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ABSTRACT

Background: Intimate partner violence (IPV) among adolescents is common worldwide but our understanding of perpetration, gender differences and the role of social-ecological factors remains limited.

Objectives: To explore the prevalence of physical and sexual IPV perpetration and victimization by gender and associated risk and protective factors.

Methods: Young adolescents, (n=2839), from 41 randomly selected public high schools in the Western Cape region of South Africa, participating in the PREPARE study, completed a self-administered questionnaire.

Results: The participants' mean age was 13.65 years (SD=1.01) with 19% (541/2839) who reported being victims/survivors of IPV and 13.0% (370/2839) who reported perpetrating IPV. Girls were less likely to report being a victim/survivor of physical IPV (OR 0.72 95% CI 0.57, 0.92) and were less likely to be perpetrator of sexual IPV than boys (OR 0.33 95% CI 0.21, 0.52). Factors associated with perpetration of physical and sexual IPV were similar and included being a victim/survivor (physical IPV: OR 12.42, 95% CI 8.89, 17.36 and sexual IPV: OR 20.76 95% CI 11.67, 36.93), being older (physical IPV: OR 1.26, 95% CI 1.08, 1.47 and sexual IPV: OR 1.36 95% CI 1.14, 1.62), having lower scores on school connectedness (physical IPV: OR 0.59 95% CI 0.46, 0.75 and sexual IPV: OR 0.56 95% CI 0.42, 0.76) and scoring lower on feelings of school safety (physical IPV: OR 0.66 95% CI 0.57, 0.77 and sexual IPV: OR 0.50 95% CI 0.40, 0.62).

Conclusions: Physical and sexual IPV was commonly reported among young South African adolescents. Further qualitative exploration of the role of reciprocal violence by gender is needed and the role of school climate-related factors should be taken into account when developing preventative interventions.

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Trial registry site and number: <http://www.controlled-trials.com/ISRCTN56270821>; ISRCTN56270821

List of abbreviations

IPV: Intimate partner violence

SD: Standard deviation

cRCT: Cluster randomised controlled trial

HIV: Human immunodeficiency virus

SES: Socio-economic status

BACKGROUND

Intimate partner violence (IPV) is defined as, ‘any behaviour within an intimate relationship that causes physical, psychological or sexual harm to those in the relationship’.^[1] It can include humiliation, intimidation and controlling behaviour such as monitoring movements and restricting access to resources or health care, physical and sexual violence such as slapping, beating, forced sex or other forms of coercion, and can result in severe injury and death.^[2] Those experiencing IPV may present to healthcare services with physical injury,^[3] depression, or suicide ideation and attempts.^[4] Studies worldwide have shown that physical, psychological and sexual violence vary widely across countries and have been reported in 10-50% of relationships for those aged up to 19 years, including in the US, India, Nigeria, China,^[5] the UK,^[6,7] Tanzania^[8] and South Africa.^[5,8,9] Most studies have reported that psychological violence is most common, followed by physical violence and then sexual violence.^[10,11] Risk factors for perpetration and victimisation of IPV in adolescent relationships also vary between countries and associations with higher age,^[12] not being raised by a biological mother,^[11] higher maternal education,^[8] substance use, particularly alcohol,^[9,11,13] previous maltreatment, violence in the home and aggressive peer networks,^[10] especially at school,^[13] attitudes supportive of male superiority,^[6,9] and for girls, having an older partner,^[8,10] have been reported. Meanwhile protective factors include religion,^[8] holding prosocial beliefs,^[13] and parental monitoring for boys, and for girls with no family conflict.^[13] The evidence is equivocal for disadvantaged background^[6-8,11,12] and gender, especially with this very young age group, with some studies saying violence may be more common for males,^[8] or females.^[6,9,12] The most severe consequences of IPV nevertheless show a clear gender difference both worldwide^[1,2] and particularly in South Africa, which has the highest reported intimate femicide in the world.^[14]

Although several studies have examined IPV among adolescents in South Africa, gender differences, particularly in perpetration and victimization for young adolescents, still required further exploration. More evidence was also needed for the factors that might be associated with IPV perpetration and victimization, including socioeconomic status (SES), family-related factors and the potential role of the school environment.

The purpose of the study was therefore to:

- 1) explore the prevalence of physical and sexual IPV perpetration and victimization by gender in a representative sample of adolescents who were part of a school-based study;
- 2) determine whether there was an association between perpetration and victimization for physical and sexual IPV;
- 3) examine the risk and protective factors for physical and sexual IPV perpetration and victimization and whether these factors differed by gender.

METHODS

Baseline data were collected for the PREPARE study, a cluster randomized controlled trial (cRCT) conducted in 41 public high schools in the Western Cape of South Africa to evaluate an HIV prevention programme that focussed on IPV and sexual violence reduction (PREPARE project: ISRCTN56270821). The PREPARE study was approved by the Western Norway Regional Committee for Medical and Health Research Ethics, by the Human Research Ethics Committee at the University of Cape Town and by the Western Cape Provincial Department of Education. As some of the questions were of a sensitive nature appropriate services were made available for participants. A total of 6244 Grade 8 students (average age 13 years) were invited to participate of whom 55.3%, (3451), returned a signed parental/legal guardian consent form and also signed an assent form. A self-administered paper questionnaire in 3 languages (English, Xhosa and Afrikaans) resembling a young persons' magazine was administered in February and March 2013. After listwise deletion and deleting of records of students who did not report either on gender or who had missing data on IPV measures, the final sample for the purposes of this study was 2839.

