



Original article

The Association of Adolescent Gender Performance and Adult Intimate Partner Violence



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A B S T R A C T

Purpose: A quarter of women and nearly 1 in 10 men in the United States have reported experiencing intimate partner violence (IPV) that had lasting negative impacts at least once during their lifetime. To prevent IPV over the lifecourse, adolescence has been identified as an ideal period for healthy relationship education that addresses the various IPV risk factors. One of those risk factors is believing in traditional gender roles, but the behavioral aspect of gender performance has been understudied. This study explores the relationship between adolescent gender performance and adult IPV perpetration and victimization/survival.

Methods: We used logistic regression to estimate associations of adolescent gender performance and adult IPV perpetration and victimization/survival in a sample of 2,197 males and 2,587 females from The National Longitudinal Study of Adolescent to Adult Health (Add Health) between 1994 and 2008.

Results: Male adolescent gender performance was associated with increased adult IPV perpetration (adjusted odds ratio [AOR] = 1.11; 95% confidence interval [CI], 1.05–1.18 per 10% increase in gender performance) and victimization/survival (AOR = 1.07; 95% CI, 1.03–1.11 per 10% increase in gender performance). Female adolescent gender performance was not associated with adult IPV perpetration or victimization/survival.

Discussion: The more similarly adolescent males behave to their adolescent male peers, the more likely they are to perpetrate and experience IPV in adulthood. This study supports the implementation of gender transformative education during adolescence and the specific need to address how the behaviors associated with male gender performance are risk factors for adult IPV.

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IMPLICATIONS AND CONTRIBUTIONS

This study investigates the association between adolescent gender performance and adult intimate partner violence perpetration and victimization/survival in a nationally representative sample. Intervention during adolescence is a way to reduce the lifetime prevalence of intimate partner violence therefore warranting identification of potential risk factors such as adolescent gender performance.

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Intimate partner violence (IPV) is a pervasive problem in the United States with a quarter of women and nearly 1 in 10 men experiencing contact sexual violence, physical violence, and/or stalking by a romantic partner during their lifetime, and reporting some form of IPV-related impact [1]. Negative health implications associated with IPV include increased depression

and anxiety, missing work or school, post-traumatic stress disorder, injury, and even death [2]. In 2015, the National Violent Death Reporting System found that 21.5% of homicide victims were killed by an intimate partner and over half of female homicide victims were killed by a current or former male romantic partner [3]. While gender symmetry may exist in the reported rates between men and women who perpetrate psychological and physical forms of IPV [4], women are more likely to experience severe physical injuries or sexual IPV [1,5]. Most men and women first experience IPV before the age of 25, with over a quarter of women first experiencing IPV at 17 years of age or younger [1]. As such, adolescence (between ages 10 and 21) has been identified as a critical time period to implement prevention programming in order to reduce IPV throughout the lifecourse [6]. This study contributes to the understudied issues of gender performance, behaviors associated with conveying gender identity, during adolescence that may be associated with IPV perpetration and victimization/survival (V/S).

The binary category of sex assigned at birth (male or female; hereinafter referred to as sex) is based on the genitals humans are born with or their chromosomal typing before birth. Gender is socially and culturally constructed, and can be understood through the attitudes, beliefs, and behaviors that influence what it means to be masculine, feminine, androgynous, non-binary, or other gender identities. The field of social constructionist feminist theory has moved away from a static and oppositional understanding of gender to a dynamic one that recognizes gender can change over time and is influenced by environments [7]. One component of gender is gender performance, which refers to the ways in which a person conveys their gender identity through appearance, dress, and behavior. Cialdini, Kallgren, and Reno's (1990) "Theory of Normative Conduct" provides a framework to understand gender performance as both a descriptive norm (what is normally done) and an injunctive norm (what is socially approved of) [8]. For example, societal gender norms include behaviors that have been deemed acceptable or unacceptable for women and men (injunctive norms), which may then influence people's gender performance [9]. At the same time, people may behave in ways that they perceive as normal for their gender identity regardless of social approval (descriptive norms). It is common for early adolescents (ages 10–14) to have already adopted and endorsed gender norms that perpetuate gender inequities [10]. However, adolescence is still seen as an optimal time during the life course for the promotion of positive social norm development because of adolescents' increased brain plasticity. This allows them to establish and strengthen neurological connections and prune away unused connections more quickly than adults. This results in new cognitive and social-emotional skills for adolescents while they simultaneously form their identities and become increasingly autonomous [11].

