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## Hostile home environment predicting early adolescent sexual harassment perpetration and potential school-related moderators

Dorothy L. Espelage<sup>1</sup>, Christopher R. Harper<sup>2</sup>, Katherine M. Ingram<sup>1</sup>, Kathleen C. Basile<sup>2</sup>, Ruth W. Leemis<sup>2</sup>, Kyle K. Nickodem<sup>1</sup>

<sup>1</sup>University of North Carolina at Chapel Hill, Chapel Hill, North Carolina, USA

<sup>2</sup>Division of Violence Prevention, National Center for Injury Prevention and Control, Centers for Disease Control and Prevention, Atlanta, Georgia, USA

### Abstract

Using family systems theory, this longitudinal study of middle school youth examined the effects of abuse, family conflict, and sibling aggression on sexual harassment perpetration ( $N = 1563$ ;  $M_{\text{age}} 11.2$ , 51% boys; 39% Hispanic, 29% Black, and 19% White). Boys reported more sexual harassment than girls; perpetration increased for both. The association between a hostile home environment and sexual harassment perpetration was moderated by school experiences. School belonging buffered effects of hostile home environment on baseline sexual harassment perpetration for boys who experienced abuse and White adolescents with high sibling aggression. Academic grades moderated change in perpetration over time, but effects differed by sex and race. It is important to understand how early violence exposures relate to sexual violence perpetration during early adolescence.

### Keywords

adverse childhood experiences; family factors; middle school; sexual harassment perpetration

## INTRODUCTION

Sexual violence, defined as any unwanted sexual act without consent or a sexual act where a victim is unable to consent or refuse (Basile et al., 2014), is associated with numerous other health risk behaviors (e.g., substance use and suicidality) in adolescence for victims (Basile et al., 2020) and perpetrators (Espelage et al., 2018). Among school-aged youth, sexual violence often manifests as unwanted sexual acts and unwanted sexual touch but can include verbal noncontact harassment (e.g., sexual comments and sexual rumor spreading), which is commonly referred to as *sexual harassment* (Hill & Kearl, 2011). While the majority of studies focus on late adolescents (high school samples), results of the American Association

**Correspondence** Dorothy L. Espelage, School of Education, University of North Carolina at Chapel Hill, 103 Cameron Avenue, Chapel Hill, NC 27599, USA. espelage@unc.edu.

### SUPPORTING INFORMATION

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for University Women' (AAUW) nationally representative online survey of 7th–12th graders found that sexual harassment is also prevalent among middle school youth (Hill & Kears, 2011). An estimated 56% of girls (48% of 7th graders and 62% of 12th graders) and 40% of boys (48% of 7th graders and 39% of 12th graders) were victimized by in-person or online sexual harassment (e.g., unwelcome comments, touching, intimidation, or force to do something sexual) during the school year. In addition, the AAUW study found that 16% of students (14% of girls and 18% of boys) reported *perpetrating* sexual harassment against another student. Clear et al. (2014) found, in a large population-based study of high school students (grades 9–12), that 8.5% (5% of girls and 12% of boys) reported noncontact sexual harassment perpetration, with rates differing by race (11.9% of students who did not identify as White and 7.8% of White students). More recently, in an online study of 10- to 21-year-olds, Ybarra and Thompson (2018) found that 23% of boys and 17% of girls reported sexual harassment perpetration (defined similarly as in the AAUW study), with no significant differences in perpetration rates by race or ethnicity; however, as age increased, the relative odds of first sexual harassment perpetration event decreased.

Given the prevalence of sexual harassment among adolescents, a crucial step in preventing sexual violence is identifying the childhood precursors to adolescent sexual harassment perpetration. This study used a family systems lens to examine the effects of child abuse, family conflict (i.e., yelling, temper outbursts, and physical fights among family members), and sibling aggression on sexual harassment perpetration in early adolescence. Additionally, we examine group differences by sex, race/ethnicity, and the buffering effects of academic grades and school belonging.

### **Sexual harassment perpetration: Applying family systems theory**

Children and adolescents are embedded in multiple systems or contexts that interact and influence their development over time. According to family systems theory, the family environment is a critical influence on socialization and development with interactions between family members constituting a complex system predicting key psychosocial and health outcomes (Whiteman et al., 2011). This theoretical frame can be applied cross-culturally, as it acknowledges that the microculture of one's family is likely influenced by the macroculture(s) related to geography, religion, race, ethnicity, socio-economic class, and family history of its members. One important consideration when examining *individuals* through the lens of their family system(s) is multifinality. Each family system develops rules and roles (explicitly or implicitly) whereby each member develops a way of being, even unconsciously, based on the constraints they face to meet their needs, as determined by all parties' (e.g., parents and siblings) contributions to the system and their interactions. For example, a younger sibling who watched as their older sibling was continually punished for attempting to set physical boundaries during high emotional times by slamming doors, may have developed acutely adaptive coping mechanisms to avoid experiencing the sensations of strong emotions altogether. Despite participating in the same system, these two individuals had different roles and experiences, which caused them to behave and perceive their worlds outside the home very differently. Moreover, different facets of the family environment, including didactic interactions, intransparent relationships, and siblings may each have their own influence on adolescent development. One unique contribution

of the family systems theory to developmental science is the premise that family conflict and resolution can exist within not just didactic but also triadic interactions. A third party, often another family member, is brought in to mediate, such as when a parent intercedes in a conflict between siblings. These triadic interactions are not necessarily good or bad; they can help mitigate conflict or further harm. In addition to family members, youth are also dynamically influenced by the attitudes and behaviors of individuals in their broader developmental contexts (e.g., teachers, coaches, and peers). In this study, we draw upon family systems theory by examining associations between abuse, family conflict, sibling aggression, and individual characteristics (e.g., race/ethnicity and sex) on the emergence of sexual harassment perpetration during early adolescence.

Exposure to a hostile home environment—characterized by child abuse, family conflict, and sibling aggression—is an adverse childhood experience (ACE) that can confer increased risk for trauma, mental health problems, and serious long-term health consequences (Derzon, 2010; Fineran & Bolen, 2006; Hughes et al., 2017; Leschied et al., 2008; Merrick et al., 2019). Although research on the linkages between hostile home environment and sexual harassment perpetration is limited, there is robust evidence that a hostile home environment is often a precursor to behavioral problems (including violence) in adolescence and adulthood, acknowledging multifinality among resulting difficulties. For example, a 2008 meta-analysis of 38 longitudinal studies found that adverse childhood and adolescent family environment (e.g., abuse, family conflict, and neglect) was moderately associated with self-report and official criminal convictions (Leschied et al., 2008). Derzon (2010) analyzed data from 233 reports across 119 longitudinal studies and found that home discord and instability had small-to-moderate effects on later (nonconcurrent) problem behavior (e.g., criminality). In one study of Canadian high school students, Wolfe et al. (2001) found that a history of child abuse and neglect increased the odds of teen dating violence perpetration (threatening and physical abuse) for boys. Further, a study of 136,549 students in the 6th, 9th, and 12th grades who responded to the 2007 Minnesota Student Survey reported significant associations between ACEs (e.g., physical and sexual abuse and domestic violence exposure) and adolescent interpersonal violence perpetration (e.g., bullying, physical fighting, and dating violence; Duke et al., 2010) with greater odds of violence perpetration for boys than girls. The connection between child abuse and neglect and ACEs on interpersonal violence perpetration also extends to sibling aggression. Simonelli et al. (2002) found that dating violence was associated with physical, emotional, and sexual abuse by a sibling during childhood among a sample of undergraduate college students. Collectively, this research highlights important sex differences in the risk of perpetrating violence following childhood exposure to a hostile home environment. Moreover, recent evidence from a survey of adolescents involved in the juvenile justice system revealed a high degree of exposure to ACEs (Clements-Nolle & Waddington, 2019). While few studies have examined longitudinal precursors to adolescent sexual harassment perpetration specifically, there is evidence that exposure to family violence may be a risk factor, particularly for boys (Fineran & Bolen, 2006). Fineran and Bolen (2006) suggested that boys may learn dominant power structures through aversive family experiences, increasing the risk for sexual harassment perpetration, and underscoring the importance of a family system approach to understanding sexual harassment perpetration. Expressions

of patriarchy and misogyny can also differ cross-culturally, further highlighting the merit of naming identity and culture as much as possible. Thus, the previous literature in its entirety suggests that a hostile home environment appears to be related to increased odds of multiple forms of violence perpetration for boys but not girls, including sexual harassment, though there remains a dearth of literature related to cultural and identity differences in these dynamics.

