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SCHOOL UNIFORMS AND STUDENT BEHAVIOR: IS THERE A LINK?

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Abstract

Whether or not schoolchildren exhibit better behavior in the context of wearing uniforms has been a long-standing area of debate in education. Nonetheless, there has been little empirical inquiry into the benefits or drawbacks of school uniform policies. To contribute new insights to the dialogue, the present investigation used nationally representative data from the Early Childhood Longitudinal Study Kindergarten Class of 2011 (n = 6,320) to examine students' social-behavioral and engagement outcomes across the elementary school years as a function of school uniform policies. In general, students in schools that required school uniforms did not demonstrate better social skills, internalizing and externalizing behavior, or school attendance as compared with students in schools without school uniforms. These associations were true across both public and private schools. There was, however, some indication that low-income students in schools that required uniforms demonstrated better school attendance than low-income students in schools that did not.

Keywords

school uniforms; elementary school; social behavior; absenteeism

Mandatory school uniform policies were first put in place nearly 30 years ago (Brown, 1998), with increased implementation from the 1990s onward (Han, 2010). In the 1995–1996 school year, only 3% of public schools in the U.S. required uniforms, which increased to 20% in 2011–2012 (Mitchell, 1996; U.S. Department of Education, National Center for Education Statistics, 2013). School uniforms mandates are even greater in private schools, with roughly six out of every ten requiring that students wear uniforms (57% in 2011–2012; National Center for Educational Statistics, Digest of Education Statistics, 2013). This

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growth in school uniforms (particularly in the public elementary school sector; 20% in elementary school versus 12% in secondary school) has been attributed to the belief that uniform policies level the playing field in schools and help improve students' academic achievement and social-behavioral engagement (Brown, 1998; Kaiser, 1985; Pate, 2006; Ryan & Ryan, 1998; U.S. Department of Education, 1996) along with student and classroom safety (Kaiser, 1985; Zernike, 2002). Reflecting these beliefs, both the Clinton and G.W. Bush administrations encouraged widespread adoption of school uniforms (Boutelle, 2008; Zernike, 2002).

Notwithstanding these proposed benefits and encouragement to adopt school uniform policies, there are many opponents. Anti-uniform groups argue that mandatory uniforms violate First Amendment rights of students and can lead to an authoritarian learning atmosphere that inhibits learning (Brown, 1998). More broadly, critics argue that student achievement, behavior, and self-esteem will decrease rather than increase (Brunsma, 2006) and that classroom stratification will not only remain, but uniforms could add further financial hardship on low-income families who now must purchase required clothing (Brunsma, 2006; Portner, 1996). In general, opponents argue that uniform policies may only serve as a stop-gap policy in addressing issues of economic and educational equality that, ultimately, allows policy makers and practitioners to delay making difficult decisions to reform public education (DeMitchell, 2006).

Despite these ongoing debates, there has been little empirical inquiry into the benefits or drawbacks of school uniforms, and the studies that do exist are limited, dated, and largely focus on academic outcomes (Bodine, 2003; Brunsma, 2004; Brunsma, 2006; Holloman et al., 1998; Kohn, 1998; Murray, 1997; Pate, 1999; Yeung, 2009). This is a glaring gap in knowledge because students' social-behavioral skills, especially in the earliest years of school, are critical in determining their future social, educational, and economic success (Heckman & Rubinstein, 2001; Heckman et al., 2006; Imberman, 2011; Jacob, 2002; Segal, 2008). These findings, combined with the growth in uniform policies across the U.S., necessitate further empirical work to understand whether learning in the context of school uniforms is linked to differential measures of student success. Accordingly, the present study uses nationally representative data to explore whether: (a) elementary school-aged students across the United States demonstrated higher social-behavioral functioning and engagement in schools with uniform policies as compared with students in schools without uniform policies and (b) these associations vary across key subgroups of students. In doing so, the present investigation represents one of the first national snapshots of the outcomes of school uniforms in elementary schools.

The Purpose of Uniforms

School uniforms historically have been used in a variety of circumstances (e.g., military personnel, medical professionals, athletic teams) to signify to both wearers and observers of their expected roles. It has been argued that uniforms serve dual purposes: (a) to differentiate nonmembers from members and (b) to signal to the actor and the audience that certain set of behaviors are expected (Joseph, 1986). Uniforms symbolize group membership and can define group boundaries, promote group goals, and reduce role conflict (Stanley, 1996).

They may also promote conformity to group norms, which may reduce group infighting and discrimination (Huss, 2007). Thus, administrators and policy makers have viewed uniforms as a means of altering the climate of a school in cases of violence, disruptive behaviors, or social stratification.

