		9.76**	.20		8.08**	.17		7.33**	.16		1.23	.03	
Relationship pattern			.39**			.44**			.41**			.39**			.17
Total R^2_{adj}		.13			.18			.15			.13			.01	

Note. $^{*}p \leq .05$, $^{**}p \leq .01$, $^{***}p \leq .001$.

Table 6
Relationship pattern as a predictor of non-rating scale student outcomes

Predictors	Behavior						Engagement			Academic					
	Behavior Referrals ($n=36$)			Suspensions ($n=39$)			Acad Eng Time ($n=34$)			CBM ($n=26$)			LNF ($n=15$)		
	ΔF	ΔR^2	β	ΔF	ΔR^2	β	ΔF	ΔR^2	β	ΔF	ΔR^2	β	ΔF	ΔR^2	β
Step 1 (demographics):	3.97*	.19		4.03*	.18		1.45	.09		11.72***	.51		1.02	.07	
Gender			−.14			−.18			−.30			−.50			.27
Grade			.39*			.36*			−.03			.70***			–
Step 2 (relationship):	8.27**	.17		16.00***	.26		.15	.01		.56	.01		.04	.00	
Gender			−.15			−.21			−.30			−.06			.27
Grade			.38**			.37**			−.03			.73***			–
Relationship pattern			−.41**			−.51***			−.07			.12			.05
Total R^2		.36			.44			.09			.52			.08	
Total R^2_{adj}		.30			.39			.00			.45			−.08	

Note. CBM = curriculum-based measurement; LNF = letter naming fluency. Standardized beta weights are shown for each variable at each step of the model. ΔR^2 represents the increment to R^2 associated with each block of variables when they are entered into the equation. *$p \leq .05$, **$p \leq .01$, ***$p \leq .001$.

Relationship pattern as a predictor of students' self-reports and teacher-reports of outcomes

The first series of regression analyses were conducted using the type of relationship pattern to predict students' self-reports and teacher-reports of outcomes. Results are shown in Table 5. Relationship pattern accounted for a significant increment to R^2 for students' self-reports of social competence and engagement (17% and 20% of the explained variance, respectively). Relationship pattern also accounted for a significant increment to R^2 for teacher-reports of social skills and engagement (17% and 16% of the explained variance, respectively).

Relationship pattern as a predictor of non-rating scale student outcomes

The second series of regression analyses were conducted using relationship pattern as a predictor of non-rating scale indicators of students' social competence, behavior, engagement, and academic performance. It should be noted that the letter naming fluency variable was used for the kindergarten students because it was found to be a more sensitive measure for students who were not able to read yet (all other students were administered CBMs). Demographic variables (i.e., gender and grade) were entered in the first step, and relationship pattern in the second step. Results are shown in Table 6.

Relationship pattern accounted for a significant increment to R^2 for behavior referrals and suspensions, after controlling for the demographic variables in the first step. It uniquely accounted for 17% of the explained variance in the number of behavior referrals received and 26% of the variance in the explained variance in number of suspensions received. Relationship pattern did not account for a significant increment to R^2 for academic engaged time, CBM, or letter naming fluency, after controlling for the demographic variables in the first step.

Discussion

Findings and implications

One of the goals of this exploratory study was to examine the quality of the student–teacher relationship from both the student's and the teacher's perspective. The results provide critical information about behaviorally at-risk African American students. In particular, it was surprising that students generally rated themselves as wanting to be closer to their teachers and viewed their relationships with their teachers positively. Clearly, relationships with teachers were important to the students even though teachers tended to view their relationships with students negatively. Importantly, this finding suggests that the students' relationships with teachers may still be a source of support and a factor that can promote positive outcomes.

However, it is necessary to consider why there were discrepancies between how students and teachers viewed their relationship. Perhaps the ways in which students interacted with their teachers led teachers to feel negatively about the students. For example, Kesner (2000) suggested that minority students might be more dependent on teachers because they see

teachers as a resource to help them navigate schools that are primarily run by a White staff and administration. Thus, it is possible that the behaviors the students perceive as helping them become closer to their teachers are actually the behaviors that push teachers further away.

