Abstract

We used the school-based design of the National Longitudinal Study of Adolescent Health to measure normative climates regarding teen pregnancy across 75 high schools in the United States. School-level norm strength and norm dissensus were strongly (r = -0.65) and moderately (r = 0.34) associated with pregnancy prevalence within schools, respectively. Normative climate accounted for half of the observed racial differences in school pregnancy prevalence, but norms were a stronger predictor than racial composition. As hypothesized, schools with a stronger average norm against teen pregnancy and high consensus about the norm had the lowest prevalence of teen pregnancy. Our results highlight the importance of considering the local school environment when designing policies to reduce the likelihood of teen pregnancy among students.

Keywords: schools, norms, teen pregnancy, adolescence

Racial, Socioeconomic, and Religious Influences on School-Level Teen Pregnancy Norms and Behaviors

Teen pregnancy should be a subject of interest for educators and education researchers, as pregnancies may be severely disruptive for the educational trajectories of girls who become pregnant. In particular, teen pregnancy is a strong risk factor for not completing school (Hayes, 1987). Although pregnancy frequently leads girls to leave high school early, there is also qualitative evidence that it alters their views on education. Both Schultz (2001) and Zachry (2005) offer qualitative evidence that motherhood led to a reevaluation of the importance of education to their subjects. While they may have had minimal interest in education initially, becoming mothers caused them to place much greater value in education, especially since they were now caretakers and role models for their children. There are also potential long-term socioeconomic implications of teenage pregnancy. A NRC panel suggested that "women who become parents as teenagers are at greater risk of social and economic disadvantage through their lives than those who delay childbearing" (Hayes, 1987, p. 138). Later research (Hoffman, Foster, and Furstenberg, 1993; Geronimus and Korenman, 1992) has suggested that the effects may be less pernicious than they first appeared, but most research agrees that they do persist. There are clearly reasons to be concerned about the educational achievement and socioeconomic welfare of teenagers who become pregnant. Since there are clear social norms regulating teen pregnancy and sexuality (Mollborn 2009), an understanding of these behaviors depends in part on understanding the normative climate in which they occur.

Teen pregnancy is viewed by 79% of Americans as an important or very serious problem facing U.S. society (Science and Integrity Survey, 2004). The persistence of a behavior that the bulk of society views as problematic has caused teen pregnancy to be framed as a cultural phenomenon related to the development and reinforcement of atypical social norms. For example, opinion leaders

write that teenagers today are getting the message that teen pregnancy is cool (Morand, 2009). Some researchers have reported weaker norms against teen pregnancy in low-income, predominantly African American or Hispanic communities compared to others (e.g., Burton, 1990). While norms are properties of social groups (Durkheim, 1951), existing research on teen pregnancy has operationalized norms as a characteristic of the individual (e.g., Mollborn, 2009) or inferred them from predominant patterns of behavior (e.g., Brewster, 1994a; Sucoff & Upchurch, 1998).

The mismatch between the theoretical and empirical approaches to norm assessment is critical because policies designed to reduce teen pregnancy may need to focus on the social contexts in which shared understandings about sexual behaviors take shape and the factors that structure these contexts, rather than individual's understandings of the risks or rewards of parenthood. As described above, teen pregnancy is of obvious importance to educational researchers because of the well-established links to educational outcomes (Hayes 1987). But it is also important because norms about pregnancy capture unique aspects of school context and composition that may be otherwise difficult to assess. To date, no existing study has described variation in school-level pregnancy norms across high schools in the United States. Our primary goal is to provide a complete picture of the range of school-based norms about pregnancy across U.S. high schools. This information can be used by educational researchers to better understand the social contexts of their school sites vis-à-vis the national average.

We then address four primary research questions: (1) how is the average strength of school-level norms against teen pregnancy related to the level of consensus around that school-level norm; (2) how are these factors associated with schools' prevalence of teen pregnancy; (3) how is the racial, socioeconomic, and religious composition of the school related to teen pregnancy norm strength

and consensus; and (4) do normative differences explain the associations between school racial, socioeconomic, and religious composition and school pregnancy prevalence?

Schools and teen pregnancy norms

Norms about teen pregnancy belong to a special subset of social norms, called age norms, which are fundamental to the interdisciplinary life course theoretical perspective (Neugarten, Moore, & Lowe, 1965). As part of a "prescriptive timetable for major life events" (Neugarten et al., 1965, p. 711), age norms are shared expectations about when and in which order it is appropriate for people to make particular life transitions (Settersten, 2004). In this case, there is a shared societal expectation that teenagers should not get pregnant (Mollborn, 2009). If a teen gets pregnant, she is vulnerable to negative interpersonal and institutional sanctions. Life course researchers have called for more research documenting age norms (Macmillan, 2007; Marini, 1984; Settersten, 2004). Despite sociologists' acknowledgement that age norms are a group-level construct, past research has primarily focused on individual-level measures of norms (e.g., Billari & Liefbroer, 2007; Settersten, 1998). This is particularly important because U.S. high schools are typically cohesive social contexts with their own cultures (DiMaggio, 1982), but very little research on teen pregnancy has examined norms and norm consensus using schools as the backdrop. Although high schools are composed of smaller peer networks whose norms may either echo or conflict with the school's overarching normative context (Eckert, 1989; Pascoe, 2007), and schools are just one of many social contexts in adolescent's lives (e.g., neighborhoods, families, friends, etc.), they remain a fundamental component of adolescents' norm reference systems. Teitler and Weiss (2000) found that schools were more important than neighborhoods in predicting teens' sexual behavior. They advocate greater attention to school-level normative environments for understanding this topic, but little research has responded to this call.

