Factors Associated with Bullying Victimization among Adolescents Joining Public Secondary Schools in Nairobi County Kenya: A cross-sectional study

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Abstract

BACKGROUND

Bullying victimization in adolescence exposes young people to both short- and long-term mental health problems. These include depression and suicidality, whose prevalence has been on the rise around the world. Bullying, though officially banned in Kenyan secondary schools since 2013, has remained ubiquitous to the present day. This study aimed to elucidate the factors associated with bullying victimization among adolescents joining Form one at public secondary schools in Nairobi County, Kenya.

METHODOLOGY

This was an analytical cross-sectional design. Data were collected one month after the adolescents had joined secondary school. Data was collected from 539 adolescents attending 5 schools using the self-reported Adolescent Peer Relations questionnaire to assess bullying victimization as well as socio-demographic characteristics. Prevalence rates were generated using a generalized linear model (GLM) customized with a log link and a Poisson distribution for a common binary outcome.

RESULTS

In the univariable analysis, 85.7% (n=462) reported experiencing any bullying victimization. Of those who had depression, 93.5% (n=220) had experienced bullying victimization. The difference in prevalence rates between those who were depressed and those who weren't was statistically significant in the multivariable analysis (adjusted prevalence rate, aPR=1.33; 95%CI=1.05-1.68, p=0.033). Boys were more likely to experience physical victimization compared to girls (aPR=1.27; 95%CI=1.02-1.58, p=0.031).

CONCLUSION

The prevalence of bullying victimization is quite high, and the presence of depression and sex are significant factors associated with the risk of bullying victimization. Anti-bullying interventions in secondary schools should include a component of depression screening and treatment.

Keywords: *Mental Health, School Health, Bullying, Adolescents*

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Background

Bullying victimization refers to the subjection of an individual to a set of behaviours that are repetitive and intentional and have the purpose of causing either physical or psychological harm or both. There are two types of bullying all of which have different outcomes for the victims (1). Bullying victimization encompasses verbal abuse, social exclusion, physical abuse or hitting, as well as cyberbullying where victimization occurs using cell phones or the internet. Power imbalances in social interactions between adolescents are major facilitators of bullying victimization: individuals with more power victimize those holding less power. Bullying behavioural phenomenon arises as a result of power imbalances and the need for some peer group status to showcase their power (2,3). This study sought to elucidate the factors associated with bullying victimization among adolescents joining Form 1 at public secondary schools in Nairobi County, Kenya.

Bullying is a global problem, and its incidence in different countries is documented (4). In high-income countries (HIC), the prevalence of victimization through bullying is 15%- 55%, and aggressors are between 5%-39% (5–8). Although there is a dearth of research on low- and middle-income countries (LMICs), available research shows that the prevalence of bullying is between 7%-79% (6). A study carried out in Ghana shows a prevalence of bullying victimization at 40% for senior high school students and 59% for junior high school students (5). Considering that the implications of bullying transcend regions, a systematic review of bullying across different regions shows that the highest proportion of students reporting that they have been bullied comes from sub-Saharan Africa (48.2%) followed closely by North Africa (42.7%) and Middle East (41.1%) while Europe, the Caribbean, and Central America have the lowest proportion (less than 25%). Unlike countries in Europe, Central America, and the Caribbean that have continued to experience a reduction in bullying burden, countries in the Middle East and Africa have either witnessed an increase in bullying prevalence or seen no change in bullying proportion (9).

Specifically, in the Kenyan context, a recent study indicated that in a sample of secondary school students only 13.6% of them had not experienced bullying victimization (10). Indeed, one of the first studies on bullying in Kenyan schools reported that between 63.2% to 81.8% of students have experienced some form of bullying in secondary schools (11). A separate study in Kenya has reported a prevalence of between 28.6% to 42.2% (12). On the contrary, Itegi (2017) reported that nearly all students (98%) have experienced bullying in secondary schools.

