

University of Nebraska - Lincoln

DigitalCommons@University of Nebraska - Lincoln

Educational Psychology Papers and
Publications

Educational Psychology, Department of

2022

Youth perceptions of prevention norms and peer violence perpetration and victimization: A prospective analysis

Emily A. Waterman

Victoria L. Banyard

Katie Edwards

Victoria Mauer

Follow this and additional works at: <https://digitalcommons.unl.edu/edpsychpapers>



Part of the [Child Psychology Commons](#), [Cognitive Psychology Commons](#), [Developmental Psychology Commons](#), and the [School Psychology Commons](#)

This Article is brought to you for free and open access by the Educational Psychology, Department of at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in Educational Psychology Papers and Publications by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.

Youth perceptions of prevention norms and peer violence perpetration and victimization: A prospective analysis

Emily A. Waterman,¹ Victoria L. Banyard,²
Katie M. Edwards,³ and Victoria A. Mauer³

¹ Developmental Psychology, Bennington College, Bennington, Vermont, USA

² School of Social Work, Rutgers University, New Brunswick, New Jersey, USA

³ Educational Psychology, University of Nebraska–Lincoln, Lincoln, Nebraska, USA

Correspondence — Emily A. Waterman, Developmental Psychology, Bennington College,
1 College Dr, Bennington, VT 05201, USA. *email* emilywaterman@bennington.edu

ORCID

Emily A. Waterman <http://orcid.org/0000-0001-6214-223X>

Victoria L. Banyard <https://orcid.org/0000-0002-9645-5055>

Katie M. Edwards <https://orcid.org/0000-0003-1888-7386>

Victoria A. Mauer <https://orcid.org/0000-0002-5566-5849>

Abstract

The purpose of the current study is to prospectively examine the extent to which social norms perceptions regarding commitment to ending sexual violence are associated with subsequent peer victimization and perpetration experiences. Two types of social norms perceptions were examined: 1) peer norms (perceptions of norms among other students in their city), and 2) adult norms (perceptions of norms among adults in their city). Participants were 1259 middle and high school youth from a single school district

Published in *Aggressive Behavior* 48 (2022), pp 402–417.

doi:[10.1002/ab.22024](https://doi.org/10.1002/ab.22024)

Copyright © 2022 Wiley Periodicals LLC. Used by permission.

(three high schools and five middle schools) who completed online surveys at two-time points, 6 months apart. Adolescents for whom perceptions of peer norms were one standard deviation or more above and below the mean of actual norms were “over-perceivers” and “under-perceivers,” respectively. Overperceivers overestimated their peers’ commitment to ending sexual violence, whereas underperceivers underestimated their peers’ commitment to ending sexual violence. Other adolescents were “accurate perceivers”; these adolescents were accurate in their estimation of their peers’ commitment to ending sexual violence. In general, underperceivers (22.2% of the sample) were more likely than accurate perceivers (77.8% of the sample) to subsequently experience peer-to-peer perpetration and victimization. Adolescents who perceived adults to have a higher commitment to ending sexual violence were less likely to report subsequent perpetration and victimization for some forms of peer-to-peer violence. These findings highlight the potential promise of the social norms approaches to prevent peer-to-peer violence among youth which aligns with increasing calls in the field to integrate these approaches into comprehensive sexual violence prevention.

Keywords: perpetration, sexual assault, sexual violence, social norms, victimization, youth

1 Introduction

Sexual violence, which ranges from unwanted contact to attempted/completed rape, is a serious public health issue that disproportionately impacts adolescents. For example, data from the Centers for Disease Control and Prevention documented that 15.2% of high school girls and 4.3% of high school boys were victims of a sexual assault in the past year (Centers for Disease Control and Prevention, 2020). Sexual violence is costly and leads to a number of deleterious psychological, social, academic, and physical health outcomes (Banyard et al., 2017; Edwards, 2015; Peterson et al., 2017; Tansill et al., 2012), which highlights the need for effective primary prevention efforts.

Although several prevention programs (e.g., Green Dot, Safe Dates, IMpower) to date have demonstrated success in reducing rates of sexual violence victimization and perpetration among adolescents (Coker et al., 2017; Foshee et al., 2004; Sarnquist et al., 2014), the majority of sexual violence prevention programs have not demonstrated the same success (DeGue et al., 2014). Furthermore, many effective

programs (e.g., RealConsent; Salazar et al., 2014) have been developed and tested with college students, and other programs (e.g., bystander training; Kettrey et al., 2019) show effects on attitudes and intentions to intervene, but not sexual assault perpetration. Components of existing interventions that are effective tend to focus on modifiable factors, such as bystander intervention, consent, healthy relationship and communication skills, gender socialization, and empowerment/self-defense skills (Coker et al., 2017; Foshee et al., 2004; Kettrey et al., 2019; Salazar et al., 2014; Sarnquist et al., 2014). Social norms (perceptions of the acceptability of particular attitudes and behaviors) may be an important component to add to such programs to increase effectiveness (Orchowski et al., 2020). To date, however, we know little about how social norms specific to sexual violence operate among middle and high school youth. This type of foundational information is needed to inform social norms focused on sexual violence prevention program development and evaluation. Moreover, given that sexual violence co-occurs at high rates with other forms of peer-to-peer violence such as dating violence, sexual harassment, and bullying (Hamby & Grych, 2013; Sessarego et al., 2019; Wilkins et al., 2014), and given limited resources for prevention strategies, it is important to understand how variables like social norms might affect a range of important outcomes and may potentially have more widespread prevention effects.

1.1 Social norms theory

Shaping social norms, that is, reducing norms supporting violence and promoting norms about positive behavior, is a promising strategy to prevent sexual and other forms of peer violence. According to social norms theory (Berkowitz, 2004, 2005; Perkins et al., 2018), perceptions of what others think and do have powerful influences on behavior. There are several mechanisms for how norms perpetuate problematic behavior. For example, pluralistic ignorance occurs when individuals' private and public attitudes do not match (Prentice & Miller, 1993); for example, adolescents may laugh at a homophobic joke but are really uncomfortable, perpetrating the norm that these jokes are acceptable. False consensus occurs when individuals assume others hold similar attitudes or behaviors to their own (Russell

& Arms, 1995); for example, an individual who thinks sexual harassment is funny assumes other individuals do as well, making them unlikely to change their behavior.

Perceptions of norms can be described as descriptive norms (what a person thinks other people actually do) and injunctive (what behaviors a person thinks other people think should be done; Banyard et al., 2019). Research suggests that for youth, descriptive norms are especially salient (Rothman et al., 2019). For example, descriptive norms about bystander behavior are more consistently associated with actual bystander behavior than are injunctive norms (Banyard, Rizzo, et al., 2020; Rothman et al., 2019). Norms can be about negative (e.g., peer norms supporting the use of coercion in relationships) or positive (e.g., peer support for stepping in to prevent sexual violence) behaviors (Banyard, Edwards, Jones, Greenberg, et al., 2020; Schwartz et al., 2001). Social norms interventions may seek to decrease negative and increase positive norms; furthermore, they seek to correct norm misperceptions if there is a misperception to correct (Gidycz et al., 2011; Hillenbrand-Gunn et al., 2010; Mennicke et al., 2018; Orchowski, 2020). Norm misperceptions are the gap between how an individual perceives the behavior and attitudes of their peers (perceived norms) and their peers' actual behavior and attitudes (actual norms). Research on alcohol use among teens shows that adolescents use more substances when they overperceive peers' substance use though this study related to interpersonal violence is less well developed (Neighbors et al., 2007). Correcting norm misperceptions is the foundation for existing social norms approach interventions seeking to prevent violence because adolescents often overestimate peer's negative behavior and attitudes related to violence, and underestimate their peer's positive behavior and attitudes related to violence (Orchowski, 2019).

Social norms theory proposes that individuals are more influenced by their perceptions of norms among people who are like them (e.g., individuals of similar age or gender) than they are influenced by their perceptions of norms among people who are different (Dardis et al., 2016; Terry & Hogg, 1996). Thus, many researchers have studied perceptions of peer norms given the increasing relevance of peer influence during the critical developmental period of adolescence (Banyard, Edwards, Jones, Mitchell, 2020). Nevertheless, adults still influence adolescent decision-making (Doucette et al., 2021; Furman

& Buhrmester, 1992; Knoll et al., 2015) and have been shown to play a role in violence prevention (Doucette et al., 2021). As such, in the current paper, we focused on middle and high school students' perceptions of both peers and adult norms. More specifically, we focused on perceptions of peers' (defined as other students in their city) and adults' (defined as adults in their city) commitment to ending sexual violence, and the extent to which these perceptions related to violence victimization and perpetration.

1.2 Perceptions of peer norms and sexual violence perpetration

Some research on social norms related to sexual violence has focused on college men's perceptions of peer norms about negative behavior and how such perceptions relate to college men's sexually aggressive attitudes and behaviors. Men's sexual violence perpetration is not only influenced by their own beliefs about the acceptability of violence but is also influenced by their perceptions of whether their peers are similarly supportive of violence (Bohner et al., 2010; Bosson et al., 2015; Fabiano et al., 2003). In experiments, college men who read information about low rape myth acceptance among their peers subsequently reported lower rape myth acceptance and lower rape proclivity, compared to college men who read information about high rape myth acceptance among their peers (Bohner et al., 2010). Dardis et al. (2016) conducted research with male friend dyads and found that individuals who reported a history of sexual violence perpetration also believed that their friends held more positive rape-supportive attitudes. Furthermore, the authors found that compared to nonperpetrators, perpetrators were more likely to predict that their friends were also perpetrators of sexual violence.

Research with college men suggests that programs that seek to correct misperceptions of social norms may help to reduce sexual violence. For example, Mennicke et al. (2018) used social norms marketing campaigns to address discrepancies in college males' perceptions of peers' attitudes, beliefs, and behaviors regarding sexual violence. The quasi-experimental evaluation took place over 5 years; men on campus were asked about their attitudes and behaviors, as well as their perceptions of norms on campus. These data were used to create social marketing materials specifically targeting discrepancies

between actual and perceived norms (i.e., norm misperceptions). The evaluation found that over time, norm misperceptions were reduced, and prosocial behavior increased. Another example is The Men's Workshop, a social norms-based sexual violence prevention program for first-year college students. Gidycz et al. (2011) found in a randomized controlled trial that men who participated in the program were associated with fewer sexually aggressive peers and engaged in less sexual aggression in the short-term, although these changes diminished in the long-term.