Enacting school uniform policies can be viewed from theoretical persepctives that higlight the role of the environments that students interact with as a key influence on their development. For example, according to Social Learning Theory, individuals are argued to respond to a combination of: (a) cognitive factors, such as knowledge, expectations, and attitudes; (b) behavioral factors, such as skills, practice, and self-efficacy; and (c) environmental factors, such as social norms, access in community, and influence on others (Grusec, 1994). These cognitive, behavioral, and environmental factors are hypothesized to interact with each other in a process known as reciprocal determinism (Grusec, 1994). Thus, theoretically, it is argued that school uniforms may change the school environment, resulting in a shift in the reciprocal determinism equation that could improve the trajectory of the student body. Social learning theory also rests on the notion that individuals create meaning for things that they interact with both through their personal interactions and their interaction with others (Huss, 2007). That is, individuals create meaning based off their own experience as well as through learning the expectations and meanings other people give to these same objects. Grounded in this perspective, many administrators and policy makers have equated school uniforms with private schools, which are perceived as secure, safe, and orderly places of learning (Huss, 2007).

School Uniforms in Practice

One major consideration pro-school uniform groups cite is student safety. Past school uniform policies have been introduced as a way to equalize the school culture/setting to support students and reduce gang attire and activity, increase school safety, and decrease clothing theft (Daugherty, 2002; Kaiser, 1985; Stanley, 1996; Zernike, 2002). Thus, from risk-taking perspective, school uniforms are often viewed as a way of mitigating risks to vulnerable populations, including fear of intimidation and discrimination. But beyond safety considerations, school uniforms have other proposed benefits: Increased student discipline, increased respect for teachers, promotion of group spirit, higher academic standards maintained through uniformity, decreased strain on parental budgets, and a decrease in student’s concerns for social status through fashion (Kaiser, 1985). These benefits may also increase academic achievement, as a third of teachers either agreed or strongly agreed that student misbehavior disrupted their teaching (Robers et al., 2012).

On the other hand, opponents of school uniforms argue that there is not enough empirical evidence to support its implementation and that students may seek out other ways to individuate themselves even in schools with uniforms, such as becoming disruptive in class or rebel against authority (Gentile & Imberman, 2011). In the limited research that does exist, there is some indication that uniforms may restrict students’ ability to express themselves, and thus, results in lower-levels of self-esteem (Wade & Stafford, 2003). Accordingly, through seeking conformity in clothing, schools may actually be undermining efforts to understand and appreciate diversity in the student body (Howe, 1996). Opponents

of school uniforms also cite a variation of the Hawthorn effect that may account for any observed differences in student outcomes where uniforms are mandatory (Posner, 1996). More specifically, it is argued that differences in student outcomes are caused by a change in the way adults perceive uniformed students and *not* the way in which students behave or learn. If this hypothesis is correct, then meaningful change may be brought about without mandating uniforms among the student body.

Empirical Evidence regarding School Uniforms

As noted above, despite the extensive public discourse surrounding the implementation of school uniforms in the United States, there has been limited research that has examined its effectiveness. However, the handful of studies that have examined the benefits of school uniforms, although dated, present inconclusive evidence. For example, evidence from two school districts in Florida utilizing a pre-post test design found that elementary school-aged students significantly improved their academic test scores in the year post-uniform implementation (Pate, 1999). In contrast, with samples of elementary (Brusnma, 2006) and high school students (Brunsma & Rockquemore, 1998), other researchers have found that students in schools with uniform policies demonstrated lower levels of (or declines in) academic achievement as compared with students in schools without uniforms. And, yet, other studies have documented no consistent differences in students' academic outcomes as a function of school uniform policies (Draa, 2005; Stevenson & Chunn, 1991; Yeung, 2009).

Although still limited, the evidence for school uniforms is equally mixed when considering students' non-academic outcomes. Studies ranging from elementary to high school from school districts in Ohio and Virginia and in the southwest U.S. reveal that school attendance was better in schools with uniforms than those without uniforms (Draa, 2005; Gentile & Imberman, 2011; Hoffler-Riddick & Lassiter, 1996) and that school uniform implementation resulted in a decline in disciplinary infractions and a higher sense of school belonging (Han, 2010; Hoffler-Riddick & Lassiter, 1996; Pate, 2006; Peters, 1996). Secondary school teachers' perceptions of students' peer relations, engagement in violent behavior, and integrity have also been found to improve when uniforms were worn (Huss, 2007; Wade & Stafford, 2003; Sanchez et al., 2012; Tucker, 1999). Other research, however, reveals largely null or negative associations between school uniforms and elementary and secondary school students' attendance and social-behavior (Brunsma & Rockquemore, 1998; Gentile & Imberman, 2011; Han, 2010).

The Present Study

When taken together, despite theoretical assertions and the policy rehteoric surronding school uniforms and their benefits for the student body, the extant literature has yielded inconclusive evidence. Thus, whether school uniforms help level the playing field in schooling, which is important for children from ethnically and economically diverse backgrounds, or whether uniforms amplify disparities and serve as obstacles to being in school is unclear. Accordingly, the present investigation sought to add to our knowledgebase by leveraging a contemporary and nationally representative sample of elementary school-aged students to evaluate whether K-5 students' school behavior and engagement outcomes

differ in schools with and without uniforms. As part of this effort, we also consider the extent to which any patterns vary for students across the income and skill distributions and across school sectors. Given the inconclusive evidence discussed above, we did not make directional hypotheses. But in addressing these research questions, we build upon the limited, dated understanding of whether school uniforms are associated with students' social, behavioral, and engagement outcomes in the crucial early years of development.

