High School Boys, Gender, and Academic Achievement: Does Masculinity Negatively Impact Boys' Grade Point Averages?

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Abstract

We are the first to use a longitudinal, nationally representative dataset—Wave I of The National Longitudinal Study of Adolescent Health (Add Health)—to examine how high school boys' masculinity affects their school GPAs and which boys are most susceptible to the effects of masculinity. In order to measure masculinity, we use a gender typicality scale that indicates the degree to which boys practice traditional masculine practices. Using OLS regression, we find that even when controlling for race and socioeconomic status masculinity is associated with a significant decline in overall GPA. We also find that masculinity is more detrimental to some boys' achievement in female-typed subjects, such as English, but not in the subject of Math. This suggests that in some regards boys' achievement has come to be seen as incompatible with performing masculinity in normative ways.

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Over the past few decades, the gender system has undergone significant changes in that women's roles, opportunities, and achievements have greatly expanded. Women have entered the labor market in large numbers and have made significant inroads in previously male-dominated fields, such as law, medicine, and business (Charles and Bradley 2009). Gender changes have occurred within the educational arena as well. While girls have long outperformed boys in regards to grades earned in school, girls' academic success did not previously materialize into their higher educational attainment, such as college degrees. Now, there has been a reversal in the educational attainment gap in which more women progress to and complete higher levels of education than boys (DiPrete and Buchmann 2013). Girls have also increased their enrollment rates in high-level math and science courses in high school— and have reduced prior standardized test gaps, including in math.

Although gender norms and practices have broadened for girls—leading to many of the aforementioned educational advantages, gender norms and practices for boys and men have remained comparatively rigid. That is, while standards of femininity have moved beyond traditional norms to included traits typically linked with males, such as rationality and competitiveness, standards of masculinity have not expanded to include traits typically associated with girls. In fact, boys' masculine norms still heavily rely on repudiating the feminine (Connell 2000; Coston and Kimmel 2012; England 2010; Pascoe 2007). In light of the rise of women in the educational realm, it is an open question whether some boys have come to regard academic achievement as a primarily female pursuit that is incompatible with their pursuit of masculine status. In other words, do narrow conceptions of masculinity that repudiate all

things feminine cause some boys to underperform in school?

Scholars have begun to examine why performance gaps exist between girls and boys; a few explanations exist. Some research has pointed to boys' behavioral problems, poorer classroom citizenship or non-cognitive behaviors (e.g., cooperativeness and attentiveness) as reasons for the gender gap (DiPrete and Jennings 2012; Downey and Vogt Yuan 2005). Other scholars have attributed the disparity to a de-masculinized learning environment that is not conducive to boys' skills and learning tendencies (Mickelson 1989; Sommers 2013). More recently, some scholars have begun to examine the role that masculinity, and specifically, hegemonic masculinity, plays in boys underachievement in school (Morris 2012). Hegemonic masculinity is considered the most exalted form of masculinity in any given context and is positioned in opposition to femininity (Connell 2000:200; Connell and Messerschmidt 2005). Boys who come closest to exhibiting hegemonic practices are bestowed the highest status among peers relative to boys who display lesser forms of masculinity and girls irrespective of their gender practices. Yet, many practices that masculinity is directly positioned to contrast, such as being cooperative and attentive, are conducive to school achievement. These same practices may have become associated with femininity, since girls tend to exhibit them more often in a school context (Downey and Vogt Yuan 2005).

Because most boys covet a masculine status and esteem that results from displaying it (Levant and Richmond 2007; Sherriff 2007), some researchers suggest that boys' practicing of masculinity is a barrier to their school achievement (Archer, Pratt, and Phillips 2001; Jackson and Dempster 2009). While prior research on masculinity and the academic performance gap has garnered important insights, previous studies have been based on non-representative small-scale studies (Choi 2004) and/or qualitative research (Archer et al. 2001; Jackson and Dempster

2009; Morris 2012). To our knowledge, no U.S.-based research has used large nationally representative samples to examine how individuals' conceptions of masculinity relate to boys' academic achievement. As a result, we neither have an understanding of the connections between masculinity and poor performance; nor do we know for which boys and under which conditions masculinity may be detrimental to academic outcomes.

We are the first to use a longitudinal, nationally representative dataset—Wave I of The National Longitudinal Study of Adolescent Health (Add Health)—to examine how high school boys' own masculinity affects their school performance and which boys are most susceptible to the effects of masculinity. We leveraged Udry and Chantel's masculinity-femininity (MF) measure (2004) to create a similar measure that predicted the probability that a respondent was a boy or girl, resulting in a scale that indicates the degree of gender typicality of each respondent. In line with recent scholars who have leveraged Udry and Chantel's MF scale, we refer to this measure as gender typicality (Ueno, Roach, and Peña-Talamantes 2013). This means that boys who score higher on the measure act in ways more gender typical of boys and in ways that reflect more traditional masculine norms relative to less traditional or gender-neutral norms. We use We leveraged Udry and Chantel's masculinity-femininity (MF) measure (2004) to create a similar measure that predicted the probability that a respondent was a boy or girl, resulting in a scale that indicates the degree of gender typicality of each respondent. The current study extends small-scale, non-representative analyses of masculinity and academic performance and illuminates which U.S. boys are most vulnerable to the negative impacts of masculinity on academic achievement.