To date, social norms interventions have focused mainly on college-aged young adults and we know less about social norms and sexual violence prevention among middle and high school students. One exception is a study that used a pretest/posttest design to examine the effects of a sexual violence prevention intervention, Men as Allies, on high school students. The intervention was multicomponent but included posters with accurate social norms data that was collected from the students at pre-test. The authors found that the accuracy of perceived norms increased after the intervention (Hillenbrand-Gunn et al., 2010). In another example, Orchowski et al. evaluated a school-specific, 12-week social norms marketing intervention. This intervention also used pretest data to target norm misperceptions in a poster campaign. Results indicated effects on both sexual violence perpetration and victimization over 6 months (Orchowski, 2020). Notably, this previous work has largely focused on peer norm perceptions at the school level or college campus level and focused on sexual violence, whereas the current study focuses on peer norm perceptions at the community level and looks at a range of interpersonal violence experiences. Work by Rothman et al. (2019) showed that youth social norm perceptions related to community bystander prevention behaviors were related to a number of indicators of youth taking bystander action.

1.3 Perceptions of peer norms and other forms of violence perpetration

Social norms specific to sexual violence perpetration may be related to the perpetration of other forms of violence, including sexual harassment, bullying, and dating violence. Sexual violence often co-occurs

with other forms of violence (Hamby & Grych, 2013; Sessarego et al., 2019; Siller et al., 2020; Wilkins et al., 2014). Furthermore, bullying perpetration predicts later sexual violence perpetration in middle school (Espelage et al., 2015, 2012). Thus, it is likely that social norms specific to sexual violence are related to social norms and behaviors specific to other forms of violence. A study using the current dataset, but different variables showed that over time perceptions of peers' positive sexual violence prevention norms were related not only to lower levels of sexual violence perpetration but also other forms (e.g., dating violence) of peer violence (Banyard, Edwards, Jones, Mitchell, 2020). These findings suggest that a better understanding of peer norms related to sexual violence has promised to help prevention across an array of peer violence types.

1.4 Perceptions of peer norms and violence victimization

In addition to predicting perpetration, it is possible that perceptions of social norms regarding sexual violence may also predict victimization. Social norms may be a marker of peer group behavior. According to studies using social network analysis, perpetration and victimization rates cluster in friend networks (Faris & Felmlee, 2014; Rambaran et al., 2020; Swartz et al., 2012). Victimization specifically may cluster in friend networks due to situational factors, such as engagement in other risky behaviors (e.g., alcohol use). Furthermore, individuals are most likely to be victimized by someone they know (Planty et al., 2013). If youth are part of friend groups where perpetration is more prevalent, and likely where social norms supportive of violence are also more prevalent, that may create a situational context where victimization risk is high.

1.5 Perceptions of adult norms and violence victimization and perpetration

Although peer group norms are likely most salient to individuals, youth's perceptions of how adults think about sexual violence also likely play a role in youths' attitudes and behaviors specific to sexual violence (Doucette et al., 2021), for example, regarding bystander/ actionist behaviors in situations of sexual violence. Indeed, adolescents do look to

adults as role models and as sources of information about community values and acceptable behaviors; important adults have been named as one of the key factors in youth development by several theories of adolescent development (Benson et al., 2011; Lerner et al., 2005). Rothman et al. (2019) found that perceptions of adults' support for victims and willingness to help prevent sexual violence were associated with adolescents' own bystander/actionist behaviors. Similarly, Waterman et al. (in press) found that adolescents who underestimated school personnel's bystander behavior had more favorable attitudes about violence and fewer intentions to engage in positive bystander behavior. Also, though not specific to sexual violence, researchers have found that perceptions of peer and parental disapproval of alcohol use relate to less alcohol use among youth (Edwards et al., 2020; Mrug & McCay, 2013). In conclusion, perceptions of adult norms regarding sexual violence likely play an important role in adolescents' perpetration and victimization experiences, though more information on this issue is needed. In particular, the current study differs from previous studies on teachers and parents because it assesses perceptions of norms among community adults. Understanding these relationships may open doors for new areas of prevention such as the Green Dot Community program that builds community relationships among adults and agencies to enhance bystander intervention (Banyard, Edwards, Rizzo, et al., 2020).

1.6 Current study

In sum, perceptions of social norms are highly influential in shaping the behavior of adolescents across a number of health behaviors, including sexual violence. Moreover, research has highlighted the dangers of misperceptions of community norms towards sexual violence, including associations with sexual perpetration. No research to date however has used a prospective design and specifically focused on middle and high school students' perceptions of peers' and adult's commitment to ending sexual violence, and how these norm perceptions predict subsequent sexual violence victimization and perpetration as well as victimization and perpetration of other forms of violence (i.e., bullying, sexual harassment, homophobic bullying). Furthermore, the existing social norms research has focused on norms related to negative attitudes and behaviors (e.g., acceptance of violence),

while the current study focuses on positive attitude norms (e.g., believing everyone has a role to play in ending violence). These positive norms may be most helpful for programming that seeks to increase positive behavior to end sexual violence such as bystander behavior. Similarly, there is an increasing focus in prevention sciences on moving beyond deficit-only focused approaches and building in strength-focused approaches to prevention, which includes sharing “good news” about positive community norms (Orchowski & Berkowitz, 2021). As such, the purpose of the current study is to examine perceptions and misperceptions of social norms regarding a commitment to ending sexual violence. Commitment to ending sexual violence was defined as beliefs that sexual violence should not be tolerated and beliefs that everyone has a role to play in ending sexual violence. Middle and high school students were asked about their own opinions on these topics in addition to their perceptions of how other adolescents and adults in the community feel about these topics; thus, we examined misperceptions of peer norms and adolescents’ perceptions of adult norms. Specifically, we aimed to:

- (1) Document the extent to which adolescents accurately perceived peer norms (among the peers in their city) regarding commitment to ending sexual violence.
- (2) Examine how the accuracy of perceptions of peer norms regarding commitment to ending sexual violence was associated with subsequent sexual violence perpetration and victimization, as well as other forms of violence perpetration and victimization (general bullying, sexual harassment, and homophobic bullying). We hypothesized that adolescents who underestimated their peers’ commitment to ending sexual violence would be more likely to report perpetration and victimization.
- (3) Examine how perceptions of adult norms (among the adults in their city) regarding commitment to ending sexual violence were associated with subsequent sexual violence victimization and perpetration, as well as other forms of violence perpetration and victimization (general bullying, sexual harassment, and homophobic bullying). We hypothesized that adolescents who perceived adults to be less committed to ending sexual violence would be more likely to report perpetration and victimization.

2 Methods

2.1 *Research design and setting*

These data are part of a larger quasi-experimental, multiple baseline study to evaluate a youth-led sexual violence prevention project (Edwards et al., in press). The study took place in a midsized city in the northern Great Plains region of the United States. Data collection took place over 3 years in five waves: Fall 2017 (W1), Spring 2018 (W2), Fall 2018 (W3), Spring 2019 (W4), and Fall 2019 (W5). Data from W4 and W5 were used in the current analyses because participants responded to the questions relevant to the current paper at those waves. The sexual violence prevention initiative was community-wide; all students in the district were invited to a series of events (132 in total) that focused on skills for bystander intervention, positive social norming, social-emotional skills, leadership, and role modeling. Furthermore, given the large presence of Native American youth in the community in which the initiative took place, Lakota culture and traditions were integrated throughout various programming components. For further details, including results, see Banyard et al. (in press) and Edwards et al. (in press).

2.2 *Participants*

Participants were 1259 youth who participated in W4 and W5 of the study (47.6% of the total 2647 youth who participated in the larger study). Students were recruited from a single school district (the only district in the city); there were five middle schools and three high schools and all schools participated. The social norms questions were not introduced until W4 and W5. At W4, participants were in Grades 7–12, and their mean age at Wave 4 was 14.9 (SD = 1.2; range 12–18). The sample was 54.4% female participants (n = 683) and 45.6% male participants (n = 573).¹ Participants could identify as more than one

¹ We present valid percentages; because some students selected “I decline to answer,” numbers do not necessarily add to the total N. Count represent participants’ identity at the first wave they took the survey; for example, if a participant identified as male at Wave 1 and female at Wave 3, that participant was counted as male here.

race or ethnicity; the majority (79.5%, $n = 995$) identified as White, 18.1% ($n = 227$) as American Indian or Native American, 4.7% ($n = 59$) Black/African American, 3.2% ($n = 40$) Asian, and 1.8% ($n = 22$) Hawaiian/Pacific Islander. Moreover, 12.6% ($n = 157$) identified as Hispanic/Latino. Regarding sexual orientation, 89.9% ($n = 1096$) identified as heterosexual/straight and 10.1% ($n = 123$) identified as a sexual minority (e.g., bisexual, lesbian, gay).

2.3 Procedures

Written parental consent and student assent were required for youth to complete the survey. We invited all students in Grades 7–10 ($n = 4513$) at the beginning of the Fall 2017 semester to enroll in the study; the first survey occurred between October 2017 and December 2017. We used intensive recruitment procedures such that the consent forms were sent to guardians in multiple ways (i.e., via their students from school, mailings, and email) and we called and conducted home visits to households in which consent forms had not been returned. We also had multiple ways in which the consent forms could be returned (e.g., email, text, and in person). At study initiation, of the 4172 eligible students, the majority ($n = 3257$; 78.0%) of youth returned the consent forms, and of those that returned the forms the majority ($n = 2667$; 81.8%) of guardians gave permission for their student to take the survey. Most students ($n = 2232$; 83.6%) with guardian permission took the survey. Past Wave 1, we conducted ongoing study recruitment, such that we mailed consent forms to new students and followed up with calls and home visits, provided consent forms during in-school surveys, and offered consent forms at various community and school events.