In this study, we assessed three items related to child abuse, including exposure to domestic violence, physical abuse, and sexual abuse. These three adverse experiences could potentially influence sexual harassment perpetration through separate mechanisms. However, the prevalence of each experience in our sample was too low to examine them individually. Furthermore, the aim of the paper is to examine the overall impact of hostile home environments rather than the effect of a particular experience. Previous studies with adolescents have combined these three items into a single index and found positive associations with alcohol use (Hamburger et al., 2008) and dating violence perpetration (Ali et al., 2011).

### **Positive school experiences as protective factors**

There is growing evidence that safe and supportive environments can help mitigate the impact of hostile home environments on later violence perpetration (Allen et al., 2018). Components of the school environment that may specifically signal or contribute to a lower risk of violence perpetration are school belonging and academic achievement (Allen et al., 2018). Regarding academic achievement, researchers have found that while grades are variable and questionable in construct validity (Allen, 2005), an academic achievement often requires pro-social, cooperative behavior such that highly aggressive students often struggle (de Bruyn & Cillessen, 2006; Rodkin et al., 2000). Li and Lerner (2011) suggest that despite varied individual experiences, academic engagement (marked by academic outcomes) creates a reinforcement cycle that dissuades antisocial behavior. Further, school communities offer important connections to other students and to supportive adults that can meet students' needs in ways such that they do not need to resort to sexual aggression (i.e., an ultimately ineffective way of meeting one's interpersonal needs, regardless of the nature of one's needs; Slaten et al., 2016). Only a few studies have examined these dynamics in the context of sexual violence and harassment specifically. Borowsky et al. (1997), in their study of high school students in Minnesota, found that for both boys and girls, child sexual abuse and witnessing family violence were associated with sexual violence perpetration; importantly, however, connection to friends and adults in the community was found to be associated with a lower likelihood of perpetrating sexual aggression among boys, and academic achievement (i.e., better grades) was inversely associated with female sexual aggression (Borowsky et al., 1997). In a prospective study of girls, Chiodo et al. (2012) found that the teen dating violence perpetrator group had lower grades, less school connectedness, and less community involvement than nonperpetrators (Chiodo et al., 2012). Similarly, among adolescents and emerging adults, a sense of belonging—feeling secure, connected, and involved in one's community—seems to be an important buffer for the cascading effects of childhood adversity (Fritz et al., 2018). Thus, a sense of belonging at

school may mitigate the harmful impact of a hostile home environment on current and future sexual harassment perpetration.

### **The current study and hypotheses**

The current study seeks to better understand the emergence of sexual harassment perpetration during early adolescence and predictive pathways stemming from experiences of a hostile home environment using longitudinal data from the control arm of a multiwave longitudinal study. First, we examine growth trajectories for sexual harassment perpetration during early adolescence. Specifically, in line with a family systems theory lens, we examine the independent contributions of abuse, family conflict, and sibling aggression. It is proposed that these capture unique aspects of the early hostile home environment, including parent–child, parent-to-parent, and sibling-related risks for baseline and growth rates of sexual harassment perpetration.

Second, we use multigroup models to better understand whether the development of sexual harassment perpetration differs by sex, race, and ethnicity. We hypothesized that during early adolescence, boys will report more sexual harassment perpetration than girls, and boys will show greater increases in perpetration than girls over time. Given that the association between race and sexual harassment perpetration is inconclusive in the extant literature, we did not have hypotheses related to race. Third, we examined whether sexual harassment perpetration trajectories varied as a function of school belonging. Findings from previous literature led to our hypothesis that higher levels of school belonging will be associated with lower sexual harassment perpetration.

Finally, we investigated the moderating effect of academic grades and school belonging on the effects of a hostile home environment on sexual harassment perpetration. We propose that school belonging and grades will buffer the effects of home hostility on sexual harassment perpetration, such that youth who report a hostile home environment but report high levels of school belonging and higher grades will perpetrate less sexual harassment than youth with a similar home environment but with a less positive school experience.

## **METHODS**

### **Participants**

Participants consisted of 1563 students from 18 middle schools within the states of Illinois and Kansas who participated in the control arm and at least two waves of a multi-wave, nested longitudinal randomized clinical trial study (for more details see Espelage et al., 2013; Espelage, Low, et al., 2015). All study procedures were approved by the university ethics board. Large and small urban school districts were contacted by the principal investigators in each state to introduce the project and to identify schools that would be interested in participating. Schools had to agree to random assignment to immediate intervention or delayed intervention and also agreed to not implement any large-scale bully prevention initiative for the 3-year study duration. The present sample was 51% boys; 39% identified as Hispanic, 29% as Black, 19% as White, and 13% as Multiracial or other races. At the time of this study, 51% and 67% of K-12 students in Illinois and Kansas identified as

White persons, respectively. Thus, our sample is more urban and racially diverse than each state and findings may not generalize to rural communities. In Wave 1, 99% of the sample was in sixth grade and the mean age of students was 11.2 years ( $SD = 0.45$ ; range = 11–13).

## Procedure

**Parental consent and student assent**—The study was approved by the university review board and the school districts, and a waiver of active parental consent was approved. Parents received information about the study through several outlets, including written letters, electronic newsletters, presentations to parent-teacher associations, email blasts from school administration, and family information nights. Parents could opt their child out of the study by calling the school or researcher, or by returning a signed parent information form. Nonconsented youth did not complete the survey and were removed from the room during survey administration. Students provided assent to participate by signing the front page of the survey. Of the eligible students across the 18 middle schools, 86% assented to participate and completed the survey.

**Survey administration**—Teams of researchers, including advanced psychology graduate students, a faculty member, and several trained undergraduate research assistants, administered the paper-and-pencil survey. At the beginning of each administration, students were told about the purpose of the project and their rights related to participation. Students were assessed at baseline in the fall of 2010 (Wave 1) and then again in the spring of 2011 (Wave 2), 2012 (Wave 3), and 2013 (Wave 4).

## Measures

Descriptive statistics for each measure and correlations between measures are presented in Table 1. See Appendix S1 for additional validity evidence.

**Outcome: Sexual harassment perpetration**—Sexual harassment perpetration was measured at Waves 1–4 using 6 items from the 12-item modified version of the AAUW Sexual Harassment Survey—Perpetration Scale (Espelage, Basile, et al., 2015). On this scale, students indicated how often in the past year they engaged in unwanted behaviors toward other students on a 5-point scale ranging from 0 (*Never*) to 4 (*10 or more times*). Due to low response frequencies, all items were first dichotomized (0 = *Never*; 1 = *1 or more times*). Five items were then removed from the scale due to low response frequencies within subgroups (e.g., by race and ethnicity and by sex) and one item was removed due to conceptual fit (i.e., said they were gay or lesbian). The shortened 6-item scale used for the analysis included 4 items assessing noncontact behaviors (e.g., made sexual comments and jokes; spread sexual rumors) and 2 items assessing contact behaviors (i.e., touched, grabbed, or pinched them in a sexual way; intentionally brushed against them in a sexual way). Scale scores were created by summing the dichotomous item responses. Across the four waves, the score reliabilities were  $\alpha = .94, .91, .92, \text{ and } .94$ , and  $\omega = .77, .73, .75, \text{ and } .78$ , respectively. An investigation of longitudinal measurement invariance found the preponderance of evidence-supported invariance (see Appendix S1).

**Sexual harassment victimization (Wave 1)**—A dichotomous indicator for students' lifetime peer sexual harassment victimization was created. In Wave 1 only, students were asked the same 6 items as the sexual harassment perpetration scale with the stem, "In your lifetime, how often have other kids..." with responses on a 4-point scale from 0 (*Never*) to 3 (*10 or more times*). Students were coded as 1 (*Victimized*) if their response to any item was >0 and 0 (*Not Victimized*) if their response to all items was 0.

### **Hostile home environment (Wave 1)**

**Witnessing parental violence, physical, and sexual child abuse:** Three items were used to measure past abuse in the family. At Wave 1 only, students were presented with the following stem, "Thinking about your family, Before you were 10 years old, did you ever ...," followed by three items: (1) See or hear one of your parents or guardians being hit, slapped, punched, shoved, kicked, or otherwise physically hurt by their spouse or partner? (2) Have injuries, such as bruises, cuts, or broken bones, as a result of being spanked, struck, or shoved by your parents or guardians or their partners? and (3) Have someone force you to have sex or to do something sexual that you did not want to? Response options were 1 (*Yes*) or 0 (*No*). The sum of the three items was calculated as the scale score with reliabilities of  $\alpha = .78$  and  $\omega = .57$ .