Measurements

Multiple choice questions covered socio-demographic information and indicators hypothesised to be risk and protective factors for perpetration and victimization of violence in intimate relationships.

Socio-demographic factors included whether participants identified as 'White', 'Black', 'Coloured' ('race' classifications previously imposed by the Apartheid government which continue to be associated with health inequalities and inequities in health care provision), or 'other', age, gender and orphan status (Maternal/paternal orphan: 'Is your mother/father alive?' (0=No, 1 =Yes, 2=I don't know). Double orphan: mother and father have died (0=No, 1 =Yes). *Socio-economic status (SES)* was assessed by using a family affluence scale. Scores were calculated by adding up the individual scores (0=No, 1=Yes) for each indicator of socio-economic well-being (e.g. having tap water inside the house, electricity, telephone). This resulted in a SES score, ranging from '0' (having none of the items) to '8' (having all items).

Items measuring IPV were adapted from the WHO multi-country study.^[1] Variables associated with physical and sexual IPV perpetrator/victim status within the last 6 months were assessed with a 'yes' answer (score of 1) to each question scored as the participant being a perpetrator or victim of physical and sexual IPV respectively.

Perpetration of physical IPV was assessed by asking how often participants had hit, pushed, kicked, choked or burned their boyfriend/girlfriend (0=Never, 1=At least once).

Victimization of physical IPV was assessed by asking how often had a boyfriend/girlfriend hit, pushed, kicked, choked or burned you? (0=Never, 1=At least once).

Perpetration of sexual IPV was assessed by asking: how often have you forced your boyfriend/girlfriend to have sex? (0=Never, 1=At least once).

Victimization of sexual IPV: how often has a boyfriend/girlfriend forced you to have sex? (0=Never, 1=At least once).

School-related factors were also incorporated in the questionnaire.

School performance was assessed by asking participants 'Have you ever repeated a school year?' (0=No, 1=Yes); 'Last year, how well did you do in school compared to the others in your class?' Answer options: 'I was among the best of my class' (representing a high score), 'I was better than average', 'I was about average', 'I was below average', 'I was among the worst of my class' (representing a low score). A higher score meant higher/better school performance.

School climate questions from the Yale School of Medicine School High School Student Climate Survey were included. A five-point Likert scale was used: strongly agree; agree; not sure; disagree; and strongly disagree which were then dichotomised to '0 for no' and '1 for yes'. For the purposes of the analysis, we computed the mean score of these questions and calculated the Cronbach's Alpha, which was 0.67, 0.82, and 0.78 for school safety, connectedness and appearance respectively. A higher score mean safer/more connected or better school climate.

School safety was assessed by asking participants to agree/disagree with statements such as 'Some students at my school often say that they hit or beat others'; 'At my school, it is easy for criminals to come into school grounds'; 'Students often get hurt at my school'.

School connectedness was assessed by asking participants to agree/disagree with statements such as 'I like school', 'I look forward to going to school', 'I try hard at school', 'Finishing high school is important to me'.

School appearance was assessed by asking participants to agree/disagree with statements such as 'My school building is clean', 'I like the way my school looks', 'My school is well maintained'.

Analysis

Data were analysed using SPSS 22.0 and STATA 13.0. Sample characteristics were described with Chi-square tests and analysis of variance (ANOVA) with means and standard deviations (SD) calculated for continuous variables. To determine whether there was an association between perpetration and victimization for physical and sexual IPV and to explore the association of specific risk and protective factors of interest, multiple logistic and linear regression models were applied. Data were stratified by gender and all analyses were adjusted for the clustered design (students nested within schools), by using the mixed models Generalized Estimation Equations (GEE) in STATA to avoid underestimation of the standard errors. Those who reported being perpetrators of IPV were compared to non-perpetrators of IPV and survivors of IPV were compared to those who didn't report experiencing IPV.

RESULTS

The mean age of the participants was 13.65 years (SD 1.01), 60.9% (1729/2839) were girls, 57.6% (n=1629) self-identified as 'Coloured', 34.6% (n=977) as 'Black', 5.0% (n=141) as 'White', and 2.8% (n=80) as 'Other'. Over 1 in 5 (21.8%, n=604) had repeated a school year. Thirteen percent (370/2839) of participants reported perpetrating IPV and 19% (541/2839) reported being victims/survivors of IPV.

Prevalence rates of physical and sexual IPV according to gender

Ten percent of our sample overall (284/2839) reported being perpetrators of physical IPV and 15.8% (449/2839) were victims/survivors of physical IPV with 15.6 % (22/141). For males, 13.8% (153/1110) reported physical IPV perpetration and 21.1% (234/1110) physical IPV victimization. For females, 7.6% (131/1729) reported physical IPV perpetration and 12.4% (215/1729) physical IPV victimization. Participants reported that 5.9% (168/2839) were perpetrators of sexual IPV and 7.3% (206/2839) were victims. For sexual IPV, prevalence rates for males were 10.8% (120/1110) for perpetration and 11.1% (123/1110) for victimization. For females the rates were 2.8% (48/1729) for sexual IPV perpetration and 4.8% (83/1729) for sexual IPV victimization. Overall, boys reported significantly more perpetration as well as more victimization than girls for physical IPV (Table 1) and sexual IPV (Table 2) ($p < .001$).

