

THE IMPACT OF MIDDLE SCHOOL CONNECTEDNESS ON FUTURE HIGH SCHOOL OUTCOMES IN A BLACK AMERICAN SAMPLE

Sara Tomek and Anneliese C. Bolland

The University of Alabama

Lisa M. Hooper

The University of Louisville

Shannon Hitchcock and John M. Bolland

The University of Alabama

High levels of school connectedness have been shown to be associated with positive outcomes for adolescents (e.g., higher levels of self-worth and higher test scores); however, the impact of school connectedness during early adolescence has not been studied in relation to school-related outcomes during later adolescence. The current study explores the effects of school connectedness in middle school (MS) on high school (HS) outcomes in a sample of Black Americans living in low-income areas of Alabama. Results indicate that higher levels of MS connectedness were significantly related to a higher probability of enrollment in the last 2 years of HS, higher levels of school connectedness in HS, and lower probability of suspensions in HS. High levels of school connectedness in middle school were significantly related to positive outcomes in HS.

Middle school (MS) is a time of transition. During any period of development and change, the daily experiences of adolescents may impact how they react in future situations. Within a school setting, there are numerous factors that may influence students, both within the school (students, teachers, atmosphere) as well as factors outside of the school (family, friends, home life). During the middle school years, students often go from being classified as children to adolescents. Develop-

ment continues through high school, as many adolescents are identified as adults upon graduation from high school. Thus, middle and high school are settings for much development in individuals between the years of 10 and 18.

BRIEF LITERATURE REVIEW

During the middle school years, when individuals are typically between the ages of 10 and 14, there are great changes in physical,

• **Correspondence concerning this article should be addressed to:** Sara Tomek, stomek@bamaed.ua.edu

psychological, and social development, and development in each of these areas may be influenced both positively by protective factors and negatively by risk factors. Further, the experiences that individuals have during their middle school years can shape the paths these students take in the short term and in the long term (e.g., Didaskalou, Skrzypiec, Andreou, and Slec, 2016; Waenerlund et al., 2016). Students' experiences within the school environment are important, as factors like connectedness to school have been shown to affect outcomes such as test scores and delinquency in the short term (Niehaus, Rudasill, & Rakes, 2012). However, long-term outcomes, like graduation rates, have not been studied because they require longitudinal data. The benefits of exploring the relationship between middle school experiences and how they might be related to outcomes in high school are nonetheless important. Outcomes like delinquency and attending school in high school are predictive of outcomes as adults, like experience with the criminal justice system (Monahan, VanDerhei, Bechtold, & Cauffman, 2014). Thus, if school connectedness in middle school is shown to be related to outcomes like school enrollment, delinquency, and attendance in high school, this may indicate a long term effect of middle school connectedness.

Typical research on MS utilizes cross-sectional data to target current relationships between these factors and student outcomes. However, long-term outcomes, though more difficult to analyze, may be more important when discussing student outcomes. That is, it is more important to discuss how the students respond in future situations as opposed to how they are responding in their current situation. Middle school influences may be especially important to study as adolescents are more likely to engage in delinquent behaviors if already engaged in them during childhood (Broidy et al., 2003).

One factor associated with negative outcomes such as delinquency and poor school attendance is low socioeconomic status (SES). Adolescents living in lower SES neighbor-

hoods often have lower grade point averages (Alexander, Entwisle, & Bedinger, 1994; Dornbusch, Ritter, & Steinberg, 1991; Gonzales, Cauce, Friedman, & Mason, 1996), lower achievement levels (Alspaugh, 1991; Balli, Demo, & Wedman, 1998; Entwisle, Alexander, & Olson, 1994; Hitchcock, 2013), and lower rates of attendance (Lindsay, 1982). Additionally, extremely low SES has also been found to be related to neighborhood-level violent crime (Peterson, Krivo, & Harris, 2000), victimization (Veysey & Messner, 1999), and lower rates of social cohesion (Steptoe & Feldman, 2001). In many areas, low SES neighborhoods tend to be clustered, resulting in schools of relatively homogenous students in terms of SES. Additionally, in lower SES areas, schools are often of lower quality (Galvez, 2010; Newman & Schnare, 1997; Orfield & Lee, 2005) and do not perform as well on standardized tests (U.S. Department of Education Office of the Deputy Secretary, 2001).

