RESEARCH ARTICLE

Experiences of violence among female and male grade eight learners: baseline findings from the Girls Achieve Power (GAP Year) trial across three South African townships [version 1; peer review: 2 approved with reservations]

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Abstract

Background: South African adolescents experience disproportionately high rates of violence, with lifelong health, social and economic impacts. Few papers present risk factors associated with experiences of adolescent violence.

Methods: A baseline cross-sectional survey was done (April 2017 – Sept 2018) with 3432 grade 8 learners in the Girls Achieve Power (GAP Year) trial from 26 high schools in three townships (Soweto and Tembisa, Gauteng and Khayelitsha, Western Cape). Collected data on lifetime experiences of different types of violence, perpetrators, and place of violence. Descriptive statistics and logistic regression were used to enumerate experiences of, and factors associated with violence.

Results: A total of 2383 respondents are included. Most (63.1%) were girls, 81.5% aged 12-14. In total 26% had ever experienced violence, higher among boys ($p < 0.001$). Physical violence was most common (35.7%), then psychological (21.8%), sexual (13.1%), neglect (10.6%), cyberbullying (7.6%), corporal punishment (6.5%) and economic abuse (4.8%). Boys experienced more physical violence (36.0%); girls experienced more psychological violence (22.2%). Gauteng had double the reports of sexual violence (18.4% vs 7.6%, $p < 0.001$). Violence happened most at school (27.4%), followed by the park (19.8%) or their friends' home (12.9%).

Multivariate analysis showed that boys (aOR 1.57; 95% CI 1.27-1.94; $p = 0.000$), those aged 15-17 years (aOR 1.41; 95% CI 1.07-1.84;

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2. **Pauline Gulliver**, University of Auckland, Auckland, New Zealand

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$p=0.013$), those who ever used substances (aOR 1.92; 95% CI 1.54-2.37; $p=0.000$), and those who sometimes feel worthless (aOR 1.35; 95% CI 1.10-1.64, $p=0.003$) were at higher odds of ever experiencing violence. Those who had never had sex were less likely to have ever experienced violence (aOR 0.66; 95% CI 0.51-0.83; $p=0.001$).

Conclusion: Urgently need wider adoption, scaling, and sustaining of evidence-based primary violence prevention and structural interventions are required to reduce the high burden of adolescent violence. Stakeholders across the ecological model are needed to tackle harmful cultural norms that perpetuate violence.

Keywords

Violence, School, Adolescent girls and boys, South Africa

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Introduction

Violence is the ‘intentional use of physical force or power, threatened or actual, against oneself, another person, or against a group or community, that either results in or has a high likelihood of resulting in injury, death, psychological harm, maldevelopment, or neglect’¹. Globally, 50% of children aged 2–17 years have experienced physical, sexual or emotional violence in the past year². In South Africa (SA), those under 18 years old experience disproportionately high rates of violence. For example, in the South African ‘Birth to twenty cohort’, 99% had ever been exposed to (seeing or hearing violence) or experienced violence (direct experience) in their home, school or community before they turned 20³. Meinck *et al.*⁴ found that 32% of children reported at least one type of frequent monthly abuse. In another study by Burton and Leoschut⁵, 22% of learners aged between 12–18 years across SA had experienced some form of violence while at school in the past year.

Adolescence is a formative period of development, as individuals transition from childhood to adulthood⁶. It is a period characterized by heightened vulnerabilities to certain risks that can have a substantial impact on future health trajectories⁶. Violence during childhood and adolescence can have lifelong adverse health, social and economic consequences⁷, increasing vulnerability to HIV acquisition⁸ due to risky sexual behaviours, poor school performance^{9,10} and higher levels of depression and suicide ideation¹¹. Sex and gender become increasingly important when assessing vulnerability to violence¹² and the social factors and biological changes that take place during adolescence, as these result in gendered differences in experiences of violence¹³. Current research highlights that girls are at higher risk of sexual violence compared to boys^{12,14,15}, however, few papers report on risk factors associated with ever experiencing violence¹⁶.

The Girls Achieve Power Trial (GAP Year) is a cluster randomised controlled trial (cRCT) testing the effectiveness of a comprehensive sexuality education (CSE) asset-building intervention aiming to reduce school dropout among adolescent girls between grades 8–10 while shifting gender attitudes and encouraging positive behaviour change among adolescent boys. We conducted an analysis of the baseline data to examine sex and geographical differences in the prevalence, patterns, location, time, perpetration, and reporting of violence experienced by adolescents attending school in three townships in two provinces.

Methods

Study design and setting

A baseline cross-sectional analysis was conducted in 3432 grade 8 participants enrolled into the GAP Year cRCT, between April 2017 – September 2018. Participants completed a knowledge, attitudes, perceptions, and behaviour survey at baseline. Twenty-six public high schools were selected across three townships (Soweto and Tembisa in Gauteng Province

and Khayelitsha in the Western Cape (WC)). Schools were selected using the following inclusion criteria: mixed-sex public high schools in Tembisa, Soweto and Khayelitsha; in quintiles 1–3¹ which had not been exposed to any asset building interventions in the past six months. A one to one (1:1) random stratification scheme was employed, assigning 26 schools to either intervention or control groups.

Sample size justification

The sample size was calculated based on the study’s primary outcome measures, namely dropout rate and increased reporting of GBV among adolescent girls, computed using cluster-randomized size methodology suggested by Hayes and Bennett¹⁷. The effect size of dropout was factored from other similar studies to account for a large conservative and representative sample size to measure outcomes. Based on other local studies, we hypothesize a reduction in drop-out rate from 17.8% as reported by Branson, Hofmeyr¹⁸ to less than 14% (estimated effect size of 20%), with an anticipated attrition rate of 5% per year based on a similar local study¹⁹. This resulted in a conservative sample size of 2730 adolescent girls and 1850 boys to determine the association between intervention and control school’s dropout rate and GBV variables. This was the upper limit for the sample size for the cRCT. For the cross-sectional study, we only included those who consented into the trial.