Male perpetrators of physical IPV were older (14.31 (SD 1.09) vs. 13.73 (SD 1.10)), were more likely to identify as 'White' (10.3% (15/153) vs. 5.3% (50/957)) or 'Black' (51% (74/153) vs. 34.1% (321/957)), were more likely to have lost their father due to death (16.7% (24/153) vs. 10.9% (101/957)), had lower mean SES score (5.70 (SD 1.65) vs. 6.16 (SD 1.53)), were more likely to have repeated a school year (47.8% (65/153) vs. 25.2% (228/957)), and had lower mean score for school performance (3.70 (SD 0.98) vs. 3.91 (SD 0.88)), school connectedness (4.19 (SD 0.86) vs. 4.53 (SD 0.72)), and feelings of school safety (2.44 (SD 0.98) vs. 2.94 (SD 1.04)) than male non-perpetrators (Table 1). When comparing male physical IPV perpetrators with non-perpetrators, a significant difference in ethnicity was found with those who identified as 'coloured' being less likely to be perpetrators of IPV (38.6% (56/153) vs. 57.5% (542/957)). Similar results were reported for male survivors of IPV versus those males who did not report experiencing IPV, although paternal orphanhood and school performance were no longer statistically significant. In addition, male survivors of IPV scored lower on perceptions of school appearance.

Female perpetrators of physical IPV were older (13.74 (SD 0.76) vs. 13.51 (SD 0.90)), were more likely to have lost their father due to death (20.5% (26/131) vs. 10.4% (160/131)), had lower scores for school connectedness (4.46 (SD 0.76) vs. 4.64 (SD 0.57)), feelings of school safety (2.50 (SD 0.91) vs. 2.97 (SD 1.00)) and had less favourable views about their school's appearance (3.90 (SD 0.94) vs. 4.04 (SD (0.96)) than female non-perpetrators (Table 1). Similar results were found for female survivors of IPV compared to their counterparts who didn't report experiencing IPV, except that they were statistically significantly more likely to have repeated a school year (27.5 % (57/215) vs. 16.1 (237/1514)), have a lower mean score for school performance (3.79 (SD 1.02) vs. 3.98 (SD 0.87)) and were less likely to identify as 'coloured' (53.8% (114/215) vs. 60.8% (839/1514)).

Sexual IPV followed a similar pattern as physical IPV (Table 2). Both male and female perpetrators and survivors of IPV were older, were more likely to identify as 'black' or 'white' and less likely to identify as 'coloured', had lower school connectedness and feelings of school safety compared to their male and female counterparts who were neither perpetrators nor survivors of IPV. In addition female survivors of IPV were more likely to have father who had died (17.5% (14/83) vs. 10.9% (172/1646)), male perpetrators and survivors had lower SES (5.48 (SD 1.90) vs 6.17 (SD 1.49) for perpetrators and 5.54 (SD 1.78) vs. 6.16 (SD 1.51) for survivors) and were more likely to have repeated a school year

(41.0% (64/120) vs. 25.9% (229/990) for perpetrators and 44.0% (48/123) vs. 26.3 (245/987) for survivors) and male perpetrators also more likely to have poorer scores for school performance (3.68 (SD 0.96) vs. 3.91 (SD 0.89))

Associations between perpetration and victimization for physical and sexual IPV

Bivariate correlations were found for males and females regarding perpetration and victimization of both physical and sexual IPV (Table 3). Multiple linear and logistic regression models showed that factors associated with *perpetration* of physical IPV for the whole sample were being a victim of physical IPV (OR 12.42, 95% CI 8.89, 17.36), being older (OR 1.26, 95% CI 1.08, 1.47), having lower school connectedness (OR 0.59 95% CI 0.46, 0.75) and scoring lower on feelings of school safety (OR 0.66 95% CI 0.57, 0.77) (Table 4). For boys, factors associated with being a perpetrator of physical IPV were being a victim of physical IPV (OR 5.75 95% CI 3.65, 9.08), being older (OR 1.23 95% CI 1.04, 1.47), lower school connectedness (OR 0.53, 95% CI 0.39, 0.71) lower feelings of school safety (OR 0.61 95% CI 0.50, 0.74) and a negative view of their school's appearance (OR 1.29 95% CI 1.01, 1.62). For girls, the factors associated with physical IPV perpetration were being a victim of physical IPV themselves (OR 17.69 95% CI 10.95, 28.57), and having lower school connectedness (OR 0.66 95% CI 0.58, 0.94) and feelings of school safety (OR 0.74 95% CI 0.58, 0.94).

For the whole sample girls were *less* likely to be a *victim/survivor* of physical IPV than males (OR 0.72 95% CI 0.57, 0.92), whilst being a perpetrator of physical IPV (OR 12.38 95% CI 8.80, 17.43), having repeated a school year (OR 1.72 95% CI 1.24, 2.38), and lower mean score on feelings of school safety (OR 0.72 95% CI 0.63, 0.83) were associated with *higher* odds of being a *victim/survivor* of physical IPV (Table 4). For boys, associated factors for being a *victim/survivor* of physical IPV were being a perpetrator of physical IPV (OR 9.07 95% CI 5.58, 14.74), having repeated a school year (OR 2.08 95% CI 1.34, 3.25), and reporting lower feelings of school safety (OR 0.79 95% CI 0.68, 0.91). For girls, those factors associated with being a *victim/survivor* of physical IPV were being a perpetrator of physical IPV (OR 17.65 95% CI 10.87, 28.66), and reporting lower feeling of school safety (OR 0.64 95% CI 0.54, 0.79).