A protective factor, however, for negative school outcomes is the feeling of belonging to or being connected to school. Students have feelings of connectedness to their schools when they have positive or successful interactions with peers and teachers (Catalano, Kosterman, Hawkins, Newcomb, & Abbott, 1996). Feeling connected to school has been shown to be related to both health and wellbeing (Jose, Ryan, & Pryor, 2012) and academic achievement (Skinner & Pitzer, 2012; Wang & Eccles, 2012). Additionally, lack of connectedness has been associated with negative outcomes, including school failure and dropout (Archambault, Janosz, Fallu, & Pagani, 2009; Li & Lerner, 2011) and delinquency (Chen, Voisin, & Jacobson, 2016; Rudasill, Reio, Stipanovic, & Taylor, 2010). The current study analyzes the long-term protective effects of MS connectedness on HS attendance and disciplinary violations within school.

During their school years, adolescents spend approximately 7 hours a day in school, or around a third of their day in school. One might expect that early interactions in school might set the tone, if you will, for future

interactions in school. If students in elementary school have positive interactions with school personnel, they may be more likely to feel connected to their schools. When considering development and school connectedness, the trend is decreasing feelings of school connectedness over time (Kelly et al., 2012; Wang & Dishion, 2012). Therefore, even when a school transition occurs (e.g., the transition from elementary to middle school), adolescents with higher levels of school connectedness should continue to have greater feelings of school belonging across the transition as compared to those with lower levels of school connectedness. It is expected, then, that school connectedness might be quite influential in the paths that students take, particularly in these formative middle school years.

The impact of school connectedness during middle school has been studied in adolescents living in low-income neighborhoods. Rudasill, Niehaus, Crockett, and Rakes (2014) explored the relationship between middle school connectedness and affiliation with delinquent peers and found an inverse relationship between school connectedness and affiliation with delinquent peers. Higher levels of school connectedness decreased the adolescent's associations with delinquent peers. Bolland, Bolland, Bolland, and colleagues (2016) found relatively stable trajectories across age for school connectedness in a sample of low-SES minority students, but also found that school connectedness was negatively related to levels of delinquency. Students with lower levels of delinquency had higher levels of school connectedness. This study, however, solely focuses on school connectedness in middle school and did not extend the results to future high school outcomes. Although associations with delinquent peers are highly related to delinquent behaviors, our study utilizes a longitudinal data set to predict future delinquency in school in relation to middle school connectedness.

THE PRESENT STUDY

School connectedness has been shown to be a protective factor for adolescents; however, little research has analyzed the longer term effects of school connectedness on academic outcomes. The current study was designed to extend previous research on middle school connectedness by studying longer term effects of feelings of school connectedness, or lack of connectedness, on high school outcomes and behaviors. The current study also extends previous research by focusing on a sample of Black American adolescents living in low-SES areas in Alabama. Using longitudinal data, middle school connectedness was used to predict high school enrollment, high school connectedness, high school absences, and school violations in a sample of Black Americans living in low-income areas. Additionally, middle school absences and school violations were used to predict high school enrollment to analyze the effect of delinquency on future school attendance.

Specifically, three research questions were analyzed:

1. Does middle school connectedness predict high school enrollment?
2. For those enrolled in high school, does middle school connectedness predict school connectedness in high school, absences in high school, school violations in high school, and suspensions in high school?
3. Does the number of middle school absences, school violations, and suspensions predict high school enrollment?

METHODS

Sample and Procedure

The sample of adolescents for the current study was obtained from the Mobile Youth and Poverty Study (MYPS), a 14-year longitudinal study of primarily Black American adolescents living in low-income areas in the county of

Mobile, Alabama. The MYPS is comprised of data sets from multiple sources, two of which are utilized for the current study: (a) data from the Mobile Youth Survey (MYS) and (b) data from the Mobile County Public School System (MCPSS). The MYS is a community-based survey that was conducted annually during the summer months using a multiple cohort design, with new cohorts added annually. A brief procedure for the data collection and sampling is presented here (for full details, see Bolland, Bolland, Tomek et al., 2016). First, using census tract data, the poorest neighborhoods in the Mobile Metropolitan Statistical Area were identified. Then, using both active and passive sampling strategies, adolescents within 3 months of their 10th or 18th birthday were recruited to participate in the MYS, resulting in participants between the ages of 9 and 19. Once contact was made and interest in the survey was established, each adolescent had to have consent from an adult caregiver in order to participate.