Our research has broad implications for the sociological study of gender, education, and stratification. We find that masculinity has a significant negative effect on boys' academic

performance in high school, with some boys' achievement being particularly adversely affected. While prior research has demonstrated that some boys underperform in school relative to their cognitive abilities, this study provides insights into a key explanatory mechanism—males' practices of masculinity—for this phenomenon. At a time in which U.S. is trailing many developed countries on a number of important academic measures, these findings have important policy implications as to where to focus our attention if we aim to improve the educational achievement of boys.

PRIOR RESEARCH

The Academic Gender Gap

Girls outperform boys on a number of indicators of school performance (see DiPrete and Buchmann 2013 for review). Girls achieve higher grade point averages (hereafter GPA) at all educational levels in nearly all subjects. They are less likely than boys to drop out of high school and are more likely to enroll in college and to persist in college to earn a degree (Freeman 2004). According to nationally representative survey data, girls are more likely than similarly situated boys to report feeling close to teachers, feeling committed to and engaged at school. They also spend more time doing homework and studying than boys. Furthermore, girls are less likely to get in physical fights at school, skip school, and be placed remedial classes. In regards to standardized testing, female advantages are less pronounced; boys earn slightly higher average test scores in in math, though this difference is small and restricted to certain populations, while girls outscore boys in standardized tests of reading and writing. While the academic performance gaps are now well documented by prior research (see Buchmann, DiPrete, and McDaniel 2008 for review), the mechanisms through which these gaps emerge are less understood.

Some scholars have highlighted individuals' behaviors, such as citizenship behavior or non-cognitive skills, to help explain differential gender outcomes (Jacob 2002). Citizenship behaviors entail practices, skills, and styles that promote and signal competency—i.e., listening skills, organization, high effort in school, cooperation with others, and class participation (Swidler 1986, as cited in Downey and Vogt Yuan 2005). Girls tend to demonstrate more positive citizenship behaviors than boys and receive more positive behavioral assessments from teachers across all school subjects (DiPrete and Buchmann 2013; DiPrete and Jennings 2012; Mickelson 1989). Scholars posit that girls' display of citizenship skills directly translates into academic performance whereas boys' lower citizenship practices (e.g., class disruptions, lower attentiveness and effort) derail academic success (DiPrete and Buchmann 2013; Downey and Vogt Yuan 2005). Indeed, Jacob (2002) finds that non-cognitive skills—as measured by school grades, number of hours spent on homework, number of disciplinary incidents in a year, and grade retention—explain approximately 80% of the gender gap in college enrollment.

Other have taken a structural approach and contend that because schools have become feminized spaces that do not reward boys' innate skills nor accommodate boys' learning orientations they disadvantage boys and advantage girls(Mickelson 1989; Pollack 1999; Sax 2007; Sommers 2013; Tyre 2009). These writers contend that boys need more active, hands-on learning and activities that cater to male-related propensities. A growing body of research contrasts this perspective. Prior work finds that while female teachers outnumber male teachers, boys do not perform better when they have a male teacher versus a female teacher (Carrington, Tymms, and Merrell 2008; Sokal et al. 2007). Of course, female teachers have long outnumbered male teachers, even when males outpaced females in higher education attainment, so it is not surprising that the sex of the teacher has been found to not affect the gender gap. The

more appropriate question is not whether school practices have become more feminized, but instead, whether practices that have always been associated with school success such as hard work, attentiveness, and effort have become associated with femininity. If so, it is possible that some boys—especially boys who strongly adhere to traditional norms of masculinity that center on repudiating the feminine—may equate school achievement and the skills required to achieve good grades as feminine. Notably, these same qualities are essential for success in the labor market where men outpace women on nearly every outcome measure (wages, promotion, leadership positions, etc.; see Stainback and Tomaskovic-Devey 2012). This, coupled with the fact that gender gaps in cognitive ability, as measured by standardized tests are much smaller than gender gaps in grades and other academic performance outcomes (DiPrete and Buchmann 2013), provide strong reason to believe that a larger proportion of boys are capable of exhibiting these qualities but are constrained by broader gender norms to underperform in school. We turn our attention to what could be a fundamental and pervasive root of the academic gender gap—adolescent males' practices of masculinity.

Masculinity and the Accomplishment of Gender

West and Zimmerman revolutionized theoretical conceptions of gender when they theorized gender as something people do and practice, rather than something they are (1987). Accordingly, boys' and girls' practices of gender vary based on their identities, socially relevant peers, and the context. Generally, people strive to practice gender in ways that increase their status in a given context (West and Zimmerman 1987). In the case of males, this often means practicing hegemonic forms of masculinity. Hegemonic masculinity refers to the dominant masculinity within a given context and is the standard by which males' status and esteem are judged, even though few boys and men ever achieve this ideal. Idealized forms of masculinity influence how

boys act and define their social positioning among peers. As Schrock and Schwalbe point out, a male is not extended privileges unless he convincingly and repetitiously masters a "set of conventional signifying practices through which the identity 'man' is established and upheld in interaction" (2009:279).