Females were less likely to *perpetrate* sexual IPV than males (OR 0.33 95% CI 0.21, 0.52) and for the whole sample, being a victim of sexual IPV (OR 20.76 95% CI 11.67, 36.93), being older (OR 1.36 95% CI 1.14, 1.62), having lower school connectedness (OR 0.56 95% CI 0.42, 0.76), and reporting lower feelings of school safety (OR 0.50 95% CI 0.40, 0.62) were all associated with perpetration of sexual IPV. These associations were similar for both boys and girls who perpetrated sexual IPV. Both groups had higher odds of having been victims of sexual IPV (OR 11.65 95% CI 5.72, 23.72 for boys and OR 53.72 95% CI 20.23, 142.65 for girls). Additionally boys who perpetrated sexual IPV also reported lower scores on school appearance (OR 1.34 95% CI 1.08, 1.68) (Table 5). For the whole sample the only factor associated with being a *victim/survivor* of sexual IPV, was being a perpetrator (OR 20.39 95% CI 11.39, 36.51). The odds varied for boys (OR 11.65 95% CI 5.72, 23.75) and girls (OR 53.16 95% CI 19.20, 147.17), with boys also scoring lower on school connectedness (OR 0.54 95% CI 0.36, 0.81) and feelings of school safety (OR 0.57 95% CI 0.40, 0.80) and girls for school safety only (OR 0.61 95% CI 0.45, 0.82).

DISCUSSION

Our study aimed to examine perpetration and victimization of intimate partner violence in a sample of young school-going adolescents and to explore associations with gender, socio-economic and school factors. Ten per cent of participants reported perpetrating physical violence and 5.9% sexual IPV in their intimate relationships in the previous 6 months, whilst 21.1% of boys and 12.4% of girls reported being victims of physical IPV and 11.1% of boys and 4.8% of girls reported being victims of sexual IPV. This is alarming considering the mean age of the participants was only 13 years old and reporting was only for the previous 6 months. Male perpetration of physical and sexual IPV was associated with being a victim of physical/sexual IPV, higher age, and low scores on school connectedness, feelings of school safety and more negative feelings about school appearance. Being a male victim/survivor of physical IPV was associated with being a perpetrator, having repeated a school year and lower score on feelings of school safety whilst for males sexual IPV victimization was associated with being a perpetrator and having lower scores for school connectedness and feelings of school safety. Female perpetration of physical and sexual IPV was associated with being a victim of physical/sexual IPV, and lower scores on school connectedness and feelings of school safety plus higher age for sexual IPV only. Being a female victim/survivor of both physical and sexual IPV was associated with being a perpetrator and lower score on feelings of school safety.

The prevalence of physical and sexual IPV perpetration and victimization were higher among boys than among girls in our study, which is similar to rates reported for a similar population in South Africa^[8] and the US^[4,13], but different to evidence from other South African studies, one of which asked about IPV victimization, in the previous three months,^[9] and one that asked about physical IPV only.^[12] The victimization prevalence for boys seems counterintuitive considering the high fatalities as a result of IPV for adult women in South Africa,^[14] and the impact on health and wellbeing for women worldwide.^[1-3] The results could be the result of differential reporting between boys and girls, the difference in context of the violence,^[6] that boys are more likely to be pressured to have relationships at a younger age than girls, which increases their risk of IPV. However it is not clear from our data with whom the boys were having relationships. There have been anecdotal reports of younger boys engaging in relationships with much older adult women in South Africa, so research is needed to explore this in more depth. Neither do we have detail about the severity of the violence and it could be that as males get older perpetration of violence against females becomes more extreme, is more likely to inflict injury,^[15] and more likely to result in fatalities.^[1,2,14] The finding that those who identify as 'coloured' are *less* likely to engage in IPV at this age also needs further examination as there may be protective factors that are related to religion, prosocial beliefs or parental monitoring^[8,13] for this group.

We also found very strong associations between perpetration and victimization for physical and sexual IPV. Victimization was the strongest predictor for perpetration and vice versa. Both boys and girls who were perpetrators of physical IPV had increased odds for being victims of physical IPV, although the odds for girls were much compared to boys, with more extreme differences for sexual IPV for girls compared to boys although the estimates were less precise. Given that this was a cross-sectional study, we cannot deduce temporal associations between perpetration and victimization, although other studies have found

similar associations.^[8,15] Future investigations will benefit from exploring underlying factors in reciprocal violence using more qualitative longitudinal methods to understand the context and meaning of the violence and that may provide important clues to improving interventions and for recognising IPV risk in both clinical practice and in schools.

Our results also demonstrated that low scores on school connectedness and feelings of school safety were associated with physical and sexual IPV perpetration and victimization for both boys and girls although school performance per se was not associated with IPV. As school is an important setting for IPV prevention the significance of school factors as potential mediators or modifiers for adolescents being or becoming a perpetrator or victim of physical or sexual IPV needs to be considered and in particular to prevent dropout from school which is known to have adverse consequences. Future research should therefore explore the role of schools and specifically school climate in preventing IPV among adolescents.