Group administrations of the MYS were scheduled each year in nearby community centers (e.g., elementary schools, boys' and girls' clubs). Each survey item was read aloud to groups of 20 to 30 adolescents, and they were asked to mark answers in a survey booklet. Participants requiring individual attention were assisted one on one; however, most participants completed the survey in the group setting. The survey was completed in approximately 1 hour. Each adolescent received \$10 for his or her time prior to 2005 and \$15 thereafter (Bolland, 2007).

Through partnership agreements with the home university and the MCPSS, school data were obtained by researchers allowing for a more complete picture of these adolescents' experiences. The MCPSS records contain school information about all adolescents in the MYS enrolled in the system, including their absences and school violations. Matching adolescents between the two data sets was accomplished through a procedure that included a matching of dates of birth, names, gender, addresses, and emergency contact information.

While the full MYPS sample is quite large, a number of limitations were placed on the sample for inclusion in the current analysis. The first restriction was that the sample was limited to those who participated in the MYS between the years 2006 and 2011. The school connectedness measure was not added to the MYS until 2006, so prior data could not be utilized for the current study. From this restriction, adolescents could only be selected for analysis if (a) they had both MYS and MCPSS data during at least 1 year of middle school (Grades 6–8) and at least one of the last 2 years of high school (Grades 11–12) or (b) they had both MYS and MCPSS data during at least 1 year of middle school (Grades 6–8) and data from the MYS between the ages of 16–17 when they should be in Grades 11–12 (for those who were not enrolled in school). The final restriction involved removing all those adolescents who did not self-identify as Black American (95% of the MYS sample self-identified as Black American).

Because of the limited number of years for the data and the restriction placed on the final data set, the final sample included $N = 524$ Black American adolescents with both middle school data and high school data points. In this sample, 43% ($n = 226$) were males and 57% ($n = 298$) were females. Of the $N = 524$ adolescents, 14% ($n = 72$) self-reported in the MYS that they were not enrolled in high school after the age of 16. Of those 72 adolescents, 56% ($n = 40$) were males and 44% ($n = 32$) were females. All adolescents in the full sample qualified for free or reduced lunch at least once during their participation in the MYPS, and the 1990 median household income of MYS participants was \$6,276 (Bolland, Lian, & Formichella, 2005).

Measures

Middle School and High School Enrollment. While age may be used as a proxy for grade in school, age is not always a determinant of grade, thus it was not used to determine grade in school. Middle school enrollment and

high school enrollment or nonenrollment were established through a single self-report measure on the MYS. Participants were asked, "What grade in school will you be next year?" All adolescents in the sample identified that they would be attending school in the upcoming year. Because the survey was given in the summer months, the grade identified by the participants was one more than the previous year. Even in cases where the adolescent was repeating a grade, the previous year would still be a middle school grade. Similarly, identification of enrollment in the last 2 years of high school was established through that same item (students identified as being in 11th or 12th grade at time_{t-1} or those identifying that they would be attending Grade 12 or college/technical school the next year). For an adolescent to be identified as being not enrolled in high school, two criteria need to be satisfied: an adolescent must be either aged 16 or 17 and report that they had not enrolled in school the previous year. In the state of Alabama, students are legally allowed to drop out of public school at age 16; hence, adolescents could legally leave school after that age.

School Connectedness. School connectedness was measured using eight items from the MYS. The scale was adapted from Goode now's (1993) Psychological Sense of School Membership scale. The items themselves were not modified (although only 8 out of the original 12 were included in the MYS); the response options were dichotomous rather than Likert type. Participants' responses were summed to create an additive scale ranging from 0 to 8, with higher scores indicating a higher sense of school connectedness. Cronbach's alpha internal reliability measure for scores on the scale was found to be acceptable at $\alpha = .64$.

School connectedness in middle school was calculated for all adolescents in the sample by averaging all of the MYS data points available for the adolescents while they were enrolled in middle school. Adolescents could have between one and three data points, and these values were averaged across subjects to

receive a single measure of middle school connectedness for each adolescent. The reliability for the middle school connectedness scores was found to be acceptable, $\alpha = .61$.

High school connectedness was calculated in the same manner, but was only calculated for those adolescents enrolled in 11th and/or 12th grade. A single high school connectedness score was calculated by averaging the one or two school connectedness scores available in the MYS for adolescents enrolled in those grades. Adolescents not enrolled in high school did not have a measure for high school connectedness; thus, their high school connectedness average was recorded as a missing observation. The reliability for the high school connectedness scores was found to be acceptable, $\alpha = .66$.