**Family conflict:** The Family Conflict and Hostility Scale (Thornberry et al., 2003) assessed the level of past year perceived conflict and hostility in the family environment. The scale contains three items from a larger survey for the Rochester Youth Development Study. The three items were "How often is there yelling, quarreling, or arguing in your household?", "How often do family members lose their temper or blow up for no good reason?" and "How often are there physical fights in the household, like people hitting, shoving, or throwing things?" The four response options ranged from 0 (*Never*) to 3 (*Always*). Scale scores were created as the mean response to each item. Score reliabilities were  $\alpha = .87$  and  $\omega = .81$ .

**Sibling aggression:** The Duncan Sibling Aggression Scale (Duncan, 1999) measures various acts of aggression perpetration and victimization between siblings. Two items pertained to violence victimization: "I am scared that my sister or brother will hurt me bad someday" and "My sister or brother beats me up." Response options ranged from 0 (*Never*) to 5 (*Every day*) on a 6-point scale. Scale scores were created as the mean response to both items. Score reliabilities were  $\alpha = .85$  and  $\omega = .70$ . Adolescents who did not have a sibling ( $n = 51, 3\%$ ) were instructed to skip the scale questions and did not receive a scale score, which was treated as missing data in the analysis.

### **Demographic groups**

**Race and ethnicity:** Adolescents were asked to indicate their race and could mark all that apply. Response options were American Indian or Alaska Native, African American or Black, Asian, Hispanic or Latino, White, and Pacific Islander persons with adolescents who selected multiple responses coded as Multiracial. Multiracial, American Indian or Alaska Native, and Pacific Islander persons were combined into a single group (Other Race) due to low frequencies. The analysis included dummy variables for African American or Black,

White, and Other Race persons with Hispanic persons, the largest group, serving as the reference group.

**Sex:** Adolescents were asked whether they were male (0) or female (1).

### **Moderators**

**School belonging (Waves 1–4):** A shortened 4-item version of the Psychological Sense of School Membership (Goodenow, 1993) was used to assess adolescents' sense of belonging or psychological membership in their school. Example items include "I feel proud of belonging to this school" and "The teachers here respect me." Participants are asked to indicate how much they agree or disagree with each statement. Response options ranged from 0 (*Strongly disagree*) to 3 (*Strongly agree*) on a 4-point Likert-type scale, with higher scores reflecting a stronger sense of school belonging. Scale scores were created as the mean response across items. In the four waves, the score reliabilities were  $\alpha = .72, .73, .73,$  and  $.79$  and  $\omega = .63, .66, .67,$  and  $.74,$  respectively.

**Academic grades (Wave 1):** Adolescents were asked "What is your overall grade average this year?" Responses ranged from 0 (*Mostly D's & F's (64 and below)*) to 6 (*Mostly A's (90–100)*).

**Attrition and missing data—**The 1563 adolescents included in the analysis participated in at least two waves of the study with 375 (24%) participating in three waves and 859 (55%) participating in all four waves. Table 1 shows the missingness rate for each variable in the analysis. In this study, if participants moved from one middle school to another in a participating district then these participants were tracked over time. If they left a participating district for one that was not enrolled in this study, then they were lost to attrition. Logistic regression models were run to determine if the Wave 1 variables in the present analysis were predictive of attrition in Waves 2–4. Higher exposure to abuse in Wave 1 was associated with increased odds of dropping out in Wave 2 (OR = 1.56;  $p = .05$ ) and Wave 4 (OR = 1.30;  $p = .02$ ). In Wave 3, higher family conflict was associated with lower odds of dropping out (OR = 0.80;  $p = .05$ ). No other Wave 1 variables were significantly associated with later attrition, including sexual harassment perpetration. These findings suggest these data were missing at random, rather than missing completely at random or not missing at random (Enders, 2010). Missingness was accounted for in the latent growth models via full information maximum likelihood (FIML). When data are missing at random, as is the case here, FIML has been shown to produce less biased and more precise estimates than listwise deletion, pairwise deletion, and multiple imputations in structural equation models (Enders & Bandalos, 2001; Raykov, 2005) even in the presence of nonnormality (Enders, 2001; Shi et al., 2021).

### **Data analysis**

**School belonging groups—**To understand the role of school belonging as a moderator between hostile home environments and sexual harassment perpetration, we first examined patterns of school belonging trajectories over time in the sample. First, we visually inspected the change in adolescents' scale scores across the four waves in spaghetti plots from



randomly selected subsamples. Then, we explored whether students could be meaningfully clustered based on their trajectories. The elbow method, silhouette method, and gap statistic were used to preliminarily identify the optimal number of clusters (Kaufman & Rousseeuw, 2009). With the *k*-POD (Chi et al., 2016)—*k*-means clustering with partially observed (i.e., missing) data—approach and accompanying *R* (v. 4.2.0; R Core Team, 2022) package, a 2-, 3-, and 4-cluster model were run. Model selection was based on the stability of assigning students to the same group when using different starting values for the centroid. The 2-cluster model was chosen for the analysis as it produced the most stable categorization of participants across starting values and was identified as the optimal model by all three of the preliminary cluster metrics (see Appendix S1). At Waves 1–4, the mean score on the school belonging scale (range of 0–4) for the *high belonging* group was 3.38, 3.34, 3.21, and 3.16, respectively. The mean score for the *moderate belonging* group was 2.87, 2.56, 2.51, and 2.48, respectively.

**Latent growth models**—First, an unconditional growth model was fit to describe sexual harassment perpetration baseline (intercept) and growth (slope) rates. The model was specified by loading the sexual harassment perpetration scale score at each wave onto an intercept and slope factor. The slope loadings were 0, 0.5, 1.5, and 2.5 to align with the intervals between the data collection waves of 6 months, 1 year, and 1 year. An alternative model with a quadratic slope factor was also tested but did not improve fit (see Appendix S1), so the more parsimonious linear slope model was used for all analyses. To test the first hypothesis, the hostile home environment variables (i.e., abuse, family conflict, and sibling aggression) were then added as predictors of the intercept and linear slope factors while adjusting for lifetime sexual harassment victimization by Wave 1. Next, we ran multigroup analyses by sex, race and ethnicity (excluding Other Race due to lack of interpretability), and school belonging to test hypotheses regarding group differences. We conducted an omnibus Wald test of parameter equality between groups on the sexual harassment perpetration intercept and slope means and the regression coefficients for the three hostile home environment variables predicting the intercept and slope. If the omnibus test indicated a difference between groups, then the equality of each parameter was tested separately.

Lastly, we investigated the moderating effect of positive school experiences. Adding to the model with Wave 1 hostile home environment variables and sexual harassment victimization, the full conditional model included Wave 1 academic grades, the time-invariant variables of Black, White, Other Race persons (Hispanic as a referent), girls (boys as a referent), and high levels of school belonging (moderate belonging as a referent) along with interactions between school context (high belonging and academic grades) and the hostile home environment variables (abuse, family conflict, and sibling aggression). School belonging indicates positive relationships that may serve as corrective interpersonal experiences when facing a hostile home environment, whereas academic achievement is less likely to directly impact learned violent behavior. Given differences in the nature of the two constructs, we only examined moderation by academic grades through two-way interaction terms in the full conditional latent growth model whereas we also investigate the main effects of school belonging on perpetration via the multigroup analysis. When the

multigroup analysis indicated group differences, the full conditional model was fit separately to each group. All models were run in Mplus (v. 8.1; Muthén & Muthén, 2017) using robust maximum likelihood estimation with cluster robust standard errors accounting for the nesting structure of adolescents within schools.

## RESULTS

The unconditional latent growth model ( $\chi^2(5) = 4.17, p = .53, CFI = 1.00, RMSEA = 0.00$  [90% CI: 0.00, 0.03], and SRMR = 0.02) demonstrated that sexual harassment perpetration increased during early adolescence. On the sexual harassment perpetration scale (range 0–6), students reported a mean of 0.23 behaviors (SE = 0.03,  $p < .01$ ) at Wave 1 (i.e., intercept) with the number of perpetration behaviors increasing by an average of 0.07 behaviors (SE = 0.02,  $p < .01, \beta = 0.32$ ) each year (i.e., slope). There was also significant variation in perpetration at Wave 1 ( $b = 0.21, SE = 0.04, p < .01$ ) and change over time ( $b = 0.05, SE = 0.02, p = .02$ ) with an  $r = -.11$  correlation (SE = 0.20,  $p = .60$ ) between the intercept and slope. Descriptively, 13%, 16%, 19%, and 21% of the adolescents in the sample reported at least one perpetration behavior in Waves 1–4, respectively. We hypothesized that hostile home environments would be associated with elevated rates of sexual harassment perpetration. While adjusting for sexual harassment victimization, we found experiencing abuse (physical, sexual, or witnessing parental violence) was associated with 0.17 ( $\beta = .26$ ) more perpetration behaviors at baseline, but a decrease in perpetration slope by 0.06 ( $\beta = -.19$ ) behaviors each year (Table 2; see Appendix S1 for standardized results tables). Family conflict and sibling aggression were not associated with baseline perpetration rates or growth rates over early adolescence for the full sample.