This study was subject to some limitations. Firstly, adolescent physical and sexual IPV is a sensitive topic for very young people and we relied on self-reports, so even though anonymity was assured, the validity of the answers could be questioned. Participants might not have defined their experiences as 'IPV', particularly the girls,^[6] could have misunderstood questions, declined to answer or purposefully masked perpetration or victimization. Nevertheless, the prevalence for IPV in our study does correspond with that from studies with similar populations.^[8,11-13] Second, our study did not explore the characteristics of perpetrating partners who may be older or younger, of the same or different sex. Again, this is important for the development of interventions that could assist young people to report the abuse, as previous studies have shown that help-seeking by young people engaged in IPV is virtually non-existent and over half seek help from friends only.^[10] Third, due to our large sample, some statistically significant findings may not necessarily have clear predictive value for individuals.

Despite the potential limitations, our study presents a clear exploration of both perpetration and victimization of physical and sexual IPV in a young adolescent population and adds new insights to the existing literature. Our findings have underlined the very high prevalence of reciprocal IPV among young South African boys and girls and the urgent need to investigate this issue further in order to develop appropriate interventions to prevent long-term adverse health impacts.^[1-3,11,14,15] The evidence linking demographic factors associated with IPV including lower SES, the death of a father, and school factors such as repeating a school year and lower scores on school climate-related measures suggests the need for a proportionate universal multilevel model of intervention. Finally more attention should be given to addressing community-level factors that can potentially protect young people from physical and sexual IPV perpetration and victimization.

Tables legend

Table 1. Physical IPV: sample characteristics and gender differences

Table 2. Sexual IPV: sample characteristics and gender differences

Table 3. Bivariate correlations between observed variables (Above the diagonal: males; under the diagonal: females)

Table 4. Multivariate analysis: Factors associated with physical IPV perpetration and victimization

Table 5. Multivariate analysis: Factors associated with sexual IPV perpetration and victimization

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Table 1. Physical intimate partner violence (IPV): sample characteristics and gender differences (% (n))

		Total	Male Perpetrators 13.8% (153)	Non- perpetrators 86.2% (957)	Female Perpetrators 7.6% (131)	Non- Perpetrators 92.4% (1598)	Male Victims 21.1% (234)	Non-victims 78.9% (876)	Female Victims 12.4% (215)	Non-victims 87.6% (1514)
Sex	Male	39.1% (1110)	-	-	-	-	-	-	-	-
	Female	60.9% (1729)	-	-	-	-	-	-	-	-
Age (years)	Mean(SD) [*]	13.65 (1.01)	14.31*** (1.09)	13.73 (1.10)	13.74*** (0.76)	13.51 (0.90)	14.14*** (1.11)	13.72 (1.11)	13.75*** (0.93)	13.50 (0.89)
Ethnicity	Black	34.6% (977)	51.0%*** (74)	34.1% (321)	31.8% (41)	33.1% (516)	48.9%*** (109)	33.1% (286)	37.3% (79)	32.4% (478)
	Coloured	57.6% (1629)	38.6% *** (56)	57.5% (542)	58.9% (76)	59.7% (931)	43.0%*** (96)	58.1% (502)	53.8%* (114)	60.8% (839)
	White	5.0% (141)	10.3% *** (15)	5.3% (50)	5.4% (7)	4.2% (66)	7.2% (16)	5.7% (49)	6.2% (19)	4.2% (62)
	Other	2.8% (80)	0 (9)	0.5% (9)	0 (21)	3.0% (21)	0 (9)	0.9% (9)	0.9% (2)	1.3% (19)
Orphan status	Maternal	4.3% (124)	4.0% (6)	3.5% (33)	1.5% (2)	5.0% (79)	4.7% (11)	3.2% (28)	4.7% (10)	4.7% (71)
	Paternal	11.5% (322)	16.7%* (24)	10.9% (101)	20.5%*** (26)	10.4% (160)	15.4% (34)	10.7% (91)	17.3% (36)	10.3% (150)
	Double	1.3% (38)	2.0% (3)	0.8% (8)	0.8% (1)	1.5% (24)	0.9% (2)	1.0% (9)	2.3% (5)	1.3% (20)
SES [†]	Mean(SD) [*]	6.07 (1.59)	5.70** (1.65)	6.16 (1.53)	6.00 (1.72)	6.09 (1.58)	5.71*** (1.68)	6.20 (1.50)	5.90 (1.75)	6.10 (1.56)
Ever repeated a school year		21.8% (604)	47.8%*** (65)	25.2% (228)	22.7% (29)	17.1% (265)	45.9%*** (196)	23.7% (197)	27.5%*** (57)	16.1% (237)
School performance	Mean(SD) [*]	3.93 (0.90)	3.70* (0.98)	3.91 (0.88)	3.88 (1.01)	3.96 (0.89)	3.75 (0.94)	3.92 (0.89)	3.79** (1.02)	3.98 (0.87)