Method

Data for the present investigation were drawn from the Early Childhood Longitudinal Study – Kindergarten Class of 2010–11 (ECLS-K: 2011; Tourangeau et al., 2015). The ECLS-K is a nationally representative sample of students who were followed from kindergarten entry through the end of fifth grade. To ensure a nationally representative sample, the ECLS-K: 2011 first sampled within geographic regions, then public and private schools, and finally students were stratified by race/ethnicity. For our purposes, we used data from the surveys administered to parents, teachers, and school administrators. Given the nature of the data on school uniform policies (for more details, see below), we limited our sample to children who: (a) remained in the same schools between kindergarten and fifth grade and (b) had administrator reported data of school uniform policies from the kindergarten wave of data collection. This restriction resulted in a final sample of 6,320 students.

Measures

Table 1 presents descriptive statistics for all focal covariates, separated by school uniform policy and Table 2 presents descriptive statistics for all study outcomes.

School uniforms.—During the spring of kindergarten, school administrators were given a survey that included a question about whether students were required to wear uniforms. Although similar questions were asked again in first and second grade, these surveys were: (a) only asked of administrators of students who switched to new schools (and only a handful of children changed between schools with and without uniforms) and (b) no uniform data were available for students who switched schools after second grade, hence our focus on students who remained in the same elementary schools between kindergarten and fifth grade. Accordingly, we used these reports from kindergarten to create a binary variable that indicated whether students attended elementary schools with or without a uniform policy.

Student outcomes.—In the fall and spring of kindergarten and again in the spring of each subsequent grade, teachers reported on students' socio-emotional skills. These questions were derived from the Social Skills Rating System (SSRS; Gresham & Elliott, 1990). This tool is based a 4-point scale (0 = *never* to 3 = *very often*) that includes four subscales: Interpersonal skills (5 items; α = .86–.87), self-control (4 items; α =.80–.82), internalizing behavior problems (4 items; α = .76–.79), and externalizing behavior problems (5 items; α = .86–89). Teachers also reported on students' approaches to learning with a measure developed by NCES (6 items; α = .91–.92). Similar to Claessens and colleagues (2009), we collapsed these indicators into three dimensions: *Internalizing*

behavior problems, *externalizing behavior problems*, and *social skills* (a combination of approaches to learning and socioemotional skills).

In addition to children's socio-emotional development, students' teachers also reported on students' *school absences* every year (0 = *no absences*, 1= *1–4 absences*, 2 = *5–7 absences*, 3 = *8–10 absences*, 4 = *11–19 absences*, and 5 = *20 or more absences*). To increase interpretability, we recoded the scale values to equal the midpoint of the response options (e.g., 1–4 absences was recoded as 2.5 absences). Students who were never absent (scale value of 0) and those who were absent for 20 or more days of the school year (scale value of 5) were coded as being absent for 0 and 20 days, respectively. Note that, during kindergarten through third grade, children had one primary teacher across subject areas who reported on children's school attendance. In fourth and fifth grade, however, students had different teachers for different subject areas. In these grades, both students' English language arts teacher and their science or math teacher responded to questions of absenteeism. Because the correlations of absenteeism across subject areas were high, we created a composite of fourth, and then, fifth grade absences.

Analysis Plan

All analyses were estimated within Stata (StataCorp, 2009). These models included robust standard errors to safeguard against violations of normality and missing data were accounted for with 50 imputed datasets using chained equations. All models were also weighted to be nationally representative and error term were clustered at the school level. To minimize the possibility of spurious associations, all models controlled for a large number of child and family covariates. These indicators capture *children's characteristics* (i.e., gender, race/ethnicity, English language learner status, and an indicator for whether a parent rated the child as having poor health), *children's educational experiences* (i.e., enrollment in full-day kindergarten, school type, and the number of hours that the child spent in center-based prekindergarten and before/after school care during the kindergarten year), *household characteristics* (i.e., household structure, number of siblings, poverty status, parent education, parent employment, number of books in the home, home learning activities), and *school-going practices and routines* (i.e., whether the child took a school bus to school, how far the child lived from school, in miles, number of breakfasts and dinners that the family regularly had together at home). In addition, all models (except for models predicting absenteeism) adjusted for lagged dependent variables from kindergarten entry. Given the large number of outcomes, we also make a *p*-value adjustment for multiple comparisons using the Benjamini adjustment (Benjamini & Hochberg, 1995).