School Absences. Middle and high school absences were both reported in MCPSS records. For each school year of noted enrollment in the MYS, adolescents received a total number of days absent from school during the previous school year. Like the previous measures, this number was averaged over the total observations for the middle school data points to create the average number of school absences in middle school. The number of days absent in high school was also averaged for those enrolled in high school, with a missing observation recorded for those not enrolled in high school.

School Violations. School violations in both middle and high school were both reported in MCPSS records. For each school year of noted enrollment through the MYS, the MCPSS records contained information about school violations. For ease of interpretation for this study, information gleaned from the school records and used in this study is the number of days that a student was cited as being in violation of the school code of conduct or violating school disciplinary rules. Like the previous measures, this measure was averaged across the middle school data points to create an average middle school disciplinary violation score. The high school measures were also averaged for those enrolled in high

school to create an average high school disciplinary violation score. Those not enrolled in high school had a missing value for their high school disciplinary infractions measures.

School Suspension. Both suspension in middle school and high school were self-reported in the MYS with one item, “During the past year, were you suspended from school?” School suspension was calculated for both middle school and high school as the maximum value during their data points during the target years. That is, if they reported suspension at least once during middle school, they were recorded as being suspended during middle school. The same is true for high school suspension. Adolescents not enrolled in high school have a missing observation for high school suspension.

Gender and Race. Gender was self-reported on the MYS as either male or female. Race was also self-reported on the MYS. As noted in the sample section, only those adolescents who self-identified as Black American were included in the analysis.

Analysis Plan

First, descriptive statistics were calculated for each of the continuous measures used in subsequent analyses: school connectedness in middle school and high school; absences in middle school and high school; and disciplinary violations in middle school and high school. Gender comparisons were made for each using independent samples *t* tests. Correlations were also calculated between all the middle school measures and all of the high school measures. Frequencies were also calculated for each of the categorical measures used in subsequent analyses: high school enrollment and suspensions in middle and high school. Gender differences were evaluated using chi-squared tests.

To analyze research question one, a logistic regression was estimated with high school enrollment as the dependent variable and middle school connectedness as the independent variable. To analyze research question two,

three linear regression models were estimated with middle school connectedness as the independent variable and the sample limited to those enrolled in high school ($n = 452$). The three dependent variables were school connectedness, absences, and disciplinary violations—all in high school. Additionally, a logistic regression was estimated with high school suspension as the dependent variable and school connectedness in middle school as the independent variable. The sample again was limited to those enrolled in high school ($n = 452$). The full sample ($N = 524$) was utilized again for research question three. To answer research question three, three logistic regression models were estimated to predict the probability of enrollment in high school based on absences, disciplinary violations, and suspensions—all in middle school. Gender effects were also tested for all three research questions. All analyses were conducted in SAS Version 9.3.

RESULTS

Descriptives and Frequencies

Descriptive statistics were calculated for all continuous variables. Means and standard deviations are reported in Table 1. When comparing males and females, females were found to have significantly higher average school connectedness in middle school, $t(522) = -3.82, p < .001$, significantly higher average school connectedness in high school, $t(450) = -3.55, p < .001$, and significantly fewer averaged school violations in middle school, $t(522) = 3.97, p < .001$. Males and females did not significantly differ in their averaged absences in middle school or high school and averaged school violations in high school.

School connectedness in middle school was found to be negatively related to both absences in middle school, $r(522) = -.13, p = .003$, and school violations in middle school, $r(522) = -.12, p = .006$. However, school connectedness in high school was not significantly

TABLE 1
Descriptive Statistics for Continuous Study Variables, *M(SD)*

<i>Variable</i>	<i>Overall</i>	<i>Males</i>	<i>Females</i>
Middle school connectedness	6.33 (1.54)	6.04 (1.56)	6.55 (1.48)
High school connectedness	6.72 (1.52)	6.42 (1.69)	6.93 (1.36)
Middle school absences	29.17 (22.20)	30.87 (22.95)	27.87 (21.55)
High school absences	0.82 (5.93)	0.62 (4.28)	0.95 (6.85)
Middle school disciplinary violations	6.03 (5.13)	7.03 (5.35)	5.26 (4.83)
High school disciplinary violations	0.32 (1.64)	0.45 (2.01)	0.23 (1.31)

Note: Bolded values indicate significant gender differences at $p < .05$.