Following past research from across the social sciences and related fields (Elster, 1989; Goffman, 1967; Keltner & Buswell, 1997; Staller & Petta, 2001; Wooten, 2006), we measure social norms using student respondents' sense of embarrassment regarding the possibility that they may become pregnant (or impregnate someone). Embarrassment is a social emotion that is generated by the actual or imagined presence of others (Berthoz, Armony, Blair, & Dolan, 2002). Therefore, it provides a convenient method to assess a person's perceptions that she may be violating behavioral expectations, and it is in line with traditional sociological definitions of norms (Cooley, 1902). As an informal social sanction, embarrassment regulates behavior (Keltner & Buswell, 1997; Staller & Petta, 2001). Vasalou, Joinson, and Pitt (2006) found that feeling embarrassment, shame, and guilt increased adherence to a social norm, and Mollborn (2010) found that embarrassment at the prospect of a teenage pregnancy strongly decreased the likelihood of a teen subsequently getting pregnant.

Measuring norms (a group-level phenomenon) as a quantitative trait is notoriously difficult because the bulk of quantitative social science data involve individual-level data collection instruments (Marini, 1984; Settersten, 2004). However, when data are collected from multiple respondents within known social clusters (such as schools), the aggregation of responses regarding embarrassment is more than the sum of its parts. This kind of data provides researchers with a unique opportunity to indirectly assess the strength of the norm (the mean) and consensus about the norm (the variation), both of which are meaningful group-level constructs (Jessor et al., 1968). Accordingly, the *average* level of embarrassment reported by students at the prospect of a teen pregnancy indicates how strong the norm against teen pregnancy typically is at that school. There are likely to be palpable differences in terms of the negative sanctions experienced by pregnant students attending a school in which students agree on average that they would be embarrassed by a teen

pregnancy, compared to a school in which students disagree that a pregnancy would be embarrassing. This stronger norm should also regulate its target behavior by reducing pregnancy. Therefore, we hypothesize that schools with stronger norms against teen pregnancy will have a lower prevalence of pregnancy.

We also contribute to the literature by characterizing the level of *consensus* about a school-level teen pregnancy norm. Consensus around the norm is likely related to group cohesiveness at the school level, as well as cohesiveness in the larger community from which the school draws its students. Lack of consensus regarding normative behavior within a group is most closely aligned with Durkheim's (1951) notion of anomie, and others have argued that social contexts with large variation around a norm are more likely to have adverse outcomes such as teen pregnancy simply because the inability of such contexts to regulate behavior (Jessor et al., 1968). Therefore, we also calculate the variance in the embarrassment response to assess how broadly distributed students' responses are at a particular school. This approach to operationalizing heterogeneity echoes Harding's (2007) work on neighborhood effects on teen sexual behavior.

We hypothesize that there should be a negative relationship between norm strength and pregnancy prevalence in higher-consensus, but not lower-consensus, schools. These ideas stem from the social psychological literature, which finds that individuals are more likely to align their behavior with and enforce an existing norm when the norm is strongly held and supported by a general consensus in the group (Hechter, 1987; Horne, 2001). Strong norms against teen pregnancy may regulate behavior particularly strictly, leading to low teen pregnancy prevalence in the school, when there is high consensus about the norm. Consider two strong-norm high schools whose students, on average, agree that they are embarrassed by the prospect of experiencing a teen pregnancy. The first school has a low variance, suggesting strong consensus among its students in this norm against teen

pregnancy. A pregnant teen at this school is likely to face nearly unified negative reactions. The second school has a high variance around the mean: Many students report a norm that is different than their school's average norm. In a school like this, there may be different subpopulations within the school that hold strongly divergent norms about teen pregnancy, or there may be general anomie among the students with widespread disagreement about the norm. In either case, though, a pregnant teen in this school should find that many peers do not disapprove of her situation. In other words, schools with both a strong norm against teen pregnancy and strong consensus about the norm should be the most effective at regulating the target behavior. Supporting this notion, Harding (2007) found that frames and scripts for teens' sexual behavior were less predictive of teens' actual behaviors in neighborhoods with lower consensus (greater heterogeneity) about these frames and scripts.

Sources of variation in school-level teen pregnancy norms

Past research has made it clear that norms about teen pregnancy vary in the U.S. population (Edin & Kefalas, 2005; Mollborn, 2009, 2010). Based on previous literature, three factors appear to be particularly important in understanding this variation: race/ethnicity, socioeconomic status (SES), and religion. We review each in turn.

Race. Echoing qualitative research on the topic (Anderson, 1990; Burton, 1990), quantitative research has documented differences between African Americans and Whites in adults' and teenagers' perceived norms about teen pregnancy (Mollborn, 2009, 2010). Other racial/ethnic groups have not evidenced significant differences between whites and other ethnic groups, or these differences have been explained by socioeconomic factors. Explanations that scholars have proffered for these norm differences, such as Burton's (1990) qualitative analysis of a low-income Black community's welcoming of motherhood as an achievement of adult status, or Anderson's

(1990) description of changing norms caused by shared experiences of social isolation in poor African American neighborhoods, tend to incorporate cultural, structural, or hybrid explanations. In support of structural explanations, initial differences by neighborhood racial composition were fully accounted for by the socioeconomic disadvantage typically experienced by predominantly black neighborhoods (Mollborn, 2010).