School connectedness	Mean(SD)[*]	4.57 (0.66)	4.19*** (0.86)	4.53 (0.72)	4.46** (0.76)	4.64 (0.57)	4.33** (0.79)	4.52 (0.74)	4.53** (0.65)	4.64 (0.57)
School safety	Mean(SD)[*]	2.91 (1.01)	2.44*** (0.98)	2.94 (1.04)	2.50*** (0.91)	2.97 (1.00)	2.56*** (0.99)	2.96 (1.05)	2.50*** (0.91)	3.00 (0.99)
School appearance	Mean(SD)[*]	4.00 (0.96)	3.91 (0.89)	3.95 (0.99)	3.90* (0.94)	4.04 (0.96)	3.81** (0.96)	3.98 (0.99)	3.99 (0.93)	4.03 (0.96)

Perpetration of physical IPV: How often have you hit, pushed, kicked, choked or burned your boy/girlfriend in the last 6 months? Victimization of physical IPV: In the past 6 months, how often has a boy/girlfriend hit, pushed, kicked, choked or burned you? Have you ever repeated a school year? School performance: Last year, how well did you do in school compared to the others in your class? School connectedness: I like school, I look forward to going to school, I try hard at school, Finishing high school is important to me. School safety: Some students at my school often say that they hit or beat others, at my school it is easy for criminals to come into school grounds, and Students often get hurt at my school. School appearance: My school building is clean, I like the way my school looks, and my school is well maintained. ^{*} SD=Standard Deviation. [†] SES=Socio-Economic Status. *** p < .001; ** p < .01; * p < .05

Table 2. Sexual intimate partner violence (IPV): sample characteristics and gender differences (% (n))

		Total	Male		Female		Male		Female	
			Perpetrators	Non-perpetrators	Perpetrators	Non-perpetrators	Victims	Non-victims	Victims	Non-victims
			10.8% (120)	89.2% (990)	2.8% (48)	97.2% (1681)	11.1% (123)	88.9% (987)	4.8% (83)	95.2% (1646)
Sex	Male	39.1% (1110)	-	-	-	-	-	-	-	-
	Female	60.9% (1729)	-	-	-	-	-	-	-	-
Age (years)	Mean(SD) [*]	13.65 (1.01)	14.44*** (1.38)	13.73 (1.06)	13.98*** (0.85)	13.52 (0.89)	14.38*** (1.17)	13.74 (1.09)	13.89** (0.88)	13.51 (0.89)
Ethnicity	Black	34.6% (977)	49.1%** (56)	34.8% (339)	41.7% (20)	32.7% (537)	53.0%** (61)	34.4% (334)	36.1% (30)	32.8% (527)
	Coloured	57.6% (1629)	38.6% ** (44)	56.9% (554)	45.8% (22)	60.1% (985)	33.9%** (39)	57.5% (559)	55.4% (46)	59.9% (961)
	White	5.0% (141)	12.3%** (14)	5.2% (48)	8.3% (4)	4.2% (69)	11.3%** (13)	5.3% (52)	4.8% (4)	4.3% (69)
	Other	2.8% (80)	0 (9)	0.9% (9)	0 (21)	1.3% (21)	0 (9)	0.9% (9)	0 (21)	1.3% (21)
Orphan status	Maternal	4.3% (124)	4.2% (5)	3.5% (34)	2.1% (1)	4.8% (80)	5.7% (7) (32)	3.3% (32)	2.4% (2)	4.8% (79)
	Paternal	11.5% (322)	15.5% (18)	11.2% (107)	17.4% (8)	11.0% (178)	14.7% (17)	11.3% (108)	17.5%* (14)	10.9% (172)
	Double	1.3% (38)	1.7% (2)	0.9% (9)	2.1% (1)	1.4% (24)	2.5% (3)	0.8% (8)	1.2% (1)	1.5% (24)
SES [†]	Mean(SD) [*]	6.07 (1.59)	5.48*** (1.90)	6.17 (1.49)	5.92 (1.90)	6.08 (1.56)	5.54** (1.78)	6.16 (1.51)	5.92 (1.81)	6.10 (1.58)
Ever repeated a school year		21.8% (604)	41.0%*** (64)	25.9% (229)	25.9% (15)	17.2% (279)	44.0%*** (48)	26.3% (245)	23.5% (19)	17.2% (275)
School performance	Mean(SD) [*]	3.93 (0.90)	3.68* (0.96)	3.91 (0.89)	3.75 (1.10)	3.96 (0.89)	3.80 (0.92)	3.90 (0.90)	3.90 (0.99)	4.00 (0.90)

School connectedness	Mean(SD)[*]	4.23 (0.81)***	4.18*** (0.84)	4.52 (0.73)	4.34** (0.71)	4.63 (0.58)	4.10*** (0.89)	4.53 (0.72)	4.46* (0.69)	4.63 (0.58)
School safety	Mean(SD)[*]	2.30 (0.92)***	2.23*** (0.89)	3.00 (1.04)	2.18*** (0.79)	3.0 (0.99)	2.30*** (0.96)	2.95 (1.04)	2.34*** (0.90)	2.97 (0.99)
School appearance	Mean(SD)[*]	3.98 (0.89)	4.04 (0.83)	3.93 (0.99)	4.0 (0.98)	4.03 (0.96)	3.93 (0.88)	3.95 (0.99)	3.92 (1.00)	4.03 (0.96)