Hegemonic masculinity is a relational paradigm that is shaped in contrast to femininity. It is positioned as oppositional and as superior to femininity and other lesser forms of masculinity—often those that incorporate femininities (e.g., gay masculinities). While femininity standards have broadened beyond traditional feminine norms of niceness, dependence, subservience, masculinity standards have remained relatively static over the past few decades (Twenge 2009). Indeed, most changes in the gender system have resulted from girls and women entering male domains or adopting male-typed characteristics, and less so the reverse (Blau, Brummund, and Liu 2013; Charles and Bradley 2009; England 2010). While what is considered hegemonic is the topic of great debate, generally there is agreement among scholars that core characteristics of masculinity include dominance, authority, constrained emotional expression, mental and physical strength, rationality, and sexual prowess (Smiler and Epstein 2010). Yet, emphasis on some masculinity practices over others depends on men's situational context and access to resources (Connell 2000).

Intersectional approaches consider how class and race influence the types of resources and power to which men have access (Collins 2000). Accordingly, men's situational context affects the type of gender practices that will lead to masculine status. That is, men flex masculine practices that will maximize their access to the structurally situated resources that signal power and esteem in their context (Connell and Messerschmidt 2005). For example, lower socioeconomic status (SES) and racial minorities males have less access to traditional means of

power, such as jobs, money, and authority, and therefore, often rely on physical prowess or illicit behaviors (e.g., committing crimes or fighting) to gain status among their peer groups. In contrast, boys of high SES expect to see higher returns to traditional forms of power and esteem from educational pursuits—as modeled by their parents and the parents of similarly situated peers. Thus, high SES boys have incentives to develop a stronger orientation toward school and qualities such as rationality and authority that are well suited for white-collar or professional jobs. Race and class differences notwithstanding, research finds that boys can gain masculine esteem and impress their peers, particularly other boys, when they rebel against school rules and teachers or display contempt toward studying and other academic tasks (Ferguson 2000).

Qualitative research suggests that masculinity plays a significant role in the increasing academic gap between girls and boys (McGeown et al. 2012). Through comparison interviews with boys enrolled in high schools and boys enrolled in college in United Kingdom (UK), Jackson and Dempster find that males valorize school attainment through a contradictory process of "effortless achievement" (2009). To gain and maintain masculine status among peers, they must position their school attainment as a result of innate capabilities, not effort—especially since studying has become associated with femininity. Of course, this renders actual academic achievement difficult, since factors such as hard work, discipline, effort and commitment are all highly consequential for achievement. Males' adoption of the "effortless achievement" orientation corresponds with gendered stereotypes that males are naturally intellectually talented whereas girls must work hard to grasp school concepts (Epstein 1998). Such stereotypes may be especially prevalent in school subjects that have become gender-typed, such that one gender is thought to be naturally predisposed to excelling or being interested in that subject: boys are thought to be inclined toward math and science while girls are thought to be inclined toward

English and writing (Martinot, Bagès, and Désert 2012; Rivers and Barnett 2013). Success in cross-gender typed subjects could undermine boys' masculine status whereas excelling in same-gender typed subjects such as math could protect or even strengthen masculine status. Moreover, if success in specific school subjects or more general behaviors associated with academic success have become associated with femininity, then boys face a double bind: they can maintain masculine status by distancing themselves from feminized academic practices to the detriment of their school achievement OR they may practice what some deem to be feminine-typed academic behaviors and strive to improve their academic performance at the expense of masculine status.

Other research finds that not all practices of masculinity, however, lead to negative outcomes. In a study of 58 adolescent boys who were enrolled in their school's gifted program, Shepard and colleagues found that boys' endorsements of traditional masculine norms were positively associated with boys' perceived academic success (2011). Hence, some scholars have begun to differentiate between positive and negative masculine traits (Heyder and Kessels 2013). Positive masculine behaviors include exhibiting leadership, rationality, and competitiveness while negative masculine behaviors include violence, disconnectedness, and devaluing the feminine. Emerging non-U.S. based research indicates that in a German sample of 11th graders only negative masculine behaviors were associated with worse school outcomes (Kessels and Steinmayr 2013). Thus some masculine practices may be detrimental to boys' academic performance while others may be advantageous. For which boys and in what contexts such practices are detrimental to academic performance is an open question.

Although prior research has provided important insights into the relationship between masculinity and academic performance, additional research is needed for two crucial reasons. First, prior research is largely based on non-U.S. and non-representative samples so the extent to

which masculinity affects boys' academic achievement in the full population of young men is unclear. Second, we do not know whether masculinity differentially impacts different groups of boys in the U.S. We need to learn which boys may be most susceptible to the negative consequences of masculinity on academic performance in order to best address this issue.

Given that masculine cultural practices are intended to differentiate males from females and often advantage males, our study highlights an institution—U.S. educational system—in which these practices actually disadvantage boys. Since boys gain esteem through accomplishments of normative masculinity, boys are constrained in acting in ways that could be detrimental to their own success, while at the same time engaging in practices that serve to subordinate girls and other boys. Using nationally representative data, this study breaks new ground by examining masculinity on multiple levels—individual, interactional, and structural—and providing critical knowledge on how masculinity affects the academic performance of adolescent males.

We expect that boys who score higher on measure of gender typicality will perform less well than boys who score lower on gender typicality on academic outcomes, such as GPA. We expect that boys' gender typicality will not adversely impact male-typed subjects that could strengthen their gender identity, such as math or science, but will negatively impact cross-sex typed subjects, such as English, that could weaken their masculine identity and/or status (Leaper, Farkas, and Brown 2012; Martinot et al. 2012). Drawing on intersectional theories, we expect that boys' masculinity conceptions and orientations toward schools will be influenced by their socioeconomic status (SES) and race. Specifically, we expect that academic performance by lower SES and racial minority boys will be more adversely impacted by gender typicality than higher SES boys.