Socioeconomic status and inequality. Stronger norms against nonmarital teen pregnancy have been documented among more highly educated Americans (Mollborn, 2009) and in higher-SES neighborhoods (Mollborn, 2010), but research has not examined school-level socioeconomic status. Students' and school staff members' shared evaluation of the costs and benefits of different options available to teens likely varies by schools' socioeconomic composition. When opportunities for socioeconomic advancement are plentiful, school norms may discourage teenagers from getting pregnant. In contrast, when future socioeconomic prospects are dim, teens may have little incentive to delay childbearing (Wilson, 1987). Harding (2007) found that disadvantaged neighborhoods had more heterogeneous scripts and frames for teen sexual behavior, suggesting that lower socioeconomic status may also be associated with weaker consensus about teen pregnancy norms.

We also innovate by measuring socioeconomic inequality at the school level. Schools with high levels of inequality have varying degrees of opportunity available for their students. These schools are also likely to have segregated friendship networks that may result in divergent social norms (McPherson & Smith-Lovin, 1987). For both of these reasons, there may be less consensus about the appropriateness of teenage pregnancy in schools with greater socioeconomic inequality.

Religion. Individuals who identify with a religious group tend to have stronger proscriptions regarding aspects of sexuality including pornography (Sherkat & Ellison, 1997), family planning (Ellison & Goodson, 1997), and specific gender roles (Bartkowski & Hempel, 2009) that may

influence group norms regarding teen pregnancy. Many private schools are run by religious organizations, and although laws formalize their separation, public schools have varying levels of involvement with religious groups in their communities. As such, school norms may be shaped by the religious composition of the students and communities that they serve. Different constructs have been used to operationalize religion. Because we are interested in normative aspects related to religiosity, we gauge the religious context of the school by assessing the degree of scriptural inerrancy which is common within evangelical and fundamentalist religious organizations and is a critical cultural component of religious identity (Hunter, 1981). Scriptural inerrancy is the view that the respondent's religion's scripture is "God's word of truth to mankind, is entirely unmistaken in its statements and teachings" (as quoted in Hunter, 1981, p.368). Efforts have been made to refine this measure, especially as it relates to differences among evangelical and fundamentalist Christians (Ammerman, 1982), but it remains a central measure of cultural aspects related to religiosity.

Disentangling influences. Racial, socioeconomic, and to a lesser extent, religious factors are probably confounded at the school level. Both individual- and school-level socioeconomic status are highly correlated with race and ethnicity, with African Americans more disadvantaged than many other groups (Brewster, 1994b). African Americans also report higher average levels of religiosity, religious service attendance, and involvement in evangelical religious organizations than other racial/ethnic groups (Ellison, 1998). In addition, religion and socioeconomic status can easily be confounded because of higher levels of religious involvement among lower-SES groups (Sherkat, 2007). Our analyses work to disentangle the associations of each of these interrelated factors with the strength of and consensus about teen pregnancy norms within schools.

Method

Data

This study uses data from the National Longitudinal Study of Adolescent Health (Add Heath) (Udry, 1998). Add Health was designed to examine health and health-related behaviors among a nationally representative sample of adolescents in seventh through twelfth grade. In 1994, 90,118 adolescents from 134 schools completed questionnaires about their daily activities, health-related behaviors, and basic social and demographic characteristics. Following the in-school survey, 20,747 respondents were re-interviewed in their homes between April and December of 1995. We limited our analysis to high schools (dropping middle schools and junior high schools because students under age 15 were not asked questions about sexuality and pregnancy) and to schools in which at least 25 students responded to the questions (to ensure reliable estimates of the mean and variance). In total, our final sample contained 75 schools. Compared to the 107 schools that had students who met our age requirement in the full sample, our sample schools contained more White students and fewer Hispanic students (those schools which were not included had 4% fewer White students and 4% more Hispanic students). There were slight (less than 1%) differences in the percentages of the Asian and Black students between the sample and non-sample schools. The difference between sample and non-sample schools in percentage of students whose mothers had at least attended college was also 1%. As such, we are confident that our reduced sample is representative of the overall sample of schools from the Add Health study.

Measures

Teen pregnancy norms. During the Wave 1 in-home survey, male respondents were asked to the respond to the following statement: "If you got someone pregnant, it would be embarrassing for you." Female respondents were asked to respond to: "If you got pregnant, it would be embarrassing

for you." Response options ranged from 0 ("Strongly disagree") to 4 ("Strongly agree"). A similar

measure, "it would be embarrassing for my family," was not analyzed because of its strong

correlation with personal embarrassment. Other teen pregnancy questions that we did not analyze

addressed individual-level attitudes about teen pregnancy, rather than embarrassment, which

measures an anticipated social reaction instead. We calculated the average and variance of these

responses for each of the schools in the study. Of the 75 schools in our final sample, the minimum

number of responses per school was 27 and the maximum was 1,226 (average = 138.2; median =

110; sd = 153.2). We then reverse coded the responses (by subtracting from the largest mean value)

so that the minimum value corresponded with the weakest norm about teen pregnancy. We used

these values to compute the school-level variances, our measure of the school consensus about the

school pregnancy norm.