With the above analytic framework in mind, we employed several different methodological specifications to determine whether students demonstrated different outcomes based on school uniform policies. Our first model was based within an OLS regression framework. Importantly, the above is after taking into account a student's own school entry skills and the control measures. Thus, our first set of analyses considered whether, conditional on covariates, students in schools with uniforms demonstrated greater improvements in outcomes between kindergarten and fifth grade as compared with students who attend schools without uniforms. Notwithstanding the rich control measures included in this study,

it is important to note that schools with uniform policies may differ in other observed and unobserved ways, which would make it difficult to isolate the outcomes of school uniform policies from the effects of other factors. To limit this possibility, we estimated three additional models.

Our second specification addressed the possibility of variation at the state-level that may influence the associations between school uniform policies and student outcomes. We did so by implementing state-fixed effects for the full sample of children. Consequently, our state-fixed effects models hold constant all state-wide factors that were the same for students in schools with and without school uniform policies in the same state. Although state-fixed effects account for state-to-state variation, there may be variation at a more granular level in the implementation of school uniforms. Therefore, our third specification was based within a county fixed effects framework, which may be particularly important in a study of school uniform policies, as decisions about school uniforms can stem from county factors. Therefore, county fixed effects help to control for county-to-county variation that exists in school uniform policies and student outcomes. As before, both the state- and county-fixed effects models adjusted for lagged dependent variables and the full set of covariates discussed above.

Even though state- and county fixed effects account for observed and unobserved differences at key levels, and thus, increase confidence in the reported associations, there may be concerns about the overlap between schools with and without uniform policies. Accordingly, our fourth and final specification was based within a propensity score matching framework (Rosenbaum & Rubin, 1983). Although propensity scores do not change the causal identification strategy, this methodology does consider whether there is overlap in the unmatched sample and the functional form assumptions that are driving our findings. For our matching models, we used the nearest neighbor method (with up to four matches) with a caliper of .05, allowing a sufficient overlap between students in schools with and without school uniforms. Given this specification, we successfully matched approximately 65% of students (the number of matches varied across the 50 imputed datasets). Importantly, before matching, the average standardized mean difference between conditions was approximately 18% of a standard deviation, but after matching, the average standardized mean difference was roughly 3% of a standard deviation (see Table 1). Moreover, none of the covariates were significantly different across conditions after matching, suggesting that balance was successfully achieved (descriptives available from authors). Accordingly, regression models were re-estimated within these matched samples and included all covariates when predicting outcomes (doubly robust estimation; Funk et al., 2011).

Once the main effects of school uniforms were examined in these various ways, we then examined potential variation in the benefits of school uniforms as a function of child and school characteristics. Specifically, we examined variation in associations as a function of child socioeconomic status and initial skills, and as a function of the type of school children attended. It is important to note that, given the small number of private schools of different types, we collapsed our school type indicator into public versus private for our moderation analyses. To estimate heterogeneity in associations, we estimated a new set of regression models that included interaction terms between the focal indicator for school uniforms and

the moderators of interest. Our focal moderation analyses were estimated with the full set of covariates.

Results

We begin with a descriptive presentation of the types of schools that had school uniform policies along with the students who attended those schools. We then present our main effect analyses before we turn to a discussion of heterogeneity in outcomes and close with set of supplemental analyses. With that said, and as can be seen in Table 1, roughly 28% of students across the U.S. attended schools that required a uniform. When looking across different types of schools, we find that 78% of Catholic schools that students attended had a uniform requirement as compared with only 54% of other religious schools and 43% of other private schools. And, among public school students, only 21% attended schools with a uniform policy. In terms of the student body, we find that schools with uniforms served a larger number of Black (20%) and Hispanic (40%) children and English Language Learners (27%) than schools without school uniforms (8–18%). In contrast, White children were more likely to be served in schools without uniforms (64% vs. 31%), whereas schools with uniform policies served a larger share of children from low-income families (52%) than schools without uniform policies (41%). Other descriptives stratified by schools with and without uniform policies are presented in Table 1.

Students' Behavior and School Uniforms

Having established the descriptive snapshot of the schools with school uniform policies along with the student body, we next examined whether students demonstrated different outcomes based on school uniform policies. Two overall patterns are evident in Table 3 with regard to the associations between school uniforms and children's social skills, behavioral problems, and school absences. First, the associations between school uniforms and students' outcomes were almost entirely null and the effect sizes across outcomes and grade levels were roughly 3% of a standard deviation. In fact, of the 24 associations estimated within our baseline model with an assortment of covariates, only one emerged as statistically significant and none were statistically significant with a Benjamini adjustment, leaving us with little confidence of a statistically-significant link between school uniforms and students' outcomes. Second, the magnitude of the estimated associations derived from our baseline OLS model did not change substantially when we estimated models with state- and county fixed effects, nor when we implemented propensity scores (see Table 3). Taken together, there seems to be no meaningful differences in students' social-behavioral and attendance outcomes between kindergarten and fifth grade as a function of school uniforms.