DATA AND METHODOLOGY

Our analyses are based on Wave I in-school and in-home data of The National Longitudinal Study of Adolescent Health (Add Health). Add Health is a school-based, longitudinal study of health-related behaviors of seventh to twelfth graders and their subsequent outcomes in young adulthood. Using a clustered sampling design, Add Health first sampled schools and then sampled students within the schools—resulting in the selection of 52 middle schools and 80 high schools for the in- school survey. Within these schools, 18,924 seventh and twelfth graders during the 1994-1995 academic school years were administered an in-school survey. The Wave I in-home data is based on interviews that were conducted in 1995 with 17,700 parents and 20,745 adolescents. The study includes a diversity of oversamples based on race, twin and disability status, along with other categories. We use the sampling weights provided by Add Health to obtain unbiased estimates of population parameters and standard errors.

Sample

Our sampling frame includes boys who enrolled in grades ninth through twelfth grades at the time of the survey. Each respondent completed the Add Health Wave I in-home and in-school survey. In these analyses, we use listwise deletion to address missing observations. In the next steps of this paper, we will use multiple imputations to address missing cases. Parental income and questionnaire items used to construct the gender typicality scale comprised much of the missing data. The final analytic sample is 4,068 boys.

Table 1 for reports summary statistics of all variables used in the analyses. Of the boys in the sample, 61% were white, 16% were black, 14% were Hispanic, and 7% were Asian. The mean parental income was $49,390. Of mothers, 15% had not completed high school, 29% had earned a high school degree, 30% had some college experience, and 35% had earned a four-year

college degree or more. Of father's, 31% had not completed high school, 22% had earned a high school degree, 23% had some college experience, and 24% had earned a four year college degree or more. On average, 78% of respondents had a father figure—whether biological, adopted, foster, or step—present in their home.

TABLE 1 ABOUT HERE

Measures

Gender Typicality Scale. We patterned the gender typicality measure—although modified—off of the scale developed by Udry and Chantala (2004), of which they refer to as masculinity–femininity (MF) measure. Using Wave II ADD Health data, Udry and Chantala constructed a gender diagnosticity scale consisting of 16 characteristics that predicts the likelihood that a respondent is either a boy or girl based on how well their responses align with the average boy or girl's responses. As a result, "the scale is tailored to the behavior of the sample, not tied to some previous time period, a different age group, or a group of different social composition" (Udry and Chantala 2004:48). Their methodology is grounded on gender diagnostic techniques used by (Miles and Terman 1936) and Lippa and Connelly (1990) to design scales that captures male and female-practiced behaviors (Udry and Chantala 2004).

Because the survey questions between Add Health Wave I and Wave II varied, we were able to use 12 of the 16 characteristics used by Udry and Chantala. Please refer to Table 2 to see all characteristics included in the scale and modifications as it relates to Udry and Chantala's MF scale. For the four characteristics that were not included in Wave I but were asked in Wave II and included in Udry and Chantala's scale, we found other questionnaire items that captured similar information. For example, Udry and Chantala's scale includes whether respondents liked to take risks in their scale. Since that question did not exist in Wave I, we use the following

questionnaire items to obtain comparable information: the frequency of motorcycle usage, whether respondents have raced in a car or bicycle, and whether they have done something dangerous because of a dare. We also, as shown by Table 2, add in other characteristics that significantly predict the sex of a respondent as either boy or girl and that are unrelated to school performance, irrespective of sex (e.g., studies frequently).

TABLE 2 ABOUT HERE

The scale ranges from .01 to .99. A respondent scoring a .99 would mean that he or she has a predicted probability of .99 of being a boy. This means that a respondent practices a set of behaviors that are predominately practiced by other boys (i.e., masculine-typed practices) and practiced by few girls. A respondent scoring in the mid-range (.50) suggests that he or she displays gender-neutral behaviors. A respondent scoring lower than a .50 suggests that a respondent practices behaviors (i.e., feminine-typed practices) more predictive of the average girl in the sample. Following the lead of Ueno et al. (2013), we refer to this scale as a measure of gender typicality. The idea is that boys who practice more gender-typical behaviors are practicing a narrower, more rigid set of masculine-typed behaviors.

Our scale's distribution of gender typicality aligns with the distribution of the Add Health Wave II sample used by Udry and Chantala (2004). The boys' gender typicality distribution peaks around .8 and then levels off. Boys' average gender typical score was .67.

GPA. We constructed three main GPA outcome variables: 1) overall GPA 2.) English GPA 3.) Math GPA. All three variables were based on boys' self-reported GPAs and are continuous measures. Overall GPA is the sum of self-reported GPAs in four subjects: Math, English, History, and Science. Students reported their grades for the most recent grading period. While transcript GPAs were unavailable in these data, self-reported GPAs have been found to be

good proxies for transcript GPAs—although adolescents do tend to overestimate their GPA by approximately .4, or half a letter grade (Schwartz and Beaver 2014). This means that if we do find connections between masculinity and lower GPAs, as we hypothesize, than our findings would be conservative estimates of this connection since their GPAs may be even lower than they reported.