Being repeatedly bullied or victimized in schools is associated with various factors at the individual, family, school, and community levels. (4,14,15). Nonetheless, individual and family-level factors have attracted more attention given their perceived contribution to enhancing the effectiveness of anti-bullying interventions (16). Individual factors associated with victimization relate to the internalization of problems through depression, anxiety, and suicide. In like manner, externalization of the problem through the use and abuse of psychoactive substances is also linked to bullying victimization (17).

Interestingly, several studies have identified a bi-directional relationship between depression and bullying victimization (18–20). Depressed adolescents due to the inherent withdrawal and lack of social integration are predisposed to bullying victimization. On the other hand, bullying victimization in adolescence has also been linked to the experience of depression or depressive symptoms. Ruiz *et al.* (2019) found that a lack of social support influenced depression in victimized adolescents because of internalizing characteristics. Further, victims who are depressed may appear to be weak and therefore not able to resist aggression by their peers (22).

Other individual factors such as gender, age, and religion have also been found to be associated with victimization (23). Studies have noted gender differences in the bullying continuum with boys more likely to be involved in physical forms of bullying because of their physical strength and girls in verbal bullying attributed to their propensity to be more communicative than boys (2,5). Other notable predictors of victimization documented in the literature are related to the family condition, adolescent sexual behaviour, relationship experiences, children insecurity issues, home environment, school/classroom norms, and age (17,24)

Adolescence is a transitory stage in life for young people. The transition from childhood to adolescence is fraught with physical, social, and psychosocial challenges that affect adolescents differently. The usually co-occurring transition from primary or elementary school to secondary or junior high school often coincides with the transition from late childhood to early adolescence – and can be highly disruptive to the lives of adolescents (25).

Studies around the world have documented episodes and experiences of bullying victimization of adolescents transitioning to secondary school (26). This is often assumed to be a rite of passage and taken as a form of initiation to a higher level of education. Given the fact that junior secondary school students are disproportionately victimized in Kenyan secondary schools, this scenario means that adolescents joining secondary schools in Kenya are at a heightened risk of victimization. Schools can and do indeed play an important role in adolescents' social and identity development (27). The impact of school bullying on adolescents has been linked to a host of adolescent adjustment difficulties, academic difficulties, conduct disorders, a wide range of negative mental health outcomes, health problems, and substance abuse difficulties (28–30). Therefore, understanding context-specific factors of bullying is not only important but a prerequisite to offering the right intervention for bullying in school.

Actors in the education and health sectors around the world have cracked down on bullying victimization. Kenya, like the rest of the world, is not left behind. Since 2013, the Kenyan Basic Education Act has prohibited mental and physical harassment in schools. However, studies show that the imperfect implementation of this policy means that while bullying rates are likely to remain high, the phenomenon itself is concealed from parents, teachers, and decision-makers in the education sector (31). Additionally, both the Kenya Ministry of Health Mental Health Policy 2015-2030 and the Kenya School Health Policy 2018 are silent on the issue of bullying and the health risks that it poses to children and adolescents (32,33).

Methodology

Study design

The study utilized an analytical cross-sectional design, where data was collected at a single point in time.

Study sites

The study was carried out in 5 secondary schools in Nairobi County: 1 boys' school (School A), 2 girls' only schools (Schools B and C), and 2 mixed schools (Schools D and E). Of the 5, 3 were boarding schools (A, B, and C), and the rest (D and E) were day schools.

Study population

The study population comprised students who had joined Form 1 in the selected schools in January 2020. The selection criteria for the students were that they would have to have attended the school for at least one month before data collection as well as informed consent from the parents and assent from the students themselves.

Sampling

The five schools were selected at random from a frame of 71 schools. A convenience sample of 539 adolescents was

recruited for the study based on meeting the study criteria.