Heterogeneity in Student Outcomes

Having established the average associations between school uniforms and student outcomes, our next set of analyses examined heterogeneity in these associations as a function of children's school entry skills, socioeconomic status, and the type of school students attended. In the main, there was no consistant evidence of variation in outcomes as a function of school type nor students' baseline skills. There was, however, some indication that the links between school uniforms and absenteeism varied as a function of socio-

economic status. More specifically, the attendance benefits of school uniforms were approximately 20% of a standard deviation larger for low-income students as compared with more affluent students. Accordingly, even though school uniforms had no links to attendance for higher-income students, in first (p <.01), fourth (p < .05), and fifth (p < .05) grade, low-income students who attended schools with uniforms demonstrated fewer absences than those in schools without uniforms. And although not statistically significant, similar patterns emerged in second and third grade (ES = .10–.13)

Supplemental Analyses of Students' Experiences in School

In addition to the kindergarten through fifth grade outcomes reported as part of our focal analyses, students also reported on their *school belonging* (14 items, α = .90; e.g., closeness with teachers and classmates), *experiences of bullying* (4 items, α = .81; e.g., teasing, name calling), and *social anxiety* (3 items, α = .88; worrying about what others think) in fifth grade, which are aspects of the school experience that have been at the center of school uniform debates (e.g., Gentile & Imberman, 2011; Han, 2010; Howe, 1996; Huss, 2007; Kaiser, 1985; Pate, 2006; Sanchez et al., 2012). Although all students reported on these additional items, these surveys were not administered to students in the earlier grades. But to highlight the other potential outcomes of school uniform mandates, we estimate supplemental models that consider the links between school uniforms and these self-reported outcomes, net of the covariates outlined above. But because these variables were not collected in kindergarten entry, these models did not include lagged controls.

As can be seen in Table 4, results from our covariate adjusted models revealed that students in schools with uniform policies reported no differences in their social anxiety, and experiences with victimization, but they did report *lower* levels of school belonging (ES = 16% of a standard deviation, p < .001) as compared with students in schools without school uniforms. These findings largely replicated when accounting for state- and county-fixed effects along with propensity scores (see Table 4) and remained statistically significant with a Benjamini adjustment. And, as before, there was no evidence of heterogeneity.

Discussion

School uniform policies have grown in the thirty years since their introduction in the United States, both in the public and private education sectors (U.S. Department of Education, National Center for Education Statistics, 2013). This growth has fostered debate among pro- and anti-uniform advocates (Boutelle, 2008; Brown, 1998; Brunsma, 2006; DeMitchell, 2006; Kaiser, 1985; Pate, 2006; Portner, 1996; Ryan & Ryan, 1998; Zernike, 2002). To date, however, these debates have been grounded in both limited and dated empirical evidence, especially in the formative elementary school years (Bodine, 2003; Brunsma, 2004, 2006; Draa, 2005; Gentile & Imberman, 2011; Han, 2010; Kohn, 1998; Murray, 1997; Pate, 1999; Yeung, 2009).

With that said, Social Learning Theory posits that individuals rely on a combination of cognitive, behavioral, and environmental factors to learn how to act in a given situation. This process, known as reciprocal determinism, has been raised by policymakers and adminstrators to suggest that school uniform policies have downstream effects on students

because it influences the environment of school children and alters the complex reciprocal determinism equation (Grusec, 1994). Accordingly, the present study sought to add to this literature on the going to school in the context of school uniforms in elementary schools by bringing a longitudinal and national perspective to school uniforms and aspects of students' development that are relatively understudied, but that are known to drive long-term educational and life success (Heckman & Rubinstein, 2001; Heckman et al., 2006). In doing so, several key themes emerged.

First, the results of the present investigation illustrate consistent and largely null findings at the aggregate level as a function of school uniform policies. That is, students who attended schools with and without school uniform mandates, on average, demonstrated similar social skills, externalizing and internalizing problems, and school attendance patterns between kindergarten and fifth grade after adjusting for children's characteristics and their educational experiences, household characteristics, and school-going practices and routines. Effect size were close to zero, suggesting no meaningful differences as a function of school uniform policies. Importantly, this pattern of largely null findings remained consistent even with the inclusion of state and county fixed effects that accounted for geographic variation as well as when propensity score matching was used. But when looking at students' own self-reports of their engagement and well-being in fifth grade, we found that students in schools with uniforms reported lower levels of school belonging than students in schools that did not require uniforms.

When taken together, these null—and in some cases negative—findings are both similar to prior studies that have documented null or negative associations (Brunsma & Rockquemore, 1998; Gentile & Imberman, 2011; Han, 2010), but stand in contrast with other studies that show benefits of school uniforms for children's socio-emotional development (Huss, 2007; Wade & Stafford, 2003; Sanchez et al., 2012; Tucker, 1999). Although we can only speculate why these differences emerge between the current investigation and some of the extant literature, one must consider the fact that many of the prior studies done on school uniforms have been restricted to specific school districts (e.g., Draa, 2005; Gentile & Imberman, 2011; Hoffler-Riddick & Lassiter, 1996), whereas the current study presents a national perspective. But with regards to the Social Learning Theory perspective, there is no evidence to suggest school uniforms changed the environment of school children, at least with respect to their social behavior.