Study participants

Grade 8 learners were selected for the trial as this grade marks the end of compulsory education in SA. The grade 8 learner age range is approximately 12–14 years; however due to learners repeating grades and other reasons, the age range is commonly wider with older learners enrolled up to 18 years^{18,20}. All grade eight learners, at selected schools were eligible to participate in the baseline survey, irrespective of sex, age, or race.

Measures

The baseline interview consisted of an interviewer-administered survey collecting information on demographics, socio-economic status and knowledge and attitudes pertaining to school safety, social support and social networks, sexuality, gender and norms, sexual reproductive health and rights, and care-seeking behaviours. Following completion of this component of the interview, the participant was asked to complete a behavioural audio computer-assisted self-interview (ACASI), allowing learners to hear questions through headphones and respond on a tablet themselves, aiming to reduce social desirability bias. The majority did the interviewer administered survey first, although this was not always the case. The ACASI section, 20–30 minutes in duration, asked sensitive questions regarding the participant’s actual practices and behaviour, covering questions on multiple sexual partners, sexual history, substance abuse

¹ Quintile 1–3 schools are non-fee-paying schools, serving the poorest communities.

(alcohol, drugs) and experiences of different types of violence (physical, sexual, psychological, economic, corporal punishment, neglect, and cyberbullying), as well as the perpetrators, and place and time of violence.

Data management and analysis

The data for the baseline interview was collected and managed using REDCap (Research Electronic Data Capture) electronic data capture tools hosted at Wits Reproductive Health and HIV Institute^{21,22}. REDCap is a secure, web-based software platform designed to support data capture for research studies, providing 1) an intuitive interface for validated data capture; 2) audit trails for tracking data manipulation and export procedures; 3) automated export procedures for seamless data downloads to common statistical packages; and 4) procedures for data integration and interoperability with external sources.

The completed surveys were stored on encrypted password-protected tablets and the synced data was stored on Wits RHI secured servers. All data from REDCap and ACASI systems were exported as csv files and then into StataCorp 2017²³. Descriptive analyses, together with a chi² square test of independence, were used to describe provincial and gender differences in the socio-demographics and patterns of violence ever experienced. The outcome “ever experienced violence” was used to estimate associations with other variables. A multivariate logistic regression analysis examined the independent association between experiences of violence vs sex and province, controlling for potential confounders. The bivariate risk and factors associated with violence were estimated using crude odds ratios, at 95% confidence interval (CI) and significance reported at alpha less than 5%. Significant p-values less than 20% from the one-way Analysis of Variance (ANOVA) were used to estimate the adjusted odds ratio at the multivariate level, while variables more than 20% were considered collinear variables. Furthermore, n-values of missing data are shown in the tables, but missing values were not included in the calculation of the percentage breakdown for each variable. All variables show the percentage breakdown and the corresponding p-value for recorded responses only. Participants’ age was presented in groups (12–14 years and 15–17 years), rather than a continuous variable. It should be noted that the “no” category has been removed for all dichotomous variables [variables with a Yes or No Response] shown in the tables in the Results.

Ethical approval and considerations

The study was granted ethical approval from the University of the Witwatersrand Human Research Ethics Community (#M160940). Provincial research approval was obtained from Western Cape Department of Education and Gauteng Department of Education. Learner’s enrolment and participation was voluntary. Only those with written parental/guardian consent and individual assent were recruited into the study. Those who were 18 years and older, did not require parental

consent but provided their own written informed consent, enabling them to participate. Initially in English, the survey was translated and back translated into Xhosa, commonly spoken in some study sites. All data collection was supervised by the research team. Interviewer environments were set up to ensure confidentiality. Where feasible, interviewers were the same sex as the participant. Participants could stop the interview process at any time and were free to refuse to respond to any question(s) they felt uncomfortable answering. Social workers were employed to provide psychosocial support to participants during data collection and study intervention and a social harm form was developed to facilitate prompt referrals, where needed. To ensure meaningful participant and stakeholder engagement, the study was guided by the Good Participatory Practice guidelines²⁴.

Results

Overall, 3432 eligible learners across 26 schools participated in the baseline survey: we included 2383 in the analysis as this was the number who completed both components of the survey. In some cases, due to lack of time, some learners were unable to complete both components. [Table 1](#) shows the socio-demographic characteristics of the study respondents: 63.1% (n=1504) were girls, the majority (81.5%, n=1938) were aged 12–14 years, and 96.9% (n=2309) were Black African. Approximately one-fifth (18.5%, n=440) were aged 15–17 years, 76% (n=337) of who have repeated a grade. Overall, 41.4% (n=967) of respondents resided with both parents and 68.8% (n=1 633) of learners had at least one parent/guardian employed. A similar proportion (67.3%, n=1498) lived in households that were recipients of a Government grant. At the time, 18.3% (n=436) of learners had ever had sex, with 14% (n=65) of these reporting their first sexual experience <10 years of age.

Gauteng (GP) had a higher percentage of younger respondents compared to WC with 84.3% (n=1075) aged 12–14 years (p<0.001). WC respondents were more racially diverse, with 6.2% identifying as Coloured (p<0.001). More WC respondents reside with both parents, compared to GP respondents (43.7% vs 39.4% respectively, p=0.002). More respondents’ parents are employed in WC (73.3% vs 64.9% respectively, p=0.001) and more receive a Government grant, compared to GP (74.1% vs 61.8% respectively, p=0.001). WC respondents had a higher percentage of those who had ever had sex at 24.5%, compared to 13% in GP (13.0%, p=0.001).

Sex and provincial differences in experiences of violence

In total 26% of all learners had ever experienced violence (n=617) ([Table 2](#)), higher among boys than girls (p<0.001) and higher in WC compared to GP (p=0.014). Of these, physical violence was most common (35.7%, n=276), followed by psychological violence (21.8%, n=169), sexual violence (13.1%, n= 101), neglect (10.6%, n=82), cyberbullying (7.9%, n=59), corporal punishment (6.5%, n=50), and economic abuse

Table 1. Socio-demographics characteristics of respondents, by Province.