[Table 1 about here]

Prevalence of teen pregnancy. School-level pregnancy prevalence was assessed by computing

the percentage of female students from the In-Home Wave 1 sample who reported having ever been

pregnant. Since pregnant students may drop out or switch schools, these percentages are likely to be

underestimates of the percentage of female students who have ever been pregnant while attending

each school.

Other independent variables. The other key school-level variables of interest were racial

composition, socioeconomic composition, and religious composition. The racial composition

calculated the proportion of the school that is non-Hispanic and black. Mollborn (2010) found that

individual-level norms regarding pregnancy differed markedly for blacks and Hispanics compared to

non-Hispanic whites, but the Hispanic-white differences were due to socioeconomic differences. In

addition, the correlation between the black and Hispanic school composition measures was quite

high, and their simultaneous inclusion in the models made it difficult to interpret the multivariate results. As such, we only included a control for the proportion of students in the school who were non-Hispanic and black.

We assessed the socioeconomic composition of the school with a measure that tapped the proportion of students whose mother had obtained a college degree or higher. Given the influence of socioeconomic inequality on the development and enforcement of norms, we also measured socioeconomic inequality using a Gini coefficient based on the distribution of maternal education within the schools. The maternal education variable was coded based upon student-reported levels of maternal education (e.g., finished 8th grade, dropped out of high school, attended college, etc.). Using this coding, we estimated Gini coefficients at each school where the estimates describe the mismatch between the expected cumulative distribution of education and the observed distribution (Lorenz Curve), ranging from 0 (perfect equality) to 1 (perfect inequality). Finally, given the strong association between religiosity and teen pregnancy, we also included a measure that tapped the proportion of the student body that agreed that "the sacred scriptures of your religion are the word of God and are completely without any mistakes." We used the proportion of "yes" responses for all students in the school to tap scriptural inerrancy.

Analysis Plan

Descriptive analyses first showed the associations among schools' norm strength and consensus, pregnancy prevalence, and other predictors. Multivariate regression analyses assessed the association of race with norm strength and consensus, then added socioeconomic status and inequality to investigate whether they explained part of the influence of race. We then included religious context to explore whether it accounted for the remaining racial or socioeconomic influences. Additional analyses predicting school-level pregnancy prevalence introduced measures of

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norm strength and consensus to test whether differences in school normative climates accounted for any significant associations between pregnancy prevalence and race, SES, or religion. Finally, we examined the hypothesized interaction between norm strength and consensus in predicting teen pregnancy prevalence.

Results

[Figure 1 about here]

The bivariate correlations for the three pregnancy related measures and the compositional measures are provided in Table 1 and graphically in Figure 1. Overall, norm strength and norm consensus (the mean and variation in embarrassment) were negatively and strongly correlated ($r = -0.72$) with one another, as shown in Figure 1. That is, as norms against pregnancy strengthened, consensus about the norm decreased. The inverted U-shape in the figure is due in part to the limited range of the norm. Schools with means near the bounds of this variable (1 and 5) necessarily had quite limited variability in students' responses. Importantly, Figure 1 shows that despite this strong association, there remained considerable variation in consensus about the norm (i.e., the variance) across schools that had fairly comparable mean norm levels. This distinction is important because the average norm ($r = -0.65$) and consensus about the norm ($r = 0.34$) were both strongly associated with the actual pregnancy prevalence within the school at Wave 1 (see Table 1 and Figure 1). As expected, schools with the strongest norms against pregnancy had the lowest prevalence of pregnancy, and schools with the least amount of consensus regarding the norm had some of the highest prevalence of teen pregnancy.

Racial composition was strongly associated with the pregnancy norm strength in the direction expected. Schools with higher proportions of black students were significantly more likely to have weaker mean norms about teen pregnancy ($r = -0.48$) and less consensus ($r = 0.26$) about

the norms. Racial composition (r = 0.53) was strongly associated with school pregnancy prevalence at Wave 1, but socioeconomic composition (r = -0.17) was weakly linked to pregnancy outcomes for the schools. Socioeconomic inequality within schools was the most highly correlated with both the mean norm (r = -0.53) and consensus about the norm (r = 0.59) of any predictor in Table 1, with higher inequality linked to weaker norms and consensus as expected. Socioeconomic inequality was also weakly positively associated with school pregnancy prevalence (r = 0.17). Finally, it is quite interesting that although beliefs about biblical inerrancy were not associated with norms regarding pregnancy, they were positively associated with teen pregnancy prevalence. Schools with a higher proportion of students who believed that religious texts are the "word of god" perhaps surprisingly had higher prevalence of pregnancy (r = 0.23), but the mechanism for this association did not appear to be strength or consensus in the shared perception of embarrassment (e.g., normative factors) regarding teen pregnancy.