There are several limitations in the extant literature. While studies have looked at gender roles and IPV, they have typically assessed self-reported attitudes and beliefs that contribute to injunctive gender norms through scales, such as the Bem Sex Role Inventory [12–17]. These may be biased by socially desirable responses and miss the nuanced dimensions of gendered behavior in relation to IPV. Moreover, gender is often treated as a dichotomous variable (male or female), which assumes no variability of gender performance within the sexes. This leads to an overly simplistic understanding of how socially constructed notions of gender may relate to various aspects of IPV [18]. In an innovative study that utilized The National Longitudinal Study of

Adolescent to Adult Health (Add Health) data, Fleming et al. (2017) documented the validity and reliability of a measurement technique that allows researchers to capture the extent to which an individual 'does gender' [7] similarly to their same-gender peers. This measurement tool allows researchers to quantify "real" descriptive gender norms rather than perceived ones because it only utilizes behavior-based questions to form a variable. Fleming et al.'s (2017) process presents new possibilities for research to explain how gender performance may be associated with important health and social outcomes throughout the stages of the lifecourse, including IPV [19].

Our study built on that of Fleming et al. We used a nationally representative sample to investigate whether adolescent males' and females' gender performance was predictive of IPV in adulthood. Our primary research question was: Is adolescent gender performance associated with adult IPV V/S or perpetration? We hypothesized that (1) adolescent males who behaved *more* similarly to their male peers and females who behaved *less* similarly to their female peers would be more likely to perpetrate IPV and (2) adolescent males who behaved *less* similarly to their male peers and females who behaved *more* similarly to their female peers would be more likely to experience adult IPV V/S.

Methods

Study design

We used data from The National Longitudinal Study of Adolescent to Adult Health (Add Health), a nationally representative prospective cohort study of US middle and high school students who have been followed into adulthood [20]. Multi-stage clustered sampling methods were used and specific groups of adolescents were oversampled including those who identified as Black from well-educated families, Chinese, Cuban, Puerto Rican, and physically disabled. Eighty schools and 52 feeder schools were randomly selected for the sampling design and stratified by school type and size, region, urbanicity, and ethnic composition. A written informed consent was obtained from the adolescent's parent or legal guardian. Interviews were completed in private areas via interview software [21].

In the 1994–95 school year, a total of 20,745 students (grades 7–12) participated in the Wave I baseline in-home interview. The total sample consisted of a core sample of 12,105 students from randomly selected schools plus a special sample of 8,640 students from two preselected large high schools and 14 smaller schools. Of the Wave I adolescents, 17,670 (85%) had one parent participate in an in-home interview. The public-use Add Health dataset includes approximately half of the students in the 12,105-core sample. Follow-up in-home interviews were conducted in the following waves: Wave II (1996) when respondents were 12–20 years, Wave III (2001–02) at 18–26, Wave IV (2007–09) at 24–32, and Wave V (2016–18) at 31–42.

Analytical sample

We utilized public-use data and sample weights from Wave I (gender performance and sociodemographic information) and Wave IV (IPV outcomes: perpetration or V/S). The response rate was 80.3% from Wave I. After assessing nonresponse bias in Wave IV, results showed that the sample continued to be representative of the same population surveyed at Wave I with sample weights [21]. Of the 5,114 individuals who completed Wave IV,