Perpetration of sexual IPV: How often have you forced your boy/girlfriend to have sex in the last 6 months? Victimization of sexual IPV: How often has a boy/girlfriend forced you to have sex in the last 6 months? Have you ever repeated a school year? School performance: Last year, how well did you do in school compared to the others in your class? School connectedness: I like school, I look forward to going to school, I try hard at school, Finishing high school is important to me. School safety: Some students at my school often say that they hit or beat others, At my school it is easy for criminals to come into school grounds, and Students often get hurt at my school. School appearance: My school building is clean, I like the way my school looks, and My school is well maintained. ^{*} SD=Standard Deviation. [†] SES=Socio-Economic Status. *** $p < .001$; ** $p < .01$; * $p < .05$

Table 3. Bivariate correlations between observed variables (Above the diagonal: males; under the diagonal: females)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Perpetrator sexual IPV*		.48***	.45***	.33***	.09**	.09**	-.11***	.24	-.14***	-.08**	.13***	-.14**	-.04	-.21
2. Victim sexual IPV*	.53***		.38***	.40***	.08*	.12***	-.15***	.05	.13***	-.04	.12***	-.18***	-.00	-.10***
3. Perpetrator physical IPV*	.32***	.26***		.43***	.07**	.12***	-.13***	.04	-.10**	-.08**	.17***	-.15***	-.01	-.17***
4. Victim physical IPV*	.25***	.35***	.45***		.03	.13***	-.12***	-.01	-.13***	-.07**	.20***	-.10***	-.07**	-.16***
5. White ethnicity	.03*	.01	.02	.02		-.19***	-.28***	.02	.00	-.08**	-.01	.03	.03	-.04
6. Black ethnicity	.03*	.02	-.01	.03	-.15***		-.84***	-.01	-.37***	.05	.09**	-.07	-.05	.07
7. Coloured ethnicity	-.05**	-.02	-.04	-.05*	-.26***	-.85***		-.03	.34***	-.03	-.07**	.08**	.04	-.06**
8. Orphan status [†]	.01	-.01	-.02	.03	.02	.03	-.03		-.04	.07**	.04	-.05	.00	-.02
9. SES [‡]	-.02	-.02	-.02	-.04	-.04*	-.29***	.29***	-.04		-.13***	-.13***	.07**	.02	.03
10. Ever repeated a school year	.02	.04	.04	.10***	.05*	.05*	-.07**	.05**	-.13***		-.25***	-.11***	-.08**	-.05
11. School performance	-.04	-.03	-.02	-.07**	-.03	.10***	-.09***	.01	.02	-.20***		.16***	-.06	.09**
12. School connectedness	-.08***	-.06**	-.08***	-.06**	-.06**	-.03	-.01	-.01	.01	-.10***	.12***		-.08**	.33***
13. School safety	-.13***	-.14***	-.12***	-.16***	-.00	.02***	-.10***	-.02	-.02	-.05**	.05**	-.00		.06**
14. School appearance	-.01	-.03	-.04*	-.01	.04	.02	-.03	-.01	-.05	-.02	.02	.27***	.18***	

Perpetration of sexual IPV: How often have you forced your boy/girlfriend to have sex in the last 6 months? Victimization of sexual IPV: How often has a boy/girlfriend forced you to have sex in the last 6 months? Perpetration of physical IPV: How often have you hit, pushed, kicked, choked or burned your boy/girlfriend in the last 6 months? Victimization of physical IPV: In the past 6 months, how often has a boy/girlfriend hit, pushed, kicked, choked or burned you? Have you ever repeated a school year? School performance: Last year, how well did you do in school compared to the others in your class? School connectedness: I like school, I look forward to going to school, I try hard at school, Finishing high school is important to me. School safety: Some students at my school often say that they hit or beat others, At my school it is easy for criminals to come into school grounds, and Students often get hurt at my school. School appearance: My school building is clean, I like the way my school looks, and My school is well maintained. *IPV=Intimate Partner Violence. [†]Both maternal and paternal orphan. [‡]SES=Socio-Economic Status. *** $p < .001$; ** $p < .01$; * $p < .05$

Table 4. Multivariate analysis: Factors associated with physical intimate partner violence (IPV) perpetration and victimization