TABLE 2
Frequencies for Categorical Study Variables, *n (%)*

<i>Variable</i>	<i>Overall</i>		<i>Males</i>		<i>Females</i>	
	<i>Enrolled</i>	<i>Not Enrolled</i>	<i>Enrolled</i>	<i>Not Enrolled</i>	<i>Enrolled</i>	<i>Not Enrolled</i>
High school enrolled	452 (86%)	72 (14%)	186 (82%)	40 (18%)	266 (89%)	32 (11%)
Suspended		Not suspended	Suspended	Not suspended	Suspended	Not suspended
Middle school suspension	334 (64%)	190 (36%)	164 (73%)	62 (27%)	170 (57%)	128 (43%)
Suspended		Not suspended	Suspended	Not suspended	Suspended	Not suspended
High school suspension	181 (35%)	343 (65%)	96 (42%)	130 (58%)	85 (29%)	213 (71%)

Note: Bolded values indicate significant gender differences at $p < .05$.

related to either absences or school violations in high school.

Frequencies were calculated for all categorical variables, with frequencies displayed in Table 2. Significantly more females than males were enrolled in high school, $\chi^2(1) = 5.25, p = .022$. Further, significantly fewer females were suspended in middle school, $\chi^2(1) = 13.40, p < .001$, and in high school, $\chi^2(1) = 11.07, p < .001$.

RESEARCH QUESTION 1

A logistic regression model was calculated to predict the probability of high school enrollment as a function of school connectedness in middle school. Middle school connectedness

was found to be a significant predictor of future high school enrollment, $b = 0.16, OR = 1.18, \chi^2(1) = 4.27, p = .039$. Higher values of middle school connectedness predicted a greater probability of enrollment in high school. Males and females were not significantly different in this analysis.

RESEARCH QUESTION 2

To answer research question two, the sample was limited to only those adolescents who were enrolled in high school, $n = 452$. School connectedness in middle school was used to predict school connectedness, absences, and school violations—all in high school—using a series of regression models. School connected-

ness in middle school was significantly positively related to school connectedness in high school, with gender differences present in the model, $F(3, 448) = 19.96$, $R^2 = .12$, $p < .001$. For males, there was a significant positive relationship between school connectedness in middle school and high school, $b = 0.40$, $t(1) = 5.90$, $p < .001$. For females, however, while there was still a significant positive relationship between school connectedness in middle and high school, the relationship was significantly weaker than it was for males, $b = -0.20$, $t(1) = -2.22$, $p = .027$.

School connectedness in middle school did not significantly predict absences in high school, $F(3, 448) = 19.96$, $R^2 = .00$, $p = .55$, and no gender effects were found in this model. School connectedness in middle school did not significantly predict the mean school violations in high school, $F(3, 448) = 2.07$, $R^2 = .01$, $p = .10$, and no gender effects were significant in the model.

School connectedness in middle school was found to significantly predict the probability of suspension in high school, $b = -0.14$, $OR = 0.87$, $\chi^2(1) = 5.00$, $p = .025$, but no gender effects were found in the model. Higher school connectedness in middle school was associated with a lower probability of being suspended in high school.

RESEARCH QUESTION 3

Absences, school violations, and suspensions—all in middle school—were used to predict enrollment in high school. Absences in middle school were found to be a significant predictor of high school enrollment, $b = -0.01$, $OR = 0.97$, $\chi^2(1) = 7.24$, $p = .007$. Adolescents with more middle school absences were less likely to be enrolled in the last 2 years of high school. Although females were more likely to be enrolled in those last 2 years of high school than males, $b = 0.54$, $OR = 1.72$, $\chi^2(1) = 4.43$, $p = .035$, the interaction was not significant.

School violations in middle school were also a significant predictor of enrollment in the

last 2 years of high school, $b = -0.06$, $OR = 0.95$, $\chi^2(1) = 6.49$, $p = .011$. Adolescents with more school violations in middle school were less likely to be enrolled in the last 2 years of high school. Gender effects were not significant for this model.

Finally, suspension in middle school was a significant predictor of enrollment in the last 2 years of high school, $b = -0.78$, $OR = 0.46$, $\chi^2(1) = 6.86$, $p = .009$. Adolescents who were suspended in middle school had a lower probability of enrollment in the last 2 years of high school. Gender effects were not significant in this model.

DISCUSSION

Overall, females had significantly higher levels of school connectedness compared to males, concurrent with previous research (Kelly et al., 2012; Loukas, Ripperger-Suhler, & Herrera, 2012; Rudasill et al., 2014). This is not a surprising result as previous literature has shown that females tend to experience a more positive perception of teacher and school connectedness compared to their male peers. Additionally, females were found to be more engaged in school. That is, they were enrolled in high school at a higher rate than males and were less likely to have reported being suspended in either middle or high school. During the middle school years, females got in trouble less than males in school, as reported by the MCPSS.