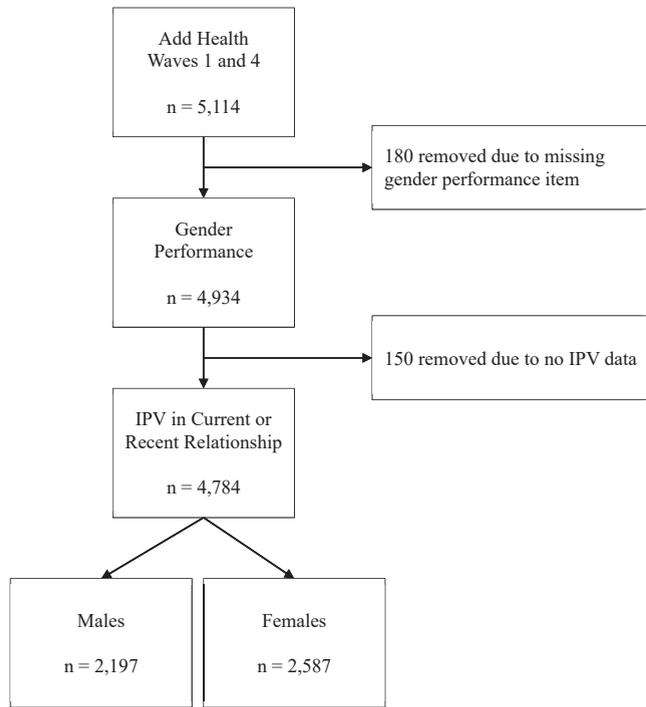


Figure 1. Inclusion and exclusion criteria.

180 were missing at least one survey item in the gender performance measure and were excluded (Figure 1). We also excluded 150 individuals who did not report on any of the IPV outcomes, resulting in a sample of 4,784 (n = 2,197 males; n = 2,587 females). A post-hoc analysis assessing patterns of missingness (Table A1) revealed that there were no statistically significant differences between those who were included and excluded with the following exceptions: males who were excluded were less likely to be White or multiracial, and their parent was more likely to have less than a high school education. Data were deidentified and publicly available, and therefore this was considered nonhuman subject research.

Measures

Independent variable. Gender performance was assessed at Wave I when participants were aged 12–20 years. It measures the degree to which adolescents behave similarly to their same-gender peers using survey items that differentiate between boys and girls. This measure uniquely captures the performance of gender through behavior rather than self-reported ideologies or attitudes. We based our gender performance measure on Fleming et al.’s 2017 study, which showed good validity and reliability [19]. Creation of the gender performance variable involves three main steps: (1) identifying variables that best differentiate between male and female participants; (2) creating a predicted probability score with the identified variables; and (3) performing a percentile rank transformation on the predicted probability score.

Fleming et al. identified survey items that best differentiated between boys’ and girls’ behavior in the Wave I restricted-use Add Health dataset, and excluded variables that were biologically-based, demographic, about someone besides the

Table 1

Weighted percentages of selected characteristics among participants in The National Longitudinal Study of Adolescent to Adult Health (Add Health), 1994–2008 (Waves I–IV)

Characteristics	Males	Females
	n = 2,197 ^a	n = 2,587 ^a
	n (weighted %) or mean (SD)	n (weighted %) or mean (SD)
Wave I: baseline data (1994; ages 11–21)		
Mean age, years (SD)	15.5 (1.8)	15.4 (1.8)
Race and ethnicity		
White, NH	1,350 (67.3)	1,543 (67.1)
Hispanic/Latinx	217 (10.6)	246 (10.8)
Black, Hispanic and NH	495 (16.2)	651 (16.7)
Other race, NH ^b	84 (3.6)	93 (3.1)
Multiracial	50 (2.2)	54 (2.3)
Parent education		
Less than high school	246 (14.4)	316 (14.9)
Completed high school	575 (31.0)	710 (33.7)
Beyond high school	1,116 (54.6)	1,227 (51.4)
Mean gender performance percentile (SD)	49.4 (29.0)	50.0 (28.9)
Wave IV: outcome data (2008; ages 24–33)		
Perpetrator of IPV ^c		
Never	1,897 (87.2)	2,081 (80.8)
At least once	299 (12.8)	505 (19.2)
Victim of IPV ^c		
Never	1,561 (71.8)	2,019 (78.6)
At least once	635 (28.2)	568 (21.4)

IPV = intimate partner violence; NH = Non-Hispanic; SD = standard deviation.

^a Final sample sizes (n = 2,197 for males and n = 2,587 for females) include both the exposure and at least one outcome; total unweighted observations for the outcomes and covariates varied due to missing data.