One might also wonder why there were largely null associations for broader indicators of social behavior (as reported on by teachers) as compared with negative associations for students' own self-reports. Of most relevance is the fact that these benchmarks were different: Teachers reported on broader indicators of students' social and behavioral adjustment, whereas students reported on more specific outcomes related to their school experiences. Thus, including indicators from both the teacher and student perspective presents a more well-rounded and balanced portrait of the outcomes of school uniform policies. But with respect to the lower levels of school belonging in schools with uniforms, one possibility worth considering is that students' fashion choices are likely to be only one potential source of belonging. Accordingly, what these results make clear is that the argument that school uniforms create cohesion among students and give students a sense of

identity is not true, at least in this study sample (Brown, 1998; Kaiser, 1985; Pate, 2006; Ryan & Ryan, 1998; U.S. Department of Education, 1996).

The second key theme that emerged from the present investigation was that the magnitude of associations between elementary schools with (versus without) a school uniform mandate and students' social and behavioral problems did not consistently vary as a function of children's socio-economic status nor their school entry skills. That is, school uniforms did not address issues of economic and educational equality that have been at the center of much of the pro-uniform debates and the very reason many school officials and school systems require students to wear uniforms (DeMitchell, 2006). Just as importantly, even with the large differences in the rates of school uniform mandates between public and private schools (National Center for Educational Statistics, Digest of Education Statistics, 2013), we documented no differences in the outcomes of school uniform policies and student outcomes across different school sectors. Put another way, the associations between school uniforms and students' socio-emotional, behavioral, and engagement outcomes were comparable (and in most instances close to zero) in *both* public and private schools. Taken together, what the results suggest is that the outcomes of school uniforms are far more similar than different for students of different backgrounds and for students enrolled in different types of schools across the United States.

With that said, one of the only consistent patterns that did emerge (and the third and final key theme) was that low-income children demonstrated fewer absences between first and fifth grade in schools with uniforms as compared with low-income children in schools without uniforms. The above is noteworthy given that absenteeism is at its highest point in the early elementary school years (Ansari & Pianta, 2019) and there is long-standing evidence to suggest that low-income children are doubly at risk: They are more likely to be absent from school (Morrissey et al., 2013) and they are more likely to experience reduced learning due to absences as compared with their more advantaged peers (Gershenson et al., 2017). Given the above, there has been longstanding interest in identifying in which contexts school absences are lowest, particularly for groups of vulnerable children (e.g., Rogers & Feller, 2018; Robinson et al., 2018). Accordingly, what the results of the present study suggest, is that school uniforms may be one context in which low-income students have fewer instances of absences; with that said, the mechanism for reduced absenteeism was *not* feelings of school belonging.

Despite these contributions to the extant literature, the results of the present investigation should be interpreted in light of some limitations. First and foremost, students were *not* randomly assigned to attend schools with and without uniforms. Consequently, our findings should be interpreted with caution as there might be unobservable confounds. With that said, a correlation is necessary for a causal effect and what our findings underscore is that there is no correlational support, on average, for school uniform policies; and in a few instances, the associations that did emerge between school uniform policies and student outcomes were in the opposite direction (i.e., negative). Second, although the present study presents a national snapshot of the outcomes of school uniforms between kindergarten and fifth grade, what is missing is an examination of longer-term outcomes in secondary school and beyond. In other words, our study cannot determine the potential associations for student

outcomes of interest for middle or high school students. Additional research is needed to better understand the associations between school uniform policies and student outcomes in the older grades and. Third, because administrators in the ECLS-K were not asked about school uniforms on a yearly basis, the present study could *not* consider within school changes in uniform policies. Likewise, very few students changed between schools with and without uniforms and, consequently, we also could not examine within child change (i.e., child fixed effects models). For the above reasons, we limited or sample to students who remained in the same school between kindergarten and fifth grade to reduce any bias that may stem from school mobility or other unknown confounds. The above is of note because it limits the generalizability of our findings. Finally, our study relied largely on teacher reports of children's socio-emotional skills because information from other sources was not consistently available across the elementary grades. The above is of note because our benchmarks for children's socio-emotional development are based on teachers' perceptions and may be biased. With that said, it is important to keep in mind that: (a) there are few, if any, large-scale and nationally representative studies that have more objective measures of socio-emotional development and (b) as part of our supplemental analyses, we also examined students' own reports of their ties to their schools.

With these limitations and future directions in mind, the results of the present investigation bring a contemporary and national perspective to the ongoing debates surrounding school uniforms. In the main, despite the argument that school uniforms have the potential to improve students' social-behavioral and engagement outcomes (Daugherty, 2002; Kaiser, 1985; Stanley, 1996; Zernike, 2002), and shifting the process of reciprocal determinism (Grusec, 1994), the findings from the present study suggest otherwise: There is *no* conclusive evidence to suggest that students in schools with uniform mandates demonstrated stronger social-behavioral and engagement outcomes than students in schools without such mandates, and there was little evidence of heterogeneity. In fact, when examining students' own reports of their school experiences, those in schools that required uniforms demonstrated higher levels of victimization and lower-levels of school belonging. If replicated with different samples and methods in the future, what these results suggest is that school uniforms may *not* be the most effective way to improve students' social, behavioral, and engagement outcomes.