Four middle school variables were found to be significantly related to enrollment in the last 2 years of high school: school connectedness, school absences, disciplinary violations, and suspensions. Middle school adolescents with higher levels of school connectedness, fewer absences, fewer disciplinary violations, and no suspensions had the highest probability of enrollment in the last 2 years of high school. Although, it is reasonable to expect that a few of the students who are not enrolled in high school during their junior and/or senior year might plan on coming back to high school and

finish their degree and/or get a GED later, the assumption is that the students who were enrolled in school during their junior and/or senior year are more likely to finish and graduate from high school. Our results suggest that high school drop-out is less likely to be a result of a sudden decision to quit school; rather, it is a result of previous behaviors and experiences, and that those behaviors and experiences go back to middle school (and perhaps beyond). That is, adolescents with more positive middle school experiences were less likely to drop out.

School connectedness in middle school was found to be a significant predictor of behaviors in high school. School connectedness in middle school was a significant predictor of enrollment in the last 2 years of high school, school connectedness in high school, and suspension in high school. Those adolescents who are more connected to their schools and are enrolled in their junior or senior years of high school are less likely to drop out of school, less likely to be suspended, and will feel more connected to school during their high school years.

While school connectedness in middle school was negatively related to both absences and disciplinary violations, the same relationship was not present in high school. Rudasill and colleagues (2014) found school connectedness to be negatively related to deviant peer affiliation; our findings extend this relationship to actual behaviors. The lack of relationship in high school indicates that middle school connectedness is much more informative to current disciplinary practices.

Neither school connectedness in middle school nor high school was related to absences and disciplinary violations in high school. These results may indicate that factors that relate to attendance and discipline differ as the adolescent moves from middle school to high school. However, school connectedness in middle school is predictive of attendance and discipline in middle school, which is important from an intervention standpoint. If school connectedness in middle school can predict absences and suspensions in middle school, it is important to strengthen school connected-

ness for those who might be at most risk of absences and/or suspensions. From our current sample, it is unknown what affects high school attendance and discipline; however, it is not surprising that there are more disciplinary violations in high school than there are in middle school, which might then result in more school suspensions in high school than middle school.

LIMITATIONS

The results of the current study extend the literature on the importance of middle school connectedness in relation to high school outcomes, especially enrollment in the last 2 years of high school—which is arguably positively related to graduation. However, limitations present in the study must be considered prior to final conclusions.

First, in this study, school enrollment is self-reported by MYS participants. Unfortunately, school records may not always reflect the true status of a student's enrollment. For example, students may, for all intents and purposes, have dropped out of school, but not done so officially. Thus, a student might self-report not being enrolled in school; however, the school may be counting the student as absent but enrolled for all the days the student does not show up to school. Further, a student might have moved and no longer be zoned for a particular school. The school might not show that the student is enrolled in school, but the student might be enrolled in a different school. In our study, this is accounted for by missing data from the school system for the measures reported by the school records. While this is a limitation, this may also create a measure that is more consistent with the experiences of the adolescent.

The second limitation is the limited amount of data that could be utilized from the large MYPS project for the current analysis. While the sample size is considerable given the analyses performed, $N = 524$, it is relatively small in relation to the number of adolescents in the full MYPS data set (i.e., $> 10,000$).

The third limitation was a result of the analytical method. The averaging of multiple data points in order to create a single measure limits the information provided by each participant. Changes across middle school cannot be analyzed and interpreted when global measures are calculated. However, the limitations in our data set did not allow for growth modeling across middle school in order to detect changes in relation to future high school outcomes. Growth modeling would have required multiple data points during both the middle school years and the high school years. Adding these restrictions to our already restricted dataset (limiting analyses to years 2006 through 2011) would have decimated our sample size even more.

A fourth limitation for the results is the reliability of the school connectedness scale, which was found to be slightly below .70. Because of the nature of the dichotomous items, it is expected that internal reliability may be lower than ideal (Robinson, Shaver, & Wrightsman, 1991); however, this alpha level does not indicate an unreliable measure.