We used multigroup analyses to investigate differences in sexual harassment perpetration rates and the effect of a hostile home environment on those rates by gender, race/ethnicity, and level of school belonging. An omnibus Wald test indicated there were significant differences between boys and girls ( $\chi^2(8) = 55.81, p < .01$ ). Subsequent Wald tests on each parameter showed boys had significantly higher perpetration rates than girls at baseline (Table 3). The differences between boys and girls on the other parameters were statistically nonsignificant, including both groups reporting increasing perpetration rates over time. The omnibus Wald test also suggested differences between Black, Hispanic, and White adolescents ( $\chi^2(16) = 10,759.10, p < .01$ ); however, the follow-up Wald tests on the specific parameters, which are less powerful than the omnibus test, were all statistically nonsignificant (Table 4). Once again, all groups reported increasing perpetration rates across the four waves. In the multigroup analysis comparing school belonging to high and moderate groups, the slope variance of the high group was constrained to 0 to successfully estimate the model. This implies that while high belonging adolescents had different baseline perpetration rates (i.e., intercept variance  $> 0$ ), the change in perpetration rates was the same for all high belonging adolescents. The omnibus Wald test indicated sexual harassment perpetration differences by school belonging group ( $\chi^2(8) = 114.23, p < .01$ ). The specific parameter tests revealed that perpetration behaviors increased at a higher rate in the moderate belonging group than the high belonging group (Table 5).

Given the potential differences found in the multigroup analysis, the full conditional latent growth models were fit separately to each sex, race/ethnicity, and school belonging group. The model explained 19–51% of the variation in baseline perpetration and 8–25% of the variation in perpetration growth for boys and girls (Table 6); Black, Hispanic, and White adolescents (Table 7); and adolescents with high and moderate levels of school belonging (Table 8; see Appendix S1 for standardized results tables). As with the full sample, the hypothesis that a hostile home environment would have a positive association with baseline levels and growth in sexual harassment perpetration was partially supported for baseline levels, but not for growth for adolescent groups. When adjusting for the other Wave 1 and time-invariant variables in the model, exposure to abuse was associated with an average increase of .59 ( $\beta = .96$ ) perpetration behaviors at baseline for girls (Table 6). Conversely, and contrary to our hypothesis, higher abuse was associated with lower perpetration growth for White adolescents ( $b = -0.20$ ;  $SE = 0.10$ ;  $\beta = -.58$ ).

Rather than the main effects, the effects of hostile home environments on sexual harassment perpetration were more often moderated by academic grades and school belonging, which supported our hypothesis. The moderation patterns varied by the hostile home experience, school variable, and adolescent group. Regarding academic grades, girls with high sibling aggression and high academic grades had the lowest baseline perpetration, even lower than the no or mean sibling aggression groups (Figure 1). Thus, high academic grades buffered the effect of sibling aggression. The moderation pattern differed with regard to abuse. Across all academic grades, girls who reported high abuse had the highest baseline perpetration levels. Yet, lower academic grades were associated with decreasing perpetration over time for girls with high abuse, unlike girls who reported no or mean exposure to abuse where perpetration increased over time. As with girls, Hispanic adolescents with high abuse and lower academic grades reported decreases in perpetration over time, unlike most other groups (Figure 2). Thus, for girls and Hispanic adolescents with high abuse, low academic grades buffered the effects of abuse on longitudinal sexual harassment perpetration. In contrast, high academic grades buffered the effect of a hostile home environment on sexual harassment perpetration growth for Black adolescents (Figure 3). Compared to their peers with mean or low academic grades, Black adolescents who experienced high family conflict and sibling aggression, but also had high academic grades had reduced and, in the latter, decreased perpetration over time. In summary, the moderation patterns for academic grades pertained to differential perpetration growth. Lower perpetration growth was associated with lower academic grades for some groups, but higher academic grades for others.

In contrast, moderation patterns for school belonging pertained to baseline sexual harassment perpetration, rather than growth. Figure 4a shows that for White adolescents with moderate levels of school belonging, sibling aggression was positively associated with baseline perpetration levels, but for White adolescents with higher levels of school belonging, sibling aggression was negatively associated with baseline perpetration. The same trend occurred for boys who experienced abuse (Figure 4b). Thus, across some adolescent groups, a high level of school belonging was associated with reduced baseline sexual harassment perpetration for those experiencing a highly hostile home environment compared to their peers in the moderate school belonging group.

Regarding interactions of race/ethnicity, sex, and school belonging, Black girls reported an average of 0.16 ( $\beta = -.18$ ) fewer perpetration behaviors than Black boys (Table 7). Likewise, girls reported lower baseline perpetration than boys in both the high level school belonging ( $b = -0.09$ ;  $SE = 0.03$ ;  $\beta = -.13$ ) and moderate school belonging groups ( $b = -0.15$ ;  $SE = 0.06$ ;  $\beta = -.12$ ; Table 8). Being a victim of sexual harassment prior to baseline was positively associated with baseline perpetration for all groups and lower growth in Hispanic adolescents ( $b = -0.11$ ;  $SE = 0.03$ ;  $\beta = -.17$ ; Table 7).

## DISCUSSION

From a family systems perspective, the current study examined sexual harassment perpetration during early adolescence and tested predictive pathways from previous experiences of an early hostile home environment. Building on these overarching aims, this study also compared findings by sex, race/ethnicity, and explored interaction effects of school belonging and academic grades. To the best of our knowledge, no other study has examined these pathways predicting sexual harassment perpetration in a school-based young sample. The results demonstrated that associations among hostile home environment, school-based moderators, and sexual harassment perpetration partially supported the hypothesized effects, but also that effect trends often held for either baseline perpetration or growth, not both, and varied across sex and race and ethnicity. During early adolescence, sexual harassment was more frequently perpetrated by boys than girls; however, both boys and girls showed modest increases in sexual harassment perpetration across early adolescence (in accordance with expectations based on typical biopsychosocial development that characterizes adolescence). For girls, child abuse and sibling aggression were significantly associated with increased sexual harassment perpetration rates at baseline with the effects of the latter buffered by high academic grades. For boys, high levels of school belonging ameliorated the impact of child abuse on baseline perpetration rates. Unexpectedly, the results suggested that hostile home environments may be associated with smaller increases in sexual harassment perpetration across early adolescence for both boys and girls compared to their peers not exposed to a hostile home environment. Racial and ethnic differences emerged: for Hispanic and White non-Hispanic adolescents, higher exposure to abuse was unexpectedly associated with reduced growth, or even decreases, in sexual harassment perpetration across early adolescence. Finally, school belonging showed protective, buffering effects of hostile home environment on baseline sexual harassment perpetration for most groups; academic grades played a moderating role in perpetration growth, although the nature of moderation varied across groups.

These unexpected findings may indicate that witnessing violence and hostility in one's home may not always lead directly to behaviorally learned violence, but rather produce a multitude of outcomes based on factors such as the child's individual qualities or coping mechanisms. Regarding individual differences that may differentially protect children, Susman et al. (2021) found that there is variability across individuals' autonomic responses to learned threat and safety cues, with some individuals better able to regulate their responses to situations that may have otherwise elicited a violent response based on socially learned violence in the home. Further, it is not uncommon for youth to respond to home hostility with adaptively avoidant coping strategies that create patterns of conflict avoidance,

distraction, or passivity rather than violence that may also carry over to the school and other domains (Allen et al., 2003). This dynamic may explain the slowed growth or decrease in perpetuating sexual harassment for some groups of students. Additionally, there may be variance between individuals in the degree to which violence behavior is domain-general (vs. domain-specific, e.g., violence as a response to all interpersonal conflict vs. violence that is unique to romantic relationships exclusively; Pettit et al., 2010).

The results of this study underscore the importance of a family systems theory perspective on the emergence of sexual harassment perpetration during early adolescence that emphasizes the influence of one context (e.g., family) on another context (e.g., school). The findings suggest that both intraindividual characteristics (i.e., sex and race and ethnicity) and contextual factors (i.e., hostile home environment and school belonging) partially contribute to the development of sexual harassment perpetration during early adolescence. This study supports previous work finding violence exposure and victimization in early and middle childhood has a worsening effect on later sexual harassment perpetration and adds to the limited literature specifically linking violence ACEs to adolescent sexual harassment perpetration (Fineran & Bolen, 2006). In addition, the present study highlights the importance of school belonging to mitigate the impacts of hostile home environments on later perpetration behavior. More research that considers how contextual factors (e.g., who is afforded school belonging) interact with individual characteristics (e.g., identities, personality characteristics, trauma response patterns), is needed to better understand and prevent complex behavior such as sexual harassment perpetration. Importantly, the current paper's complex analysis offers a theoretical contribution of identifying multifinality among youth who share the experience of hostile home environments. While the family system theory can be applied to understand that a child's learning experience in the home affects their experience of life outside the home, the nature of the impact differs according to a host of school-related and other factors.