Data collection

Data was collected using a self-reported questionnaire in March 2020. The questionnaire collected data on adolescent socio-demographic characteristics, lifetime and past 30-day alcohol, drug, and tobacco use, socioeconomic status, romantic relationship involvement, and sexual activity. Additionally, Section B of the Adolescent Peer Relations Instrument (APR) – which is an 18-item scale – comprising 3 subscales on verbal, social, and physical bullying, was used to collect data on bullying victimization (34,35). For each of the APR subscales, a cut-off of 7 or higher was used to classify respondents as victims of each type of bullying. For the overall scale, the classification was based on a score of 19 or higher – to result in a binary outcome. This was supplemented by data from the Patient Health Questionnaire-Adolescent (PHQ-A): assessing depression – where a score of 5 or higher classified a respondent as having any depressive symptoms regardless of severity (36). The rationale for the assessment of any depressive symptoms rather than the traditional screening or diagnostic cutoff of 10 or higher was that the severity of depression is a continuum and mild depression likely progresses to moderate or severe depression when left unattended or untreated (37). Given that the respondents were just joining secondary schools, it was decided that at this stage the breadth of the problem was as important as its depth. That is, very few studies among secondary school adolescents assess the presence of any depressive symptoms and studies show that by the time mild depression progresses to major depression it is often more difficult and expensive to intervene (38,39).

The Suicide Behaviour Questionnaire-Revised (SBQ-R) was used to assess suicidal behaviour, with an overall score of 7 or higher classifying a respondent as at-risk of suicide (40,41). These questionnaires have been validated for use either in Kenya or other African countries for use with adolescent populations.

Data analysis

Data analysis was carried out using STATA version 14. Descriptive statistics were computed as frequency distributions of the variables of interest in the study. For cross-sectional surveys, prevalence rates are recommended as a measure of risk for common outcomes >10% compared to odd ratios (42). The factors associated with bullying and other outcomes were assessed using a generalized linear model (GLM), using a Poisson distribution with a log-link function, was used to estimate adjusted prevalence ratios (aPR). The basis for the inclusion of variables in the multivariate model was a relaxed p-value of 0.2.

Ethical approval

All study procedures were following the requirements of the Helsinki Declaration. To protect respondent rights, written informed consent and assent were sought before data collection – which included both the guardians and adolescent respondents themselves. All respondent data was anonymized to ensure that confidentiality was upheld. Additionally, ethical approval was sought and received from the University of Eastern Africa Baraton Institutional Ethics Review Committee (UEAB-IERC). Authorization for the study was also given by the State Department of Early Learning and Basic Education and the National Commission for Science Technology and Innovation.

Results

Socio-demographic characteristics

A total of 539 adolescents participated in the study. Females accounted for 60.3% (n=325) of the respondents. All questionnaires were filled out by all respondents and there was no missing data. Depression was present in 63.6% (n=342) of the adolescents while suicide risk was reported in 20% (n=108) of the adolescents. The results showed that 40.1% (n=216) were from middle socioeconomic

status (SES) and 27.6% (n=149) were from low SES. The adolescents who had experienced lifetime drug use accounted for 9.3% (n=50) and 66.4% (n=358) living with both parents (Table 1). Table 2 shows the cross-tabulation of victimization and sociodemographic characteristics.

Factors associated with bullying victimization

Univariable analysis showed that of the 539 adolescents interviewed, 85.7% (n=462) reported experiencing bullying victimization. In the bivariable analysis adolescents who were depressed were more likely to experience bullying victimization compared to those who were not depressed (unadjusted prevalence ratio uPR=1.25; 95%CI=1.03-1.52). The prevalence rates of bullying victimization amongst males (93.5%, n=200) compared to those of females (80.6%, n=262). The differences were not statistically significant (uPR=1.16; 95%CI=0.96-1.39).

Table 1:
Socio-demographic Characteristics of Adolescents joining Public Secondary Schools in Nairobi County, Kenya

Variable	Category	n	%
Bullying Victimization	No	77	14.3
	Yes	462	85.7
Depression Present	No	196	36.4
	Yes	343	63.6
Sex	Male	214	39.7
	Female	325	60.3
Type of School	Single	368	68.3
	Mixed	171	31.7
Religion	Christian	420	77.9
	Muslim	119	22.1
Social economic status	Low	149	27.6
	Middle	216	40.1
	High	174	32.3
Age category	11 to 14	292	54.2
	15 to 18	247	45.8
Suicide risk	No	431	80.0
	Yes	108	20.0
Romantic relationship	No	444	82.4
	Yes	95	17.6
Sexually active	No	470	87.2
	Yes	69	12.8
Lifetime alcohol use	No	473	87.8
	Yes	66	12.2
Past 30-day alcohol use	No	526	97.6
	Yes	13	2.4
Lifetime drug use	No	489	90.7
	Yes	50	9.3
Past 30-day drug use	No	527	97.8
	Yes	12	2.2
Lifetime tobacco use	No	522	96.8
	Yes	17	3.2
Past 30-day tobacco use	No	533	98.9
	Yes	6	1.1
Caregiver	Both parents	358	66.4
	Father only	13	2.4
	Mother only	114	21.2
	Guardian	54	10.0