[Tables 2a and 2b about here]

Given the strong bivariate associations between the compositional measures, the regression results displayed in Tables 2a and 2b attempted to clarify the nature of the observed associations between the racial, socioeconomic, and religious composition of schools and the strength of norms regarding teen pregnancy, as well as consensus about this norm. The first model presents the bivariate association between percent black and norm strength and is comparable to the unadjusted correlation presented in Table 1. Controlling for socioeconomic composition did not change the observed association, suggesting that racial composition is linked to the strength of norms against pregnancy above and beyond the significant compositional differences in socioeconomic status. Inequality in schools (Model 3a) was negatively associated with norm strength and accounted for roughly one half of the association between SES (as measured by maternal education) and norm

strength, but did little to account for the link between racial composition and norm strength. Finally, controlling for scriptural inerrancy in Model 4a did not account for the observed racial or socioeconomic differences in pregnancy-related norm strength. Interestingly, while there was no bivariate association between religion and norm strength, adjusting for the sociodemographic composition of schools revealed a suppressor effect: Inerrancy was positively linked to the strength of norms against pregnancy in the multivariate model. This is most likely due to the correlation between the percent black and inerrancy ($r = 0.33$), which is also indicated by the suppressor effect for the racial composition variable that increased from $b = -0.89$ to -1.12 after introducing inerrancy. That is, once we accounted for the fact that predominantly black schools had a higher proportion of students who believed that holy scriptures are the word of god, predominantly black schools became even more likely to be characterized as having weaker norms against teen pregnancy than schools with fewer black students. In Model 4a, the influence of racial composition remained nearly twice as strong (as indicated by the standardized regression estimates) as any of the other predictors.

Comparable associations are also shown for norm consensus in Table 2b. Schools with higher numbers of black students had lower consensus (greater variation) about norms against teen pregnancy. Subsequent models show that this association was robust to differences with respect to socioeconomic composition, socioeconomic inequality, and scriptural inerrancy. In contrast to norm strength (standardized beta = -0.63), the association of racial composition with norm consensus was notably smaller in magnitude (standardized beta = 0.38). This is important because it may indicate that the strength and consensus measures are capturing different aspects of the norm rather than a single latent construct.

[Table 3 about here]

Multivariate regression models predicting school-level pregnancy prevalence on the basis of norm strength and norm consensus are shown in Table 3. Note that pregnancy prevalence and normative climates were measured cross-sectionally; we discuss this issue further below. Model 3b presents the associations between racial, socioeconomic, and religious predictors and teen pregnancy prevalence with each of the other factors controlled. Importantly and in contrast to bivariate correlations, when all of these factors were included in the same regression model, socioeconomic composition and inequality and scriptural inerrancy were not associated with teen pregnancy prevalence. In contrast, schools with higher proportions of non-Hispanic black students still had significantly higher pregnancy prevalence when socioeconomic and religious factors were controlled. Model 3c shows that the strength of this association was the same when the socioeconomic and religious measures were removed to retain statistical power. Model 3d added the school-level normative climate measures. As with the bivariate models, stronger norms against pregnancy (higher mean levels of embarrassment) at the school level negatively predicted school pregnancy prevalence. Consensus about the norm was not associated with teen pregnancy prevalence after controlling for the mean level of the norm. Importantly, the coefficient for the racial composition of the school declined by nearly 50% after controlling for normative climate, suggesting that normative differences across schools accounted for a sizable amount of the observed racial differences in teen pregnancy prevalence. When comparing the standardized regression estimates, the average strength of students' embarrassment at the prospect of a teen pregnancy (standardized beta = -0.67) was roughly three times more important for predicting school pregnancy prevalence than was the racial composition (standardized beta = 0.27) of the school.

[Figure 2 about here]

We also expected to find that schools with both stronger norms against pregnancy and higher consensus would have lower levels of teen pregnancy; in other words, norm strength and consensus about the norm may interact in predicting teen pregnancy prevalence. To examine this, Model 3d included an interaction between the school-level mean and the variance of embarrassment. As shown in Figure 1, there was a very strong correlation between norm strength and norm consensus (r=-.71). As such, interacting the two factors presented statistical as well as substantive challenges. Given the limited variability in norm consensus at the highest and lowest average levels of pregnancy norm, we restricted the interactive analysis to 38 schools that fell within the interquartile range for the norm. These schools had greater variation of norm consensus at a particular norm level, so we could test the interaction. As shown in Model 3d, this interaction was statistically significant and positive. Figure 2 aids in interpretation of the interaction by plotting predicted school pregnancy prevalence based on this regression model, by norm strength and consensus. Schools with norm consensus below the median (the circles) did not have different pregnancy prevalence as norm strength increased (the dashed line). In contrast, there was a negative relationship (the solid line) between norm strength and pregnancy prevalence in schools whose norm consensus was above the median (the triangles). When norms against teen pregnancy were weak, pregnancy prevalence was similar for low- and high-consensus schools. But when norms were stronger and consensus about the norm was high, pregnancy prevalence was only half as high as for lower-consensus schools at the same norm strength. In other words, among typical schools (those in the IQR of pregnancy norms), norm strength alone does not predict pregnancy prevalence; rather norm strength must be coupled with norm consensus to successfully predict school-level pregnancy prevalence. This finding supports our hypothesis and suggests that normative climates with strong

consensus about a norm that clearly proscribes teen pregnancy have the lowest prevalence of the target behavior.

Discussion

Grappling with struggles over sex education, the availability of contraception, and the types of dancing permitted at school events, schools continue to be battlegrounds for the communication of social norms regarding sexuality and reproduction for teenagers (Fields, 2008; Luttrell, 2003). An underlying assumption in these debates is that the norms about teen sexuality and pregnancy communicated in schools matter. Yet research has not measured variation in the strength of school-level norms about teen pregnancy, the degree of consensus about these norms within a school, or compositional factors that may be related to teen pregnancy norms. And no existing work has linked these important factors to differences in pregnancy prevalence across schools.