### Implications for policy and practice

**Leveraging third-party relationships outside the home**—School belonging was significantly associated with lower baseline levels of sexual harassment perpetration overall. This finding is consistent with previous research that has pointed to significant associations among school connectedness, perceptions of a positive school climate, and sexual harassment victimization (Attar-Schwartz, 2009; Holt & Espelage, 2003), and extends this literature to sexual harassment perpetration. Though causality was not tested, these results may fit within existing data and theory suggesting that violent behaviors are reduced when needs are met (Daffern & Howells, 2009). Interestingly, the buffering effect of school belonging, while significant for all youth, appeared to function more prominently for certain adolescent groups. For example, White youth who reported sibling aggression and high levels of school belonging had lower perpetration rates than White youth with sibling aggression but only moderate levels of belonging. A similar pattern emerged for boys where high levels of school belonging buffered the association between abuse and sexual harassment perpetration. Taken together, these findings suggest that creating school climates where youth feel like they matter to others, can be their authentic selves, and build respectful, caring, relationships globally benefit students. However, this pathway may be

sensitive to seemingly small differences between perceptions of belonging (e.g., moderate vs. high) and individual students may be differentially well-equipped to access the benefits of a generally positive climate or welcomed by the specific culture of the climate. Of note, the U.S. education system was founded on White and Eurocentric culture and values (Leonardo, 2007). As such, it continues to embody these values in its power structure, practices, and policies which can perpetuate both interpersonal and structural racism. White youth, wealthier youth, and youth who have proximity to or are aligned with these ideals tend to be more accepted and find easier success by the system's standards (Leonardo, 2007). This context is important to consider when examining the processes by which a sense of school belonging is developed, and how achievement is defined and measured and how it may differ in meaning across race and ethnicity.

Finally, early hostile home environments and child abuse are almost always traumatic, with effects well-documented in behavior (including aggression and violence), maladaptive emotional functioning, and disrupted neuropsychological development (Ford, 2015). Interrupting traumatic family system dynamics with a third party can include connecting with mental healthcare providers to facilitate healing among affected children, and when appropriate, families as a unit. This strategy may also be preventative in the long-term: addressing unmet interpersonal needs and trauma therapeutically may prevent an individual from perpetuating cycles of violence and harm to their own future children.

**Psychoeducation specific to sexual harassment prevention**—Our finding that boys reported greater sexual harassment perpetration than girls is consistent with previous studies (Clear et al., 2014; Espelage et al., 2016; Ybarra & Thompson, 2018), and signals that sexual harassment continues to be intertwined with gender identity development and gender norms at large. Though we did not examine family attitudes specifically, family systems theory posits that children, especially during early childhood, learn norms and beliefs implicitly and explicitly from experiences in the home, that they use to navigate spaces outside the home. Accordingly, they are likely to enter school with a working sense of appropriate behavior and schemas for sex and gender. Thus, school-based education specifically regarding healthy relationships, gender, sexual behavior, and violence is indicated. Strategies targeting this component are outlined in a recently published technical package on sexual violence prevention (Basile et al., 2016). In addition, creating explicitly protective environments in schools to directly address issues of gender inequity in the classroom (e.g., curricula, classroom management policies, and intentional use of gender-affirming pronouns) and making certain that locations throughout the school (e.g., bathrooms and athletic team locker rooms) are safe and free of harassment can have positive effects on reducing violence (Basile et al., 2016; Taylor et al., 2011). For example, *Shifting Boundaries* (Taylor et al., 2011) includes a combination of classroom and school-building interventions that seek to prevent sexual harassment and other forms of gendered harassment. In an evaluation of 30 New York City middle schools, the building-only intervention led to 32–47% lower peer sexual violence victimization and perpetration up to 6 months after the intervention (Taylor et al., 2011). It is likely that this visible commitment to building a school culture intolerant of sexual harassment, and instead focused on respecting

the humanity and autonomy of one another, may deter perpetration by offering students preferential alternatives to violence (Basile et al., 2016).

### **Structural support for a healthy child and family development at baseline—**

The current study also highlights the importance of primary prevention of childhood victimization and witnessing violence as a child to prevent violence perpetration in adolescence. Every family system is tasked with working toward their shared and individual goals with the resources available to them. The current findings show that childhood adversity was associated with higher sexual harassment perpetration at baseline, suggesting that preventing early childhood victimization might also prevent sexual harassment perpetration in early middle school, setting youth on a positive trajectory. Preventing childhood adversity through strategies such as strengthening economic support to families (e.g., paid family leave), teaching parenting skills that promote stronger family relationships, and ensuring a strong start for children through policies such as high-quality childcare and approaches that connect youth with caring adults have been shown to reduce child abuse and neglect and other childhood adversity that could help set children on a trajectory of reduced problem behaviors and improve their long-term outcomes (CDC, 2019).

## **LIMITATIONS**

Although this study establishes significant longitudinal connections between hostile home environments and adolescent sexual harassment perpetration over time using a large, diverse sample, this study is limited in some ways with respect to measurement and sampling. First, the assessment of ACEs was limited to violence-related ACEs—parental intimate partner violence exposure, child physical and sexual abuse, family conflict, and sibling aggression—which may not fully capture the full range of ACEs that place a child at-risk for violence perpetration. Also, the timeframes associated with each type of ACE varied (e.g., before age of 10 vs. past year); thus, inferences about the timing of the adversity and later violence perpetration cannot be made. Future studies should consider the additional risk factors of family substance use, parental incarceration, or instability of housing, for example. Second, the sample examined here included sixth graders at the first assessment, which is a young sample; as a result, the endorsement of forced sexual activity was low, so we examined verbal sexual harassment perpetration and contact behaviors such as brushing up against someone and unwanted sexual touching. Third, and relatedly, the distribution of sexual harassment perpetration endorsement was skewed, which led to the dichotomization of items in the measure and, thus, a limited ability to assess variability in perpetration frequency. It would be important to recruit larger samples of early adolescents to examine risk factors associated with sexual harassment. This would also allow a more nuanced examination of race and ethnicity on changes in sexual harassment across early adolescence. Also, all measures were self-report and subject to social desirability bias resulting in underreporting of some experiences or behaviors that may be less socially acceptable. Fourth, higher exposure to abuse at baseline was associated with increased odds of dropping out in later waves of the study. Although there was no difference in baseline sexual harassment perpetration between adolescents who continued and those who dropped out, this pattern of attrition could contribute to the unexpected finding that perpetration trajectories decreased

for adolescents who experienced abuse. Fifth, school belonging was assessed with only four items from the original 12-item Psychological Sense of School Membership Questionnaire scale (Goodenow, 1993); thus, this abbreviated scale may not fully capture school belonging and the larger construct of school connectedness, which may be important in understanding the full influence of the school context on sexual harassment perpetration. Finally, data were collected from Midwestern middle schools in two states; results may not generalize to other states or regions in the United States or countries outside the United States.

## CONCLUSIONS

More emphasis is needed on the interplay between individual and environmental factors that increase the risk for sexual harassment perpetration during early adolescence, including the role of social-emotional processes such as school belonging and home environment. Early adolescence is a potentially important period for disrupting the developmental pathways between childhood adversity and sexual violence perpetration; however, risk and protective factors for sexual violence perpetration during this period have received limited attention. The findings from this study highlight the importance of a family systems theory in explaining the complex roots of sexual violence by documenting differences in the associations among sexual harassment and school-related moderators across sex, race, and ethnicity. Further research might consider how prevention approaches can incorporate trauma and individual differences into holistic prevention strategies that address multiple levels of the social ecology to prevent sexual violence perpetration.

## Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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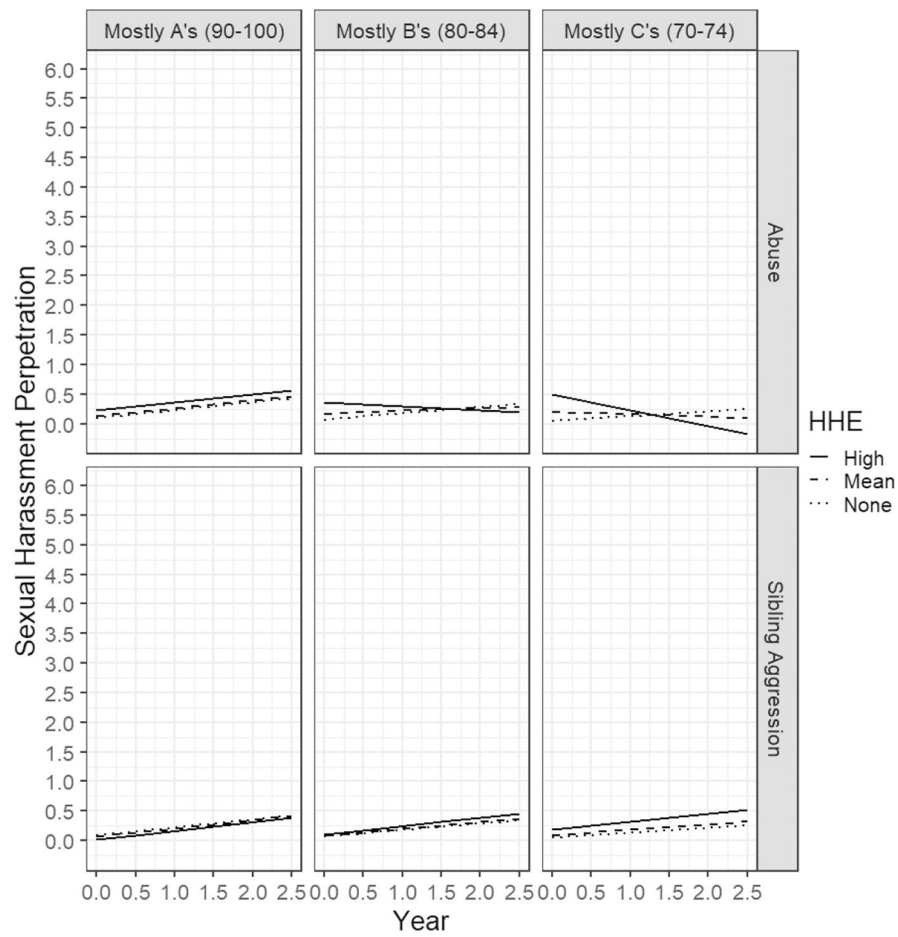
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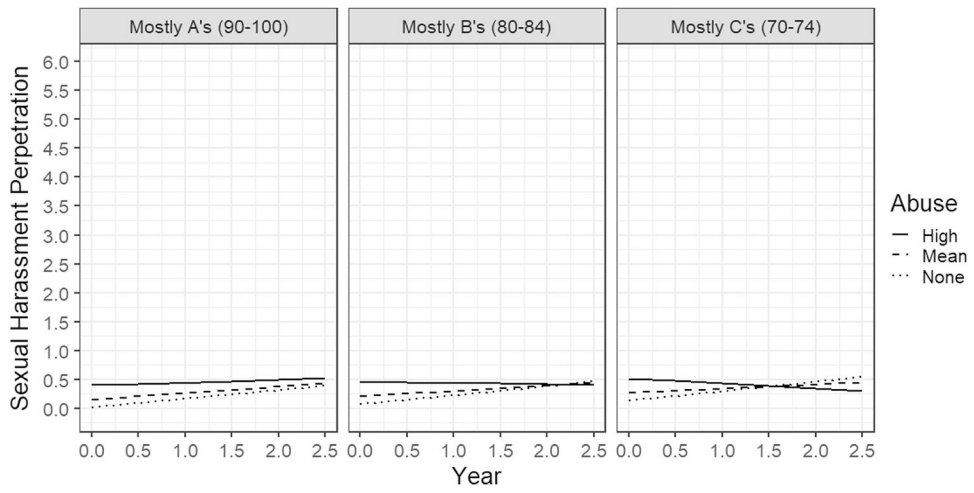
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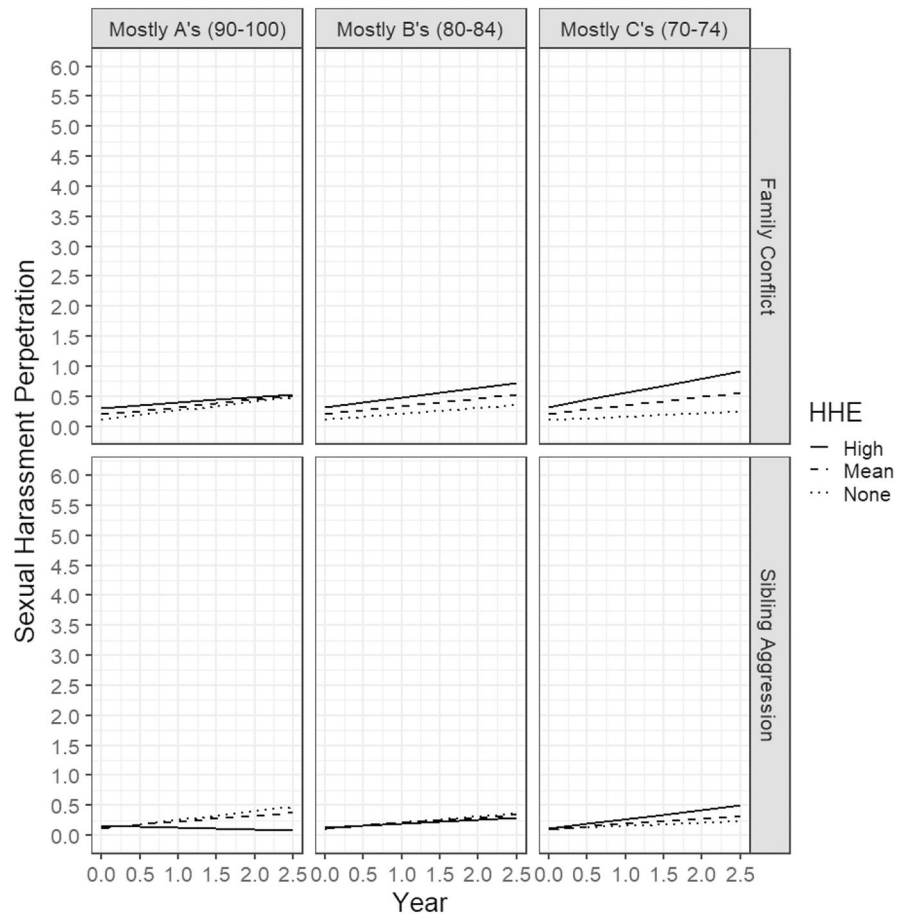
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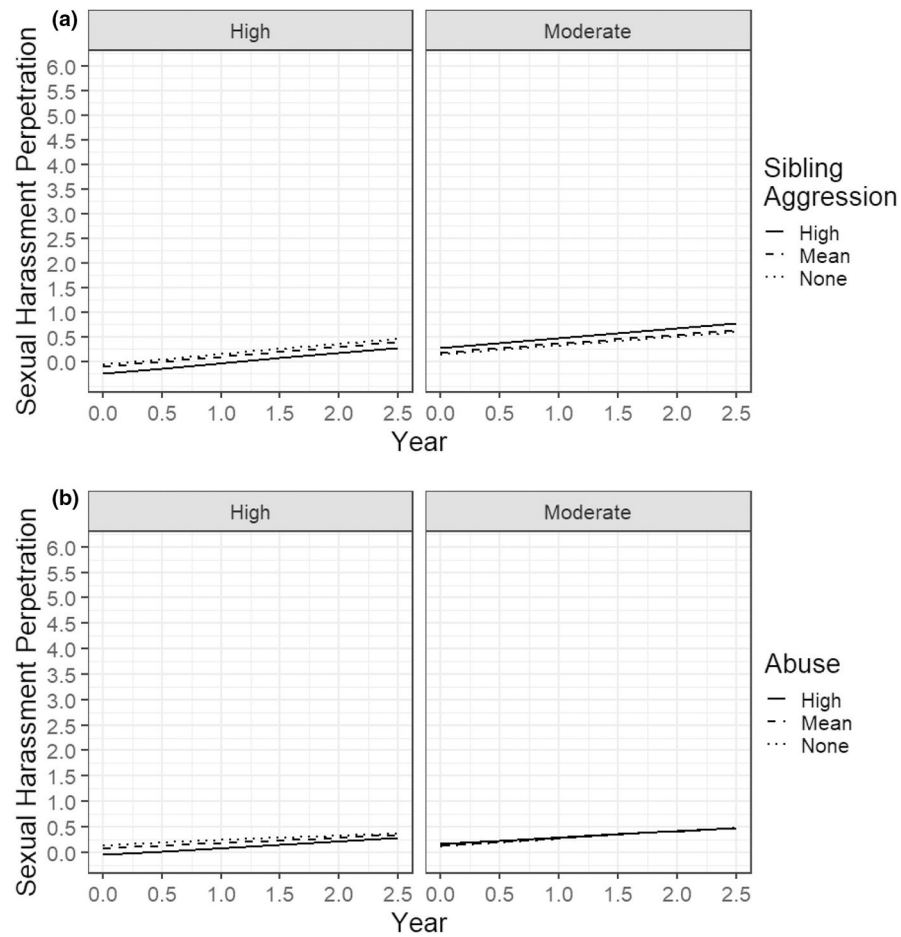
**FIGURE 1.** Interaction of academic grades and early hostile home environment on girls' sexual harassment perpetration. *Note:* HHE categories are the mean, mean + 1 standard deviation (High), and scores of 0 (None) on the abuse or sibling aggression scales. HHE, hostile home environment



**FIGURE 2.** Interaction of academic grades and exposure to abuse on Hispanic adolescents’ sexual harassment perpetration. *Note:* Exposure to abuse categories were the mean, mean + 1 standard deviation (High), and scores of 0 (None) on the exposure to abuse scale.