Additionally, this study sought to discern which types of student outcomes were most related to the student–teacher relationship. In general, it seemed that the student–teacher relationship was particularly important in predicting social–emotional functioning and engagement outcomes rather than academic outcomes. When examining the student–teacher relationship solely from the teacher's perspective, students' relationships with their teacher were related to their outcomes in the areas of social skills and engagement. The teacher perspective was related to how students rated themselves in the area of social skills and engagement, as well as how teachers rated students' social skills and engagement. In particular, as teacher-reports of positive student–teacher relationships increased, students' social competence and engagement also increased. The construct of the student–teacher relationship is believed to tap an affective component of how the teacher feels about a particular student, which may influence how a teacher responds to the student. Further, the student may sense how a teacher feels about him or her, which then might influence how the student feels about himself or herself.

Interestingly, the teacher perspective of the student–teacher relationship did not significantly account for explained variance in teacher-reported academic performance. Previous research has established associations between the student–teacher relationship and students' academic outcomes (Hamre & Pianta, 2001). In the Hamre and Pianta (2001) study, the student–teacher relationship accounted for small, but significant, percentages of variance (under 5%). The small sample size in this study may have led to reduced power in detecting academic outcomes. Or perhaps the difference occurred because this study measured the construct of academic performance differently (i.e., using teacher-reports of academic performance versus using grades and standardized test scores).

Furthermore, the student–teacher relationship continued to be predictive of student outcomes even when non-rating scale outcomes were considered. After controlling for gender and grade level, the teacher's perspective of the student–teacher relationship uniquely accounted for explained variance in behavioral referrals and suspensions (11% and 23% of the variance, respectively). STRS Total was the most important predictor of suspension when all the variables were included in the model. As teacher-reports of positive student–teacher relationships increased, the number of suspensions students received decreased. Perhaps how a teacher feels about his or her relationship with a particular student influences the number of suspensions the student receives. It is possible that teachers are less willing to tolerate the behavior of students that they have negative relationships with and are more likely to refer those students to an administrator for suspension than students that they have positive relationships with.

The student's perspective of the relationship also uniquely accounted for explained variance in behavior referrals received, academic engaged time, and kindergarteners' letter naming fluency (18%, 21% and 48% of the variance, respectively). Emotional Quality was the most important predictor of behavior referrals and academic engaged time when all the variables were included in the model. As students increased in their reporting of positive emotional quality in the student–teacher relationship, the amount of behavior referrals they

received decreased and the amount of time they spent on-task increased. It is possible that when students feel that they have a positive relationship with their teacher, they may be less likely to engage in behaviors that lead to referrals and may be more academically engaged in the classroom.

In terms of letter naming fluency, Psychological Proximity Seeking was the most important predictor of letter naming fluency when all the variables were included in the model. As kindergarteners increased in their reporting of wanting to be closer to their teachers, their letter naming fluency increased. This finding is contradictory to Lynch and Cicchetti's (1997) suggestion that low levels of psychological proximity seeking are optimal. Perhaps this finding reflects a developmental trend suggesting that it is optimal for young children to desire closeness in their relationships with their teachers. Other researchers have found that closeness in the student–teacher relationship appears to be the feature most salient in predicting students' academic outcomes (Birch & Ladd, 1997). Wanting to be closer to one's teacher may be especially important in facilitating students' involvement in the types of activities that develop early literacy skills in young children. As Burchinal et al. (2002) suggested, student–teacher relationships may be an alternate pathway for gaining academic skills for children of color.