	Total	Western Cape	Gauteng	P-values
	(N=2 383)	(N=1 105)	(N=1 278)	
	% (N)	% (N)	% (N)	
Number of participants				
Female	63.1 (1 504)	65.8 (727)	60.8 (777)	P-Value=0.012
Male	36.9 (879)	34.2 (378)	39.2 (501)	
Age groups				
12–14 years	81.5 (1 938)	78.3 (863)	84.3 (1 075)	P-Value<0.001
15–17 years	18.5 (440)	21.7 (239)	15.7 (201)	
missing	-5	-3	-2	
Mean Age [SD]	13.7 [0.94]	13.8 [0.96]	13.6 [0.91]	
Race / population group				
Black	96.9 (2 309)	93.8 (1 0236)	99.6 (1 273)	P-Value<0.001
Coloured	3.1 (74)	6.2 (69)	0.4 (5)	
Household structure				
Both parents	41.4 (967)	43.7 (471)	39.4 (496)	P-Value=0.002
Single parent	40.9 (954)	37.0 (398)	44.2 (556)	
Other Relative/Guardian/Child Headed Households	17.7 (414)	19.3 (208)	16.4 (206)	
missing	-48	-28	-20	
Parent/guardian employed	68.8 (1 633)	73.3 (806)	64.9 (827)	P-Value<0.001
missing	-8	-5	-3	
Receive Government grant	67.3 (1 498)	74.1 3 (733)	61.8 (765)	P-Value<0.001
missing	-157	-116	-41	
Sexual characteristics				
Ever had sex	18.3 (436)	24.5 (270)	13.0 (166)	P-Value< 0.001
Prefer not to answer	3.8 (90)	4.5 (49)	3.2 (41)	
missing	-3	-3	0	
Age at Sexual Debut (n=397)				
< 10 Years	14.1 (65)	14.5 (43)	13.3 (22)	P-Value=0.410
10–13 Years	50.9 (235)	48.0 (142)	56.0 (93)	
14–16 Years	33.8 (156)	36.2 (107)	29.5 (107)	
>16 Years	1.3 (6)	1.4 (4)	1.2 (2)	

(4.8%, n=37). Physical violence was more common in boys (36.0%), although still high in girls. Psychological violence was more common in girls (22.2%, $p<0.001$), compared to boys. The WC had more physical violence than GP (41.0%

vs. 30.4%), as well as psychological (24.8% vs. 18.9%), but GP had over double the reports of sexual violence (18.4% vs. 7.6%), respectively ($p<0.001$). Of those who reported ever experiencing violence (n=621), 15.3% (n=95) indicated

Table 2. Baseline experiences of violence by Sex and Province (N= 2 383).

	TOTAL		Sex					Province				
	(N=2 383)		Female		Male			Western Cape		Gauteng		
			(N=504)		(N=879)			(N=1 105)		(N=1 278)		
	%	N	%	N	%	N	P-Value	%	N	%	N	P-Value
Ever experienced violence	25.9	617	21.1	316	34.3	301	<0.001	28.3	312	23.9	305	0.014
missing		4		3		1			3		1	
TOTAL	100	621	100		100			100		100		
Type of Violence*												
Physical violence	35.7	276	35.3	143	36.0	133	<0.001	41.0	157	30.4	119	
Psychological violence	21.8	169	22.2	90	21.4	79		24.8	95	18.9	74	
Sexual violence	13.1	101	13.3	54	12.7	47		7.6	29	18.4	72	
Neglect	10.6	82	10.4	42	10.8	40		8.9	34	12.3	48	
Cyberbullying/online	7.6	59	7.2	29	8.1	30		6.8	26	8.4	33	
Corporal punishment	6.5	50	5.4	22	7.6	28		5.7	22	7.2	28	
Economic abuse	4.8	37	6.2	25	3.3	12		5.2	20	4.4	17	<0.001
TOTAL	100	774	100	405	100	369		100	383	100	391	
Experiences of one or more types of violence												
1	84.7	526	83.4	266	86.1	260	<0.001	84.8	267	84.6	259	
2 or more	15.3	95	16.6	53	13.9	42		15.2	48	15.4	47	0.966
TOTAL	100	621	100	319	100	302		100	315	100	306	
Place of violence*#												
At school	30.7	272	26.3	126	36.0	146	<0.001	30.1	128	31.3	144	
Park^	17.5	155	20.2	97	14.3	58		17.1	73	17.8	82	
Friend's home	12.9	114	11.5	55	14.5	59		11.5	49	14.1	65	
At my home	11.0	97	11.3	54	10.6	43		13.4	57	8.7	40	
On the way to and from school	7.8	69	7.7	37	7.9	32		8.2	35	7.4	34	
Mall	5.6	50	6.5	31	4.7	19		6.3	27	5.0	23	
Other Public spaces	4.1	36	5.4	26	2.5	10		2.8	12	5.2	24	
Internet/online	4.0	35	4.4	21	3.5	14		4.2	18	3.7	17	
Public toilets	3.8	34	4.2	20	3.5	14		3.5	15	4.1	19	
Family member's home	2.7	24	2.7	13	2.7	11		2.8	12	2.6	12	0.195
TOTAL	100	886	100	480	100	406		100	426	100	460	