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Research Highlights

- We examine elementary-aged students' social-behavioral and engagement outcomes as a function of school uniform policies.
- Students in schools that required school uniforms did not demonstrate better social behavior or school attendance than students in schools without school uniforms.
- Associations were true across both public and private schools, but low-income students in schools with school uniforms demonstrated better school attendance.

Table 1.

Weighted descriptive statistics for focal covariates, stratified by schools with and without uniform policies

	Before Matching				After Matching			
	No School Uniforms		School Uniforms		No School Uniforms		School Uniforms	
Variables	**M**	**SD**	**M**	**SD**	**M**	**SD**	**M**	**SD**
Child characteristics								
Male	.51		.48		.49		.49	
White	.64		.31		.30		.30	
Black	.08		.20		.16		.14	
Hispanic	.18		.40		.43		.42	
Asian	.05		.05		.08		.09	
Other	.06		.04		.04		.05	
English language learner	.11		.27		.31		.31	
Poor health rating	.12		.16		.18		.18	
Educational experiences								
Full-day kindergarten	.83		.93		.91		.90	
Catholic school	.01		.15		.15		.16	
Other religious school	.03		.09		.10		.09	
Other private school	.01		.03		.02		.01	
Public school	.95		.72		.73		.73	
Hours per week in center-based care (pre-K)	15.19	13.53	16.63	14.25	15.90	14.10	16.10	14.28
Hours per week in before/after school care (K)	5.92	9.61	5.76	9.84	5.67	9.40	5.85	9.79
Out-of-home care prior to prekindergarten	.76		.74		.73		.73	
Household characteristics								
Two-partner household	.84		.76		.76		.77	
Number of siblings	1.50	1.10	1.49	1.12	1.52	1.17	1.52	1.16
Low income	.41		.52		.57		.55	
Mother has at least a college degree	.33		.33		.30		.32	
Father has at least a college degree [a]	.33		.32		.25		.27	
Mother unemployed	.33		.35		.37		.37	
Mother employed part time	.23		.20		.20		.20	
Mother employed full time	.45		.45		.44		.44	
Father unemployed [a]	.09		.08		.14		.12	
Father employed part time [a]	.05		.07		.09		.08	
Father employed full time [a]	.86		.85		.78		.79	
Number of books at home	103.46	174.52	70.98	97.50	68.57	113.01	66.72	113.78
Home activities (scale)	2.94	.46	2.85	.50	2.84	.47	2.83	.49
School-Going Practices and Routines								
Bus to school	.34		.18		.20		.20	
Distance	4.92	3.31	4.88	4.24	4.73	4.55	4.66	3.47

	Before Matching				After Matching			
	No School Uniforms		School Uniforms		No School Uniforms		School Uniforms	
Variables	**M**	**SD**	**M**	**SD**	**M**	**SD**	**M**	**SD**
Time to school	11.94	7.57	11.84	7.57	11.17	7.11	11.40	7.25
Regular breakfasts at home	5.52	1.61	5.28	1.74	5.19	1.72	5.23	1.73
Regular dinners at home	5.51	1.78	5.41	1.86	5.47	1.82	5.42	1.87

Notes.

[a]Estimates for father education and employment are provided for the group of famili7es with a father in the home.

Table 2.

Weighted descriptive statistics for focal outcome variables.

	Days absent [a]	Social skills	Internalizing behavior	Externalizing behavior
Fall of kindergarten	n/a	3.05 (0.57)	1.45 (0.48)	1.55 (0.58)
Spring of kindergarten	5.31 (4.34)	3.19 (0.58)	1.51 (0.48)	1.59 (0.60)
Spring of first grade	4.63 (3.95)	3.20 (0.58)	1.51 (0.48)	1.68 (0.58)
Spring of second grade	4.81 (4.09)	3.18 (0.59)	1.56 (0.49)	1.68 (0.58)
Spring of third grade	4.33 (3.77)	3.19 (0.60)	1.57 (0.52)	1.65 (0.59)
Spring of fourth grade	4.38 (3.69)	3.19 (0.59)	1.56 (0.53)	1.63 (0.59)
Spring of fifth grade	4.47 (3.85)	3.20 (0.60)	1.56 (0.5)	1.62 (0.59)

Note. Estimates correspond to means and those in brackets correspond to standard deviations.

[a]Note, even though absenteeism in kindergarten is listed in the “spring of kindergarten” row, this estimate corresponds to absenteeism across the kindergarten year.

Table 3.

Results from models examining the outcomes of school uniforms between kindergarten and fifth grade.