**FIGURE 3.** Interaction of academic grades and early hostile home environment on Black adolescents’ sexual harassment perpetration. *Note:* HHE categories were the mean, mean + 1 standard deviation (High), and scores of 0 (None) on the family conflict or sibling aggression scales. HHE, hostile home environment



**FIGURE 4.** Interaction of school belonging and early hostile home environment on White (a) and boy (b) adolescents' sexual harassment perpetration. *Note:* Hostile home environment categories were the mean, mean + 1 standard deviation (High), and scores of 0 (None) on the sibling aggression or exposure to abuse scales.

TABLE 1

## Correlations and descriptive statistics

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. SH perpetration W1														
2. SH perpetration W2	.36*													
3. SH perpetration W3	.29*	.41*												
4. SH perpetration W4	.25*	.30*	.40*											
5. Family conflict	.16*	.10*	.13*	.09*										
6. Abuse	.23*	.18*	.09*	.06	.32*									
7. Sibling aggression	.11*	.05	.05	.04	.29*	.17*								
8. SH victimization	.34*	.21*	.17*	.21*	.27*	.20*	.13*							
9. Girl	-.05*	-.11*	-.08*	-.07*	.03	-.06*	.00	.04						
10. Black	.05	-.01	.04	.07*	.06*	.08*	-.04	.07*	.02					
11. White	-.05	-.05	-.07*	-.03	.05	-.05	-.01	.02	.00	-.31*				
12. Other race	.02	.04	.04	.07*	.04	.01	.02	.05	-.01	-.25*	-.19*			
13. High belonging	-.13*	-.21*	-.18*	-.16*	-.13*	-.08*	-.05*	-.17*	.08*	-.07*	.02	-.04		
14. Academic grades	-.01	-.05	-.07*	-.04	-.02	-.01	-.02	.02	.06*	-.03	.09*	.07*	.17*	
Descriptive statistics														
Missingness rate	0.01	0.08	0.25	0.36	0.08	0.09	0.05	0.01	0.00	0.00	0.00	0.00	0.00	0.13
<i>M</i>	0.23	0.27	0.35	0.37	0.78	0.39	0.34	0.28	0.49	0.29	0.19	0.13	0.60	4.48
<i>SD</i>	0.72	0.73	0.86	0.92	0.88	0.71	0.91	0.45	0.50	0.46	0.39	0.33	0.49	1.43
Skewness	4.26	3.52	3.19	3.40	1.36	1.80	3.54	0.96	0.05	0.90	1.58	2.22	-0.40	-1.22
Kurtosis	21.42	14.45	11.73	13.38	1.58	2.41	13.02	-1.09	-2.00	-1.18	0.49	2.94	-1.85	0.97

Abbreviation: SH, sexual harassment.

\*  $p < .05$ .



**TABLE 2**Unstandardized estimates from latent growth model of sexual harassment perpetration ( $n = 1563$ )

Predictor	Intercept	Slope
Intercept term	0.03 (0.02)	0.09 (0.01) **
Family conflict	0.01 (0.03)	0.02 (0.02)
Abuse	0.17 (0.05) **	-0.06 (0.02) **
Sibling aggression	0.02 (0.02)	0.00 (0.01)
SH victim	0.42 (0.05) **	-0.04 (0.04)
$R^2$	0.29 (0.03)	0.04 (0.03)

Note: Parentheses contain cluster robust standard errors. Model fit was  $\chi^2(13) = 23.96, p = .03$ ; CFI = 0.97; RMSEA = 0.02 [0.01, 0.04]; SRMR = 0.02.

Abbreviation: SH, sexual harassment.

\*  
 $p < .05$

\*\*  
 $p < .01$ .

**TABLE 3**  
 Multigroup analysis of sexual harassment perpetration on hostile home environment by sex

Parameter	Girls		Boys		Wald $\chi^2$	
	<i>n</i> = 761		<i>n</i> = 797		<i>df</i> = 1	<i>p</i>
Intercept on						
Intercept term	-0.02 (0.02)		0.08 (0.03)*		4.49	.03
Family conflict	0.03 (0.04)		0.00 (0.04)		0.21	.64
Abuse	0.19 (0.05)**		0.14 (0.07)		0.36	.55
Sibling aggression	0.00 (0.04)		0.03 (0.03)		0.45	.50
Slope on						
Intercept term	0.08 (0.02)**		0.11 (0.03)**		0.37	.54
Family conflict	0.01 (0.02)		0.01 (0.04)		0.00	.99
Abuse	-0.06 (0.04)		-0.06 (0.02)**		0.02	.89
Sibling aggression	0.00 (0.02)		0.00 (0.02)		0.01	.91

Note: Estimates are unstandardized. Parentheses contain cluster robust standard errors. Model fit was  $\chi^2(26) = 26.89, p = .42$ ; CFI = 1.00; RMSEA = 0.01 [0.00, 0.03]; SRMR = 0.03. Omnibus Wald  $\chi^2(8) = 55.81, p < .01$ .

\*  $p < .05$

\*\*  $p < .01$ .

TABLE 4

Multigroup analysis of sexual harassment perpetration on hostile home environment by race/ethnicity

Parameter	Black	White	Hispanic	Wald $\chi^2$
	<i>n</i> = 460	<i>n</i> = 298	<i>n</i> = 605	<i>df</i> = 1
Intercept on				
Intercept term	0.01 (0.04)	0.03 (0.04)	0.03 (0.01)*	0.44
Family conflict	0.04 (0.03)	0.01 (0.04)	0.00 (0.04)	0.99
Abuse	0.07 (0.05)	0.17 (0.10)	0.25 (0.06)**	3.16
Sibling aggression	0.06 (0.04)	0.00 (0.08)	0.00 (0.03)	2.11
Slope on				
Intercept term	0.11 (0.03)**	0.05 (0.03)*	0.08 (0.02)**	2.76
Family conflict	0.02 (0.04)	0.02 (0.03)	0.02 (0.02)	0.00
Abuse	-0.02 (0.04)	-0.14 (0.05)**	-0.10 (0.03)**	3.16
Sibling aggression	-0.01 (0.02)	0.01 (0.03)	0.00 (0.02)	0.44

Note: Estimates are unstandardized. Parentheses contain cluster robust standard errors. Model fit was  $\chi^2(39) = 48.05, p = .15$ ; CFI = 0.98; RMSEA = 0.02 [0.00, 0.04]; SRMR = 0.03. Omnibus Wald  $\chi^2(16) = 10759.10, p < .01$ .

\*  $p < .05$

\*\*  $p < .01$ .

TABLE 5

Multigroup analysis of sexual harassment perpetration on hostile home environment by school belonging

Parameter	High <sup>a</sup>	Moderate	Wald $\chi^2$	p
	n = 932	n = 629	df = 1	
Intercept on				
Intercept term	0.04 (0.02)*	0.04 (0.04)	0.00	.98
Family conflict	-0.01 (0.03)	0.02 (0.04)	0.53	.47
Abuse	0.10 (0.06)	0.23 (0.06)**	2.40	.12
Sibling aggression	0.01 (0.02)	0.03 (0.03)	0.85	.36
Slope on				
Intercept term	0.07 (0.02)**	0.15 (0.03)**	4.02	.04
Family conflict	0.01 (0.03)	0.00 (0.02)	0.06	.80
Abuse	-0.03 (0.03)	-0.10 (0.04)**	1.39	.24
Sibling aggression	0.00 (0.01)	0.00 (0.04)	0.00	.96

Note: Estimates based on standardized intercept and slope and unstandardized predictors. Parentheses contain cluster robust standard errors. Model fit was  $\chi^2(28) = 53.50, p = .00; CFI = 0.93; RMSEA = 0.03 [0.02, 0.05]; SRMR = 0.04$ . Omnibus Wald  $\chi^2(8) = 114.23, p < .01$ .