Table 2: Cross-tabulation of Victimization and Socio-demographic Characteristics

Variable	Category	Any Bullying Victimization				Verbal Victimization				Social Victimization				Physical Victimization			
		No		Yes		No		Yes		No		Yes		No		Yes	
		n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Depression	No	51	26.0	145	74.0	68	34.7	128	65.3	97	49.5	99	50.5	98	50.0	98	50.0
	Yes	26	7.6	317	92.4	50	14.6	293	85.4	91	26.5	252	73.5	106	30.9	237	69.1
Sex	Male	14	6.5	200	93.5	27	12.6	187	87.4	62	29.0	152	71.0	58	27.1	156	72.9
	Female	63	19.4	262	80.6	91	28.0	234	72.0	126	38.8	199	61.2	146	44.9	179	55.1
Type of School	Single	51	13.9	317	86.1	84	22.8	284	77.2	126	34.2	242	65.8	146	39.7	222	60.3
	Mixed	26	15.2	145	84.8	34	19.9	137	80.1	62	36.3	109	63.7	58	33.9	113	66.1
Religious affiliation	Christian	51	12.1	369	87.9	78	18.6	342	81.4	141	33.6	279	66.4	150	35.7	270	64.3
	Muslim	26	21.8	93	78.2	40	33.6	79	66.4	47	39.5	72	60.5	54	45.4	65	54.6
Social economic status	Low	33	22.1	116	77.9	39	26.2	110	73.8	68	45.6	81	54.4	71	47.7	78	52.3
	Middle	28	13.0	188	87.0	53	24.5	163	75.5	68	31.5	148	68.5	79	36.6	137	63.4
	High	16	9.2	158	90.8	26	14.9	148	85.1	52	29.9	122	70.1	54	31.0	120	69.0
Age category	11 to 14	40	13.7	252	86.3	68	23.3	224	76.7	97	33.2	195	66.8	106	36.3	186	63.7
	15 to 18	37	15.0	210	85.0	50	20.2	197	79.8	91	36.8	156	63.2	98	39.7	149	60.3
Suicide Risk	No	70	16.2	361	83.8	106	24.6	325	75.4	166	38.5	265	61.5	171	39.7	260	60.3
	Yes	7	6.5	101	93.5	12	11.1	96	88.9	22	20.4	86	79.6	33	30.6	75	69.4
Romantic relationship	No	75	16.9	369	83.1	114	25.7	330	74.3	170	38.3	274	61.7	182	41.0	262	59.0
	Yes	2	2.1	93	97.9	4	4.2	91	95.8	18	18.9	77	81.1	22	23.2	73	76.8
Sexually active	No	71	15.1	399	84.9	111	23.6	359	76.4	168	35.7	302	64.3	183	38.9	287	61.1
	Yes	6	8.7	63	91.3	7	10.1	62	89.9	20	29.0	49	71.0	21	30.4	48	69.6
Lifetime alcohol use	No	75	15.9	398	84.1	113	23.9	360	76.1	177	37.4	296	62.6	193	40.8	280	59.2
	Yes	2	3.0	64	97.0	5	7.6	61	92.4	11	16.7	55	83.3	11	16.7	55	83.3
Past 30-day alcohol use	No	77	14.6	449	85.4	118	22.4	408	77.6	186	35.4	340	64.6	203	38.6	323	61.4
	Yes	0	0.0	13	100	0	0.0	13	100	2	15.4	11	84.6	1	7.7	12	92.3
Lifetime drug use	No	74	15.1	415	84.9	115	23.5	374	76.5	176	36.0	313	64.0	194	39.7	295	60.3
	Yes	3	6.0	47	94.0	3	6.0	47	94.0	12	24.0	38	76.0	10	20.0	40	80.0
Past 30-day drug use	No	76	14.4	451	85.6	117	22.2	410	77.8	185	35.1	342	64.9	202	38.3	325	61.7
	Yes	1	8.3	11	91.7	1	8.3	11	91.7	3	25.0	9	75.0	2	16.7	10	83.3
Lifetime tobacco use	No	76	14.6	446	85.4	117	22.4	405	77.6	181	34.7	341	65.3	199	38.1	323	61.9
	Yes	1	5.9	16	94.1	1	5.9	16	94.1	7	41.2	10	58.8	5	29.4	12	70.6
Past 30-day tobacco use	No	77	14.4	456	85.6	118	22.1	415	77.9	187	35.1	346	64.9	201	37.7	332	62.3
	Yes	0	0.0	6	100	0	0.0	6	100	1	16.7	5	83.3	3	50.0	3	50.0
Caregiver	Parents	51	14.2	307	85.8	76	21.2	282	78.8	125	34.9	233	65.1	139	38.8	219	61.2
	Father	1	7.7	12	92.3	2	15.4	11	84.6	4	30.8	9	69.2	1	7.7	12	92.3
	Mother	17	14.9	97	85.1	24	21.1	90	78.9	41	36.0	73	64.0	43	37.7	71	62.3
	Guardian	8	14.8	46	85.2	16	29.6	38	70.4	18	33.3	36	66.7	21	38.9	33	61.1