	TOTAL		Sex						Province				
	(N=2 383)		Female		Male			Western Cape		Gauteng			
			(N=504)		(N=879)			(N=1 105)		(N=1 278)			
	%	N	%	N	%	N	P-Value	%	N	%	N	P-Value	
Time of violence*													
Morning	10.1	66	10.0	32	10.1	34	<0.001	10.5	34	9.6	32		
During the day	57.4	377	57.5	184	57.3	193		59.4	193	55.4	184		
Evening/ At night	32.4	213	32.5	104	32.3	109		30.2	98	34.6	115		
Unsure/ Cannot remember	0.2	1	0.0	0	0.3	1		0.0	0	0.3	1	0.137	
TOTAL	100	657	100	320	100	337		100	325	100	332		
Know the perpetrator	66.7	414	64.9	207	68.5	207		65.7	207	67.7	207		
TOTAL	100	621	100	319	100	302	0.334	100	315	100	306	0.609	
Perpetrator of violence*													
Peer(s)	38.4	168	39.0	81	38.0	87	<0.001	36.3	77	40.4	91		
Stranger	21.1	92	15.9	33	25.8	59		22.2	47	0.4	45		
Parent/Guardian	11.9	52	15.4	32	8.7	20		13.7	29	10.2	23		
Sibling	8.9	39	7.7	16	10.0	23		8.5	18	9.3	21		
Partner	7.1	31	9.1	19	5.2	12		9.0	19	6.7	12		
Other Family Member	6.2	27	7.2	15	5.2	12		4.7	10	7.6	17		
Teacher	4.8	21	2.4	5	7.0	16		2.8	6	20.0	15		
Other	1.4	6	2.9	6	0.0	0		2.4	5	0.0	1		
Prefer not to say/Unsure	0.2	1	0.5	1	0.0	0		0.5	1		0	0.270	
TOTAL	100	437	100	208	100	229		100	212	100	225		

* Multiple response answer

Some of these categories refer to "places" while others refer to time periods (on the way to school)

^ A defined common recreational area in the community

having ever experienced more than one form of violence (polyvictimisation).

Overall, school was the most common place (30.7%, n=272) where violence was experienced followed by the park² (17.5%, n=155) or at their friends' home (12.9%, n=114). There were statistically significant sex differences in the places of violence, boys were more likely to experience violence at school (36.0% vs 26.3% p=0.001) compared to girls. Girls were then more likely to experience violence in the park (20.2% vs 14.3% p=0.001) compared to boys. There were no statistical differences across provinces in place violence was experienced.

Most (57%, n=377) violence took place during the day, followed by evening/at night (32.4% n=213) and 10.1% (n=66) in the morning. The majority of those who ever experienced violence knew the perpetrator (66.7%, n=414), while the rest (n=207) preferred not to say. Most violence was perpetrated by peers (38.4%, n=168) and strangers (21.1%, n=92), parent/guardians (11.9%, n=52) or siblings (8.9%, n=39). Following peers, girls were more likely to experience violence from a parent/guardian, whereas boys were more likely to experience violence from a stranger (25.8% vs. 15.9% respectively, p=0.001). Table 2 shows the baseline experiences of violence by sex and province.

Factors associated with experiencing violence

Table 3 outlines the factors associated with ever experiencing violence, all seven variables have statistical significance at

² A defined common recreational area in the community

Table 3. Multivariate analysis of factors associated with ever experiencing violence [n=617] [RC: "No" to Ever Experienced Violence].

	Ever Experienced Violence					Unadjusted Model			Adjusted Model		
	No		Yes		P-Value	OR	CI	P-Value	OR	CI	P-Value
	%	N	%	N							
Sex											
Female	67.3	1,185	51.2	316	<i>P</i> <0.001	RC			RC		
Male	32.7	577	48.8	301		1.97	1.623 – 2.358	<0.001	1.57	1.271 – 1.944	<0.001
Age groups											
12–14 years	84.1	1,478	74.4	458	<i>P</i> <0.001	RC			RC		
15–17 years	15.9	280	25.6	158		1.82	1.459 – 2.269	<0.001	1.41	1.076 – 1.845	0.013
missing		4		1							
Province											
Western Cape	44.8	790	50.6	312	<i>P</i> =0.014	RC			RC		
Gauteng	55.2	972	49.4	305		0.79	0.661 – 0.955	0.014	0.87	0.711 – 1.053	0.150
Ever used substances	18.5	325	33.8	207	<i>P</i> <0.001	2.24	1.824 – 2.755	<0.001	1.92	1.547 – 2.378	<0.001
missing		8		4							
Never had sex	81.8	1,441	66.6	410	<i>P</i> <0.001	0.46	0.369 – 0.576	<0.001	0.66	0.512 – 0.839	0.001
Prefer not to say	2.8	50	4.4	40		1.30	0.829 – 2.051	0.267	1.21	0.752 – 1.962	0.428
missing	0.1	2		1							
Ever repeated a grade	26.9	473	35.8	221	<i>P</i> <0.001	1.52	1.248 – 1.844	<0.001	1.05	0.828 – 1.339	0.675
missing		3		0							
I sometimes feel worthless	34.9	606	42.3	257	<i>P</i> =0.001	1.36	1.128 – 1.646	0.001	1.35	1.109 – 1.642	0.003
missing		28		9							

the unadjusted level: sex (OR 1.97 CI 1.62 – 2.35), age group (1.82 CI 1.45 – 2.26), province (OR 0.79 CI 0.66 – 0.95), ever used substances (OR 2.24 CI 1.82 – 2.75), ever had sex (OR 0.46 CI 0.36 – 0.57), ever repeated a grade (1.52 CI 1.24 – 1.84) and feeling worthless (OR 1.36 CI 1.12 – 1.64).

Boys (*p*<0.001), those aged 15–17 years (*P*<0.001), living in WC (*p*=0.014), those who had ever used substances (*p*<0.001), ever had sex (*p*<0.001), those who had ever repeated a grade (*p*<0.001) and those who felt worthless (*p*=0.001) were more likely to ever experience violence. Racial group (*p*=0.707), household structure (*p*=0.786), parent/guardian employment status (*p*=0.389), government grant recipient (*p*=0.854), place of violence (*p*=0.278) were not found to be statistically associated with ever experiencing violence and therefore they are excluded from Table 3.

When adjusted, the following five variables remained significant: sex, age, ever used substances, ever had sex and self-worth.

