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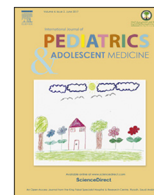

Original research article

The relationship of bullying and physical violence to mental health and academic performance: A cross-sectional study among adolescents in Kingdom of Saudi Arabia

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ABSTRACT

Background and objectives: Bullying and physical violence are serious public health concerns witnessed during adolescence and are associated with several health and behavioral problems that can persist into adulthood. The relationship between bullying/physical violence and mental health/academic performance in Saudi Arabia is unknown. This study aims at filling this gap through identifying the association of these health risk behaviors and mental health and academic performance.
Materials and methods: A cross-sectional national survey was conducted in Saudi Arabia between 2011 and 2012. Adolescents attending intermediate and secondary schools were invited to participate through a multi-stage, stratified, cluster random sampling technique. A self-administered questionnaire was used to collect data. Data were analyzed using chi-square tests to identify associations, and odds ratios were calculated.
Results: A total of 9073 students participated. Twenty-six percent of adolescents reported exposure to bullying in the preceding 30 days, and one out of every three adolescents reported exposure to physical violence at school during the past year. More males than females, and more older adolescents were exposed to bullying. Exposure to physical violence and bullying were both associated with higher odds of having more frequent symptoms of depression and anxiety. Those exposed to physical violence were at higher odds of having poorer academic performance.
Conclusion: Bullying and physical violence among adolescent students in Saudi Arabia is prevalent and deserves special attention due to its harmful impact on the other aspects of students' wellbeing.
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1. Introduction

Identified as a significant public health concern, bullying among adolescents has gathered much attention at the global level. Systematic intervention research on bullying dates back to the 1980s when the Norwegian researcher Olweus [1,2] first shed light on this issue following an incident of three young Scandinavian boys who committed suicide after being severely bullied at school.

Bullying is a repeated aggressive behavior, involving power imbalance between the bully and the bullied [3]. Bullying behaviors

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can take several forms, including 1. physical bullying, e.g., hitting, pushing, kicking; 2. verbal bullying, e.g., name-calling, teasing, threatening; 3. relational/social bullying, e.g., rumors, exclusion [4]; and 4. cyber bullying [5].

There are important negative consequences to victims, perpetrators, schools, families and communities at large. Several studies have shown that victims of bullying are at increased odds of adverse outcomes including physical health problems [6], emotional and behavioral problems [3], and psychiatric disorders [7]. Bullied students have also been shown to have poor or impaired academic performance [8,9]. At the mental health level, evidence has linked being a victim of bullying to higher rates of depression, insomnia, feelings of hopelessness, loneliness [10,11], low self-esteem [12], suicide ideation and suicide attempts [13]. Similarly, bully victims are also at higher risk of suicide ideation [14] and suicidal behaviors [7].

The negative consequences of bullying do not stop at the actual incident itself but persist beyond and may be carried into adulthood in various forms, including borderline personality disorder (BPD) [15], emotional disorders and increased suicide ideation for victims of bullying [7], as well as increased risk of antisocial personality disorder and adult intimate partner violence perpetration for bullies [7,16]. Likewise, physical violence (PV) can profoundly impact victims' integrity, social relationships and social integration ability. PV can also trigger violent behavior among the victims that can be directed towards peers and even teachers, which also impacts the classroom environment and hence the overall learning process [17].

Bullying is a life-changing experience that has drastically affected more than a third of adolescents in schools globally [18]. In the Arab region, only a few studies have addressed the issue of bullying and PV in schools. These studies have found varying prevalence rates across countries ranging from 20.9% in the United Arab Emirates to 44.2% in Jordan [10]. Similar rates (31%) have been reported from a nationally representative sample of Egyptian adolescents [19]. In the Kingdom of Saudi Arabia (KSA), the first nationally representative sample of adolescents was recently reported to have a prevalence of 25.0% of bullying and 20.8% of PV at schools [20]. The available local and regional literature has focused on prevalence rates. Attention now needs to be given to the seriousness and potential impact that bullying has on adolescents' health and academic achievements. The aim of this study is to assess the relationship between exposure to bullying/PV and adolescents' mental health and academic performance among adolescents in KSA.