The survey was administered on computers in school by trained research staff. All students had unique log-ins that were created in part so that only students with parental permission could access the survey. Students received a small incentive (e.g., fruit snack, pencil) and were entered to win 1 of 20, \$100 gift cards which increased by \$50 at each of the five subsequent surveys. There was an additional incentive drawing of five large prizes approximately equal to \$1000 (e.g., tablets, pizza party) for completing all surveys for which students were eligible. At each wave, students who missed the in-school survey (n

= 475–1289 across waves) were sent a letter in the mail requesting that they take the survey online; instructions were provided for how to take the survey online. Return rate of these out-of-school surveys ranged from 1.8% to 8.4%. Overall, retention from W1 ranged from 58.4% to 85.6% across waves. The highly transient nature of the community where data were collected was a large factor in participant attrition. If students who left the district were not considered in retention analysis (e.g., removed from the denominator), retention from W1 ranged from 87.9% to 98.7%.

See Edwards et al. (in press) for more study protocol details, eligibility and participation by wave, as well as detailed participation attrition analysis. In general, younger students and White students were more likely to complete subsequent surveys, whereas male students, students of color, and students who reported some forms of victimization were less likely to take subsequent surveys.

2.4 Measures

2.4.1 Social norms for sexual violence prevention

Six items were created with community input to assess youth perceptions of norms related to sexual violence prevention; students responded to these questions at W5. Two items referred to one's own beliefs ("I think that sexual violence should NOT be tolerated in [city]" and "I think everyone has a role to play in ending sexual violence in [city]"), two items referred to one's perceptions of peer beliefs ("Other students in [city] think that sexual violence should NOT be tolerated in [city]" and "Other students in [city] think everyone has a role to play in ending sexual violence in [city]"), and two items referred to one's perceptions of adult beliefs ("Adults in [city] think that sexual violence should NOT be tolerated in [city]" and "Adults in [city] think everyone has a role to play in ending sexual violence in [city]"). Students responded on a four-point Likert scale ranging from 1 = strongly disagree to 4 = strongly agree, such that higher scores across all items reflected more prosocial norm perceptions. We calculated the mean of the two items for each pair. Cronbach's α was .66 for one's own beliefs, .79 for perceptions of peer beliefs, and .81 for perceptions of adult beliefs.

2.4.2 Interpersonal violence victimization

We used several measures to assess interpersonal violence victimization and perpetration experiences during the past 6 months. Four types of perpetration/victimization were used in the current paper (sexual violence, at school or online bullying, sexual harassment, homophobic bullying); all scores were denoted as 1 = yes or 0 = no. If a participant responded yes to one or more items within a particular type of violence, their score on that type of violence was 1 = yes. Students responded to these questions at both W4 and W5. The items for victimization are given here, for example, the items for perpetration were mirrored and used the same wording.

Regarding sexual violence, five items assessing sexual violence were drawn from a previous study evaluating a sexual violence prevention program (Cook-Craig et al., 2014) and the youth risk behavior surveillance survey (YRBSS; Centers for Disease Control and Prevention, 2014; Eaton et al., 2012). The YRBSS is a national study of high school youth that has been conducted by the Centers for Disease Control and Prevention for several decades. An example item for sexual violence is, “Another student had sexual activities with you although you did not really want to because either the student threatened to end your friendship or romantic relationship if you didn’t or you felt pressured by the student’s constant arguments or begging?”

Regarding at school or online bullying, two items from the YRBSS (Centers for Disease Control and Prevention, 2014; Eaton et al., 2012) assessed this construct: “You were bullied on school property?” and “You were electronically bullied (count bullying through texting, Instagram, Facebook, or other social media)?” Both sexual harassment and homophobic bullying were assessed with single items (both from the American Association of University Women, 2001). The sexual harassment item was “Another student made sexual comments, jokes, gestures, or looks about/to you?” and the homophobic bullying item was, “Another student said you were gay or a lesbian, as an insult [as a put down or to make fun of you]?”

2.5 Analysis plan

Aim 1 was to document the extent to which adolescents accurately perceive peer norms regarding commitment to ending sexual violence.

Because we used a student survey, we had data both about individuals' views of their peers (a norms perception measure) but we also had data from many other students in the community (an actual norms measure). We calculated the mean and standard deviation of actual peer norms (questions that started with "I think...") from the full sample of students who took the survey, representing actual norms. Based on these statistics about actual peer norms, we created three groups by examining the distance between an individual's score about what they thought peers think (questions starting with "Other students in [city] think...") and the mean of the full sample of students on the "I think" variable: Underperceivers (adolescents for whom perceptions of peer norms were one standard deviation or less below the mean of actual norms), accurate perceivers (adolescents for whom perceptions of peer norms were within one standard deviation of actual norms), and overperceivers (adolescents for whom perceptions of peer norms were one standard deviation or more above the mean of actual norms; see Perkins et al., 2018, for similar procedure). We used standard deviation (instead of simply over the mean of 10% beyond the mean) to represent a significant deviation from accurate norms, helping us create a group of students who might be most at risk. The creation of these groups was based on the district level (not school level or friendship level) because the question about what others think specifically asked about other students in the city, not about a specific school or one's friends.

Aim 2 was to examine how group membership based on the accuracy of perceptions of peer norms regarding commitment to ending sexual violence (underperceiver, accurate perceiver, and overperceiver) was associated with subsequent sexual violence perpetration and victimization, as well as other forms of violence perpetration and victimization. We conducted a series of logistic regressions to respond to this aim (with outcomes violence perpetration and victimization at W5). In these models, predictors were accuracy groups, the outcome at W4 (thus controlling for previous levels of perpetration and victimization), and controls of age, sex, race, sexual orientation, and ethnicity. We also controlled for attendance at programming events because the data were from a larger quasi-experimental program evaluation.

Aim 3 was to examine how perceptions of adult norms regarding commitment to ending sexual violence are associated with subsequent

sexual violence perpetration and victimization, as well as other forms of violence perpetration and victimization. Given that adults were not surveyed, we only had a measure of students' perceptions of what adults thought (i.e., adult norms). We conducted a series of logistic regressions to respond to this aim (with outcomes sexual violence perpetration and victimization at W5). In these models, predictors were perceptions of adult norms, the outcome at W4 (thus controlling for previous levels of the outcome), and controls of age, sex, race, sexual orientation, ethnicity, and program participation.

3 Results

3.1 Aim 1

Descriptive statistics for norms are presented in **Table 1**. Aim 1 was to document the extent to which adolescents accurately perceive peer norms regarding commitment to ending sexual violence. Three hundred and fifty (22.2%) of participants were underperceivers. The rest of the participants ($n = 1224$; 77.8%) were accurate perceivers. No participants were overperceivers, meaning no participants' perceived norms were more than a standard deviation over the mean of actual norms.

Table 1 Descriptive statistics

	<i>Wave 4</i> <i>M (SD)</i>	<i>Wave 5</i> <i>M (SD)</i>
Actual norms	3.45 (0.68)	–
Perceived peer norms	3.05 (0.61)	–
Perceived adult norms	3.31 (0.62)	–
	<i>N (%)</i>	<i>N (%)</i>
Sexual violence perpetration	32 (1.86)	63 (4.38)
Bullying perpetration	105 (6.15)	113 (7.09)
Sexual harassment perpetration	297 (17.49)	286 (20.04)
Homophobic bullying perpetration	169 (9.87)	183 (12.74)
Sexual violence victimization	120 (6.99)	119 (8.28)
Bullying victimization	364 (21.40)	269 (18.89)
Sexual harassment victimization	442 (25.86)	421 (29.36)
Homophobic bullying victimization	287 (16.68)	290 (20.12)

Also see Edwards et al. (in press).

3.2 *Aim 2*

Aim 2 was to examine how the accuracy of perceptions of peer norms regarding commitment to ending sexual violence is associated with subsequent perpetration (**Table 2**) and victimization (**Table 3**). Adolescents who underperceived peer norms regarding commitment to ending sexual violence were more likely to subsequently perpetrate sexual violence (odds ratio [OR] = 2.2). Similarly, underperceivers were more likely than accurate perceivers to subsequently perpetrate in-school and online bullying (OR = 2.1), sexual harassment (OR = 2.0), and homophobic bullying (OR = 1.8). Peer norms were not significantly associated with sexual violence victimization. However, underperceivers were more likely than accurate perceivers to experience in-school and online bullying victimization (OR = 1.7), sexual harassment victimization (OR = 2.2), and homophobic bullying victimization (OR = 1.7).

3.3 *Aim 3*

Aim 3 was to examine how perceptions of adult norms regarding commitment to ending sexual violence are associated with subsequent perpetration (**Table 4**) and victimization (**Table 5**). Adolescents who perceived adults to have a higher commitment to ending sexual violence were less likely to subsequently perpetrate sexual violence (OR = 0.4) and in-school or online bullying (OR = 0.6). Adult norm perceptions were not significantly associated with sexual harassment or homophobic bullying perpetration. Adolescents who perceived adults to have a higher commitment to ending sexual violence were less likely to subsequently experience sexual violence victimization (OR = 0.5), bullying (OR = 0.7), and sexual harassment (OR = 0.7). Perceived adult norms were not significantly associated with subsequent homophobic bullying victimization.