Other factors such as religious affiliations, socioeconomic status, age, risk of suicide, having a romantic relationship, lifetime alcohol use, and the type of caregiver of the adolescent were not significantly associated with the risk of bullying victimization (Table 3).

In multivariable regression analysis, the presence of depression (p-value=0.026), sex (p-value=0.115), and being in a romantic relationship (p=0.158) were included as confounders. The results showed that the presence of depression was significantly associated with the risk of bully victimization. Almost all (93.5%) of adolescents who experienced depression had experienced bullying victimization, higher than the 80.6% of non-depressed adolescents who were victimized. The difference in prevalence rates was statistically significant (adjusted prevalence rate, aPR=1.33; 95%CI=1.05-1.68). However, experiencing physical victimization were similar between males and female (aPR=1.14; 95%CI=0.95-1.38), Table 4.

Factors associated with verbal victimization (Table 3)

In the univariable analysis, the results show that of the 539 adolescents interviewed, 65.3% (n=128) of those who experienced depression had also experienced verbal victimization, while 85.4% (n=293) had experienced verbal victimization but did not experience depression. The difference was statistically significant (uPR=1.31; 95%CI=1.06-1.61). The results showed that prevalence rates of verbal victimization were 87.4% (n=187) among males and 72% (n=234) among females. The difference was statistically significant (uPR=1.21; 95%CI=1.01-1.47). The results showed that 81.4% (n=342) of Christians experienced verbal victimization compared to 66.4% of Muslims (n=79). Religious affiliation was not significantly associated with verbal victimization (uPR=1.23; 95%CI=0.96-1.57). Being in a romantic relationship was significantly associated with an increased risk of verbal victimization included (uPR=1.29; 95%CI=1.02-1.63).

In the multivariable regression analysis accounting for the presence of depression, sex, and religious affiliations as confounders, the results show the presence of depression was a significant factor associated with verbal victimization. Adolescents who had experienced depression were 1.28 times more likely to experience verbal bullying (aPR4=1.28; 95%CI=1.04-1.58). The sex and religious affiliations of the adolescents were not associated with verbal victimization in the multivariable analysis.