	Student outcome			
Model specification	**Social skills**	**Internalizing behavior**	**Externalizing behavior**	**Absenteeism**
Kindergarten outcomes				
Covariate adjusted model	−0.02 (0.03)	0.04 (0.04)	0.04 (0.03)	−0.01 (0.05)
State fixed effects model	−0.02 (0.04)	0.03 (0.05)	0.04 (0.03)	0.02 (0.05)
County fixed effects model	0.00 (0.04)	0.05 (0.05)	0.02 (0.04)	0.03 (0.05)
Propensity score model	0.00 (0.04)	−0.01 (0.04)	−0.00 (0.04)	−0.01 (0.05)
First grade outcomes				
Covariate adjusted model	−0.03 (0.05)	0.04 (0.04)	0.03 (0.04)	−0.03 (0.04)
State fixed effects model	0.01 (0.05)	−0.01 (0.05)	0.02 (0.05)	−0.04 (0.05)
County fixed effects model	0.01 (0.05)	0.01 (0.05)	0.03 (0.05)	−0.02 (0.05)
Propensity score model	0.05 (0.05)	−0.03 (0.05)	−0.01 (0.05)	0.01 (0.04)
Second grade outcomes				
Covariate adjusted model	−0.10 * (0.05)	0.04 (0.05)	0.04 (0.04)	−0.04 (0.05)
State fixed effects model	−0.09 (0.05)	0.05 (0.05)	0.02 (0.04)	−0.03 (0.05)
County fixed effects model	−0.05 (0.05)	0.00 (0.05)	0.01 (0.04)	−0.03 (0.05)
Propensity score model	−0.08 (0.05)	−0.01 (0.05)	0.04 (0.05)	−0.02 (0.05)
Third grade outcomes				
Covariate adjusted model	−0.04 (0.05)	0.04 (0.04)	0.03 (0.04)	0.01 (0.05)
State fixed effects model	−0.00 (0.05)	0.05 (0.05)	0.00 (0.04)	0.01 (0.05)
County fixed effects model	0.02 (0.05)	0.03 (0.05)	−0.02 (0.04)	0.01 (0.06)
Propensity score model	−0.02 (0.05)	−0.02 (0.05)	0.02 (0.04)	0.02 (0.05)
Fourth grade outcomes				
Covariate adjusted model	−0.03 (0.04)	−0.02 (0.04)	0.02 (0.04)	−0.01 (0.05)
State fixed effects model	−0.03 (0.05)	0.02 (0.05)	0.00 (0.05)	−0.03 (0.05)
County fixed effects model	0.02 (0.04)	−0.02 (0.05)	−0.02 (0.04)	−0.01 (0.05)
Propensity score model	−0.03 (0.04)	−0.05 (0.05)	0.03 (0.04)	0.01 (0.05)
Fifth grade outcomes				

	Student outcome			
Model specification	**Social skills**	**Internalizing behavior**	**Externalizing behavior**	**Absenteeism**
Covariate adjusted model	−0.07 (0.05)	−0.02 (0.05)	0.03 (0.05)	−0.01 (0.05)
State fixed effects model	−0.02 (0.05)	−0.05 (0.05)	−0.01 (0.05)	−0.04 (0.05)
County fixed effects model	0.03 (0.05)	−0.08 (0.06)	−0.04 (0.05)	−0.03 (0.05)
Propensity score model	−0.06 (0.05)	−0.04 (0.05)	0.05 (0.05)	0.01 (0.05)

Note. Coefficients in bold were statistically significant at p < .05 with a Benjamini false discovery adjustment. All estimates are weighted and account for the complex sampling design. Models include a full set of controls. All continuous predictors and outcomes have been standardized to have a mean of 0 and standard deviation of 1 and, thus, coefficients can be interpreted as effect sizes. Estimates in brackets correspond to standard errors.

*** $p < .001$;

** $p < .01$;

* $p < .05$.

Table 4.

Results from models examining the associations between school uniforms and students' self-reported outcomes in fifth grade

	Student outcome in fifth grade		
Model specification	**School belonging**	**Experiences of bullying**	**Social anxiety**
Covariate adjusted model	**−0.16** *** **(0.05)**	0.08 (0.04)	0.03 (0.04)
State fixed effects model	**−0.18** *** **(0.05)**	0.09 * (0.05)	0.04 (0.05)
County fixed effects model	**−0.19** *** **(0.05)**	0.09 (0.05)	0.05 (0.05)
Propensity score model	**−0.12** ** **(0.04)**	0.05 (0.04)	0.03 (0.04)

Note. Coefficients in bold were statistically significant at $p < .05$ with a Benjamini false discovery adjustment. All estimates are weighted and account for the complex sampling design. Models include a full set of controls. All continuous predictors and outcomes have been standardized to have a mean of 0 and standard deviation of 1 and, thus, coefficients can be interpreted as effect sizes. Estimates in brackets correspond to standard errors.

*** $p < .001$;

** $p < .01$;

* $p < .05$.