^b Asian, Pacific Islander, American Indian, Native American, or other race not listed.

^c IPV includes psychological, physical, and/or sexual violence in current or most recent relationship.

participant themselves, or missing data from 300 or more individuals [19]. Then, *t* and chi-square tests were used to identify the means and frequencies of each of the 359 variables considered, and the top 50 variables showing the most variance between boys and girls were selected. A backward stepwise regression was completed on the 50 survey items with “sex assigned at birth” (1 = female; 2 = male) to determine which items were significantly associated with gender at *p* < .001. This resulted in a final selection of 25 behavioral variables showing the strongest differences between the genders. Since our public-use dataset was half the sample size of the restricted dataset, we adapted this scale by conducting a manual backward stepwise logistic regression predicting sex starting with their top 25 variables as predictors. We omitted four of the 25 survey items (“You have a lot to be proud of,” “Frequency wearing a seatbelt in the car,” “You never get sad,” and “Trying to gain/lose/maintain weight”) that exceeded the significance threshold of *p* < .001 in our smaller public-use sample.

Using our final set of 21 items, we followed the procedure in Fleming et al., including (1) a multivariable logistic regression model to determine the predicted probability of each individual being male; and (2) transforming the probability scores into gender performance percentiles within male and female groups separately [19]. For example, a male with a percentile of .95 behaved more similarly to his male peers than 95% of other males in the group. The lower a male percentile does not mean

Table 2

Sociodemographic characteristics by mean percentile of adolescent gender performance and gender

Characteristics	Gender performance			
	Males		Females	
	n = 2,197		n = 2,587	
	Mean percentile (SD)	p-value	Mean percentile (SD)	p-value
Age		.16		< .001**
Early adolescence (11–13)	48.9 (1.6)		56.1 (1.7)	
Middle adolescence (14–17)	50.3 (1.0)		49.0 (0.9)	
Late adolescence (18–21)	46.5 (2.1)		46.9 (1.7)	
Race and ethnicity		< .001**		< .001**
White, NH	46.9 (1.0)		47.9 (0.9)	
Hispanic/Latinx	50.9 (2.2)		50.3 (2.3)	
Black, Hispanic and NH	58.6 (1.7)		58.7 (1.7)	
Other race, NH ^a	50.0 (4.4)		50.5 (3.3)	
Multiracial	53.5 (4.9)		48.2 (4.0)	
Parent education		.03*		.08
Less than high school	52.5 (2.1)		53.2 (1.7)	
Completed high school	50.1 (1.6)		50.9 (1.4)	
Beyond high school	47.5 (1.0)		48.9 (1.0)	

Higher mean percentiles for each characteristic indicate increased similar behavior to their same-gender peers.

NH = Non-Hispanic; SD = standard deviation.

* $p < .05$.

** $p < .001$.

^a Asian, Pacific Islander, American Indian, Native American, or other race not listed.

increasingly female-like behavior; rather it only connotes less similar behavior to their male peers. Similarly, a female with a score of .95 behaved more similarly to her female peers than 95% of other females in the sample. Our analyses, like that of Fleming et al. (2017), assume that each participant's gender is concordant with a sex variable that was preidentified and then confirmed during the Wave I in-home interviewer. Participants were not asked about their gender identity and only had the binary option of male or female during Wave I data collection.

Dependent variables. All IPV outcomes were collected in Wave IV (2008) when participants were 24–32 years old to capture the transition from older adolescence into early adulthood. Six questions from the revised Conflict Tactics Scales [22] were used to assess psychological, physical, and sexual violence perpetration and V/S. Relationship details were reported on participants' current partner or most recent partner (if no current partner was indicated).