Factors associated with social victimization

In the univariable analysis, 73.5% (n=252) of those who experienced depression had also experienced social victimization, while 73.5% (n=252) had experienced social victimization but did not experience depression. The difference was statistically significant (uPR=1.45; 95%CI=1.15-1.83). The results showed that prevalence rates of social victimization were 71.0% (n=152) among males and 61.2% (n=199) among females. The difference was not statistically significant (uPR=1.16; 95%CI=0.94-1.43). The results showed that 66.4% (n=279) of Christians experienced social victimization compared to 60.5% of Muslims (n=72). Religious affiliation was not significantly associated with verbal victimization (uPR=1.10; 95%CI=0.85-1.42). Being in a romantic relationship was significantly associated with an increased risk of social victimization included (uPR=1.31; 95%CI=1.01-1.69). Those who are at risk of suicide were more likely to experience social victimization (uPR=1.30; 95%CI=1.01-1.65), Table 3.

Table 3: Factors Associated with Bullying Victimization among Adolescents Joining Public Secondary Schools in Nairobi County (Unadjusted Prevalence Rates)

Variable	Category	Any Bullying Victimization		Verbal victimization		Social Victimization		Physical victimization	
		uPR (95% CI)	p-value	uPR (95% CI)	p-value	uPR (95% CI)	p-value	uPR (95% CI)	p-value
Depression	No	REF		REF		REF		REF	
	Yes	1.25 (1.03-1.52)	**0.026**	1.31(1.06-1.61)	**0.011**	1.45(1.15-1.83)	**0.002**	1.38(1.09-1.75)	**0.007**
Sex	Male	1.16(0.96-1.39)	0.115	1.21(1.01-1.47)	**0.048**	1.16(0.94-1.43)	**0.168**	1.32(1.07-1.64)	**0.010**
	Female	REF		REF		REF		REF	
Type of School	Single	1.02(0.83-1.24)	0.875	REF		1.03(0.82-1.29)	0.787	REF	
	Mixed	REF		1.04(0.85-1.27)	0.719	REF		1.10(0.87-1.37)	0.430
Religious affiliation	Christian	1.12(0.89-1.41)	0.313	1.23(0.96-1.57)	0.102	1.10(0.85-1.42)	0.480	1.18(0.90-1.54)	0.238
	Muslim	REF		REF		REF		REF	
Social economic status	Low	REF		REF		REF		REF	
	Middle	1.12(0.89-1.41)	0.345	1.02(0.80-1.30)	0.859	1.26(0.96-1.65)	0.094	1.21(0.92-1.60)	0.176
	High	1.17(0.92-1.48)	0.208	1.15(0.90-1.47)	0.26**1**	1.29(0.97-1.70)	0.076	1.32(0.99-1.75)	0.058
Age category	11 to 14	1.02(0.85-1.22)	0.973	REF		1.06(0.87-1.31)	0.604	1.06(0.85-1.31)	0.621
	15 to 18	REF		1.04(0.86-1.26)	0.690	REF		REF	
Suicide Risk	No	REF		REF		REF		REF	
	Yes	1.12(0.89-1.39)	0.328	1.18(0.94-1.48)	0.157	1.30(1.01-1.65)	**0.037**	1.15(0.89-1.49)	0.283
Romantic relationship	No	REF		REF		REF		REF	
	Yes	1.18(0.93-1.48)	0.158	1.29(1.02-1.63)	**0.032**	1.31(1.02-1.69)	**0.035**	1.30(1.00-1.69)	**0.046**
Sexually active	No	REF		REF		REF		REF	
	Yes	1.08(0.82-1.40)	0.591	1.18(0.90-1.54)	0.238	1.11(0.82-1.49)	0.516	1.14(0.84-1.55)	0.403
Lifetime alcohol use	No	REF		REF		REF		REF	
	Yes	1.15(10.89-1.50)	0.292	1.21(0.93-1.59)	0.161	1.33(1.00-1.78)	0.051	1.41(1.05-1.88)	**0.020**
Past 30-day alcohol use	No	REF		REF		REF		REF	
	Yes	*1.*17(0.67-2.03)	0.574	1.29(0.74-2.24)	0.367	1.31(0.72-2.39)	0.379	1.50(0.84-2.67)	0.166
Lifetime drug use	No	REF		REF		REF		REF	
	Yes	1.11(0.82-1.50)	0.507	1.22(0.90-1.66)	0.183	1.19(0.85-1.66)	0.317	1.32(0.95-1.85)	0.094
Past 30-day drug use	No	REF		REF		REF		REF	
	Yes	1.07(0.59-1.95)	0.822	1.18(0.65-2.14)	0.591	1.16(0.60-2.24)	0.668	1.35(0.72-2.53)	0.348
Lifetime tobacco use	No	REF		REF		REF		REF	
	Yes	1.10(0.67-1.81)	0.704	1.21(0.74-2.00)	0.449	0.90(0.48-1.69)	0.744	1.14(0.64-2.03)	0.654
Past 30-day tobacco use	No	REF		REF		REF		REF	
	Yes	1.17(0.52-2.61)	0.704	1.28(0.57-2.88)	0.543	1.28(0.53-3.10)	0.579	0.80(0.26-2.50)	0.705
Caregiver	Parents	1.01(0.74-1.37)	0.966	1.12(0.80-1.57)	0.514	0.98(0.69-1.39)	0.893	1.00(0.69-1.44)	0.996
	Father	1.08(0.57-2.05)	0.804	1.20(0.61-2.35)	0.590	1.04(0.50-2.16)	0.919	1.51(0.78-2.92)	0.221
	Mother	1.00(0.70-1.42)	0.995	1.12(0.77-1.64)	0.552	0.96(0.64-1.43)	0.843	1.02(0.67-1.54)	0.928
	Guardian	REF		REF		REF		REF	