The adjusted multivariate analysis showed that boys were 1.57 times more likely to have ever experienced violence (aOR 1.57; 95% CI 1.27-1.94; *p*<0.001) than girls. Those aged 15–17 years were 41% more likely to have ever experienced violence (aOR 1.41; 95% CI 1.07-1.84; *p*=0.013) compared to those 12–14 years. Those who had ever used substances were 92% more likely to have ever experienced violence (aOR 1.92; 95% CI 1.54-2.37; *p*<0.001) compared to those who had not used substances. Those who sometimes felt worthless were 35% more likely to have ever experienced violence (aOR 1.35; 95% CI 1.10-1.64, 0.003) compared to those who thought their life was worthwhile. Those who had **never** had sex were 33% less likely to have ever experienced violence (aOR 0.66; 95% CI 0.51-0.83; *p*=0.001) compared to those who had **ever** had sex.

Discussion

We assessed learners' experiences of different types of violence and found that there were sex differences: boys have

higher odds of ever experiencing violence compared to girls. This is confirmed by other recent South African studies^{3,25,26}, indicating that boys were more likely to report *some form* of abuse in their lifetimes, although those forms tend to be different, compared to girls. We found that both boys and girls experienced similar rates of physical, psychological and sexual violence: these findings are confirmed by other studies^{12,25}. Interestingly, girls experienced almost double the economic abuse as their male counterparts. Given the higher odds of males experiencing violence overall, primary violence prevention interventions, such as Stepping Stones^{27,28}, Family Matters^{3,29} and SASA!³⁰, are needed to tackle harmful cultural norms that perpetuate violence among boys and decrease tolerance of violence overall^{31,32}. These programs should target both boys and girls, men and women, as parents play a key role in the reduction of violence against children and teens¹⁶.

Violence most often took place at school, during the day, with the majority knowing the perpetrator, as a peer. However, it is understandable given the sensitivity of this question and the emotional implications of disclosure that some learners did not wish to disclose the perpetrator. Despite being banned through the National Education Policy Act of 1996, corporal punishment⁴, is still experienced by this cohort of learners as well as across many SA schools^{33,34}. Schools therefore need to strengthen the implementation of protocols³⁵ that guide the reporting of violence at school level and frameworks to create a safer school environment³⁶. Secondary violence prevention interventions should also be strengthened to improve the immediate response to those who have experienced violence. This could be done by adopting survivor-centred first line support using the World Health Organisation's LIVES⁵ framework³⁷ and strengthening the referral pathways into post violence care.

We also found statistically significant associations between substance use, ever had sex and experiences of violence, confirmed by existing South African research³⁸⁻⁴¹ and other research on the continent⁴²⁻⁴⁴. Attention should therefore be on the scale up of behavioural interventions, focusing on CSE and increasing risk perception to reduce the likelihood that adolescents will engage in potentially harmful behaviours such as substance use and early sexual debut⁴⁵.

Of concern is the fact that those who thought their life was worthless were more likely to ever experience violence which is confirmed by South African literature³⁸. This strong association between experiencing violence and low self-worth

reinforces the need for empowerment interventions: increasing self-esteem and self-efficacy could be critical to reducing their risk of experiencing violence⁴⁶ but could also support them following their experience of violence. Structural interventions such as DREAMS^{6,47} and the She Conquers campaign⁷ are also critical structural interventions to support girl empowerment and work with boys to end violence¹². Further research is needed to explore the temporal relationship between these two variables, and also the following statistically significant associations (substance use and ever had sex).

Interestingly, there were many who had employed parents/guardians but whose household were also recipients of Government grants. This suggests that despite working, they are still a low-income household and therefore eligible for a Government grant. Further research would be helpful to further explore this interesting finding.

With almost a third of our participants having ever experienced violence (25.9%), the majority of those aged 15–17 years, and the link between childhood experiences of violence, high risk of adverse mental health outcomes, substance abuse, harmful gender attitudes⁴⁸⁻⁵² and increased perpetration of violence later in life⁵³⁻⁵⁵, it is key that violence prevention interventions start from a young age to limit childhood exposure to violence and break the cycle of violence. We recommend that all violence prevention strategies adopt an ecological approach, encompassing children, young adolescents, parents, educators, community members, local organisations and politicians to ensure a wide range of stakeholders are involved⁴¹. Improved surveillance of the range of types, locations, and perpetrators of violence against children, as well as of access to key prevention interventions, is essential to target prevention and monitor progress.

Strengths and limitations

When reviewing these findings, the following strengths and limitations should be considered. A strength of this study is that it was conducted in 26 schools in three highly populated diverse townships of South Africa and is therefore generalisable to other South African settings. Another strength is that it provides data on a variety of different types of violence, often excluded in other manuscripts. We also provide updated school violence data, building on previous studies conducted in 2016²⁵ and 2012⁵.

Data collection relied upon retrospective recollections which may result in an under-reporting of violence⁵⁶. The study was cross-sectional therefore only representing one point in time.

³ The Families Matter! Program (FMP) is an evidence-based, parent-focused intervention designed to promote positive parenting and effective parent-child communication about sexuality and sexual risk reduction, including risk for child sexual abuse and gender-based violence, for parents or caregivers of 9–12 year olds in Africa

⁴ Defined as any kind of violent action inflicted on children by teachers or school administrators as punishment for disciplinary purposes

⁵ Listen, Inquire, Validate, Ensure safety and provide Support (LIVES)

⁶ The United States President's Emergency Plan for AIDS Relief (PEPFAR) announced the Determined, Resilient, Empowered, AIDS-free, Mentored and Safe (DREAMS) Public/Private Partnership in 2014 to control the HIV epidemic among adolescent girls and young women.

⁷ She Conquers is a three-year national campaign that aims to improve the lives of adolescent girls and young women in South Africa.

There were no questions in the survey to establish recency of violence making it difficult to establish individual incidence of violence or if it was ongoing. The time of day when violence was experienced was not clearly defined and therefore left up to each participant's interpretation. These limitations are unlikely to alter our primary findings.