Table 2 Aim 2: Logistic regression analyses for peer norms predicting violence perpetration (ns = 887–922)

	B	SE	p	Odds ratio	95% CI (lower)	95% CI (upper)
W5 sexual violence perpetration						
W4 sexual violence perpetration	2.056	0.703	.003	7.812	1.968	31.009
Age	-0.081	0.162	.619	0.922	0.671	1.268
Sex	-0.626	0.384	.104	0.535	0.252	1.136
Race (White)	1.227	0.752	.103	3.412	0.781	14.905
Sexual minority	-0.273	0.628	.664	0.761	0.222	2.607
Ethnicity (Hispanic)	0.592	0.519	.254	1.807	0.653	4.998
Event attendance	0.388	0.424	.360	1.474	0.642	3.381
Underperceiver	0.801	0.371	.031	2.227	1.076	4.610
W5 bullying perpetration						
W4 bullying perpetration	3.289	0.344	.000	26.810	13.651	52.656
Age	-0.061	0.137	.657	0.941	0.719	1.231
Sex	0.771	0.320	.016	2.162	1.154	4.052
Race (White)	0.211	0.419	.615	1.235	0.543	2.810
Sexual minority	-0.473	0.643	.462	0.623	0.177	2.198
Ethnicity (Hispanic)	0.698	0.444	.116	2.010	0.842	4.802
Event attendance	-0.012	0.420	.978	0.988	0.434	2.251
Underperceiver	0.749	0.320	.019	2.114	1.128	3.962
W5 sexual harassment perpetration						
W4 sexual harassment perpetration	2.343	0.209	.000	10.413	6.913	15.684
Age	-0.042	0.087	.626	0.959	0.809	1.136
Sex	0.459	0.204	.024	1.583	1.061	2.360
Race (White)	0.539	0.300	.072	1.715	0.953	3.084
Sexual minority	0.709	0.298	.017	2.032	1.132	3.645
Ethnicity (Hispanic)	0.202	0.322	.531	1.224	0.650	2.302
Event attendance	0.447	0.247	.070	1.564	0.964	2.538
Underperceiver	0.676	0.211	.001	1.965	1.299	2.974
W5 homophobic bullying perpetration						
W4 homophobic bullying perpetration	2.595	0.266	.000	13.393	7.946	22.575
Age	-0.155	0.107	.150	0.857	0.694	1.057
Sex	1.238	0.276	.000	3.447	2.007	5.920
Race (White)	0.606	0.394	.124	1.834	0.847	3.968
Sexual minority	-0.420	0.497	.397	0.657	0.248	1.739
Ethnicity (Hispanic)	-0.098	0.428	.819	0.907	0.392	2.098
Event attendance	0.203	0.323	.529	1.226	0.651	2.308
Underperceiver	0.575	0.259	.026	1.778	1.071	2.951

Results for which the $p < .05$ are bolded and italicized.

Abbreviations: CI, confidence interval; ns, not significant; SE, standard error; W4, Wave 4; W5, Wave 5.

Table 3 Aim 2: Logistic regression analyses for peer norms predicting violence victimization (ns = 911–925)

	<i>B</i>	<i>SE</i>	<i>p</i>	<i>Odds ratio</i>	<i>95% CI (lower)</i>	<i>95% CI (upper)</i>
W5 sexual violence victimization						
<i>W4 sexual violence victimization</i>	<i>2.577</i>	<i>0.324</i>	<i>.000</i>	<i>13.156</i>	<i>6.968</i>	<i>24.837</i>
Age	-0.090	0.125	.470	0.914	0.715	1.167
Sex	-0.574	0.303	.058	0.563	0.311	1.020
Race (White)	0.605	0.426	.156	1.831	0.794	4.220
Sexual minority	0.128	0.400	.750	1.136	0.519	2.490
<i>Ethnicity (Hispanic)</i>	<i>0.827</i>	<i>0.383</i>	<i>.031</i>	<i>2.287</i>	<i>1.078</i>	<i>4.848</i>
Event attendance	0.613	0.314	.051	1.846	0.998	3.415
Underperceiver	0.499	0.293	.088	1.648	0.928	2.925
W5 bullying victimization						
<i>W4 bullying victimization</i>	<i>2.061</i>	<i>0.197</i>	<i>.000</i>	<i>7.857</i>	<i>5.346</i>	<i>11.550</i>
Age	-0.049	0.087	.572	0.952	0.803	1.129
Sex	-0.172	0.199	.388	0.842	0.570	1.244
Race (White)	0.194	0.272	.476	1.214	0.712	2.071
<i>Sexual minority</i>	<i>0.652</i>	<i>0.283</i>	<i>.021</i>	<i>1.919</i>	<i>1.102</i>	<i>3.345</i>
Ethnicity (Hispanic)	0.364	0.288	.208	1.438	0.817	2.532
Event attendance	0.002	0.250	.993	1.002	0.614	1.636
<i>Underperceiver</i>	<i>0.557</i>	<i>0.213</i>	<i>.009</i>	<i>1.745</i>	<i>1.150</i>	<i>2.647</i>
W5 sexual harassment victimization						
<i>W4 sexual harassment victimization</i>	<i>2.124</i>	<i>0.175</i>	<i>.000</i>	<i>8.362</i>	<i>5.932</i>	<i>11.787</i>
Age	-0.005	0.073	.950	0.995	0.862	1.149
<i>Sex</i>	<i>-0.463</i>	<i>0.173</i>	<i>.007</i>	<i>0.629</i>	<i>0.449</i>	<i>0.883</i>
Race (White)	0.217	0.241	.368	1.242	0.774	1.993
<i>Sexual minority</i>	<i>0.586</i>	<i>0.265</i>	<i>.027</i>	<i>1.798</i>	<i>1.069</i>	<i>3.024</i>
Ethnicity (Hispanic)	-0.116	0.280	.677	0.890	0.515	1.540
Event attendance	0.266	0.212	.210	1.305	0.861	1.976
<i>Underperceiver</i>	<i>0.797</i>	<i>0.188</i>	<i>.000</i>	<i>2.219</i>	<i>1.535</i>	<i>3.207</i>
W5 homophobic bullying victimization						
<i>W4 homophobic bullying victimization</i>	<i>2.269</i>	<i>0.209</i>	<i>.000</i>	<i>9.675</i>	<i>6.427</i>	<i>14.563</i>
Age	-0.171	0.089	.053	0.843	0.708	1.002
<i>Sex</i>	<i>0.540</i>	<i>0.204</i>	<i>.008</i>	<i>1.715</i>	<i>1.150</i>	<i>2.560</i>
Race (White)	0.164	0.282	.560	1.179	0.678	2.050
<i>Sexual minority</i>	<i>1.340</i>	<i>0.287</i>	<i>.000</i>	<i>3.819</i>	<i>2.176</i>	<i>6.703</i>
Ethnicity (Hispanic)	-0.087	0.329	.790	0.916	0.481	1.745
Event attendance	0.264	0.246	.284	1.302	0.804	2.109
<i>Underperceiver</i>	<i>0.524</i>	<i>0.214</i>	<i>.014</i>	<i>1.690</i>	<i>1.111</i>	<i>2.569</i>

Results for which the *p* < .05 are bolded and italicized.

Abbreviations: CI, confidence interval; ns, not significant; SE, standard error; W4, Wave 4; W5, Wave 5.

Table 4 Aim 3: Logistic regression analyses for adult norms predicting violence perpetration (ns = 934–944)

	<i>B</i>	<i>SE</i>	<i>p</i>	<i>Odds ratio</i>	<i>95% CI</i> <i>(lower)</i>	<i>95% CI</i> <i>(upper)</i>
W5 sexual violence perpetration						
<i>W4 sexual violence perpetration</i>	<i>1.668</i>	<i>0.736</i>	<i>.023</i>	<i>5.303</i>	<i>1.252</i>	<i>22.451</i>
Age	-0.100	0.160	.532	0.905	0.661	1.238
Sex	-0.600	0.387	.121	0.549	0.257	1.172
Race (White)	1.395	0.753	.064	4.037	0.923	17.652
Sexual minority	-0.120	0.572	.833	0.887	0.289	2.718
Ethnicity (Hispanic)	0.819	0.490	.095	2.268	0.868	5.926
Event attendance	0.528	0.413	.201	1.696	0.755	3.811
<i>Adult norm perceptions</i>	<i>-0.941</i>	<i>0.262</i>	<i>.000</i>	<i>0.390</i>	<i>0.233</i>	<i>0.652</i>
W5 bullying perpetration						
<i>W4 bullying perpetration</i>	<i>3.219</i>	<i>0.332</i>	<i>.000</i>	<i>24.995</i>	<i>13.044</i>	<i>47.896</i>
Age	-0.044	0.131	.739	0.957	0.741	1.237
Sex	0.775	0.310	.012	2.171	1.182	3.985
Race (White)	0.076	0.389	.845	1.079	0.503	2.314
Sexual minority	-0.321	0.586	.584	0.725	0.230	2.288
Ethnicity (Hispanic)	0.559	0.428	.191	1.749	0.756	4.044
Event attendance	-0.087	0.416	.834	0.917	0.406	2.071
<i>Adult norm perceptions</i>	<i>-0.474</i>	<i>0.231</i>	<i>.040</i>	<i>0.622</i>	<i>0.396</i>	<i>0.978</i>
W5 sexual harassment perpetration						
<i>W4 sexual harassment perpetration</i>	<i>2.340</i>	<i>0.204</i>	<i>.000</i>	<i>10.378</i>	<i>6.952</i>	<i>15.492</i>
Age	-0.015	0.084	.857	0.985	0.835	1.162
<i>Sex</i>	<i>0.514</i>	<i>0.201</i>	<i>.011</i>	<i>1.672</i>	<i>1.127</i>	<i>2.481</i>
Race (White)	0.446	0.283	.115	1.563	0.898	2.721
<i>Sexual minority</i>	<i>0.581</i>	<i>0.294</i>	<i>.048</i>	<i>1.788</i>	<i>1.006</i>	<i>3.180</i>
Ethnicity (Hispanic)	0.024	0.320	.939	1.025	0.547	1.919
Event attendance	0.379	0.246	.124	1.460	0.902	2.364
Adult norm perceptions	-0.271	0.157	.084	0.763	0.561	1.037
W5 homophobic bullying perpetration						
<i>W4 homophobic bullying perpetration</i>	<i>2.694</i>	<i>0.270</i>	<i>.000</i>	<i>14.797</i>	<i>8.718</i>	<i>25.112</i>
Age	-0.189	0.108	.081	0.828	0.669	1.023
<i>Sex</i>	<i>1.234</i>	<i>0.277</i>	<i>.000</i>	<i>3.436</i>	<i>1.997</i>	<i>5.912</i>
Race (White)	0.550	0.389	.157	1.733	0.809	3.715
Sexual minority	-0.524	0.530	.323	0.592	0.210	1.672
Ethnicity (Hispanic)	-0.386	0.455	.396	0.680	0.279	1.658
Event attendance	0.241	0.325	.459	1.272	0.673	2.405
Adult norm perceptions	-0.171	0.193	.375	0.843	0.577	1.230

Results for which the $p < .05$ are bolded and italicized.