This paper made three innovative contributions to this literature. First, we characterized norms about teen pregnancy at the level of the school, a social context that looms large in teens' lives and provides many of the social norms that shape their behavior (Teitler & Weiss, 2000). Because norms are a group-level construct, measuring them at the level of this influential social context is an important step. Our results found a surprising amount of variation across schools with respect to the strength of norms against teen pregnancy among students. To get a better sense of this variation, we also calculated the proportion of students who agreed or strongly agreed that they would be embarrassed about a pregnancy. This distribution had first, second, and third quartiles of 56%, 62%, and 72% who agreed or strongly agreed, respectively. In the fifth percentile, only one in three students expressed embarrassment at the prospect of a pregnancy, but in the 95th percentile nearly nine in ten expressed this same feeling. While high schools are often discussed as a shared social context, it is quite clear that norms regarding this important issue differed markedly from

school to school. Focusing on these normative differences may offer additional insight into other areas of educational research, such as the ability of schools to integrate diverse populations (such as special education, linguistic minority, or GLBT students) into their broader academic communities or understanding students' decisions to use drugs, alcohol, and tobacco.

Second, this study went beyond measuring average norm strength to also consider the degree of consensus about schools' norms. Social scientists expect that norms need to be shared in order to strongly influence individuals' behavior, so a school's average norm may be meaningless if there is little consensus about the norm within the school. As with the distribution of the mean, the distribution of school-specific variances regarding pregnancy also indicated differences across schools with respect to the normative context. Schools with strong average norms against teen pregnancy and a high degree of consensus about the norm had by far the lowest prevalence of pregnancy. These findings point to an important opportunity for future researchers because accounting for the source and structure of this variation may give important clues about social and institutional (e.g., tracking) networks in which students find themselves. In other words, if norm consensus is near perfect within social cliques or groups of students but large variation is evident within the school, then it suggests that socialization regarding sexuality and parenting is happening among peer groups rather than in the broader school environment. And, past research suggests that there may be important aspects of schools that directly or indirectly support this type of bifurcated socialization within their halls (Moody, 2001). This paper demonstrates the usefulness of this concept, but we encourage others to identify within-school (rather than between-school as we have done here) sources of the complex process of pregnancy socialization.

Third, we provided a broad overview of the ways in which the socioeconomic and racial compositions of schools influenced teen pregnancy prevalence and the way in which normative

factors helped to account for some of these influences. Importantly, we estimated that schools without any non-Hispanic black students could expect a pregnancy prevalence of roughly 4% compared to 16% among schools with all non-Hispanic black students. This relationship between racial composition and school pregnancy prevalence was not affected by socioeconomic or religious factors that varied across the schools, but it was cut in half once normative factors across schools were considered. Our findings make an important statement about the role of shared understandings of teen pregnancy that may differ among racial groups and the way in which these factors may influence teen pregnancy prevalence. But again, as shown in Table 3, normative factors related to teen pregnancy were more important than racial differences for predicting schools' teen pregnancy prevalence. The normative environment remains an important component of racial differences in teen pregnancy prevalence but, as clearly shown in Figure 1, this is not a factor that is unique to predominantly black schools by any means, nor does it come close to fully explaining these differences.

Given the results of this study, we encourage researchers to examine the social mechanisms through which norms may translate to behaviors. Specifically, social scientists expect norms to regulate the behavior they target (Jessor et al., 1968). Indeed, research analyzing individual-level perceived norms against teen pregnancy found a robust relationship between teens' perceived norms against teen pregnancy and their subsequent likelihood of experiencing a teen pregnancy themselves (Mollborn, 2010). And we showed that schools with stronger norms against teen pregnancy reported lower school-level prevalence of teen pregnancy, but we did not address the meso-level interaction-related factors that may structure this association.

Stronger norms with high consensus should regulate students' behavior, discouraging them from becoming pregnant because of real or perceived costs (or benefits) that students attach to

pregnancy. These costs may provide important cues about policies that may be particularly important in specific environments (e.g., as a function of the school norm and consensus about the norm). For example, although federal legislation prevents schools from denying educational access to pregnant and parenting teens, many U.S. schools have found ways of discouraging these teens from attending. Some school districts designate a particular high school to have support programs and child care centers available for pregnant and parenting teens, which encourages them to move from their prior school to the more supportive school. In this way, the other schools in the district are able to have low enrollments of teenage mothers, making their teen pregnancy prevalence appear low. Therefore, it is possible that schools with stronger norms against teen pregnancy are more likely to mobilize in this and other strategies for lowering their teen pregnancy prevalence. We could not disentangle these mechanisms because of our cross-sectional data, but we encourage future research to consider these possible mechanisms for the associations that we describe in this paper.

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Table 1. Descriptive statistics and bivariate correlations with teen pregnancy norms and behaviors across schools: National Longitudinal Study of Adolescent Health (N = 75).