2. Materials and methods

Data from the *Jeeluna* study were utilized for this analysis. *Jeeluna* is a national study addressing the health needs of adolescents in the KSA. Through student population proportionate sampling and a complex, multi-stage, stratified, cluster random sampling technique, adolescents from various regions across the country participated in this school-based study in 2011–2012. Participants included male and female intermediate (grades 7–9) and secondary (grades 10–12) grade students. Multiple domains were addressed in *Jeeluna*, including bullying and PV at schools [20]. A detailed methodology of Jeeluna was published earlier [20].

Data for variables addressing bullying, PV at schools, mental health symptoms, academic performance, and socio-demographics were extracted. Many of the questions addressing these variables were guided by the Global School-based Health Survey [21]. 'Bullying' refers to reported verbal/emotional forms of bullying during the preceding 30 days (yes/no), and PV refers to reported exposure to physical forms of bullying during the preceding 12 months (yes/no). Mental health was assessed by adolescent self-reports of depression and/or anxiety symptoms. Depression was assessed by responses to the following question: "*During the past 12 months*, *how often did you feel excessively sad or hopeless daily for 2 weeks or more to the extent that you stopped doing your usual activities (*e.g., *prevented you from going to school or to your social activities)*?" Anxiety was assessed by responses to the following question: "*During the past 12 months*, *how often have you felt so worried about something to the extent that you stopped doing your usual activities?*" Any indication of having such feelings was reported as being positive for depression and/or anxiety symptoms. Academic performance was based on self-reports of academic achievement during the preceding academic semester (average or below/above average, based on school letter grading system).

Sub-sample analysis was conducted using the Jeeluna data to examine the association between the main outcome variables, bullying and PV, with each of the independent variables, including socio-demographics, academic performance, depression, anxiety and any mental health problem (i.e., depression and/or anxiety). Descriptive statistics were obtained for the whole sample. A bivariate analysis was then performed to test the association between the dependent and the independent variables. Multivariate logistic regression models were fitted, and odds ratios were conducted adjusting for age and gender. Data were analyzed using the Statistical Package for Social Sciences (SPSS) version 22, and *P* value <.05 was considered to be statistically significant at the bivariate and multivariate levels.

This study was reviewed and approved by the Ethical Review Committee at the King Abdullah International Medical Research Center.

3. Results

3.1. Participant characteristics

A total of 9073 students answered the bullying and PV questions. The sample included slightly more males (52.6%). The majority were of Saudi Arabian origin (86.7%). Students in the sample were almost equally distributed among intermediate (49.1%) and secondary schools (50.9%). The mean age of students was 15.80 ± 1.842 years. Twenty-six percent of adolescents reported exposure to bullying in the preceding 30 days. The prevalence to any past year PV at school was 33.3%, with 21.2% reporting being a victim (bullied) and 24.3% being a perpetrator (bully). A total of 12.3% of the students were both victims and perpetrators of PV, and 11.5% reported being involved with bullying and PV at the same time. The majority of students (95.2%) reported having above average academic performance in the preceding semester. Among the sample, 53.2% and 36.4% of students reported having feelings of excessive sadness/hopelessness or worry/anxiety during the preceding year, respectively.

3.2. Association of bullying and physical violence with socio-demographic characteristics

Table 1 shows the association of bullying and PV with adolescents' socio-demographics. Exposure to bullying was more common among males and older adolescents, whereas PV was more common among males and younger adolescents (all *P* values <.001). Exposure to bullying or PV was more common among adolescents with a chronic illness (*P* <.001). Exposure to bullying, but not PV, was significantly associated with school absenteeism.

Mother's education level was associated with both bullying and PV; adolescents whose mothers had completed a higher level of education were more frequently exposed to bullying or PV.

Table 1
Association of bullying and physical violence with socio-demographic characteristics among adolescents in Saudi Arabia, N = 9073.