Abbreviations: CI, confidence interval; ns, not significant; SE, standard error; W4, Wave 4; W5, Wave 5.

Table 5 Aim 3: Logistic regression analyses for adult norms predicting violence victimization (ns = 930–946)

	<i>B</i>	<i>SE</i>	<i>p</i>	<i>Odds ratio</i>	<i>95% CI</i> <i>(lower)</i>	<i>95% CI</i> <i>(upper)</i>
W5 sexual violence victimization						
<i>W4 sexual violence victimization</i>	<i>2.710</i>	<i>0.329</i>	<i>.000</i>	<i>15.033</i>	<i>7.888</i>	<i>28.649</i>
Age	-0.099	0.124	.422	0.905	0.710	1.154
Sex	-0.481	0.308	.118	0.618	0.338	1.131
Race (White)	0.618	0.417	.138	1.856	0.820	4.202
Sexual minority	0.080	0.400	.842	1.083	0.494	2.373
<i>Ethnicity (Hispanic)</i>	<i>0.894</i>	<i>0.383</i>	<i>.020</i>	<i>2.444</i>	<i>1.153</i>	<i>5.181</i>
Event attendance	0.588	0.324	.070	1.800	0.953	3.399
<i>Adult norm perceptions</i>	<i>-0.745</i>	<i>0.211</i>	<i>.000</i>	<i>0.475</i>	<i>0.314</i>	<i>0.717</i>
W5 bullying victimization						
<i>W4 bullying victimization</i>	<i>2.126</i>	<i>0.195</i>	<i>.000</i>	<i>8.381</i>	<i>5.723</i>	<i>12.274</i>
Age	-0.056	0.085	.515	0.946	0.800	1.118
Sex	-0.144	0.197	.464	0.866	0.589	1.274
Race (White)	0.118	0.262	.652	1.125	0.673	1.881
<i>Sexual minority</i>	<i>0.811</i>	<i>0.274</i>	<i>.003</i>	<i>2.251</i>	<i>1.315</i>	<i>3.853</i>
Ethnicity (Hispanic)	0.205	0.287	.475	1.227	0.700	2.153
Event attendance	0.130	0.244	.594	1.139	0.706	1.838
<i>Adult norm perceptions</i>	<i>-0.391</i>	<i>0.155</i>	<i>.012</i>	<i>0.676</i>	<i>0.499</i>	<i>0.916</i>
W5 sexual harassment victimization						
<i>W4 sexual harassment victimization</i>	<i>2.223</i>	<i>0.173</i>	<i>.000</i>	<i>9.239</i>	<i>6.584</i>	<i>12.963</i>
Age	-0.011	0.072	.881	0.989	0.858	1.140
<i>Sex</i>	<i>-0.383</i>	<i>0.171</i>	<i>.025</i>	<i>0.682</i>	<i>0.487</i>	<i>0.954</i>
Race (White)	0.199	0.231	.389	1.220	0.776	1.916
<i>Sexual minority</i>	<i>0.539</i>	<i>0.259</i>	<i>.037</i>	<i>1.715</i>	<i>1.032</i>	<i>2.850</i>
Ethnicity (Hispanic)	-0.121	0.271	.654	0.886	0.521	1.506
Event attendance	0.262	0.210	.212	1.299	0.861	1.960
<i>Adult norm perceptions</i>	<i>-0.357</i>	<i>0.135</i>	<i>.008</i>	<i>0.699</i>	<i>0.537</i>	<i>0.911</i>
W5 homophobic bullying victimization						
<i>W4 homophobic bullying victimization</i>	<i>2.284</i>	<i>0.205</i>	<i>.000</i>	<i>9.820</i>	<i>6.568</i>	<i>14.683</i>
<i>Age</i>	<i>-0.201</i>	<i>0.087</i>	<i>.021</i>	<i>0.818</i>	<i>0.690</i>	<i>0.970</i>
<i>Sex</i>	<i>0.561</i>	<i>0.200</i>	<i>.005</i>	<i>1.752</i>	<i>1.185</i>	<i>2.592</i>
Race (White)	0.173	0.272	.525	1.189	0.697	2.027
<i>Sexual minority</i>	<i>1.229</i>	<i>0.285</i>	<i>.000</i>	<i>3.419</i>	<i>1.958</i>	<i>5.971</i>
Ethnicity (Hispanic)	-0.189	0.323	.559	0.828	0.439	1.560
Event attendance	0.306	0.242	.206	1.358	0.845	2.181
Adult norm perceptions	-0.243	0.156	.119	0.785	0.578	1.064

Results for which the $p < .05$ are bolded and italicized.

Abbreviations: CI, confidence interval; ns, not significant; SE, standard error; W4, Wave 4; W5, Wave 5.

3.4 Post hoc analysis

As a post hoc analysis, we ran both Aim 2 and Aim 3 models again, this time controlling for one's own beliefs (e.g., mean of the two "I think..." items). The purpose of this alternative analysis is to determine whether perceptions of peer and adult social norms were still robust predictors of perpetration and victimization within the context of one's own beliefs. The pattern of results was similar, with exceptions. First, in the original model, adolescents who underperceived peer norms regarding commitment to ending sexual violence were more likely to subsequently perpetrate sexual violence; this finding was no longer statistically significant when controlling for one's own beliefs. Second, in the original models, adolescents who underperceived peer norms were more likely to subsequently experience bullying and homophobic bullying victimization; these findings were marginally significant when controlling for one's own beliefs ($ps < .10$), and the ORs (a measure of effect size) were slightly smaller (1.7 in the original models; 1.5 in the post hoc models). Finally, in the original model, adolescents who perceived adults to have a higher commitment to ending sexual violence were less likely to subsequently experience subsequent bullying victimization. In the post hoc model controlling for one's own beliefs, this finding was marginally significant ($ps < .10$), and the OR was the same ($OR = 0.7$). See Tables SA and SB for these results.

4 Discussion

The purpose of the current study is to prospectively examine the extent to which perceptions of social norms in a city-wide peer group regarding commitment to ending sexual violence predict various forms of peer-to-peer perpetration and victimization experiences. Research suggested that nearly one in four youth were underperceivers, meaning that they underestimated the degree to which other youth in their city was committed to ending sexual violence. This finding indicates an opportunity to correct misperceptions of a large number of youths, potentially changing their behaviors; this strategy has been found to have promising effectiveness in previous studies (Berkowitz, 2010;

Gidycz et al., 2011; Salazar et al., 2014). Results also demonstrated the harmful impact of underperceiving other youth's commitment to ending sexual violence.

Underperceivers, even after controlling for previous peer-to-peer victimization and perpetration, were at an increased risk to report subsequently higher rates of all forms of peer-to-peer victimization and perpetration except for sexual violence victimization (although this nonsignificant effect was in the same direction). Regarding perpetration, youth who believe that other youths in their city are not committed to ending sexual violence likely believe that it is more acceptable to engage in various forms of peer-to-peer violence than youth who believe that other youths are committed to ending sexual violence (Fabiano et al., 2003; Rothman et al., 2019). Underperceivers were also at increased risk for subsequent peer-to-peer victimization. We know from previous research that perpetration and victimization often tend to cluster within social networks (Faris & Felmlee, 2014; Rambaran et al., 2020; Swartz et al., 2012). As such, youth who are embedded within peer networks who underestimate the extent to which other youths are committed to ending sexual violence are likely at risk for increased exposure to multiple forms of victimization. Youth who perceive others as less tolerant of sexual violence may be more likely to disclose their experiences of victimization which could reduce the likelihood of revictimization (Ullman & Peter-Hagene, 2016). It is also possible, that if social norms attitudes persist over time, that some of these underestimates were created as a result of early victimization experiences. It makes sense that if one is bullied or harassed by peers, one might develop the idea that peers do not support violence prevention. Although the current study used a prospective design and controlled for previous 6-month victimization, we did not include a lifetime history of victimization. Further longitudinal studies using more than two-time points, that better examine how initial social norms are formed, including in relation to adverse childhood experiences much earlier in development, could help the field better understand how social norms are formed.

The data also underscore the important role that perceptions of adults' commitment to ending sexual violence play in increasing or reducing risk for peer-to-peer perpetration and victimization, and a need for adults to communicate that commitment to youth. Indeed,

for most forms of peer-to-peer violence, perceptions of adults' commitment to ending sexual violence prospectively predicted peer-to-peer violence, with a few exceptions. This finding aligns with studies showing the importance of adult monitoring (Rusby et al., 2018); when youth perceive that adults in their community are concerned about their behavior, they engage in less risky behavior. The measure of social norms perceptions used in the current study for adults may represent a dimension of adult monitoring. The findings do underscore the importance of involving important adults throughout the community in prevention (Banyard, Edwards, Rizzo, et al., 2020).

It is interesting that social norms specific to sexual violence predicted experiencing other forms of peer-to-peer violence perpetration and victimization. Although not measured in the current study, it is likely that youths' perceptions of others' commitment to end sexual violence is related to their perceptions of others' commitment to end bullying, sexual harassment, and so forth. The findings aligns with increasing calls in the field to de-silo prevention efforts given the high rates of co-occurrence of multiple forms of violence among youth and the challenges of resourcing multiple prevention efforts (Hamby & Grych, 2013; Wilkins et al., 2014). Furthermore, de-siloed prevention efforts may go beyond multiple forms of violence to other risk behaviors; for example, a recent study of the Dating Matters relationship abuse prevention program found that it had positive effects not only on reducing violence but also other behaviors like substance abuse among middle school students (Estefan et al., 2021). The current study highlights the utility of assessing a wide range of outcomes as prevention efforts in one lane may diffuse to another.