	Mean	SD	Min	Max	r(mean)	r(variance)	r(pregnancy)
Mean embarrassment	1.37	0.43	0.00	2.38	1.00	-0.72	-0.65
Embarrassment dissensus (variance)	1.59	0.37	0.51	2.24	-0.72	1.00	0.34
Pregnancy prevalence Wave 1	0.06	0.05	0.00	0.34	-0.65	0.34	1.00
Percent non-Hispanic Black	0.19	0.24	0.00	0.97	-0.48	0.26	0.53
Percent college ed. mothers	0.38	0.15	0.11	0.90	0.51	-0.58	-0.17
GINI coefficient	0.23	0.04	0.08	0.36	-0.53	0.59	0.17
Percent scriptural inerrancy	0.67	0.17	0.21	1.00	-0.04	0.07	0.23

Note: Data come from Wave 1 of the National Longitudinal Study of Adolescent Health. Individual responses from the in home survey were aggregated by schools (n=75). Descriptions for each variable can be found in the Methods section of the paper.

Table 2a. Social demographic predictors of average school-level norms against teen pregnancy.

	1a	2a	3a	4a	Std. B
Percent black	-0.85***	-0.91***	-0.89***	-1.12***	-.63
	(0.18)	(0.15)	(0.14)	(0.13)	
Percent Col ed.+		1.52***	0.89**	1.08***	.39
		(0.23)	(0.33)	(0.30)	
GINI			-2.97*	-3.45**	-.34
			(1.20)	(1.06)	
Biblical Inn.				0.89***	.36
				(0.19)	
Constant	1.53***	0.96***	1.89***	1.38***	
	(0.06)	(0.10)	(0.39)	(0.36)	
R-squared	0.23	0.52	0.56	0.66	

Table 2b. Social demographic predictors of school-level dissensus (variance) in norms against teen pregnancy.

	1b	2b	3b	4b	Std. B
Percent black	0.41*	0.46**	0.45**	0.59***	.38
	(0.17)	(0.14)	(0.13)	(0.14)	
Percent Col ed.+		-1.43***	-0.82*	-0.94**	-.39
		(0.22)	(0.32)	(0.30)	
GINI			2.88*	3.17**	.37
			(1.13)	(1.09)	
Biblical Inn.				-0.55**	-.26
				(0.20)	
Constant	1.51***	2.04***	1.14**	1.46***	
	(0.05)	(0.09)	(0.37)	(0.37)	
R-squared	0.07	0.42	0.47	0.52	

Note: Data come from Wave 1 of the National Longitudinal Study of Adolescent Health. N = 75. Estimates denote OLS regression estimates with standard errors in parentheses.
***p< .001, ** p<.01, * p<.05

Table 3. Normative and social demographic predictors of teen pregnancy prevalence across schools.

	3a	3b	3c	Std B.	3d
Percent black	.12***	.12***	.06**	0.27	.04
	(.02)	(.02)	(.02)		(.04)
Percent col ed. +		-.06			
		(.05)			
GINI		.06			
		(.19)			
Biblical innerrancy		-.01			
		(.03)			
Pregnancy norm avg.			-.08***	-0.67	-.77*
			(.02)		(.34)
Norm consensus			-.03	-0.21	-.56+
			(.02)		(.28)
Mean*consensus					.45*
					(.21)
Constant	.04***	.05	.22***		1.00*
	(.01)	(.06)	(.05)		(.04)
R-squared	.28	.33	.51		.25

Note: Data come from Wave 1 of the National Longitudinal Study of Adolescent Health. Estimates denote OLS regression estimates with standard errors in parentheses. Model 3d only includes 38 schools that are between the 25th and 75th percentile for the pregnancy norm. This range was used because of the differences of norm enforcement that were only evidenced within this range.
***p< .001, ** p<.01, * p<.05, + p<.10