Three questions assessed the frequency of psychological/physical, physical, and sexual IPV perpetration, respectively: (1) How often [have/did] you threatened [first name] with violence, pushed or shoved [him/her], or thrown something at [him/her] that could hurt?; (2) How often [have/did] you [slapped/slap], hit or [kicked/kick] [first name]?; and (3) How often [have/did] you [insisted/insist] on or [made/make] [first name] have sexual relations with you when [he/she] did not want to? We created dichotomous outcome variables of “never” or “at least once” for all three subtypes of IPV based on each question. We then combined responses on the three IPV perpetration questions into a single dichotomous outcome variable of “IPV perpetration.” Three parallel questions assessed the participants' experience of IPV V/S from their partner. Similarly, we created three dichotomous variables of “never” or “at least once” based on each

question and also combined these measures to create an overall variable for IPV V/S.

Covariates. Sociodemographic factors collected at Wave I were selected a priori using a directed acyclic graph (Figure A1), including age, race and ethnicity, and parental education. Age was calculated by (participant's date of birth - Wave I interview date)/365.25, rounded to the nearest whole number. Race/ethnicity was captured using a five-level categorical variable: non-Hispanic White, Hispanic/Latinx, Black (Hispanic and Non-Hispanic), other race (non-Hispanic; includes Asian, Pacific Islander, American Indian, Native American, or other race not listed in the survey), and multiracial. For parental education, we created a three-level variable based on the educational attainment of the parent who was interviewed during Wave I. Only one parent was interviewed and it typically was the mother.

Statistical analysis

We used separate logistic regression models for males and females to estimate crude and adjusted associations between adolescent gender performance and adult IPV perpetration and V/S. Logistic regressions were conducted using the function “svyglm”, in the R package ‘survey’ [23], which uses a sandwich estimator that corrects for the school-level clustering of individuals. A series of multivariable analyses (gender performance predicting [1] IPV perpetration and [2] IPV V/S for males, and [3] IPV perpetration and [4] IPV V/S for females) controlled for aforementioned sociodemographic covariates. The main independent variable was gender performance percentile as a continuous variable, which was scaled by dividing by 10 so that the odds ratios reflect associations with a 10% increase in gender performance. We tested for effect measure modification between gender performance and age (as a categorical variable of early adolescence (11–13), middle adolescence (14–17), and late adolescence (18–21)) using cross-product terms. An alpha of .05 was set a priori for all statistical tests. All analyses were performed using RStudio version 1.2.1335.

Results

Table 1 presents the means and weighted percentages of gender performance, IPV outcomes, and control variables by gender. Males and females had an average age of 15 years. Race and ethnicity were similar for both males and females, with the majority (67%) identifying as non-Hispanic White, some Black and Hispanic/Latinx, and few multiracial or other individuals. Over half of the respondents' parents reported education beyond high school. An estimated 12.8% of males perpetrated IPV and 28.2% reported IPV V/S. For females, 19.2% perpetrated IPV and 21.4% experienced IPV V/S.

Table 2 presents the mean percentiles of adolescent gender performance by gender and sociodemographic characteristics. Age was associated with gender performance among females, with younger girls showing increased similar behavior to their female peers. Only race and ethnicity were significantly associated with gender performance for both males and females. Among racial and ethnic groups, Black (Hispanic and Non-Hispanic) adolescents had the highest percentile means, meaning they behaved most similarly to their same-gender peers. White, non-Hispanic adolescents had the lowest percentile means, meaning they behaved less similarly to their

Table 3
Weighted percentages of sociodemographic characteristics by IPV perpetration and gender

Characteristics	Perpetrator of IPV ^a						
	Males			Females			
	n (weighted %) or mean (SD)			n (weighted %) or mean (SD)			
	Never	At least once	p-value	Never	At least once	p-value	
n = 1,897 (87.2)		n = 299 (12.8)		n = 2,081 (80.8)		n = 505 (19.2)	
Mean age, years (SD)	15.5 (1.8)	15.6 (1.8)	.57	15.4 (1.8)	15.3 (1.7)	.31	
Race and ethnicity			< .001***			< .001***	
White, NH	1,217 (90.3)	133 (9.7)		1,289 (83.4)	254 (16.6)		
Hispanic/Latinx	175 (81.1)	42 (18.9)		196 (77.4)	50 (22.6)		
Black, Hispanic and NH	392 (79.1)	102 (20.9)		491 (75.7)	159 (24.3)		
Other race, NH ^b	70 (83.9)	14 (16.1)		65 (68.9)	28 (31.1)		
Multiracial	42 (81.2)	8 (18.8)		40 (73.2)	14 (26.8)		
Parent education			.01**			.03*	
Less than high school	199 (80.4)	47 (19.6)		240 (74.6)	76 (25.4)		
Completed high school	599 (88.8)	66 (11.2)		572 (80.2)	138 (19.8)		
Beyond high school	972 (88.1)	144 (11.9)		1,013 (83.3)	214 (16.7)		

IPV = intimate partner violence; NH = Non-Hispanic; SD = standard deviation.