The association of peer and adult norms with violence perpetration and victimization was somewhat less strong in the presence of one's own commitment to ending sexual violence in the community, as indicated by smaller ORs. This finding is not surprising for perpetration, given the well-documented research on the association of personal beliefs and attitudes on perpetration (for a discussion, see Waterman & Edwards, 2021), although some research suggests that perceptions of peer norms are just as relevant, if not more relevant, in predicting behavior (Brown & Messman, 2009).

4.1 Implications

The data presented herein offer several important implications for practice and research. First, these data support the need for violence prevention programs with youth that seek to correct misperceptions of social norms in the community, in particular positive attitude norms. To date, very few prevention programs exist for youth, particularly high school youth, that seek to correct misperceptions of social norms particularly related to interpersonal violence. Even fewer correct misperceptions of social norms at the community-wide level; as shown by the current study's data on perceptions of community peer and adult norms (as opposed to school-wide or family norms), these norms are associated with violence. Social norms interventions that have been found to be effective have mainly been developed for college students (e.g., The Men's Workshop; Gidycz et al., 2011), whereas dating and sexual violence prevention for high school students has mostly focused on factors such as bystander intervention, relationships skills education, and gender socialization (Coker et al., 2017; Foshee et al., 2004; Kettrey et al., 2019; Salazar et al., 2014; Sarnquist et al., 2014). Addressing social norms alongside other evidence-based prevention components (e.g., bystander intervention skills), may help to reduce peer-to-peer violence (Basile et al., 2016; Orchowski et al., 2020). Furthermore, the data also contribute further understanding regarding the potential for moving beyond high school or college campuses to community-wide initiatives, given the data presented here were based on communitywide norms (Banyard, Edwards, Rizzo, et al., 2020). These data also underscore the important role of adults in preventing peer-to-peer violence. Given the influence of perceptions of adults' commitment to ending sexual violence and the importance of adults communicating that commitment to youth, it is essential for such prevention efforts to incorporate skills practice and coaching to allow adults to practice sharing such perceptions with youth (Doucette et al., 2021). Moreover, while a few existing prevention efforts engage parents and families in the prevention of sexual violence (e.g., Doucette et al., 2021), researchers call for such efforts to strengthen their focus on secondary and tertiary prevention, particularly in families with risk factors for or histories of violence (Doucette et al., 2021). Adults should consider the implications

of communicating their commitment to ending sexual violence with youth who have already begun dating or have a history of sexual violence and programming should facilitate adults' understanding of how to communicate such norms in a trauma-informed way (Doucette et al., 2021). In regard to research, program evaluation studies should examine outcomes including social norms and how changing norms related to one form of violence (e.g., sexual violence) might also reduce other forms of victimization and perpetration. Better understanding the potential of this prevention diffusion can enhance our understanding of the cost effectiveness of different prevention initiatives on various forms of violence and other risk behaviors.

4.2 Limitations and future research

Despite the important knowledge gleaned from the current study, several limitations should be noted. First, although the sample had a substantial proportion of Native American youth, the sample was limited in terms of other racial and ethnic minority groups. Consistent with recent research, demographic indicators provide a very limited view of the experiences of different groups of participants (Boyd et al., 2020; Hamby, 2015). The current study did not include measures of minority stress or positive identity development or other variables that might better unpack the role of issues like racism or structural inequality in the perceptions of social norms. Also, our social norms questions were limited to a few items, and future research should include a more comprehensive measure of perceptions of social norms. Having only a few items may have contributed to low α for one scale (.66); although this reliability was not outside of an acceptable range for preliminary research (Peterson, 1994), further scale development is warranted. Furthermore, we did not have normative data from adults, only youths' perceptions, and thus were not able to investigate misperceptions of adults' attitudes, not misperceptions. Although we controlled for attendance at prevention initiative events, another limitation of the study was that some participants took part in an initiative that may have shaped their perceptions of social norms.

Finally, in regard to limitations, the current measure of peer norms asked the youth to reflect on other students in their city. Consistent with youth reporting, we conducted analyses at the district level. That

is, we did not examine friendship-level or school-level norms. It is likely that youth are more impacted by their perceptions of norms among their close friends or students in their class, grade, or school, compared to their perceptions of norms among students in the larger city. Future research might examine different strategies for examining perceptions of peer norms, and compare the relative influence of peer norm perceptions that range from proximal (e.g., friends) to distal (e.g., peers in the city or town). Similarly, future research might also examine the relative influence of norm perceptions among different groups of adolescents (e.g., adolescents that are perceived to be popular, perceived to be trusted, perceived to be leaders).

5 Conclusion

The findings of the present study document the influence of perceptions of peer and adult social norms on subsequent violence victimization and perpetration in adolescent populations. The present study is one of the first to document the influence of positive attitude norms on victimization and perpetration. Specifically, results showed that adolescents who underestimated peer norms about commitment to end violence were more likely than adolescents who accurately perceived norms to subsequently experience peer-to-peer perpetration and victimization. Furthermore, adolescents who perceived adults to have a higher commitment to ending sexual violence were less likely to report subsequent perpetration and victimization for some forms of peer-to-peer violence. Intervention content that promotes more accurate perceptions of peer and adults' commitment to ending sexual violence may be a promising component to add to current violence prevention programs for high school youth.

* * * *

Supporting Information follows the **References**. The data that support the findings of this study are available from the corresponding author upon reasonable request.

Acknowledgments This study was supported by the U.S. Centers for Disease Control and Prevention's (CDC), National Center for Injury Prevention and Control, Grant #U01-CE002838. The findings and conclusions in this manuscript are those of the authors and do not necessarily represent the official position of the CDC. The authors would like to owe a great deal of gratitude to school and community partners and project staff. Without these individuals, this project would not have been possible. They would also like to thank Grace Morris for editing this manuscript.

Funding Centers for Disease Control and Prevention, Grant/Award Number: U01-CE002838

Conflict of interests – none

The peer review history for this article is can be seen at <https://publons.com/publon/10.1002/ab.22024>

References

- American Association of University Women. (2001). Hostile hallways: Bullying, teasing, and sexual harassment in school. *American Journal of Health Education*, 32, 307–309. <https://doi.org/10.1080/19325037.2001.10603488>
- Banyard, V. L., Demers, J. M., Cohn, E. S., Edwards, K. M., Moynihan, M. M., Walsh, W. A., & Ward, S. K. (2017). Academic correlates of unwanted sexual contact, intercourse, stalking, and intimate partner violence: An understudied but important consequence for college students. *Journal of Interpersonal Violence*, 63, 475–486. <https://doi.org/10.1037/cou0000102>
- Banyard, V., Edwards, K. M., Greenberg, P., Waterman, E. A., Jones, L. M., & Mitchell, K. J. (2021). Engaging or disengaging: Understanding the differences between actionists and unhelpful bystanders among youth reacting to peer sexual violence. *Journal of School Violence*. Advance online publication. <https://doi.org/10.1080/15388220.2021.2013249>
- Banyard, V., Edwards, K., Jones, L., & Mitchell, K. (2020). Poly-strengths and peer violence perpetration: What strengths can add to risk factor analyses. *Journal of Youth and Adolescence*, 49(3), 735–746.
- Banyard, V. L., Edwards, K., & Rizzo, A. (2019). What would the neighbors do? Measuring sexual and domestic violence prevention social norms among youth and adults. *Journal of Community Psychology*, 47, 1817–1833. <https://doi.org/10.1002/jcop.22201>

- Banyard, V. L., Edwards, K. M., Rizzo, A. J., Rothman, E. F., Greenberg, P., & Kearns, M. C. (2020). Improving social norms and actions to prevent sexual and intimate partner violence: A pilot study of the impact of green dot community on youth. *Journal of Prevention and Health Promotion*, 1(2), 183–211.
- Banyard, V., Edwards, K. M., Waterman, E. A., Mercer Kollar, L. M, Jones, L. M., & Mitchell, K. J. (in press). Exposure to a youth-led afterschool sexual violence prevention program among adolescents: The impact of engagement as measured by dose of community events. *Psychology of Violence*.
- Banyard, V. L., Rizzo, A., & Edwards, K. M. (2020). Community actionists: Understanding adult bystanders to sexual and domestic violence prevention in communities. *Psychology of Violence*, 10, 531–541. <https://doi.org/10.1037/vio0000281>
- Basile, K. C., DeGue, S., Jones, K., Freire, K., Dills, J., Smith, S. G., & Raiford, J. L. (2016). STOP SV: A technical package to prevent sexual violence. Centers for Disease Control and Prevention. <https://www.cdc.gov/violenceprevention/pdf/sv-prevention-technicalpackage.pdf>
- Benson, P. L., Scales, P. C., & Syvertsen, A. K. (2011). The contribution of the developmental assets framework to positive youth development theory and practice. In R. M. Lerner, J. V. Lerner, & J. B. Benson (Eds.), *Advances in child development and behavior* (Vol. 41, pp. 197–230). Elsevier. <https://doi.org/10.1016/B978-0-12-386492-5.00008-7>
- Berkowitz, A. D. (2004). The social norms approach: Theory, research, and annotated bibliography. http://www.alanberkowitz.com/articles/social_norms.pdf
- Berkowitz, A. D. (2005). An overview of the social norms approach. In L. C. Lederman, & L. P. Stewart (Eds.), *Changing the culture of college drinking: A socially situated health communication campaign* (pp. 193–214). Hampton Press.
- Berkowitz, A. D. (2010). *Fostering healthy norms to prevent violence and abuse: The social norms approach, The prevention of sexual violence: A practitioner's sourcebook* (pp. 147–171). Neari Press.
- Bohner, G., Pina, A. G. T. V., & Siebler, F. (2010). Using social norms to reduce men's rape proclivity: Perceived rape myth acceptance of out-groups may be more influential than that of in-groups. *Psychology, Crime & Law*, 16, 671–693. <https://doi.org/10.1080/1068316X.2010.492349>
- Bosson, J. K., Parrott, D. J., Swan, S. C., Kuchynka, S. L., & Schramm, A. T. (2015). A dangerous boomerang: Injunctive norms, hostile sexist attitudes, and male-to-female sexual aggression. *Aggressive Behavior*, 41, 580–593. <https://doi.org/10.1002/ab.21597>
- Boyd, R. W., Lindo, E. G., Weeks, L. D., & McLemore, M. R. (2020). On racism: A new standard for publishing on racial health inequities. *Health Affairs Blog*.