Table 4:

Factors Associated with Bullying Victimization among Adolescents Joining Public Secondary Schools in Nairobi County (Adjusted Prevalence Rates***)***

Variable	Category	Any Bullying Victimization		Verbal victimization		Social Victimization		Physical victimization	
		aPR (95% CI)	p-value	aPR (95% CI)	p-value	aPR (95% CI)	p-value	aPR (95% CI)	p-value
Depression	No	REF		REF		REF		REF	
	Yes	1.24(1.02-1.51)	**0.033**	1.28(1.04-1.58)	**0.020**	1.42(1.13-1.80)	**0.003**	1.33(1.05-1.68)	**0.019**
Sex	Male	1.14(0.95-1.38)	0.150	1.19(0.98-1.44)	0.078			1.27(1.02-1.58)	**0.031**
	Female	REF		REF				REF	
Religious affiliation	Christian			1.19(0.93-1.52)	0.169				
	Muslim			REF					
Lifetime alcohol use	No					REF		REF	
	Yes					1.25(0.94-1.67)	0.129	1.27(0.95-1.71)	0.106

In the multivariable regression analysis accounting for the presence of depression, sex, religious affiliations, and lifetime drug use as confounders, the results show the presence of depression was a significant factor associated with verbal victimization. Adolescents who had experienced depression were 1.42 times more likely to experience social bullying (aPR=1.42; 95%CI=1.13-1.80). The sex, religious affiliations, and risk of suicide of the adolescents were not associated with social victimization in the multivariable analysis, as shown in Table 4.

Factors associated with physical victimization

In the univariable analysis, 69.1% (n=237) of those who experienced depression had also experienced physical victimization, while 50.0% (n=98) had experienced social victimization but did not experience depression. The difference was statistically significant (uPR=1.38; 95%CI=1.09-1.75). The results showed that prevalence rates of physical victimization were 72.9% (n=156) among males and 55.1% (n=179) among females. The difference was not statistically significant (uPR=1.32; 95%CI=1.07-1.64). The results showed that 66.4% (n=279) of Christians experienced social victimization compared to 64.3% of Muslims (n=270). Religious affiliation was significantly associated with verbal victimization (uPR=1.18; 95%CI=0.90-1.54). Being in a romantic relationship was significantly associated with an increased risk of physical victimization included (uPR=1.30; 95%CI=1.01-1.69). Those who are at risk of suicide were not associated with physical victimization (uPR=1.15; 95%CI=0.89-1.49), see Table 3.

In the multivariable regression analysis accounting for the presence of depression, sex, religious affiliations, and risk of suicide as confounders, the results show the presence of depression was a significant factor associated with verbal victimization. Adolescents who had experienced depression were 1.33 times more likely to experience social bullying (aPR=1.33; 95%CI=1.05-1.68). Similarly, males were more likely to experience physical victimization compared to females (uPR=1.32; 95%CI=1.07-1.64). The religious affiliations and risk of suicide of the adolescents were not associated with social victimization in the multivariable analysis, see Table 4.