Figure 1. Social demographic factors linked to pregnancy norms and teen pregnancy prevalence across schools.
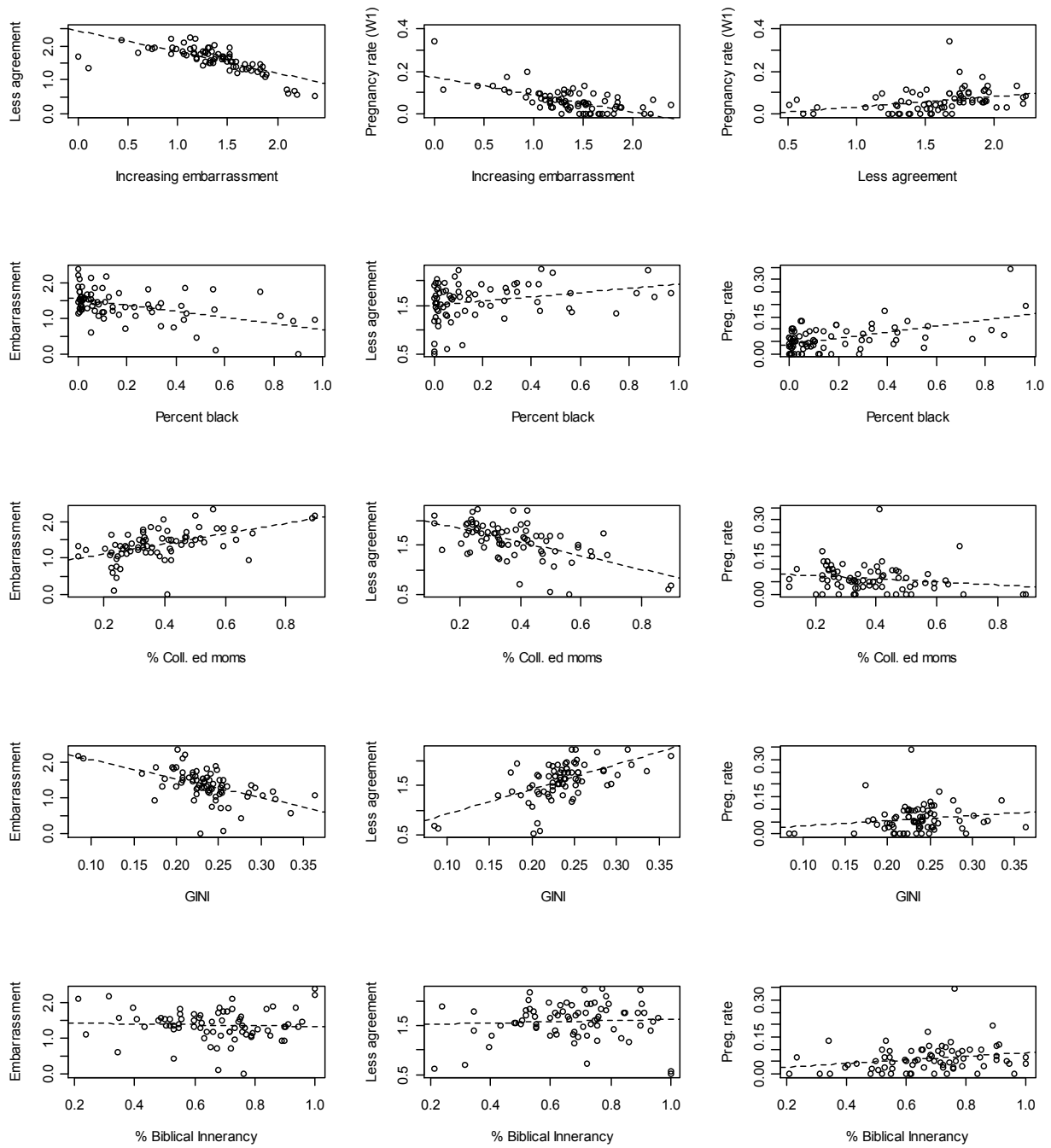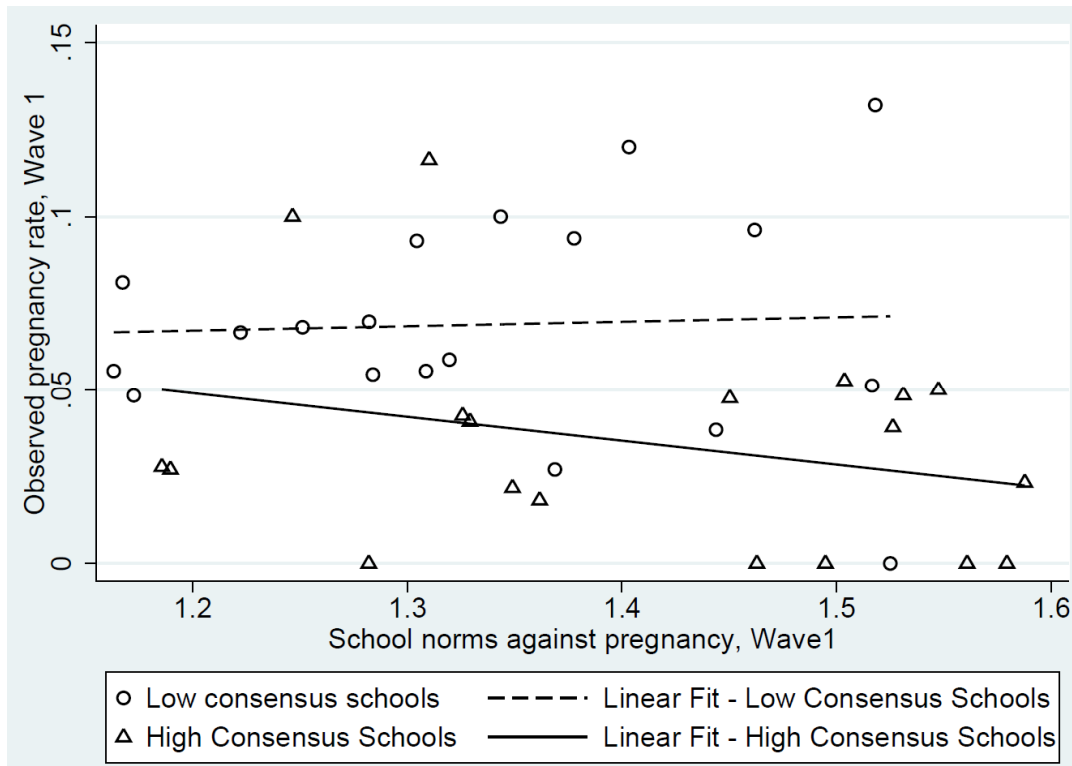
Figure 2. Predicted school-level pregnancy prevalence by norm averages and norm consensus (Wave 1).

Note: Estimates are based on Model 3d of Table 3. Triangles represent schools with high levels of consensus (low variance) and circles represent low levels of consensus (high variance) among schools in the IQR for school norms regarding pregnancy. The values are the observed pregnancy prevalence and the observed school norms. The lines are the predicted value of pregnancy prevalence as a function of school norms. "Low-consensus schools" are above the median variance, and "high-consensus schools" are below it.