- Brown, A. L., & Messman, T. L. (2009). Personal and perceived peer attitudes supporting sexual aggression as predictors of male college students' willingness to intervene against sexual aggression. *Journal of Interpersonal Violence*, 25, 503–517. <https://doi.org/10.1177/0886260509334400>
- Centers for Disease Control and Prevention. (2014). Youth risk behavior surveillance - United States, 2013. *Morbidity and Mortality Weekly Report. Surveillance Summaries*, 63, 1–168. <https://www.cdc.gov/mmwr/preview/mmwrhtml/ss6304a1.htm>
- Centers for Disease Control and Prevention. (2020). 2019 YRBS results. <https://www.cdc.gov/healthyyouth/data/yrbs/index.htm>
- Coker, A. L., Bush, H. M., Cook-Craig, P. G., DeGue, S. A., Clear, E. R., Brancato, C. J., Fisher, B. S., & Recktenwald, E. A. (2017). May RCT testing bystander effectiveness to reduce violence. *American Journal of Preventive Medicine*, 52, 566–578. <https://doi.org/10.1016/j.amepre.2017.01.020>
- Cook-Craig, P. G., Coker, A. L., Clear, E. R., Garcia, L. S., Bush, H. M., Brancato, C. J., Williams, C. M., & Fisher, B. S. (2014). Challenge and opportunity in evaluating a diffusion-based active bystanding prevention program green dot in high schools. *Violence Against Women*, 20, 1179–1202. <https://doi.org/10.1177/1077801214551288>
- Dardis, C. M., Murphy, M. J., Bill, A. C., & Gidycz, C. A. (2016). An investigation of the tenets of social norms theory as they relate to sexually aggressive attitudes and sexual assault perpetration: A comparison of men and their friends. *Psychology of Violence*, 6, 163–171. <https://doi.org/10.1037/a0039443>
- DeGue, S., Valle, L. A., Holt, M. K., Massetti, G. M., Matjasko, J. L., & Tharp, A. T. (2014). A systematic review of primary prevention strategies for sexual violence perpetration. *Aggression and Violent Behavior*, 19, 346–362. <https://doi.org/10.1016/j.avb.2014.05.004>
- Doucette, H., Collibee, C., & Rizzo, C. J. (2021). A review of parent-and family-based prevention efforts for adolescent dating violence. *Aggression and Violent Behavior*, 58, 101548. <https://doi.org/10.1016/j.avb.2021.101548>
- Eaton, D. K., Kann, L., Kinchen, S., Shanklin, S. L., Flint, K. H., Hawkins, J., Harris, W. A., Lowry, R., McManus, T., Chyen, D., Whittle, L., Lim, C., & Wechsler, H. (2012). Youth risk behavior surveillance—United States, 2011. *Morbidity and Mortality Weekly Report. Surveillance Summaries*, 61, 1–162. <http://www.cdc.gov/mmwr/preview/mmwrhtml/ss6104a1.htm>
- Edwards, K. M. (2015). Incidence and outcomes of dating violence victimization among high school youth: The role of gender and sexual orientation. *Journal of Interpersonal Violence*, 33, 1472–1493. <https://doi.org/10.1177/0886260515618943>
- Edwards, K. M., Banyard, V., Waterman, E. A., Mitchell, K. J., Jones, L. M., Mercer Kollar, L. M., Hopfauf, S., & Simon, B. (in press). Evaluating the impact of a youth-led interpersonal violence prevention program: Youth leadership retreat outcomes. *Prevention Science*.

- Edwards, K. M., Wheeler, L. A., Rizzo, A., & Banyard, V. L. (2020). Testing an integrated model of alcohol norms and availability, binge drinking, and teen dating violence. *Journal of Psychoactive Drugs*, 53, 1–8. <https://doi.org/10.1080/02791072.2020.1810833>
- Espelage, D. L., Basile, K. C., De La Rue, L., & Hamburger, M. E. (2015). Longitudinal associations among bullying, homophobic teasing, and sexual violence perpetration among middle school students. *Journal of Interpersonal Violence*, 30, 2541–2561. <https://doi.org/10.1177/0886260514553113>
- Espelage, D. L., Basile, K. C., & Hamburger, M. E. (2012). Bullying perpetration and subsequent sexual violence perpetration among middle school students. *Journal of Adolescent Health*, 50, 60–65. <https://doi.org/10.1016/j.jadohealth.2011.07.015>
- Estefan, L. F., Vivolo-Kantor, A., Niolon, P. H., Le, V. D., Tracy, A. J., Little, T. D., DeGue, S., Latzman, N. E., Tharp, A., Lang, K. M., & McIntosh, W. L. (2021). Effects of the Dating Matters® comprehensive prevention model on health- and delinquency-related risk behaviors in middle school youth: A cluster-randomized controlled trial. *Prevention Science*, 22, 163–174. <https://doi.org/10.1007/s11121-020-01114-6>
- Fabiano, P. M., Perkins, H. W., Berkowitz, A., Linkenbach, J., & Stark, C. (2003). Engaging men as social justice allies in ending violence against women: Evidence for a social norms approach. *Journal of American College Health*, 52, 105–112. <https://doi.org/10.1080/07448480309595732>
- Faris, R., & Felmlee, D. (2014). Casualties of social combat: School networks of peer victimization and their consequences. *American Sociological Review*, 79, 228–257. <https://doi.org/10.1177/0003122414524573>
- Foshee, V. A., Bauman, K. E., Ennett, S. T., Linder, G. F., Benefield, T. S., & Suchindran, C. (2004). Assessing the long-term effects of the Safe Dates program and a booster in preventing and reducing adolescent dating violence victimization and perpetration. *American Journal of Public Health*, 94, 619–624. <https://doi.org/10.2105/AJPH.94.4.619>
- Furman, W., & Buhrmester, D. (1992). Age and sex differences in perceptions of networks of personal relationships. *Child Development*, 63, 103–115. <https://doi.org/10.1111/j.1467-8624.1992.tb03599.x>
- Gidycz, C. A., Orchowski, L. M., & Berkowitz, A. D. (2011). Preventing sexual aggression among college men: An evaluation of a social norms and bystander intervention program. *Violence Against Women*, 17, 720–742. <https://doi.org/10.1177/1077801211409727>
- Hamby, S. (2015). On the use of race and ethnicity as variables in violence research. *Psychology of Violence*, 5, 1–7. <https://doi.org/10.1037/a0038470>
- Hamby, S. L., & Grych, J. (2013). *The web of violence: Exploring connections among different forms of interpersonal violence and abuse*. Springer Science + Business Media.
- Hillenbrand-Gunn, T. L., Heppner, M. J., Mauch, P. A., & Park, H. (2010). Men as allies: The efficacy of a high school rape prevention intervention. *Journal of Counseling & Development*, 88, 43–51. <https://doi.org/10.1002/j.1556-6678.2010.tb00149.x>

- Kettrey, H. H., Marx, R. A., & Tanner-Smith, E. E. (2019). Effects of bystander programs on the prevention of sexual assault among adolescents and college students: A systematic review. *Campbell Systematic Reviews*, 15, e1013. <https://doi.org/10.4073/csr.2019.1>
- Knoll, L. J., Magis-Weinberg, L., Speekenbrink, M., & Blakemore, S.-J. (2015). Social influence on risk perception during adolescence. *Psychological Science*, 26, 583–592. <https://doi.org/10.1177/0956797615569578>
- Lerner, R. M., Lerner, J. V., Almerigi, J., Theokas, C., Phelps, E., Gestsdottir, S., Naudeau, S., Jelicic, H., Alberts, A. E., Ma, L., Smith, L. M., Bobek, D. L., Richman-Raphael, D., Simpson, I., Christiansen, E. D., & von Eye, A. (2005). Positive youth development, participation in community youth development programs, and community contributions of fifth grade adolescents: Findings from the first wave of the 4-H study of positive youth development. *Journal of Early Adolescence*, 25, 17–71.
- Mennicke, A., Kennedy, S. C., Gromer, J., & Klem-O'Connor, M. (2018). Evaluation of a social norms sexual violence prevention marketing campaign targeted toward college men: Attitudes, beliefs, and behaviors over 5 years. *Journal of Interpersonal Violence*, 36, 3999. <https://doi.org/10.1177/0886260518780411>
- Mrug, S., & McCay, R. (2013). Parental and peer disapproval of alcohol use and its relationship to adolescent drinking: Age, gender, and racial differences. *Psychology of Addictive Behaviors*, 27, 604–614. <https://doi.org/10.1037/a0031064>
- Neighbors, C., Lee, C. M., Lewis, M. A., Fossos, N., & Larimer, M. E. (2007). Are social norms the best predictor of outcomes among heavy-drinking college students? *Journal of Studies on Alcohol and Drugs*, 68, 556–565.
- Orchowski, L. M. (2019). “Trouble in Paradigm” and the social norms approach to violence prevention. *Violence Against Women*, 25, 1672–1681. <https://doi.org/10.1177/1077801219872561>
- Orchowski, L. M. (2020). Final report: Community-level primary prevention of dating and sexual violence in middle schools (5U01CE002651-03). National Center for Injury Prevention and Control.
- Orchowski, L. M., & Berkowitz, A. D. (2021). *Engaging boys and men in sexual assault prevention: Theory, research, and practice*. Oxford University Press.
- Orchowski, L. M., Edwards, K. M., Hollander, J. A., Banyard, V. L., Senn, C. Y., & Gidycz, C. A. (2020). Integrating sexual assault resistance, bystander, and men’s social norms strategies to prevent sexual violence on college campuses: A call to action. *Trauma, Violence & Abuse*, 21, 811–827. <https://doi.org/10.1177/1524838018789153>
- Perkins, J. M., Perkins, H. W., & Craig, D. W. (2018). Misperceived norms and personal sugar-sweetened beverage consumption and fruit and vegetable intake among students in the United States. *Appetite*, 129, 82–93. <https://doi.org/10.1016/j.appet.2018.06.012>
- Peterson, R. A. (1994). A meta-analysis of Cronbach’s coefficient alpha. *Journal of Consumer Research*, 21, 381–391. <https://doi.org/10.1086/209405>