Discussion

The study found a prevalence of bullying victimization of 85.7%. This is higher than the 7-79% reported by Biswas et al (6). This is similar to a study that recorded a bullying victimization prevalence of 86.4% among secondary schools in Machakos County of Kenya (10). Overall, this shows that there is a high prevalence of bullying victimization among adolescents joining public secondary schools. Indeed, this prevalence is almost twice as high as the average reported for sub-Saharan Africa at 48.2% (9). This high prevalence of bullying victimization suggests that despite the ban on bullying in secondary schools, there is still a major problem that requires more robust interventions. These interventions may need to move beyond policies to specific anti-bullying victimization interventions or activities which are made mandatory.

In this study, adolescents with depression were more likely to experience verbal, physical, and social bullying victimization compared to those who were not depressed. Depression has a significant impact on an individual's health and poses a significant concern to their interaction with their peers (43). Luk *et al.* (2010) found that among both females and males, depression was associated with victimization while for females' depression was also associated with substance abuse (44). These findings are similar to other studies which found a significant association between depression and bullying (22,45–48). Adolescents who are bullied tend to have a lower sense of self-worth. This lowers their level of satisfaction with life. Consequently, they will have trouble assimilating with their peers and have lower social status, impaired coping as well as increasing their risk for other negative individual and environmental factors

and predisposing them to social problems like bullying.

In this study, male adolescents had a higher prevalence rate of physical bullying victimization compared to females. This finding is contrary to most studies that show female adolescents are more likely to experience bullying victimization compared to males (13,49–51). However, a study by Chrysanthou and Vasilakis (2020) demonstrated that male adolescents are more likely to experience bullying victimization compared to female adolescents (52). The higher prevalence of victimization among males in this study may be attributed to the fact that the traditional stigma or shame associated with bullying victimization has been eroded as well as greater awareness and support from teachers of the bullying problem in schools. The combination of these factors creates a situation where boys can speak up about victimization experiences without the expectation of retaliation. Additionally, the study population for this study comprised younger teens who are more likely to disclose abuse or bullying victimization (53,54), this may explain why more males spoke up compared to the norm. Further, given the fact that the respondents had just recently joined secondary school, it is likely that they had yet to be inculcated into the secretive culture common in secondary schools (52).

Romantic relationships and lifetime alcohol use were found to be statistically significantly associated with suicide risk at the univariable level they were not so in the multivariable analysis. This could be because suicide risk is collinear with depression and was eliminated from the model. For romantic involvement and lifetime alcohol use, the univariable associations may have been weak. These findings are contrary to Baiden *et al.* (2019) who found a significant association between bullying victimization and suicidality (55). Another study that captured adolescents aged 12-17 years revealed that bullying victimization was associated with mental disorders, suicidality, and self-harm (56).

Study limitations

The study was limited to an urban setting whose unique circumstances may not necessarily apply to peri-urban and rural settings. A future study could look at factors associated with bullying victimization in peri-urban and rural settings. This would give a more global view of the problem and help inform future policies and interventions against the problem. Additionally, the utilization of the cross-sectional design limits the interpretation of the directionality of the bullying victimization-depression dyad identified in this study. However, this finding could inform future studies on the subject.

Conclusion

The prevalence of bullying is quite high, and the presence of depression and alcohol use are significant factors associated with the risk of bullying victimization. Anti-bullying interventions should be targeted at boys and include a component of depression screening and treatment across gender. Lastly, physical victimization is another key factor for male students and interventions should be put in place to specifically monitor and prevent this.

Author contributions

AGM, GK, JM, and LK conceptualized the study. AGM collected the data and carried out the analysis. PM oversaw and advised on the data analysis. All authors contributed to the manuscript writing and reviewed the paper at different stages

Data availability statement

Data cannot be shared for ethical/privacy reasons.

Declaration of Interest

The authors declare no competing interests.

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