Conclusions

Ever experiencing violence is strongly associated with being a boy, being aged 15–17 years, used substances, never having had sex and lower self-esteem. With a quarter of our adolescent participants having ever experienced violence (physical, sexual, psychological, economic, corporal punishment, neglect, and cyberbullying), there is an urgent need for wider adoption, scaling, and sustaining of evidence-based primary violence prevention interventions as well as structural interventions to reduce the high burden of violence against adolescent boys and girls. Interventions must target stakeholders across the ecological model, including very young adolescents, to tackle the harmful cultural norms that perpetuate violence.

Data availability

Underlying data

Harvard Dataverse: GAP Year_Violence REDCap and ACASI data, <https://doi.org/10.7910/DVN/AHHWNL>⁵⁵.

This project contains the following underlying data:

- GAPYear_REDCap and ACASI_Violence_Data.tab
- GAPYear_REDCap Codebook.pdf
- GAP Year_ACASI Boys Survey Codebook.pdf
- GAP Year_ACASI Girls Survey Codebook.pdf

Extended data

Harvard Dataverse: GAP Year_Violence REDCap and ACASI data, <https://doi.org/10.7910/DVN/AHHWNL>⁵⁵.

This project contains the following extended data:

- GAP Year Boys ACASI Survey Questionnaire.pdf
- GAP Year Girls ACASI Survey Questionnaire.pdf
- GAP Year Boys REDCap Survey Questionnaire.pdf
- GAP Year Boys REDCap Survey Questionnaire.pdf

Data are available under the terms of the [Creative Commons Zero "No rights reserved" data waiver](#) (CC0 1.0 Public domain dedication).

Consent

Written informed consent for publication of the participants details obtained from the participants and their parents/guardian.

Acknowledgements

We would like to acknowledge the participants and their parents for their valued contribution to this research. The National Department of Education stakeholders within the School Safety Directorate, as well as provincial, district and school stakeholders also provided guidance and support during this research. Indigo MO supported with data collection and the Data Management team (Clarence Yah, Kiran Kalpee, Khuthala Mabetha and the GAP Year fieldworkers) who managed this dataset. Mags Beksinska provided technical review. Grassroots Soccer and Sonke Gender Justice were our study partners, implementing the GAP Year intervention, also supported with school buy-in.

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Pauline Gulliver

Social and Community Health, School of Population Health, Faculty of Medical and Health Sciences, University of Auckland, Auckland, New Zealand

The authors present an interesting, cross sectional investigation into factors associated with violence experience in a cohort of South African teenagers. I have the following comments that may help to strengthen the article:

Abstract:

Some of the English in this section is problematic. I get the sense that words have been omitted in order to reduce the wordcount. My preference would be for the authors to go over the wordcount, if necessary, to ensure readability of this section.

Methods:

The authors outline that some of the participants were unable to complete both components due to lack of time. This is unusual and requires some explanation. It should also be acknowledged in the limitations of this investigation.

The sample size was substantially less than initially planned. It would be useful for the authors to reflect on this also in the discussion within the limitations of this study.

Results/Discussion:

There is a substantial amount of literature that underscores that women and girls' experience of violence is different to that of men and boys. This is further substantiated by the differences in factors associated with violence in the current cohort. Given this, it would be useful to create separate regression models for males and females. Differences in experience are likely to highlight different risk factors, this can not be established by a combined regression model.

On the basis of the above, it also might be useful to highlight in the discussion that there was insufficient power to determine different factors associated with different experiences of violence.

It is likely that the factors associated with experience of sexual violence (for example) are different from those associated with experience of corporal punishment.

The problem of temporality is touched on within the discussion, but I think this needs to be developed further. There are a number of variables associated with violence exposure that could equally be an outcome as a risk factor, in particular, using substances, repeating a grade, feeling worthless, early sexual experience. Indeed, for those who have experienced sexual violence, their first sexual encounter may have been forced. Understanding these variables as having the potential to be outcomes as well as risk factors for violence experience might change our approach to people who carry these experiences or characteristics.

Is the work clearly and accurately presented and does it cite the current literature?

Yes

Is the study design appropriate and is the work technically sound?

Partly

Are sufficient details of methods and analysis provided to allow replication by others?

Yes

If applicable, is the statistical analysis and its interpretation appropriate?

Partly

Are all the source data underlying the results available to ensure full reproducibility?

Yes

Are the conclusions drawn adequately supported by the results?

Partly

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: Gender-based violence, epidemiology

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.

Author Response 20 May 2022

Alison Kutwayo

PG: **Abstract:** Some of the English in this section is problematic. I get the sense that words have been omitted in order to reduce the wordcount. My preference would be for the authors to go over the wordcount, if necessary, to ensure readability of this section.

○ Response: Abstract reviewed and connecting words added.

PG: **Methods:** The authors outline that some of the participants were unable to complete both components due to lack of time. This is unusual and requires some explanation. It

should also be acknowledged in the limitations of this investigation.

- Response: This limitation has been added to the limitations section.

PG: **Methods:** The sample size was substantially less than initially planned. It would be useful for the authors to reflect on this also in the discussion within the limitations of this study.

- Response: This limitation has been added to the limitations section.

PG: **Results/Discussion:** There is a substantial amount of literature that underscores that women and girls' experience of violence is different to that of men and boys. This is further substantiated by the differences in factors associated with violence in the current cohort. Given this, it would be useful to create separate regression models for males and females. Differences in experience are likely to highlight different risk factors, this can not be established by a combined regression model.

- Response: We have run separate regression tables for table 3, disaggregating for males and females. The results don't show vast differences between the two, from the combined table. Therefore we have only presented the combined table in the main text. We can add the separate tables as appendices if needed.

PG: **Results/Discussion:** On the basis of the above, it also might be useful to highlight in the discussion that there was insufficient power to determine different factors associated with different experiences of violence. It is likely that the factors associated with experience of sexual violence (for example) are different from those associated with experience of corporal punishment.