**p* < .05.

***p* ≤ .01.

****p* < .001.

^a IPV includes psychological, physical, and/or sexual violence in current or most recent relationship.

^b Asian, Pacific Islander, American Indian, Native American, or other race not listed.

same-gender peers. Males whose parent completed a high school education or beyond showed less similar gender performance compared to those whose parent completed less than a high school education.

Tables 3 and 4 present the distribution of the IPV outcomes by sociodemographic characteristics and gender. Slightly more females were estimated to perpetrate IPV than males (19.2% vs. 12.8%) while slightly more males were estimated to experience IPV V/S than females (28.2% vs. 21.4%), and this pattern was found across all races and ethnicities. For both males and females who perpetrated IPV, the percentage of “perpetrating at least once” decreases as parent education level increases. For IPV V/S, as

parental education increased, the percentage of IPV V/S decreased for females but not for males. Age was not associated with IPV V/S or perpetration for either males or females.

Tables 5 and 6 present multivariable logistic regressions among males and females. Table 5 displays the association between adolescent gender performance (in 10 percentiles) and all four adult IPV perpetration variables (psychological/physical, physical, sexual, and any IPV), adjusting for age, race/ethnicity, and parent education. Among males, the association between a 10-percentile increase of gender performance and IPV perpetration was statistically significant (adjusted odds ratio [AOR] = 1.11; 95% confidence interval [CI], 1.05–1.18). This indicates that

Table 4
Weighted percentages of sociodemographic characteristics by IPV victimization and gender

Characteristics	Victim of IPV ^a						
	Males			Females			
	n (weighted %) or mean (SD)			n (weighted %) or mean (SD)			
	Never	At least once	p-value	Never	At least once	p-value	
n = 1,561 (71.8)		n = 635 (28.2)		n = 2,019 (78.6)		n = 568 (21.4)	
Mean age, years (SD)	15.5 (1.8)	15.5 (1.8)	.39	15.4 (1.8)	15.4 (1.8)	.54	
Race and ethnicity			< .001*			< .001*	
White, NH	1,027 (75.6)	322 (24.4)		1,273 (81.7)	270 (18.3)		
Hispanic/Latinx	148 (69.6)	69 (30.4)		185 (74.8)	61 (25.2)		
Black, Hispanic and NH	292 (57.8)	203 (42.2)		452 (69.6)	199 (30.4)		
Other race, NH ^b	59 (72.8)	25 (27.2)		72 (77.1)	21 (22.9)		
Multiracial	34 (64.1)	16 (35.9)		37 (68.8)	17 (31.1)		
Parent education			.38			< .001*	
Less than high school	167 (68.3)	78 (31.7)		212 (64.7)	104 (35.2)		
Completed high school	408 (72.1)	167 (27.9)		557 (79.1)	153 (20.9)		
Beyond high school	809 (74.1)	307 (25.9)		998 (82.3)	229 (17.7)		

IPV = intimate partner violence; NH = Non-Hispanic; SD = standard deviation.

**p* < .001.

^a IPV includes psychological, physical, and/or sexual violence in current or most recent relationship.

^b Asian, Pacific Islander, American Indian, Native American, or other race not listed.