	Bullying[a] (%)		P value	Physical violence[b] (%)		P value
	No	Yes		No	Yes	
Gender						
Male	51.8	57.4	<.001	43.1	73.3	<.001
Female	48.2	42.6		56.9	26.7	
Age						
≤15	45.2	40.2	<.001	38.8	54.1	<.001
>15	54.8	59.8		61.2	45.9	
Father's educational level						
Illiterate/completed primary school education	26.2	23.6	.060	25.7	24.7	.64
Completed intermediate/secondary school education	42.7	43.4		42.8	43.6	
Completed college/university/post graduate education	31.1	33.0		31.5	31.6	
Mother's educational level						
Illiterate/completed primary school education	40.3	38.2	.016	40.9	37.6	.017
Completed intermediate/secondary school education	37.2	36.2		36.2	38.4	
Completed college/university/post graduate education	22.5	25.6		22.8	24.0	
Relationship with father						
Very poor/poor	2.9	6.0	<.001	3.5	4.1	.082
Average	9.6	15.1		10.6	11.8	
Good/very good	87.4	79.0		85.9	84.1	
Relationship with mother						
Very poor/poor	1.1	2.6	<.001	1.4	1.6	.029
Average	4.5	7.5		4.9	6.2	
Good/very good	94.4	89.9		93.7	92.2	
Absenteeism						
No	95.8	92.3	<.001	95.0	94.6	.476
Yes	4.2	7.7		5.0	5.4	
Chronic illness						
No	92.6	87.7	<.001	92.7	88.5	<.001
Yes	7.4	12.3		7.3	11.5	

[a] Past 30 days verbal/emotional.
[b] Past-year.

Higher paternal education was only positively associated with adolescents' exposure to bullying. Poor adolescent relationship with his/her mother or father was strongly associated with exposure to bullying or PV (Table 1).

3.3. *Association of bullying and physical violence with academic performance and mental health*

Bullying was significantly associated with poor academic performance ($P = .012$) and mental health problems (depression and/or anxiety) ($P < .001$). Table 2 shows the adjusted and un-adjusted odds ratios of bullying on academic performance and mental health problems. When adjusting for age and gender, our results indicate that students who were bullied were 20% (OR: 0.81, 95% CI: 0.653–1.011%) less likely to have an academic performance that was at least average. Bullied students had a 2.66 (95% CI: 2.399–2.959) and a 2.89 (95% CI: 2.699–3.309) greater odds of suffering from depression and anxiety symptoms, respectively, compared to students who were not bullied. Likewise, bullied students had a 3.44 times higher risk of having mental health problems compared to non-bullied students (95% CI: 3.063–3.865).

For PV in the past year, after adjusting for age and gender, students who were involved in any PV were approximately 50% less likely to have ‘average’ or ‘above average’ academic performance compared to those who were not involved in any PV (95% CI 0.436–0.667). Further, these students were significantly more likely to report experiencing depression (OR: 1.7; 95% CI 1.535–1.869), anxiety (OR: 1.48; 95% CI: 1.333–1.633) or mental health problems (OR: 1.84; 95% CI 1.662–2.037) compared to those who were not involved in any PV in the past year (Table 2).

Table 2
Adjusted and un-adjusted odds ratios of Academic performance and mental health with bullying and PV.

	Bullying				Physical Violence			
	U-OR (95%CI)	P Value	A-OR (95%CI)	P Value	U-OR (95%CI)	P Value	A-OR (95%CI)	P Value
Academic Performance								
Average or below	Ref		Ref		Ref	<.001	Ref	<.001
Above average	0.76 (0.609–0.940)	.012	0.81 (0.653–1.011)	.062	0.52 (0.442–0.629)		0.54 (0.436–0.667)	
Depression								
No	Ref	<.001	Ref	<.001	Ref	<.001	Ref	<.001
Yes	2.56 (2.313–2.842)		2.66 (2.399–2.959)		1.26 (1.151–1.378)		1.694 (1.535–1.869)	
Anxiety								
No	Ref	<.001	Ref	<.001	Ref	.04	Ref	<.001
Yes	2.86 (2.589–3.157)		2.89 (2.699–3.309)		1.1 (1.003–1.207)		1.476 (1.333–1.633)	
Mental Health Problems								
No	Ref	<.001	Ref	<.001	Ref	<.001	Ref	<.001
Yes	3.28 (2.924–3.673)		3.44 (3.063–3.865)		1.33 (1.208–1.455)		1.84 (1.662–2.037)	

A-OR: Adjusted Odds Ratio/U-OR: Unadjusted OR.