- Response: This has been added as a limitation

PG: **Results/Discussion:** The problem of temporality is touched on within the discussion, but I think this needs to be developed further. There are a number of variables associated with violence exposure that could equally be an outcome as a risk factor, in particular, using substances, repeating a grade, feeling worthless, early sexual experience. Indeed, for those who have experienced sexual violence, their first sexual encounter may have been forced. Understanding these variables as having the potential to be outcomes as well as risk factors for violence experience might change our approach to people who carry these experiences or characteristics.

- Response: Restructured this paragraph to include this reflection

Competing Interests: None to disclose

Reviewer Report 02 September 2021

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? Andrew Gibbs

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This paper is looking at the prevalence, types and perpetrators of violence, as well as risk factors for experiencing violence in a cross-sectional study of school children in South Africa. At a basic level, the paper is fine and provides us with some additional insights into the nature form and risk for school children. I have concerns with how the paper is structured that make reading and interpretation harder than necessary, as well as the conclusions somewhat unclear. These are all issues that need to be addressed to make the paper clear for readers.

My main concern is around the methods and statistics. In terms of methods and specific measures, we do not get any detail provided on the measures used to assess the different forms of violence, whether they were single or multiple items and how they were asked and coded etc. Without this sort of detail it is hard to interpret the findings of the paper. Including a table with the outcome measures clearly specified would be great.

Linked to this is the statistical analysis section of the paper needs further work to make it clearer for readers to follow. It needs to read more like a step-by-step set of work. So overall sample, then described by Province, then overall experience of violence and then among those who experience violence etc. As I read it, it skipped around and made for a tricky interpretation.

In the literature cited there needs to be greater details provided. For two papers the Birth to 20 cohort, for instance they have cited both experienced and witnessed violence, leading to a massive percentage, while the other studies are about experience. Similarly with the Burton paper, one needs to know where it was done, and sampling strategy. A key paper has been missed out, by Burton and colleagues: <http://www.ci.uct.ac.za/overview-violence/research-bulletin/optimus-study-on-child-abuse-violence-neglect-in-SA> which provides an excellent estimate.

In the conclusions I am concerned that the findings do not adequately link to the recommendations. First, there is a sentence: "We found that both boys and girls experienced similar rates of physical, psychological and sexual violence: these findings are confirmed by other" this is not correct as the multivariable logistic regression shows boys are more likely to experience violence. Assume this is meant to be among those who experience violence.

The statement that interventions such as Stepping Stones etc. should tackle the norms of violence – is this not exactly what many of these interventions do? I think they are trying to make the point they tend to focus on violence from men to women and need to extend to include all forms of violence (which as far as I know, no one has measured).

The paragraph beginning: "Violence most often took place at school, during the day, with the majority knowing the perpetrator, as a peer" has two issues. First, this is an important statement and suggests we should be doing much more around school peer violence than is currently being done. Discussing this would be really important. Second, the rest of the paragraph is about the low reporting of violence from teachers – the authors are correct and they need to show this is the case (e.g. by citing other work) and then reflect on why they may have seen very low reporting of teacher violence and what can be done.

In the paragraph beginning: "We also found statistically significant associations between substance use, ever had sex and experiences of violence" the solutions are a bit unclear. I think

the authors need to think what can be done to address violence, alcohol use is certainly a clear driver of violence, so interventions such as CSE need to address alcohol as well. But why may having had sex be a risk factor for violence? And therefore what could be done to address this.

There is a paragraph on grants. While I don't disagree with what is being said, it feels off topic.

A few more minor issues:

In the statistical analysis, did the authors account for study design in their analysis?

Results – please provide clarity on the percentage who refused to participate and the percentage who did not complete the whole questionnaire, so we can understand refusal rate.

Table 1: p-values repeated in the table

Results – when reporting the results, please be consistent e.g. if comparing two statistics (e.g. percent of boys and girls) please put both percentages in and consistently provide a p-value.

Table 2 – please could we get overall prevalence of each type of violence first, before the prevalence among those who experience violence. Please make it clear where the sample size is different. Also, there is an implication people could have chosen multiple forms of violence, but the columns seem to add up to 100%, so did people only chose 1?

Table 3: please could we get all unadjusted ORs provided, and then exclude in the multivariable analysis – much easier to see how the analysis was done, and not just provide those which are significant in unadjusted analysis.

Overall, this paper provides a nice analysis of risk factors and the patterns of violence, but requires more clarity on a range of steps. Once this is done it will be much easier for readers to understand.

Is the work clearly and accurately presented and does it cite the current literature?

Partly

Is the study design appropriate and is the work technically sound?

Yes

Are sufficient details of methods and analysis provided to allow replication by others?

No

If applicable, is the statistical analysis and its interpretation appropriate?

Partly

Are all the source data underlying the results available to ensure full reproducibility?

Yes

Are the conclusions drawn adequately supported by the results?

Partly

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: public health, violence, South Africa

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.

Author Response 20 May 2022

Alison Kutwayo

AG: In terms of methods and specific measures, we do not get any detail provided on the measures used to assess the different forms of violence, whether they were single or multiple items and how they were asked and coded etc. Without this sort of detail it is hard to interpret the findings of the paper. Including a table with the outcome measures clearly specified would be great.

- Response: Included as an additional paragraph under “Measures”

AG: Linked to this is the statistical analysis section of the paper needs further work to make it clearer for readers to follow. It needs to read more like a step-by-step set of work. So overall sample, then described by Province, then overall experience of violence and then among those who experience violence etc. As I read it, it skipped around and made for a tricky interpretation.

- Response: Unclear which section this refers to but have tried to ensure that the results flow logically, as per the tables.

AG: In the literature cited there needs to be greater details provided. For two papers the Birth to 20 cohort, for instance they have cited both experienced and witnessed violence, leading to a massive percentage, while the other studies are about experience. Similarly with the Burton paper, one needs to know where it was done, and sampling strategy. A key paper has been missed out, by Burton and colleagues: <http://www.ci.uct.ac.za/overview-violence/research-bulletin/optimus-study-on-child-abuse-violence-neglect-in-SA> which provides an excellent estimate.