	Perpetrator of physical IPV						Victim of physical IPV					
	Total		Males (N=153)		Females (N=131)		Total		Males (N=234)		Females (N=215)	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Gender*	0.84	0.60-1.16	-	-	-	-	0.72*	0.57-0.92	-	-	-	-
Victim status (Physical IPV)	12.42***	8.89-17.36	5.75***	3.65-9.08	17.69***	10.95-28.57	-	-	-	-	-	-
Perpetrator status (Physical IPV)	-	-	-	-	-	-	12.38***	8.80-17.43	9.07***	5.58-14.74	17.65***	10.87-28.66
Age (years)	1.26**	1.08-1.47	1.23*	1.04-1.47	1.26	0.94-1.69	1.04	0.89-1.21	0.98	0.78-1.23	1.11	0.88-1.40
Orphan status [†]	1.05	0.26-4.22	4.32	0.79-23.64	0.29	0.03-2.75	0.75	0.23-2.49	0.20	0.02-2.24	1.50	0.49-4.56
SES [‡]	0.98	0.90-1.07	0.95	0.85-1.07	0.99	0.86-1.13	0.93	0.85-1.01	0.88	0.77-1.00	0.96	0.87-1.06
Ever repeated a school year	0.99	0.67-1.47	1.40	0.86-2.29	0.65	0.34-1.26	1.72***	1.24-2.38	2.08***	1.34-3.25	1.48	0.94-2.32
School performance	1.02	0.88-1.19	0.97	0.75-1.25	1.05	0.83-1.32	0.90	0.78-1.04	0.97	0.78-1.20	0.85	0.72-1.01
School connectedness	0.59***	0.46-0.75	0.53***	0.39-0.71	0.66*	0.44-0.97	0.90	0.71-1.15	0.97	0.74-1.27	0.83	0.57-1.21
School safety	0.66***	0.57-0.77	0.61***	0.50-0.74	0.74*	0.58-0.94	0.72***	0.63-0.83	0.79**	0.68-0.91	0.64***	0.54-0.79
School appearance	1.08	0.91-1.28	1.29**	1.02-1.62	0.90	0.72-1.11	0.093	0.79-1.09	0.81	0.65-1.00	1.08	0.88-1.31
R ²	0.25		0.25		0.26		0.19		0.23		0.20	

Perpetration of physical IPV: How often have you hit, pushed, kicked, choked or burned your boy/girlfriend in the last 6 months? Victimization of physical IPV: In the past 6 months, how often has a

boy/girlfriend hit, pushed, kicked, choked or burned you? Have you ever repeated a school year? School performance: Last year, how well did you do in school compared to the others in your class? School

connectedness: I like school, I look forward to going to school, I try hard at school, Finishing high school is important to me. School safety: Some students at my school often say that they hit or beat others,

At my school it is easy for criminals to come into school grounds, and Students often get hurt at my school. School appearance: My school building is clean, I like the way my school looks, and My school is

well maintained. * Reference category = male; [†] Both maternal and paternal orphan. [‡]SES=Socio-Economic Status. *** $p < .001$; ** $p < .01$; * $p < .05$. Ethnicity was not included in the analysis due to

convergence issues (standard error estimates of some of the groups were too large).

Table 5. Multivariate analysis: Factors associated with sexual intimate partner violence (IPV) perpetration and victimization

	Perpetrator of sexual IPV						Victim of sexual IPV					
	Total		Males (N=120)		Females (N=48)		Total		Males (N=123)		Females (N=83)	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Gender*	0.33***	0.21-0.52	-	-	-	-	0.94	0.65-1.37	-	-	-	-
Victim status (Sexual IPV)	20.76***	11.67-36.93	11.65***	5.72-23.72	53.72***	20.23-142.65	-	-	-	-	-	-
Perpetrator status (Sexual IPV)	-	-	-	-	-	-	20.39***	11.39-36.51	11.65***	5.72-23.75	53.16***	19.20-147.17
Age (years)	1.36***	1.14-1.62	1.26*	1.07-1.49	1.68*	1.04-2.69	1.18	0.92-1.50	1.11	0.85-1.45	1.30	0.93-1.80
Orphan status [†]	1.46	0.56-3.85	1.70	0.43-6.70	1.69	0.34-8.56	0.91	0.39-2.11	1.53	0.36-6.54	0.38	0.11-1.36
SES [‡]	0.89	0.75-1.05	0.83	0.69-1.01	0.95	0.75-1.21	0.95	0.85-1.07	0.93	0.76-1.14	0.96	0.81-1.16
Ever repeated a school year	0.92	0.56-1.51	1.26	0.73-2.17	0.40	0.11-1.40	1.01	0.58-1.78	1.07	0.59-1.98	1.10	0.53-2.32
School performance	0.85	0.68-1.07	0.86	0.65-1.15	0.82	0.59-1.15	1.03	0.84-1.27	1.08	0.82-1.43	0.98	0.76-1.25
School connectedness	0.56***	0.42-0.76	0.56***	0.41-0.76	0.54**	0.30-0.94	0.62	0.45-0.85	0.54**	0.36-0.81	0.76	0.47-1.22
School safety	0.50***	0.40-0.62	0.52***	0.41-0.65	0.46***	0.30-0.71	0.59	0.48-0.73	0.57***	0.40-0.80	0.61***	0.45-0.82
School appearance	1.26	0.96-1.67	1.34**	1.08-1.68	1.24	0.67-1.89	1.00	0.80-1.25	1.06	0.80-1.42	0.97	0.72-1.30
R ²	0.44		0.41		0.43		0.26		0.26		0.26	

Perpetration of sexual IPV: How often have you forced your boy/girlfriend to have sex in the last 6 months? Victimization of sexual IPV: How often has a boy/girlfriend forced you to have sex in the last 6 months? Have you ever repeated a school year? School performance: Last year, how well did you do in school compared to the others in your class? School connectedness: I like school, I look forward to going to school, I try hard at school, Finishing high school is important to me. School safety: Some students at my school often say that they hit or beat others, At my school it is easy for criminals to come into school grounds, and Students often get hurt at my school. School appearance: My school building is clean, I like the way my school looks, and My school is well maintained. * Reference category = male; [†] Both maternal and paternal orphan. [‡]SES=Socio-Economic Status. *** p < .001; ** p < .01; * p < .05. Ethnicity was not included in the analysis due to convergence issues (standard error estimates of some of the groups were too large).