CONCLUSION

Middle school connectedness appears to be an important factor to consider when thinking about factors that encourage enrollment in and graduation from high school. Higher levels of school connectedness in middle school is predictive of adolescents staying enrolled in school, staying connected to their high schools, and avoiding disciplinary violations that result in suspensions. When teachers and administrators are sensitive to the importance of school connectedness, they can better provide experiences that will strengthen students' connectedness to school. This connectedness, in turn, may pave the path to success for students who are more at risk for not completing high school. Enrollment and engagement are the first steps toward success.

REFERENCES

- Alexander, K. L., Entwisle, D. R., & Bedinger, S. D. (1994). When expectations work: Race and socioeconomic differences in school performance. *Social Psychology Quarterly*, *57*, 283–299.
- Alspaugh, J. (1991). Out-of-school environmental factors and elementary-school achievement in mathematics and reading. *Journal of Research and Development in Education*, *24*, 53–55.
- Archambault, I., Janosz, M., Fallu, J.-S., & Pagani, L. S. (2009). Student engagement and its relationship with early high school dropout. *Journal of Adolescence*, *32*, 651–670.
- Balli, S. J., Demo, D. H., & Wedman, J. F. (1998). Family involvement with children's homework: An intervention in the middle grades. *Family Relations*, *47*, 149–157.
- Bolland, J. M. (2007). *Overview of the Mobile Youth Survey*. Unpublished manuscript, The University of Alabama, Institute for Social Science Research, Tuscaloosa, Alabama.
- Bolland, K. A., Bolland, A. C., Bolland, J. M., Church, W. T., Hooper, L. M., Jagers, J. W., & Tomek, S. (2016). Trajectories of school and community connectedness in adolescence by gender and delinquent behavior. *Journal of Community Psychology*, *44*, 602–619.
- Bolland, K. A., Bolland, J. M., Tomek, S., Devereaux, R., Mrug, S., & Wimberly, J. C. (2016). Trajectories of adolescent alcohol use by gender and early initiation status. *Youth and Society*, *48*, 3–32.
- Bolland, J. M., Lian, B. E., & Formichella, C. M. (2005). The origins of hopelessness among inner-city African-American adolescents. *American Journal of Community Psychology*, *36*, 293–305.
- Broidy, L. M., Nagin, D. S., Tremblay, R. E., Bates, J. E., Brame, B., Dodge, K. A., ... & Vitaro, F. (2003). Developmental trajectories of childhood disruptive behaviors and adolescent delinquency: A six-site, cross-national study. *Developmental Psychology*, *39*, 222–245.
- Catalano, R. F., Kosterman, R., Hawkins, J. D., Newcomb, M. D., & Abbott, R. D. (1996). Modeling the etiology of adolescent substance use: A test of the social development model. *Journal of Drug Issues*, *26*, 429–455.