Notably, prior research shows that GPAs tend to be stable throughout high school: Di Prete and Buchmann (2013) find that adolescents' grades in eighth grade are highly predictive of their high school graduating GPA. Accordingly, boys' GPA from the prior grading period is likely to be consistent with their GPA during the current grading period of when the questionnaire was administered. Because these measures do not vary much over this course of schooling, the slight differences in time of reporting should not be an issue for our findings.

Race. We constructed dummy variables for each of the following racial categories: black, white, Hispanic, Asian, and Native Americans. Whites were the reference group for each dummy variable.

Mother's education. The educational attainment of respondents' mothers were coded into the following categories: not completed high school, earned a high school degree, earned some college credit, and earned a four year college degree or higher.

Father's education. Similar to a mothers' education, the education attainment of respondents' fathers were coded into five categories: not completed high school, earned a high school degree, earned some college credit, and earned a four year college degree or higher.

Parental income. We constructed the log odds of the combined income of the mother and father present in the home. If one parent was not present in the home, then we relied on the log odds income of the parent residing with the respondent.

Father present. We constructed a dummy variable to indicate whether a father figure—either biological, step, foster, or adopted father— resided in the respondent's home.

Gender Typical X Black. We constructed an interaction term between the gender typical and black variables.

Analytic Procedure

Table 3 reports OLS regression results for estimates of individual gender typicality. The distribution for the gender typicality scale is slightly negatively skewed. As such, when it is the dependent variable, coefficient estimates are less efficient than they otherwise would be. We ran other analyses where the dependent variable was normalized and the results were almost identical. In the models we report, we use the original gender typicality scale for ease of interpretation. First, we use race to estimate individual masculinity (Model 1), and then in Model 2, introduce socioeconomic background variables.

Table 4 reports results from OLS regression predicting overall GPA. We first estimate the relationship between gender typicality and overall GPA (Model 1). We then expand the model using multivariate OLS regression to estimate the effect of gender typicality when controlling for the student's race (Model 2). Model 3 introduces an interaction between gender typical and black[1]. Model 4 estimates the effect of gender typicality on overall GPA when controlling for socioeconomic background. Finally, Model 5 accounts for both race, socioeconomic background, and the gender typicality X black interaction term. Tables 5 and 6 repeat similar modelling for two sex-typed subject GPAs, English and Math—with the exception that these two tables, 5 and 6, do not include a model with the gender typicality X black interaction term.

RESULTS

[1] Though we only report the interaction between gender typicality and black, we did run interactions between gender typicality and all other racial categories and none were significant.

Figure 1 is a kernel density plot that demonstrates the frequency distribution of boys' gender typicality scores by race. According to the gender typicality measure, whites exhibit the most gender typical behaviors. Black and Asian boys' mean gender typicality scores were .65 and .59, respectively—as compared to whites whose mean score was .68. Logistic regression analyses tested the influences of race on the practicing of gender typical behaviors, as shown in Table 3. Model 1 indicates that blacks and Asians report significantly lower levels of gender typicality relative to whites. The gender typicality scores of Hispanics and Native Americans were not statistically different from those of whites. In Model 2, we add in socioeconomic controls and test associations between race and gender-typicality. We find that results hold when adding in SES controls. That is, blacks and Asians are still associated with lower gender typical scores compared to whites, even when controlling for mother's and father's education, income, and whether a father figure is present in the home. Notably, none of the SES measures are significantly associated with gender-typicality. This suggests that boys' gender typicality, as measured by the scale, does not vary significantly across SES levels.

TABLE THREE ABOUT HERE

Predictors of Academic Performance

Next, in Table 4, we conducted OLS regression analyses to test the influence of masculinity on overall GPA. In model 1, masculinity is significantly negatively associated with a lower GPA at the .01 level. In model 2, we considered whether the negative influence of masculinity was mediated by racial differences in GPA. When controlling for race, masculinity is still negatively associated with overall GPA at the .01 level. Consistent with prior literature, blacks and Hispanics earn lower overall GPAs while Asians earn higher overall GPAs, as compared to whites.

Since the black variable and gender typicality are both negatively correlated with G.P.A, in model 3 we examine whether gender typicality has a greater impact on blacks' GPAs as it does on whites' GPAs. An interaction term between gender typicality and the black race variable indicates that gender typical behaviors have a stronger negative effect on GPA for black boys than it does for white boys – significant at the .05 level. While blacks scored lower than whites on the gender-typicality scale, blacks appear to be more sensitive to the negative impact of gender-typical behaviors on GPA. Although not shown, we also ran a model examining interactional effects between gender typicality and the Hispanic race variable. Similar to blacks, masculinity has a stronger negative effect on GPA for Hispanics than it does for whites and is approaching significance at the .1 level.

In Model 4, we account for socioeconomic status. After controlling for mother's and father's education, income and a father figure present in the home, the negative effect of gender typicality on overall GPA persists. Each .01 increase on the gender-typicality score is associated with a .21 decrease in overall GPA. This suggests that the negative impact of masculinity on GPA cannot be explained by and operates independently from family SES measures. Although not shown here, there were no significant interactions with SES measures and masculinity—as to be expected since none of the SES measures with significantly associated with masculinity. In Model 5, we tested the full model. Notably, the interactional effect between black boys and practicing gender typical behaviors is no longer statistically significant.