Table 5

Association of a 10-unit increase in adolescent gender performance percentile with IPV perpetration in current or most recent relationship among males and females in early adulthood (Add Health, 1994–2008)

	Perpetration of:			
	IPV ^a	Psychological/Physical IPV	Physical IPV	Sexual IPV
	Adjusted OR (95% CI)	Adjusted OR (95% CI)	Adjusted OR (95% CI)	Adjusted OR (95% CI)
Gender performance, males	1.11 (1.05, 1.18)**	1.13 (1.07, 1.20)**	1.12 (1.03, 1.22)*	1.08 (0.99, 1.17)
Gender performance, females	0.98 (0.93, 1.02)	0.97 (0.93, 1.01)	1.01 (0.96, 1.06)	0.91 (0.75, 1.10)

All analyses controlled for age, race and ethnicity, and parent education.

CI = confidence interval; IPV = intimate partner violence; OR = odds ratio.

* $p \leq .01$.

** $p \leq .001$.

^a Includes psychological, physical, and/or sexual violence in current or most recent relationship.

when comparing the difference between 10 percentiles, the odds of perpetrating IPV are 1.11 time higher among the larger percentile (males who behave more like their male peers) than the smaller percentile (males who behave less like their male peers). The odds of perpetration for each sub-type were higher for males who behaved more like their male peers. All remained statistically significant except for sexual IPV perpetration (AOR = 1.08; 95% CI, 0.99–1.17). No association was found between adolescent female gender performance and adult IPV perpetration. Table 6 examined the association between an increase of 10 percentiles of adolescent gender performance and all adult IPV V/S outcomes. Adjusting for sociodemographic variables, the association between a 10 percentile increase of gender performance and IPV V/S is statistically significant for males, with the odds of experiencing relationship violence being 1.07 times higher among males who behave more like their male peers (95% CI, 1.03–1.11). The odds of V/S for each sub-type were higher for males who behaved more like their male peers. All remained statistically significant except for sexual IPV V/S (AOR = 1.06; 95% CI, 0.99–1.13). No association between adolescent female gender performance and adult IPV V/S was found. We found no evidence of effect modification by age for males or females.

Discussion

Our study found that, in a nationally representative sample of young adults, adolescent males who behaved more similarly to their same-gender peers were more likely to perpetrate or experience IPV V/S in adulthood. Among females, gender

performance in adolescence was not associated with either perpetration or V/S in adulthood.

Research has illustrated that stereotypical gender norm beliefs are linked to higher rates of IPV perpetration, but these studies have failed to capture data on the behavioral component of gender norms and examine IPV V/S [14–17,24–27]. Our results on male perpetration extend the current research on gender norm beliefs (injunctive norms) to include behavior-based adolescent gender performance (descriptive norms) as a predictive factor of adult IPV perpetration [28]. When looking at the three sub-types of IPV outcomes, the results were similar, warranting the use of collapsed IPV perpetration and V/S variables. Sexual IPV barely lost significance. We believe this was driven by the small cell sizes and loss of power. Our results showing no association between adolescent female gender performance and adult IPV perpetration or V/S align with findings from Adhia et al. (2021), which examined gender conformity as a child and young adult IPV outcomes [29].

Violence perpetration by males has been tied to masculinity in a way that reinforces harmful gender norms. Joseph Vandello and Jennifer Bosson theorize that *precarious manhood* is a way to understand how masculinity in the United States is a social status that is hard won, easily lost, and requires continuous action to maintain it. They further hypothesize that gender threats, such as not being in control or being perceived as feminine, may elicit aggressive and risky behaviors in an effort to ensure or attempt to win back their masculine status [30]. Based on their theory, our findings showing males who behave more similarly to their male peers during adolescence may be more likely to perpetrate

Table 6

Association of a 10-unit increase in adolescent gender performance percentile with IPV victimization/survival in current or most recent relationship among males and females in early adulthood (Add Health, 1994–2008)

	Victimization/survival of:			
	IPV ^a	Psychological/Physical IPV	Physical IPV	Sexual IPV
	Adjusted OR (95% CI)	Adjusted OR (95% CI)	Adjusted OR (95% CI)	Adjusted OR (95% CI)
Gender performance, males	1.07 (1.03, 1.11)**	1.06 (1.01, 1.11)*	1.08 (1.03, 1.13)**	1.06 (0.99, 1.13)
Gender performance, females	0.98 (0.94, 1.03)	0.98 (0.93, 1.03)	1.00 (0.92, 1.08)	0.95 (0.88, 1.04)

All analyses controlled for age, race and ethnicity, and parent education.