- Chen, P., Voisin, D. R., & Jacobson, K. C. (2016). Community violence exposure and adolescent delinquency. *Youth and Society, 48*, 33–57.
- Didaskalou, E., Skrzypiec, G., Andreou, E., & Slee, P. (2016). Taking action against victimisation: Australian middle school students' experiences. *Journal of Psychologists and Counsellors in Schools*. doi:10.1017/jgc.2016.3
- Dornbusch, S. M., Ritter, P. L., & Steinberg, L. (1991). Community influences on the relation of family statuses to adolescent school performance: Differences between African Americans and non-Hispanic Whites. *American Journal of Education, 99*, 543–567.
- Entwisle, D. R., Alexander, K. L., & Olson, L. S. (1994). The gender gap in math: Its possible origins in neighborhood effects. *American Sociological Review, 59*, 822–838.
- Galvez, M. M. (2010). *What do we know about housing choice voucher program location outcomes? A review of recent literature*. Washington, DC: The Urban Institute.
- Gonzales, N. A., Cauce, A. M., Friedman, R. J., & Mason, C. A. (1996). Family, peer, and neighborhood influences on academic achievement among African-American adolescents: One-year prospective effects. *American Journal of Community Psychology, 24*, 365–387.
- Goodenow, C. (1993). Classroom belonging among early adolescent students: Relationships to motivation and achievement. *The Journal of Early Adolescence, 13*, 21–43.
- Hitchcock, S. M. (2013). *Neighborhood and school contextual factors: Longitudinal outcomes in a high-poverty adolescent population* (Masters thesis). The University of Alabama, Tuscaloosa, AL.
- Jose, P. E., Ryan, N., & Pryor, J. (2012). Does social connectedness promote a greater sense of well-being in adolescence over time? *Journal of Research on Adolescence, 22*, 235–251.
- Kelly, A. B., O'Flaherty, M., Toumbourou, J. W., Homel, R., Patton, G. C., White, A., & Williams, J. (2012). The influence of families on early adolescent school connectedness: Evidence that this association varies with adolescent involvement in peer drinking networks. *Journal of Abnormal Child Psychology, 40*, 437–447.
- Li, Y., & Lerner, R. M. (2011). Trajectories of school engagement during adolescence: Implications for grades, depression, delinquency, and substance use. *Developmental Psychology, 47*, 233–247.
- Lindsay, P. (1982). The effect of high school size on student participation, satisfaction, and attendance. *Educational Evaluation and Policy Analysis, 4*, 57–65.
- Loukas, A., Ripperger-Suhler, K. G., & Herrera, D. E. (2012). Examining competing models of the associations among peer victimization, adjustment problems, and school connectedness. *Journal of School Psychology, 50*, 825–840.
- Monahan, K. C., VanDerhei, S., Bechtold, J., & Cauffman, E. (2014). From the school yard to the squad car: School discipline, truancy, and arrest. *Journal of Youth and Adolescence, 43*, 1110–1122.
- Newman, S. J., & Schnare, A. B. (1997). "... And a suitable living environment": The failure of housing programs to deliver on neighborhood quality. *Housing Policy Debate, 8*, 703–741.
- Niehaus, K., Rudasill, K. M., & Rakes, C. R. (2012). A longitudinal study of school connectedness and academic achievement outcomes across sixth grade. *Journal of School Psychology, 50*, 443–460.
- Peterson, R. D., Krivo, L. J., & Harris, M. A. (2000). Disadvantage and neighborhood violent crime: Do local institutions matter? *Journal of Research in Crime and Delinquency, 37*, 31–63.
- Orfield, G., & Lee, C. (2005). *Why segregation matters: Poverty and educational inequality*. Cambridge, MA: Harvard University, The Civil Rights Project.
- Robinson, J. P., Shaver, P. R., & Wrightsman, L. S. (1991). *Measures of personality and social psychological attitudes* (Vol. 1). New York, NY: Academic Press.
- Rudasill, K. M., Reio, T. G., Stipanovic, N., & Taylor, J. E. (2010). A longitudinal study of student-teacher relationship quality, difficult temperament, and risky behavior from childhood to early adolescence. *Journal of School Psychology, 48*, 389–412.
- Rudasill, K. M., Niehaus, K., Crockett, L. J., & Rakes, C. R. (2014). Changes in school connectedness and deviant peer affiliation among sixth-grade students from high-poverty neighborhoods. *Journal of Early Adolescence, 34*, 896–922.
- Skinner, E. A., & Pitzer, J. (2012). Developmental dynamics of engagement, coping, and everyday resilience. In S. Christenson, A. Reschly, & C. Wylie (Eds.), *The handbook of research on student engagement* (pp. 21–44). New York, NY: Springer Science.

- Stephens, A., & Feldman, P. J. (2001). Neighborhood problems as sources of chronic stress: development of a measure of neighborhood problems, and associations with socioeconomic status and health. *Annals of Behavioral Medicine, 23*, 177–185.
- U. S. Department of Education Office of the Deputy Secretary. (2001). *The longitudinal evaluation of school change and performance (LESCP) in Title I schools*. Washington, DC: Government Printing Office. (ERIC Document Reproduction Service No. ED457306)
- Veysey, B. M., & Messner, S. F. (1999). Further testing of social disorganization theory: An elaboration of Sampson and Groves's "Community Structure and Crime." *Journal of Research in Crime and Delinquency, 36*, 156–174.
- Waenerlund, A-K., Stenmark, H., Bergstrom, E., Hagglof, B., Ohman, A., & Petersen, S. (2016). School experiences may be important determinants of mental health problems in middle childhood—A Swedish longitudinal population based study. *Acta Paediatrica, 105*, 407–415.
- Wang, M. T., & Dishion, T. J. (2012). The trajectories of adolescents' perceptions of school climate, deviant peer affiliation, and behavioral problems during the middle school years. *Journal of Research on Adolescence, 22*, 40–53.
- Wang, M. T., & Eccles, J. S. (2012). Social support matters: Longitudinal effects of social support on three dimensions of school engagement from middle to high school. *Child Development, 83*, 877–895. doi:10.1111/j.1467-8624.2012.01745.x

Copyright of Middle Grades Research Journal is the property of Information Age Publishing and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.