TABLE 4 ABOUT HERE

We next examine the relationship between masculinity and two sex-typed subjects: English and math. In Table 5, model 1 indicates that gender typicality is significantly negatively associated with English GPA—with an effect size that is nearly one and half times larger than

the effect size between gender typicality and overall GPA. This suggests that gender typicality has a stronger effect on a female-typed subject such as English than overall GPA, which includes the grades of four academic subjects—two of which are not female-typed. Model 2, 3, and 4 indicates that the negative association between gender typicality and English GPA holds when accounting for race, SES, and both race and SES, respectively. We also tested for interactional effects between race and gender typicality (though not shown in Table 5); however, no interactional effects were shown to be significant. For Math (see Table 6), gender typicality is not significantly associated with a lower GPA. This suggests that gender typicality does not negatively impact boys' GPAs in subjects that align with gender norms, such as excelling in math.

TABLE 5 ABOUT HERE

TABLE 6 ABOUT HERE

DISCUSSION

Using a gender typicality scale to measure adolescent males degree of masculinity, this study uncovers connections between masculinity and boys' academic performance. While multiple other mechanisms have been proposed as to why many boys underperform in school relative to their intellectual abilities, our research suggests that masculinity is a pervasive and underlying mechanism that hinders boys' academic achievement. First, we assess which boys displayed the narrowest set of gender-typical behaviors. Contrary to cultural stereotypes that depict black boys as hypermasculine, we find that white boys scored the highest on the gender-typicality scale. That is, whites adhere to the most rigid forms of gender-typical behaviors. In contrast, Asians adhered to fewer gender-typical behaviors and appeared to be more flexible in their gender

expressions. This is an intriguing finding that relates to the fact that Asian boys tend to have higher achievement in schools compared to white boys. Importantly, we find that gender-typicality does not vary significantly according to family background, thus suggesting that certain masculine norms persist across SES.

Second, we assessed how masculinity impacts boys' academic performance and which boys were most susceptible to its influence. In every model tested including when we control for race and SES, we find that masculinity is associated with a significant decline in overall GPA. We find that blacks and Hispanics are most susceptible to the negative impacts of masculinity; although notably, these interactional effects do not hold when we control for SES. Future work is needed to better understand how SES interacts with masculinity and race. We also find that gender typicality is detrimental to boys' achievement in English and overall academic performance, but not in the subject of Math. Because Math is typically seen as a subject in which boys inherently excel, achievement in this subject can bolster or, at the very least, not undermine boys' masculine status. In contrast, excelling in English—a more female-typed subject in which girls are seen as inherently superior—may weaken a boys' masculine standing, since status is contingent upon repetitiously distancing the feminine (Schrock and Schwalbe 2009). This suggests that achievement in some regards have, indeed, become associated with femininity or at least not seen as compatible with performing gender in normative ways.

As mentioned in the data and methods section, these results are likely a conservative estimate of the effect gender-typicality on GPA due to the fact that adolescents, boys especially, tend to overestimate their self-reported GPAs (DiPrete and Buchmann 2013; Schwartz and Beaver 2014). Because masculine status in part rests on boys' abilities to show they are inherently intelligent—and, thus, do not need to study in school to earn high grades—more

masculine boys, in particular, may be more likely to overestimate their GPA (Jackson and Dempster 2009). This would suggest that gender typicality could have an even greater impact on GPAs than what we find in this study. Future research should investigate whether this is, indeed, the case.

In sum, while girls' behaviors have broadened over the past few decades to include advantageous male-typed traits, boys' masculine status still relies on traditional gender norms, such as partaking in risky behaviors, and physical prowess. As awareness of girls' strides in the academic realm has grown, if more boys have come to see striving in school, and particularly more female-typed subjects such as English, as feminine practices, then boys may underperform in these realms as a way to preserve masculine status.

In the next steps of the analyses, we will interrogate how school contexts and their immediate peer group affect boys' practices of gender-typical behavior. The Add health data allow us to link students to their peers and schools. Since masculinity is interactionally accomplished and most often enacted for other boys (Schrock and Schwalbe 2009), boys' closest same-sex peer group could have an impact on the perceived acceptability of certain school-related behaviors and motivations (Ridgeway 2011). Prior research finds that peers, particularly same-sex peers, influence adolescents' attitudes and orientation toward school (Chen and Stevenson 1995; Dumais 2009; Liem and Martin 2011) and that peers groups who are more academically inclined have positive influences on adolescents' own educational outcomes (Dumais 2009). Add Health is ideal to use in this regard because it asks each respondent to name their closest five same-sex and cross-sex friends—friends who have also taken the Add Health survey. Thus, we use the friends' gender-typicality scores and academic performance to construct a gender typicality measure of boys' closest friends and examine whether having more

or less gender typical friends affects boys' own academic performance.

The Add Health data are also ideal for testing the extent to which gender typicality on a school level affects U.S. boys' educational achievement as it provides a representative of U.S. schools in regards to racial composition, school size and type, and U.S. region. Research indicates that boys are more sensitive to local resources and social class composition of school than are girls (Legewie and DiPrete 2012). Perhaps the convergence of girls' and boys' interests and performances in certain contexts may result from being submerged in a school culture that de-emphasizes traditional gender stereotypes. We will examine whether the associations between masculinity and academic performance are moderated by a number of school-level measures, such as the religiosity of the student body, race and SES composition of schools, and an aggregate measure of gender typicality. We will use hierarchical modeling to model these effects. Accordingly, we will examine masculinity on the individual, interactional, and organizational level and analyze how these different gendered levels coalesce and impact boys' academic achievements.