- Response: The introduction has been amended, adding more details to the literature cited and including reference to Optimus study. It is difficult to compare experiences of violence and witness of violence as different studies have measured different things.

AG: In the conclusions I am concerned that the findings do not adequately link to the recommendations. First, there is a sentence: “We found that both boys and girls experienced similar rates of physical, psychological and sexual violence: these findings are confirmed by other” this is not correct as the multivariable logistic regression shows boys are more likely to experience violence. Assume this is meant to be among those who experience violence.

- Response: Clarity added. This sentence is in terms of the types of violence they experienced, among those who did experience violence

AG: conclusion: The statement that interventions such as Stepping Stones etc. should tackle the norms of violence – is this not exactly what many of these interventions do? I think they are trying to make the point they tend to focus on violence from men to women and need

to extend to include all forms of violence (which as far as I know, no one has measured).

- Response: The interventions listed **do** tackle gender norms and have been named as suggested interventions to address this point. The sentence has been re-worded to make more clear.

AG: The paragraph beginning: "Violence most often took place at school, during the day, with the majority knowing the perpetrator, as a peer" has two issues. First, this is an important statement and suggests we should be doing much more around school peer violence than is currently being done. Discussing this would be really important.

- Response: added a reference to a recent manuscript that outlines a variety of strategies tackling school violence.

AG: Second, the rest of the paragraph is about the low reporting of violence from teachers – the authors are correct and they need to show this is the case (e.g. by citing other work) and then reflect on why they may have seen very low reporting of teacher violence and what can be done.

- Response: Paragraph has been restructured to respond to reviewer comments

AG: In the paragraph beginning: "We also found statistically significant associations between substance use, ever had sex and experiences of violence" the solutions are a bit unclear. I think the authors need to think what can be done to address violence, alcohol use is certainly a clear driver of violence, so interventions such as CSE need to address alcohol as well. But why may having had sex be a risk factor for violence? And therefore what could be done to address this.

- Response: Added the following sentence: It is also important to note that these variables have the potential to be outcomes as well as risk factors for experiencing violence. Further research needs to be conducted to determine the causal relationship between these variables as this has the potential to change the response required for these results.

AG: There is a paragraph on grants. While I don't disagree with what is being said, it feels off topic.

- Response: This paragraph has been removed

AG: In the statistical analysis, did the authors account for study design in their analysis?

- Unclear what the reviewer is referring to. This study only presents cross sectional baseline findings and therefore the CrCT methodology does not apply here.

AG: Results – please provide clarity on the percentage who refused to participate and the percentage who did not complete the whole questionnaire, so we can understand refusal rate.

- Response: Refusal to participate data was not collected. This has been added to the Limitations

AG: Table 1: p-values repeated in the table

- Response: "p-values" removed from table

AG: Results – when reporting the results, please be consistent e.g. if comparing two statistics (e.g. percent of boys and girls) please put both percentages in and consistently provide a p-value.

- Response: Double checked presentation of results, to check consistency

AG: Table 2 – please could we get overall prevalence of each type of violence first, before the prevalence among those who experience violence. Please make it clear where the sample

size is different. Also, there is an implication people could have chosen multiple forms of violence, but the columns seem to add up to 100%, so did people only chose 1?

- Response: Added clarity in the Measures section regarding the analysis. This provides detail for the presentation of the Results. Eg. The 100% in the table is 100% of responses, not participants. The Overall “prevalence” of each type of violence is as they are in the table – so the way that would need to be seen is, for example, for physical violence – of those 617 that said they had experienced violence, 276 had experienced physical violence; 169 out of 617 experienced psychological violence, etc. However, one respondent could be represented within those types of violence more than once.

AG: Table 3: please could we get all unadjusted ORs provided, and then exclude in the multivariable analysis – much easier to see how the analysis was done, and not just provide those which are significant in unadjusted analysis.

- Response: We only kept those that were significant at the bivariate level [so don't have a regression for the unadjusted variables that were not significant], do you want to then include ALL factors in the unadjusted, and then keep only these in the adjusted?

Competing Interests: None to disclose

Author Response 20 May 2022

Alison Kutylowski

Before uploading the revised edition of this manuscript, we please require clarity on the following three comments:

1. Linked to this is the statistical analysis section of the paper needs further work to make it clearer for readers to follow. It needs to read more like a step-by-step set of work. So overall sample, then described by Province, then overall experience of violence and then among those who experience violence etc. As I read it, it skipped around and made for a tricky interpretation.
 - Response: Unclear which section this refers to but have tried to ensure that the results flow logically, as per the tables.
2. In the statistical analysis, did the authors account for study design in their analysis
 - Response: Unclear what the reviewer is referring to. This study only presents cross sectional baseline findings and therefore the CrCT methodology does not apply here. Does this respond to your query?
3. Table 3: please could we get all unadjusted ORs provided, and then exclude in the multivariable analysis – much easier to see how the analysis was done, and not just provide those which are significant in unadjusted analysis.
 - Response: We only kept those that were significant at the bivariate level [so don't have a regression for the unadjusted variables that were not significant], do you want to then include ALL factors in the unadjusted, and then keep only these in the adjusted?

Competing Interests: None to disclose

Reviewer Response 23 May 2022

Andrew Gibbs

Thanks for the queries, sorry I should have been clearer.

For clarity:

1. It would refer to the methods section, but as long as it is clearer that is fine.
2. This is referring to the clustered nature of the data. Essentially as people were recruited within cluster, in the models did the authors address the fact that people in the clusters are more likely to be similar among each other? It will effect the standard errors (make them larger) than if it were a truly random sample.
3. Often in Table 3, you would have all variables assessed in the study and present the bivariate regression models for all. We can then see, as readers, what the association was (or not). Then in the adjusted model you would present as is.

Competing Interests: None