The analyses that examined relationship pattern as a predictor of outcomes produced similar results as the previous analyses. Relationship pattern predicted both students' and teachers' reports of social skills (15% and 17% of the explained variance, respectively) as well as both students' and teachers' report of engagement (20% and 16% of the explained variance, respectively). As the relationship pattern improved (moving from negative concordance to discordance to positive concordance), students' reported social skills improved and reported engagement increased. Additionally, relationship pattern uniquely accounted for explained variance in the number of behavior referrals and suspensions that students received (17% and 26% of the explained variance, respectively). As the relationship pattern improved, the number of behavior referrals and suspensions students received decreased.

Since this was an exploratory study with a small sample size, there is an important need for replication of the results with larger samples. However, the results of this study do suggest that the student–teacher relationship is important in predicting students' outcomes for a behaviorally at-risk sample of African American students. As Pianta et al. (1995) suggested, positive student–teacher relationships may support resiliency and promote better outcomes for at-risk students. As teacher-reports of student–teacher relationship quality increased, there were also increases in positive social, behavioral, and engagement outcomes for students. Similarly, as student-reports of student–teacher relationship quality increased, there were increases in positive behavioral, engagement, and academic outcomes. Additional analyses of dyadic relationship patterns showed that as the relationship pattern improved (moving from negative concordance to discordance to positive concordance), there were increases in positive social, behavioral, and engagement outcomes for students.

Interestingly, the student–teacher relationship was related to student engagement irrespective of the source of the relationship data (student or teacher) and regardless of how engagement was measured (students' self-reports or observations of academic engaged time). Together, these results suggest that student–teacher relationships are critically related to the construct of student engagement for this student population. Furrer and Skinner (2003) suggested that engagement needed to be studied with more diverse student

populations and hypothesized that it may be particularly important for this student population. As indicated in this study, positive relationships may be critical in preventing negative student outcomes, including student disengagement from school.

Implications for school practice

These results indicate that behaviorally at-risk African American students want positive relationships with their teachers and indicate that how students feel about their relationships with their teachers is important for in predicting a number of student outcomes, even for an elementary-aged school population. Thus, it is important to understand how students are feeling especially at young ages for prevention and intervention efforts. School psychologists may be critical agents in the school that can help intervene when relationships between students and teachers are less than desirable. By working with students and teacher to improve the quality of the relationship, school psychologists may be able to improve student outcomes. For example, school psychologists may be able to intervene by making teachers aware of the critical nature of the student–teacher relationship, and by helping teachers find ways to interact with students in a manner that communicates their care and concern for the student.

Merits and limitations

One merit of this exploratory study was that it utilized a multi-rater, multi-method approach. This study examined the student–teacher relationship from both the student's and the teacher's perspectives. Very few studies have examined how both student and teacher perspectives of the student–teacher relationship predict student outcomes, and researchers have recommended that the student's perspective is important and should be examined (Hamre & Pianta, 2001). Further, this study is unique in that it included an examination of relationship patterns in students' and teachers' perceptions of the student–teacher relationship, and explored how those relationship patterns were related to student outcomes. A further merit of this study was that it obtained data from a number of sources including students, teachers, and observations. This study examined a variety of student outcomes and measured these outcomes with instruments that have not yet been used in the student–teacher relationship literature (e.g., academic engaged time, curriculum-based measurement, letter naming fluency). The non-rating scale indicators of student outcomes supplemented the self-report data that was obtained and also strengthened the generalizability of findings obtained in previous studies.

Another merit of this study was that it focused on a unique sample of behaviorally at-risk African American students. In general, African American students tend to be underrepresented in research and even more so underrepresented in research that focuses on identifying positive factors in students' lives. Furrer and Skinner (2003) stated that the examination of relationships in more diverse and disadvantaged samples is an important next step. This study increased the generalizability of findings obtained in previous studies by extending them to a sample of behaviorally at-risk African American students.