- Peterson, C., DeGue, S., Florence, C., & Lokey, C. N. (2017). Lifetime economic burden of rape among US adults. *American Journal of Preventive Medicine*, 52, 691–701. <https://doi.org/10.1016/j.amepre.2016.11.014>
- Planty, M., Langton, L., Krebs, C. P., Berzofsky, M., & Smiley-McDonald, H. (2013). Female victims of sexual violence, 1994–2010. U.S. Department of Justice, Office of Justice Programs, Bureau of Justice Statistics. <https://www.bjs.gov/content/pub/pdf/fvsv9410.pdf>
- Prentice, D. A., & Miller, D. T. (1993). Pluralistic ignorance and alcohol use on campus: Some consequences misperceiving the social norm. *Journal of Personality and Social Psychology*, 64, 243–256. <https://doi.org/10.1037/0022-3514.64.2.243>
- Rambaran, J. A., Dijkstra, J. K., & Veenstra, R. (2020). Bullying as a group process in childhood: A longitudinal social network analysis. *Child Development*, 91, 1336–1352. <https://doi.org/10.1111/cdev.13298>
- Rothman, E. F., Edwards, K. M., Rizzo, A., Kearns, M., & Banyard, V. L. (2019). Perceptions of community norms and youths' reactive and proactive dating and sexual violence bystander action. *American Journal of Community Psychology*, 63, 122–134. <https://doi.org/10.1002/ajcp.12312>
- Rusby, J. C., Light, J. M., Crowley, R., & Westling, E. (2018). Influence of parent–youth relationship, parental monitoring, and parent substance use on adolescent substance use onset. *Journal of Family Psychology*, 32, 310–320. <https://doi.org/10.1037/fam0000350>
- Russell, G. W., & Arms, R. L. (1995). False consensus effect, physical aggression, anger, and a willingness to escalate a disturbance. *Aggressive Behavior*, 21, 381–386. <https://doi.org/10.1002/1098-2337>
- Salazar, L. F., Vivolo-Kantor, A., Hardin, J., & Berkowitz, A. (2014). A web-based sexual violence bystander intervention for male college students: Randomized controlled trial. *Journal of Medical Internet Research*, 16, e203. <https://doi.org/10.2196/jmir.3426>
- Sarnquist, C., Omondi, B., Sinclair, J., Gitau, C., Paiva, L., Mulinge, M., Cornfield, D. N., & Maldonado, Y. (2014). Rape prevention through empowerment of adolescent girls. *Pediatrics*, 133, e1226–e1232. <https://doi.org/10.1542/peds.2013-3414>
- Schwartz, M. D., DeKeseredy, W. S., Tait, D., & Alvi, S. (2001). Male peer support and a feminist routine activities theory: Understanding sexual assault on the college campus. *Justice Quarterly*, 18, 623–649. <https://doi.org/10.1080/07418820100095041>
- Sessarego, S. N., Siller, L., & Edwards, K. M. (2019). Patterns of violence victimization and perpetration among adolescents using latent class analysis. *Journal of Interpersonal Violence*, 36, 9167–9186. <https://doi.org/10.1177/0886260519862272>
- Siller, L., Edwards, K. M., & Banyard, V. L. (2020). Violence typologies among youth: A latent class analysis of middle and high school youth. *Journal of Interpersonal Violence*, 37, 1023–1048. <https://doi.org/10.1177/0886260520922362>

- Swartz, K., Reynolds, B. W., Wilcox, P., & Dunham, J. R. (2012). Patterns of victimization between and within peer clusters in a high school social network. *Violence and Victims*, 27, 710–729. <https://doi.org/10.1891/0886-6708.27.5.710>
- Tansill, E. C., Edwards, K. M., Kearns, M. C., Gidycz, C. A., & Calhoun, K. S. (2012). The mediating role of trauma-related symptoms in the relationship between sexual victimization and physical health symptomatology in undergraduate women. *Journal of Traumatic Stress*, 25, 79–85. <https://doi.org/10.1002/jts.21666>
- Terry, D. J., & Hogg, M. A. (1996). Group norms and the attitude-behavior relationship: A role for group identification. *Personality and Social Psychology Bulletin*, 22, 776–793. <https://doi.org/10.1177/0146167296228002>
- Ullman, S. E., & Peter-Hagene, L. C. (2016). Longitudinal relationships of social reactions, PTSD, and revictimization in sexual assault survivors. *Journal of Interpersonal Violence*, 31, 1074–1094. <https://doi.org/10.1177/0886260514564069>
- Waterman, E. A., Banyard, V. L., Mitchell, K. J., & Edwards, K. M. (in press). High school students' perceptions of school personnel's intentions to help prevent teen sexual and dating violence: Associations with attitudes and intended behaviors. *Journal of Interpersonal Violence*.
- Waterman, E. A., & Edwards, K. M. (2021). Risk and protective factors for sexual aggression across the ecosystem: An overview. In L. M. Orchowski, & A. D. Berkowitz (Eds.), *Engaging boys and men in sexual assault prevention: Theory, research, and practice*. Oxford University Press.
- Wilkins, N., Tsao, B., Hertz, M. F., Davis, R., & Klevens, J. (2014). Connecting the dots: An overview of the links among multiple forms of violence. https://www.cdc.gov/violenceprevention/pdf/connecting_the_dotsa.pdf

Supplemental Tables

Supplemental Table A

Logistic regression analyses for peer norms predicting violence perpetration and victimization, controlling for one's own commitment to ending sexual violence (ns = 894-922)

	B	SE	p value	Odds ratio	95% CI (Lower)	95% CI (Upper)
W5 Sexual Violence Perpetration						
<i>W4 Commitment to ending violence</i>	-.835	.325	.010	.434	.230	.820
Under-perceiver	.402	.414	.331	1.495	.664	3.367
W5 Bullying Perpetration						
W4 Commitment to ending violence	.275	.296	.353	1.317	.737	2.354
<i>Under-perceiver</i>	.845	.346	.015	2.328	1.180	4.590
W5 Sexual Harassment Perpetration						
W4 Commitment to ending violence	-.260	.192	.176	.771	.529	1.123
<i>Under-perceiver</i>	.612	.227	.007	1.844	1.182	2.879
W5 Homophobic Bullying Perpetration						
W4 Commitment to ending violence	.202	.236	.393	1.224	.770	1.945
<i>Under-perceiver</i>	.574	.284	.043	1.776	1.019	3.096
W5 Sexual Violence Victimization						
W4 Commitment to ending violence	-.243	.273	.373	.784	.459	1.339
Under-perceiver	.339	.319	.289	1.403	.750	2.624
W5 Bullying Victimization						
W4 Commitment to ending violence	-.298	.191	.118	.742	.510	1.079
Under-perceiver	.398	.228	.081	1.489	.952	2.329
W5 Sexual Harassment Victimization						
W4 Commitment to ending violence	-.118	.168	.483	.889	.639	1.236
<i>Under-perceiver</i>	.695	.201	.001	2.003	1.350	2.971
W5 Homophobic Bullying Victimization						
W4 Commitment to ending violence	-.050	.198	.802	.952	.646	1.402
Under-perceiver	.404	.230	.079	1.498	.954	2.354

Note. Note. CI = Confidence interval. SE = standard error. W4 = Wave 4. W5 = Wave 5. Results for which the p value was less than .05 are bolded and italicized. Analyses controlled for the outcome construct at Wave 4, age, sex, race, sexual orientation, ethnicity, and event attendance.

Supplemental Table B

Logistic regression analyses for adult norms predicting violence perpetration and victimization, controlling for one's own commitment to ending sexual violence (ns = 909-924)

	B	SE	p value	Odds ratio	95% CI (Lower)	95% CI (Upper)
W5 Sexual Violence Perpetration						
W4 Commitment to ending violence	-.570	.333	.087	.565	.294	1.085
<i>Under-perceiver</i>	-.704	.300	.019	.495	.275	.890
W5 Bullying Perpetration						
W4 Commitment to ending violence	.376	.303	.215	1.457	.804	2.640
<i>Under-perceiver</i>	-.653	.261	.013	.521	.312	.869
W5 Sexual Harassment Perpetration						
W4 Commitment to ending violence	-.361	.203	.076	.697	.468	1.038
<i>Under-perceiver</i>	-.145	.180	.419	.865	.608	1.230
W5 Homophobic Bullying Perpetration						
W4 Commitment to ending violence	.138	.252	.582	1.149	.701	1.881
<i>Under-perceiver</i>	-.240	.221	.277	.786	.510	1.213
W5 Sexual Violence Victimization						
W4 Commitment to ending violence	.024	.276	.932	1.024	.596	1.760
<i>Under-perceiver</i>	-.791	.236	.001	.453	.286	.719
W5 Bullying Victimization						
W4 Commitment to ending violence	-.261	.198	.187	.771	.523	1.135
<i>Under-perceiver</i>	-.327	.173	.059	.721	.513	1.013
W5 Sexual Harassment Victimization						
W4 Commitment to ending violence	-.125	.176	.478	.882	.625	1.247
<i>Under-perceiver</i>	-.326	.152	.032	.722	.536	.972
W5 Homophobic Bullying Victimization						
W4 Commitment to ending violence	-.065	.202	.749	.937	.631	1.393
<i>Under-perceiver</i>	-.241	.173	.166	.786	.560	1.105

Note. Note. CI = Confidence interval. SE = standard error. W4 = Wave 4. W5 = Wave 5. Results for which the *p* value was less than .05 are bolded and italicized. Analyses controlled for the outcome construct at Wave 4, age, sex, race, sexual orientation, ethnicity, and event attendance.