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TABLES

Table1. Characteristics Used to Construct Gender-Typicality Scale, as Modified from Udry and Chantala's (2004) Masculinity-Femininity Scale

	Udry and Chantala characteristics that also appear in our gender-typicality scale	All characteristics appearing in the gender-typicality scale
Udry and Chantala (2004) Questionnaire Items for the MF Scale		
Frequency of Crying	X	X
Frequency of Moodiness	X	X
Frequency of Poor Appetite	X	X
How Honestly Answered Questions	X	X
Trouble Paying Attention	X	X
Bothered By Things	X	X
How Physically Fit	X	X
Past 12 mos, frequency serious fighting	X	X
Frequency of Exercising	X	X
Frequency of roller blading / cycling	X	X
How emotional are you		X
Do you like yourself as you are	X	X
Live without thought for future		X
How sensitive to others' feelings		X
Do you like to take risks		X
Upset By Problems	X	X
Additional Questionnaire Items Added to Our Scale		X
Will be Killed by age 25		X
Raced on a car or bike		X
Did something dangerous because of dare		X
Frequency of being afraid		X
Never criticizes others		X
Concerned with weight image		X
Trying to lose weight		X
Avoids confrontation		X
Motorcycle frequency		X

Table 2: Summary Statistics

	Mean	S.D.	Minimum	Maximum
Gender Typicality	0.67	0.23	0.01	0.99
GPA	2.74	0.75	1	4
Race				
White	0.61	0.49	0	1
Black	0.16	0.37	0	1
Asian	0.07	0.25	0	1
Hispanic	0.14	0.35	0	1
Native American	0.03	0.12	0	1
Mother's Education	2.65	1.01	1	4
Less than HS	0.15			
High School	0.29			
Some College	0.30			
College or More	0.35			
Father's Education	2.40	1.15	1	4
Less than HS	0.31			
High School	0.22			
Some College	0.23			
College or More	0.24			
Income	49.39	53.61	0	900
Father Present	0.78	0.41	0	1
N=4,068				

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Table 3: OLS Predicting Gender Typicality

	Model 1	Model 2
Black	-0.031*	-0.032*
	(0.014)	(0.015)
Asian	-0.099***	-0.098***
	(0.025)	(0.025)
Hispanic	-0.007	-0.008
	(0.015)	(0.016)
Native American	0.009	0.009
	(0.030)	(0.030)
Mother's Education		-0.003
		(0.005)
Father's Education		-0.002
		(0.005)
Income(ln)		0.006
		(0.007)
Father Present		-0.009
		(0.013)
Constant	0.683***	0.680***
	(0.006)	(0.025)
R^2	0.01	0.01
N	4,068	4,068

* $p<0.05$; ** $p<0.01$; *** $p<0.001$
National Longitudinal Study of Adolescent Youth - Wave I
Sample Limited to Boys Only

Table 4: OLS Predicting Overall GPA

	Model 1	Model 2	Model 3	Model 4	Model 5
Gender	-0.217**	-0.216**	-0.177*	-0.211**	-0.172*
Typicality					
	(0.072)	(0.072)	(0.078)	(0.070)	(0.076)
Black		-0.255***	-0.015		0.072
		(0.041)	(0.124)		(0.131)
Asian		0.198**	0.202**		0.154*
		(0.065)	(0.066)		(0.063)
Hispanic		-0.135**	-0.135**		-0.027
		(0.052)	(0.052)		(0.052)
Native American		-0.228*	-0.228*		-0.223*
		(0.107)	(0.107)		(0.109)
Gender Typical*Black			-0.366*		-0.326
			(0.173)		(0.182)
Mother's Education				0.076***	0.078***
				(0.017)	(0.017)
Father's Education				0.096***	0.091***
				(0.016)	(0.016)
Income(ln)				0.080***	0.072***
				(0.021)	(0.021)
Father Present				0.086*	0.072
				(0.042)	(0.042)
Constant	2.945***	2.981***	2.954***	2.149***	2.185***
	(0.051)	(0.052)	(0.056)	(0.089)	(0.094)
R^2	0.00	0.02	0.02	0.08	0.09
N	4,068	4,068	4,068	4,068	4,068

* $p<0.05$; ** $p<0.01$; *** $p<0.001$
National Longitudinal Study of Adolescent Youth - Wave I
Sample Limited to Boys Only

Table 5: OLS Predicting English GPA

	Model 1	Model 2	Model 3	Model 4
Gender Typicality	-0.303**	-0.310**	-0.295**	-0.299**
	(0.103)	(0.103)	(0.101)	(0.101)
Black		-0.305***		-0.203**
		(0.065)		(0.068)
Asian		0.125		0.089
		(0.125)		(0.119)
Hispanic		-0.121		-0.017
		(0.080)		(0.081)
Native American		-0.336*		-0.336*
		(0.138)		(0.133)
Mother's Education			0.071**	0.075**
			(0.025)	(0.026)
Father's Education			0.089***	0.085***
			(0.024)	(0.024)
Income(ln)			0.064	0.051
			(0.033)	(0.033)
Father Present			0.102	0.085
			(0.066)	(0.066)
Constant	2.955***	3.003***	2.226***	2.316***
	(0.073)	(0.075)	(0.138)	(0.145)
R^2	0.00	0.02	0.04	0.05
N	3,504	3,504	3,504	3,504