CI = confidence interval; IPV = intimate partner violence; OR = odds ratio.

* $p \leq .05$.

** $p \leq .01$.

^a Includes psychological, physical, and/or sexual violence in current or most recent relationship.

IPV in adulthood could be interpreted as a way they behaviorally assert their masculine social status.

There is limited research on the pathways of male adolescent gender performance and adult IPV. Our study reveals the need for further research to better understand the mechanisms at play. Importantly, we believe that perpetrators of IPV are responsible for their violent actions and those victims of IPV should not be blamed for the behavior of perpetrators. Both the IPV perpetration and V/S outcomes for males require us to hold two complex ideas simultaneously. Both statistical results indicate that more typical masculine gender performance in the United States needs to be addressed to reduce the perpetration and experiences of relationship violence.

This study has limitations that should be noted. First, survey questions that comprised the psychological/physical IPV outcome variables asked about psychological and physical violence in the same question. This made it impossible to assess psychological IPV outcomes separate from physical IPV and clearly understand if one was influencing the results. Additionally, reports of IPV perpetration can be influenced by social desirability bias leading to underreporting and biasing perpetration outcomes toward the null. Although social desirability bias can result in a small decrease of reports, research shows it is minimal [31]. Second, participants were not asked about their gender identity; therefore, our study assumes each participant's gender identity was concordant with their sex assigned at birth. If someone coded as male identifies as female (or both or neither) or vice-versa, this would add noise to the gender performance measure, reducing the maximal predictive validity of the score and downwardly biasing correlations (i.e., a conservative error given the positive findings). This is likely a very limited amount of bias, given recent estimates that 0.6% of the US population identify as transgender [32]. Third, due to the nature of the data and research aims, we were unable to assess if specific contextual factors impact gender performance and IPV, such as neighborhood environment. While we are capturing normative gender performance behavior, without knowing the environmental context gender performance may or may not reflect traditional or stereotypical gender norms. Last, our statistical analysis assumes a linear relationship between adolescent gender performance and adult IPV outcomes.

Despite limitations, our study has many strengths. Firstly, findings add to the scant literature on the behavioral aspects of gender norms and IPV outcomes in adolescence. From our knowledge, this is the only the second study to examine adolescent gender performance and adult IPV outcomes. Secondly, we utilized a nationally representative sample with a prospective cohort over a 14-year time span. Most previous studies on gender norms and IPV have been cross-sectional, used college-based samples, or exhibited much shorter follow-up periods. Thirdly, by constructing the gender performance measure from Add Health's Wave I data we do not introduce recall bias, a common limitation in other studies that ask adults about their adolescent behavior. Lastly, the process utilized to construct our gender performance variable avoids gender stereotyping and instead highlights how the behavioral component of gender identity is fluid among males and females.

Future research on gender performance and IPV should assess how gender conformity may change over time since gender performance is fluid and may be different in adulthood [19,33,34]. Qualitative data on the associations of gender performance and IPV V/S may better illuminate the pathways that

facilitate experiencing relationship violence. Also, assessing contextual factors in relationship to gender performance will strengthen the ability to understand how norms and IPV outcomes are influenced by environments. Future studies should ask participants about their gender identity as to not assume it matches their sex assigned at birth and to be inclusive of transgender and gender-diverse people. Additionally, further research should not combine the various sub-types of IPV in survey questions (physical, psychological, sexual, and stalking) so their prevalence and predictors can be examined independently.

In conclusion, our findings demonstrate that adolescent male gender performance is associated with adult IPV perpetration and V/S in the United States, while adolescent female gender performance is not associated with IPV in adulthood. These results support the implementation of gender transformative education and social norms-based interventions during adolescence to address descriptive male gender norms and prevent IPV. Gender transformative education serves to generate increased awareness and critical thinking on gender, gender norms, and power [35]. They have been found to be effective in reducing harmful health outcomes and gender-based violence globally [36–40]. Our study's results support that the need for gender transformative education during adolescence, particularly in regard to masculinity, as a part of holistic IPV prevention programs and policies.

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Supplementary Data

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