Major limitations of this study include its small sample size and use of a convenience sample. The sample was limited to teachers that were willing to participate in the study, had

students in their classrooms that met the criteria, and who were able to secure parental permission for students' participation in the study. Due to these sampling procedures and the sensitive nature of the study (e.g., selecting only African American students for participation), it was difficult to recruit participants. While the sample size of this study was small, it appears that there was enough power to detect an effect given that there were several significant findings. For multiple regression analyses at a .05 significance level (α), Cohen (1992) recommended a sample size between 30 and 42 (for studies using two to five predictors) to detect a large effect size, and a sample size between 67 and 91 (for studies using two to five predictors) to detect a medium effect size for power of .80.

In relation to the small sample size, some teachers had multiple students in their classrooms (i.e., the "nesting" of students within teachers), which could have led to intercorrelations in the student data. More sophisticated statistical analyses such as hierarchical linear modeling and multi-level path analysis can take into account the nesting in the data and produce unbiased results, but they require sample sizes much larger than what was available in this study. Obtaining a larger sample size in future studies will allow for greater flexibility in selecting statistical analyses and will also have better generalizability of the findings.

Another limitation of this study was its cross-sectional and correlational design. This study cannot conclude that the student–teacher relationship causes certain student outcomes. It could be argued that students who were socially competent, were engaged, were academically successful, and who did not receive discipline infractions tended to form positive relationships with their teachers. Moreover, there is the possibility that a reciprocal relationship existed between the student–teacher relationship variables and the outcome variables presented in this study. For example, teachers who had close relationships with students may have been more likely to demonstrate democratic interactions with those students, provide more nurturance, hold higher expectations, etc. In turn, these teacher behaviors could have propelled students towards becoming more socially competent, more engaged, and achieving more academically. Regardless of the direction of the associations, Birch and Ladd (1997) highlighted that teachers make very important decisions about students (e.g., grade retention decisions, referral to special education) and it is probable that their decisions are based on their perceptions of students. Thus, it is very possible that the quality of the student–teacher relationship significantly impacts the educational trajectories that students follow throughout their schooling experience.

Future research directions

This study did not account for the ethnic differences between students and teachers. The teachers in this study were predominately White while all the students in this study were African American. Therefore, racial and ethnic differences may have been a factor contributing to the associations between the student–teacher relationship and student outcomes. Some studies have demonstrated differences in the quality of the student–teacher relationship as a function of student and teacher ethnicity (Kesner, 2000; Saft & Pianta, 2001). However, the role that ethnic differences may play in influencing the associations between the student–teacher relationship and student outcomes has not been examined empirically yet and may be an important direction for future research.

Another important direction for future research would be to examine how teachers' cultural competence is associated with the quality of the student–teacher relationship. Perhaps the cultural competence of a teacher is more important for promoting positive student–teacher relationships and student outcomes than the racial and ethnic background of the teacher. There is the possibility that teachers who are culturally competent (and White) can still promote positive relationships for students despite being of another race or ethnicity than the student. Given that the current teacher work force is predominately White (U.S. Department of Education, Office of Educational Research and Improvement, 1998), it will be important to explore how the current teaching population can best meet the needs of all students.

Additionally, more information is needed about the behaviors that lead to successful student–teacher relationships, especially for elementary-aged students. This study demonstrated that the student's perspective was important and was related to students' outcomes. Future research may want to focus on clarifying the specific teacher behaviors that students believe contribute to positive student–teacher relationships, especially with elementary-aged students. Researchers could also use students' responses about what they perceive to be the behaviors that contribute to positive student–teacher relationships to inform intervention efforts.

Concluding remarks

It is important that we work to promote positive outcomes for all students, especially for those who may be at-risk for educational failure or those who may be on a trajectory that bodes for less than desirable outcomes. By examining the student–teacher relationship as a protective factor, we are able to obtain a broader picture of the variables that contribute to success for at-risk students. This study suggests that the quality of the student–teacher relationship can either support or deter resiliency for at-risk students. Clearly, the next step is considering how positive student–teacher relationships can be promoted in the schools.

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