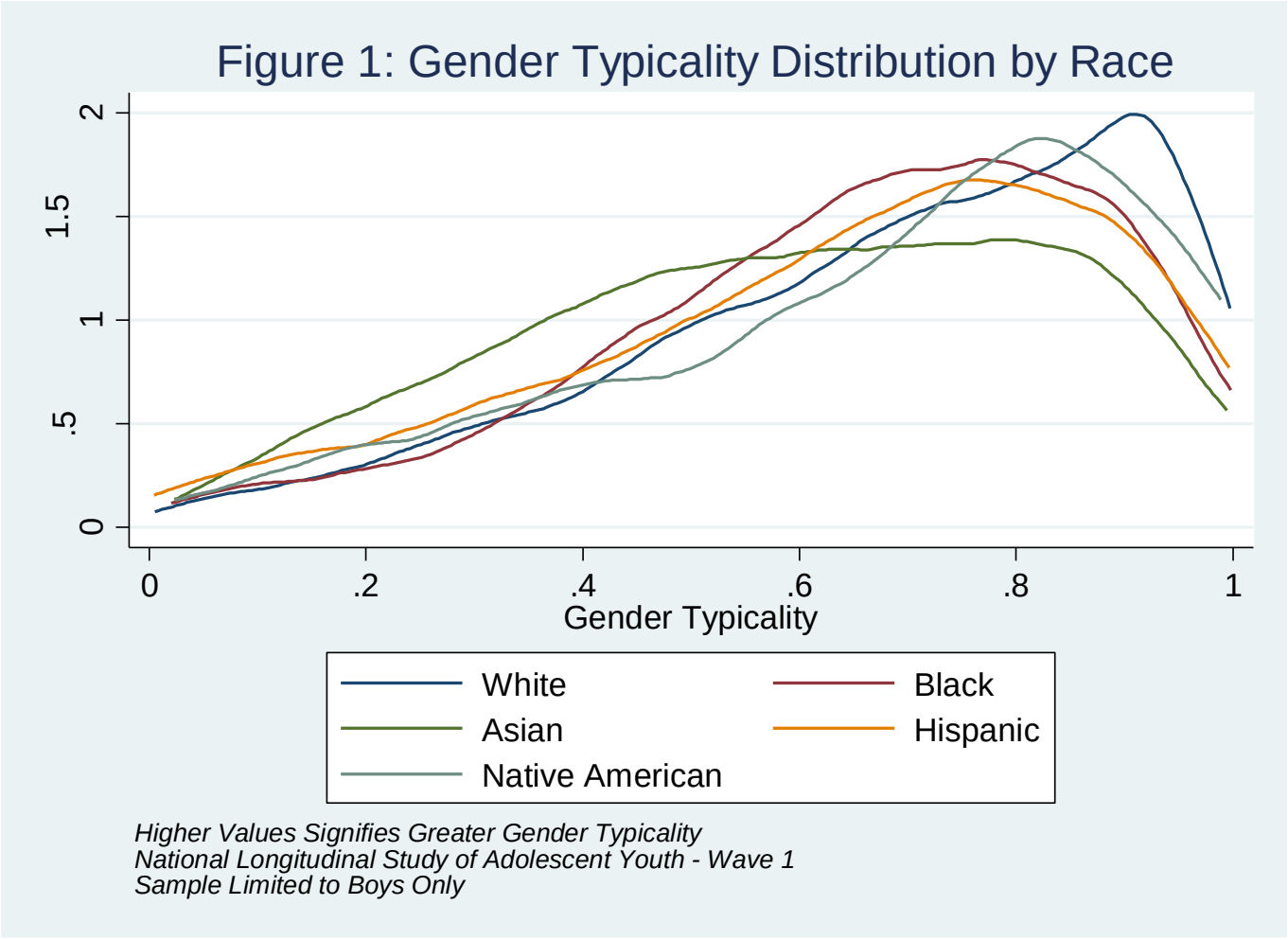
* $p<0.05$; ** $p<0.01$; *** $p<0.001$
National Longitudinal Study of Adolescent Youth - Wave 1
Sample Limited to Boys Only

Table 6: OLS Predicting Math GPA

	Model 1	Model 2	Model 3	Model 4
Gender Typicality	-0.130	-0.142	-0.129	-0.140
	(0.109)	(0.108)	(0.107)	(0.107)
Black		-0.329***		-0.262***
		(0.067)		(0.070)
Asian		0.105		0.066
		(0.106)		(0.105)
Hispanic		-0.235**		-0.148
		(0.078)		(0.077)
Native American		-0.006		0.013
		(0.154)		(0.154)
Mother's Education			0.074**	0.075**
			(0.027)	(0.027)
Father's Education			0.094***	0.089***
			(0.026)	(0.026)
Income(ln)			0.042	0.026
			(0.032)	(0.033)
Father Present			0.035	0.005
			(0.068)	(0.068)
Constant	2.908***	2.964***	2.295***	2.432***
	(0.076)	(0.078)	(0.128)	(0.136)
R^2	0.00	0.01	0.03	0.04
N	3,468	3,468	3,468	3,468

* $p<0.05$; ** $p<0.01$; *** $p<0.001$
National Longitudinal Study of Adolescent Youth - Wave 1
Sample Limited to Boys Only

FIGURES



Higher Values Signifies Greater Gender Typicality
National Longitudinal Study of Adolescent Youth - Wave 1
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