4. Discussion

This study indicates that PV and bullying are serious issues affecting one out of three or four adolescent students, respectively, in the KSA. Our rates are more or less similar to those reported earlier in the region [10,19]. Our findings of bullying being more prevalent among older adolescents and PV among younger adolescents may be related to older adolescents' ability to address conflicts in a more assertive manner due to more advanced social and developmental skills.

Similar to other reports, exposure to bullying has been found to be associated with chronic illness [22]. Surprisingly, though, we found higher maternal education to be associated with bullying and PV, though others have found higher parental education to be protective of bullying [22]. The reason for this is unclear. Students whose mothers had a higher level of education represented a minority (23.3%). Whether or not these kids stand out as targets because they are a minority is unknown. However, this is certainly an issue worth exploring in future studies. Whether or not highly educated mothers label the behavior of peers differently than other mothers is unknown and should also be explored.

Consistent with others' findings, an adolescent's poor relationship with his/her mother or father was found to be associated with bullying and/or PV. Poor negotiating relationships with parents has been found to be a predictor of bullying victimization among adolescents [23]. It has also been found that such children are sometimes less empowered by their parents and possibly lack confidence or are subject to poor role modeling [24–26]. The importance of building parenting skills and effective family communication may well extend beyond the home.

The long-term implications, including mental health issues [12], are serious and reflect the importance of addressing and preventing bullying and peer violence at a young age. Increased risk of mental health issues with exposure to bullying has been found in other parts of the world [6,7,11,22,27]. Though it comes as no surprise that we have similar findings, this is the first documentation of such findings in the KSA.

Insufficient attention has been given to the issue of bullying among students in Saudi Arabia. The first national study addressing this was conducted a few years ago [20]. Subsequently, only a few awareness campaigns conducted in only few communities in the country were carried out. The Ministry of Education (MOE) has shown some interest in implementing a national bullying prevention program. Though bullying is included in the MOE's policy manual, it is mentioned alongside many other student behavioral issues without clear and concrete protocols of how to deal with or manage such situations [28]. Having an exclusive national policy for bullying along with concurrent widespread awareness and training programs is necessary. Much may be learned from countries that have been successful in achieving low rates of bullying such as Sweden, where national policies and interventions were implemented early on [22].

Though the nature of our study does not allow for identifying causality and temporality, our findings have highlighted the serious associations that bullying and PV have. Future studies are needed to understand some of the determinants in more depth, and longitudinal studies will allow identification of causality as well as continued long-term implications and adversities. Nevertheless, school teachers, counselors, and parents need to be attuned to changes in academic performance as well as changes in mood or anxiety. Health care providers also need to keep an opportunistic eye open for bullying and other forms of aggression when providing general care to their patients. Prevention, identification, and/or management of bullying and peer violence are important responsibilities for the health care providers [29], and any contact with a young patient should be viewed as an opportunity to address some of these potentially missed issues.

5. Conclusion

Bullying and physical violence are serious and major public health issues that have a negative impact, are negatively associated with adolescents' well-being, and require special attention at the family, school, and community level. National policy and intervention are much needed with concurrent awareness programs reaching all levels of society. Emphasis needs to be put on the serious relationship with poor academic performance and mental health and the importance of building and strengthening positive child-parent relationships.

Competing interests

The authors declare that they have no competing interests.

Ethical clearance

This study was reviewed and approved by the Ethical Review Committee at the King Abdullah International Medical Research Center.

Abbreviations

CI	confidence interval
KSA	Kingdom of Saudi Arabia
MOE	Ministry of Education
OR	odds ratio
PV	physical violence

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