<sup>a</sup>Slope variance was constrained to 0.

\*\*  $p < .05$

\*  $p < .01$ .

Unstandardized estimates from a latent growth model of sexual harassment perpetration stratified by sex

**TABLE 6**

	Girls		Boys	
	Intercept	Slope	Intercept	Slope
Intercept term	0.03 (0.07)	0.05 (0.10)	0.12 (0.05) *	0.15 (0.06) **
Family conflict (FC)	-0.01 (0.09)	0.21 (0.14)	0.07 (0.12)	0.06 (0.08)
Abuse	0.59 (0.26) *	-0.50 (0.20) *	0.05 (0.21)	-0.02 (0.13)
Sibling aggression (SA)	0.19 (0.05) **	0.06 (0.10)	0.01 (0.04)	-0.15 (0.09)
Sexual harassment victim	0.33 (0.06) **	-0.05 (0.04)	0.47 (0.05) **	-0.06 (0.04)
Black	-0.11 (0.04) *	0.10 (0.05) *	-0.01 (0.04)	0.01 (0.06)
White	-0.11 (0.05) *	0.01 (0.04)	-0.09 (0.04) *	0.03 (0.04)
Other race	-0.06 (0.05)	0.13 (0.07)	-0.04 (0.07)	0.07 (0.08)
High school belonging (HSB)	-0.05 (0.05)	-0.10 (0.06)	0.02 (0.08)	-0.05 (0.05)
Academic grades (AG)	0.01 (0.02)	0.01 (0.02)	-0.01 (0.02)	0.00 (0.01)
FC × HSB	-0.01 (0.07)	0.01 (0.06)	-0.09 (0.07)	-0.02 (0.04)
Abuse × HSB	-0.10 (0.11)	0.07 (0.06)	-0.21 (0.08) **	0.05 (0.05)
SA × HSB	-0.01 (0.04)	-0.02 (0.04)	-0.04 (0.06)	0.05 (0.07)
FC × AG	0.01 (0.02)	-0.04 (0.03)	0.00 (0.03)	-0.01 (0.01)
Abuse × AG	-0.08 (0.05)	0.08 (0.04) *	0.05 (0.06)	-0.01 (0.03)
SA × AG	-0.04 (0.01) **	-0.01 (0.02)	0.01 (0.02)	0.03 (0.01)
$R^2$	0.40 (0.09)	0.25 (0.08)	0.36 (0.05)	0.09 (0.04)
$\chi^2$ (35)	42.88		39.52	
$n$	761		797	
CFI	0.98		0.98	
RMSEA	0.02 [0.00, 0.03]		0.01 [0.00, 0.03]	
SRMR	0.02		0.02	

Note: Parentheses contain cluster robust standard errors.

\*  $p < .05$

$p < .10$   
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TABLE 7

Unstandardized estimates from a latent growth model of sexual harassment perpetration stratified by race

	Black		White <sup>d</sup>		Hispanic	
	Intercept	Slope	Intercept	Slope	Intercept	Slope
Intercept term	0.10 (0.10)	0.00 (0.09)	0.15 (0.11)	0.18 (0.13)	0.18 (0.06)**	0.17 (0.08) *
Family conflict (FC)	0.13 (0.07)	0.17 (0.08) *	-0.05 (0.06)	0.05 (0.03)	-0.04 (0.20)	0.07 (0.13)
Abuse	-0.06 (0.15)	-0.16 (0.10)	0.07 (0.17)	-0.20 (0.10) *	0.38 (0.19) *	-0.32 (0.09)**
Sibling aggression (SA)	-0.02 (0.09)	0.22 (0.09) *	0.12 (0.05) *	0.02 (0.03)	0.02 (0.06)	-0.10 (0.06)
Sexual harassment victim	0.40 (0.06)**	-0.05 (0.04)	0.24 (0.09)**	0.10 (0.06)	0.50 (0.07)**	-0.11 (0.03)**
Girls	-0.16 (0.05)**	0.05 (0.04)	-0.10 (0.07)	-0.04 (0.04)	-0.07 (0.05)	-0.05 (0.03)
High school belonging (HSB)	0.00 (0.09)	-0.05 (0.05)	-0.20 (0.06)**	0.02 (0.05)	0.01 (0.06)	-0.07 (0.04)
Academic grades (AG)	0.00 (0.03)	0.02 (0.02)	0.01 (0.03)	-0.03 (0.04)	-0.03 (0.01) *	0.00 (0.01)
FC × HSB	-0.12 (0.07)	0.00 (0.05)	0.12 (0.06)	-0.03 (0.04)	-0.06 (0.14)	-0.04 (0.09)
Abuse × HSB	-0.06 (0.13)	0.03 (0.07)	0.14 (0.21)	0.10 (0.12)	-0.27 (0.15)	0.08 (0.10)
SA × HSB	0.03 (0.07)	0.03 (0.06)	-0.27 (0.09)**	-0.01 (0.09)	0.01 (0.05)	0.04 (0.06)
FC × AG	0.00 (0.02)	-0.03 (0.02) *			0.02 (0.03)	0.00 (0.01)
Abuse × AG	0.04 (0.03)	0.03 (0.02)			0.00 (0.04)	0.04 (0.02) *
SA × AG	0.01 (0.03)	-0.06 (0.02)**			-0.01 (0.01)	0.02 (0.01)
R <sup>2</sup>	0.36 (0.08)	0.20 (0.14)	0.19 (0.05)	0.22 (0.12)	0.51 (0.09)	0.20 (0.14)
$\chi^2$	43.14; df = 31		36.39; df = 25		47.78 *; df = 31	
N	460		298		605	
CFI	0.94		0.94		0.96	
RMSEA	0.03 [0.00, 0.05]		0.04 [0.00, 0.06]		0.03 [0.01, 0.05]	
SRMR	0.02		0.03		0.02	

Note: Parentheses contain cluster robust standard errors.

<sup>d</sup>Interactions of home hostility and academic grades yielded poor model fit and were removed.

\*  $p < .05$

\*  $p < .01$ .

Unstandardized estimates from a latent growth model of sexual harassment perpetration stratified by school belongingness

TABLE 8

	High <sup>a</sup>		Moderate	
	Intercept	Slope	Intercept	Slope
Intercept term	0.12 (0.06)	0.09 (0.05)	0.14 (0.10)	0.11 (0.10)
Family conflict (FC)	0.04 (0.07)	0.06 (0.11)	0.01 (0.15)	0.05 (0.12)
Abuse	-0.12 (0.11)	-0.03 (0.07)	0.35 (0.19)	-0.28 (0.16)
Sibling aggression (SA)	-0.05 (0.06)	0.01 (0.05)	0.19 (0.11)	-0.01 (0.16)
Sexual harassment victim	0.30 (0.06)**	-0.05 (0.05)	0.52 (0.09)**	-0.05 (0.08)
Girls	-0.09 (0.03)**	-0.02 (0.03)	-0.15 (0.06)**	0.03 (0.04)
Black	-0.01 (0.03)	0.05 (0.04)	-0.09 (0.06)	0.04 (0.07)
White	-0.07 (0.03)*	0.03 (0.03)	-0.16 (0.09)	0.01 (0.07)
Other Race	-0.01 (0.08)	0.03 (0.05)	-0.08 (0.06)	0.18 (0.09)
Academic grades (AG)	0.00 (0.01)	0.00 (0.01)	0.00 (0.02)	0.00 (0.02)
FC × AG	-0.01 (0.02)	-0.01 (0.02)	0.00 (0.03)	-0.01 (0.03)
Abuse × AG	0.04 (0.03)	0.00 (0.01)	-0.03 (0.05)	0.04 (0.03)
SA × AG	0.01 (0.02)	0.00 (0.01)	-0.04 (0.03)	0.00 (0.03)
R <sup>2</sup>	0.24 (0.07)	— <sup>a</sup>	0.40 (0.06)	0.08 (0.05)
χ <sup>2</sup>	45.12; df = 31		49.23* ; df = 29	
N	932		629	
CFI	0.94		0.94	
RMSEA	0.02 [0.00, 0.04]		0.03 [0.02, 0.05]	
SRMR	0.02		0.02	

Note. Parentheses contain cluster robust standard errors.

<sup>a</sup>Slope variance was constrained to 0.

\*  $p < .05$

\*\*  $p < .01$ .