



Bullying among School Students; Prevalence, Cofactors, and Its Relation to Student's Mental Status

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ABSTRACT

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Key Words:
Bullying; prevalence; mental status; school students.

Background: Bullying among school students has become more prevalent recently. It is a serious issue that may have negative effects on adolescents, including poor academic performance and mental health issues. **Objectives:** To estimate the prevalence of bullying and assess its connection with the adolescents' mental health and self-esteem. **Methods:** In a cross-sectional analysis, 340 students participated in the study, to determine what personal, familial, school, and social characteristics that are associated with bullying, a self-administered questionnaire was applied. The short form of the aggressiveness and victimization scale was used to measure bullying and victimization. Their emotional well-being was measured with the Depression, Anxiety, and Stress Scale - 21 (DASS-21). Rosenberg Self-Esteem Scale was used for self-esteem assessment. **Results:** The prevalence of bullying behavior was 71.2% and the victimization rate was 87.9%. Approximately 2.6% were unique bullies, 19.4% were unique victims, and 68.6% were bully victims. There were significant positive correlation between both bullying and victimization scores and each of depression, anxiety, and stress. Victimization score was negatively correlated with self-esteem. On logistic regression analysis, insulting words at home was a hazard factor for being a unique bully. While school punishment was a hazard factor for being both a unique victim and a bully-victim. Other hazard factors for being a bully-victim were students' younger age, being in preparatory grade, and exposure to street violence. **Conclusions:** A high prevalence of bullying among secondary school adolescents was noted. A bullying prevention program should be designed and implemented in schools to control this problem.

INTRODUCTION

Bullying in schools is considered a global problem that causes public concern about the safety of pupils. Bullying is defined as repeated, intentional hostility directed towards a victim who is weaker than the bully.¹ Three elements are involved in the bullying act; the bully (the person who engage in bullying behavior), the victim (the one who is being bullied), and the bully-victim (the offender and victim too).² Bullying can take a variety of forms including the physical (such as hitting, pushing, and kicking), verbal

(such as name-calling or teasing in a harmful way), relational (such as social exclusion and rumor spreading), cyber (such as sending purposefully harmful emails or instant messages via computers or text messages via cell phones), and sexual (bullying behavior that is based on gender or a person's sexuality).³ According to statistics, bullying is a global issue that has an impact on both the learning environment in schools and the behavior of children. The first studies on bullying were conducted in Europe

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in the 1970s under the direction of Dan Olweus, who is still regarded as the world's greatest expert on the subject.⁴ Till now bullying prevalence rate in adolescents has been established by a considerable collection of studies, which showed that the prevalence of bullying among school students varies by culture and across distinct countries. A 40-country cross-sectional study conducted using data from 202,056 teenagers in Europe found that bullying prevalence estimates varied from 8.6% to 45.2% among boys, and from 4.8% to 35.8% among girls.⁵ Over 13,000 middle school students in North Africa taken part in a Global School-based Student Health Survey between 2006 and 2008. According to this study, one-third of the students in Morocco, Tunisia, and Libya said that they had experienced bullying in the previous month, but bullying rates were roughly twice as high in Egypt 60.3%.⁶

Other studies of bullying had been conducted in Egypt and showed similar or higher results, which confirms that school bullying is indeed a serious issue that must be given more attention.^{7,8} Bullying is one of the biggest problems that affect mental health in adolescence. This association was investigated in a 28-country cross-national study which surveyed teenagers aged 11, 13, and 15 years old from nationally representative samples of schools that used the WHO Health Behavior in School-aged Children survey (N = 123,227). There was a connection between frequent bullying and poor mental health in every country studied.^{9,10} One of the most important aspects of bullying is body image and self-esteem. Self-esteem is characterized by a positive or negative attitude toward oneself, besides an overall judgement of one's worthiness or value.¹¹ Some studies showed that bullying is closely related (either favorably or adversely) to self-esteem.¹²

As school bullying is extremely prevalent among adolescents, thousands of children wake up every day terrified of going to school. Bullying has several negative consequences on one's health, social interactions, and academic performance. Bullying victims frequently have difficulty adjusting, poor academic performance, and certain psychosomatic problems.¹³

Adolescence is a time of significant social, emotional, and relational transitions. Identity, independence, influences (Friends and colleagues influence an individual's behavior, appearance, interests, self-esteem, values and morals, and sexual identity.), and media (cell phones, social media, internet) are all examples of social changes.¹³ Emotional alterations include moods and feelings, sensitivity to others (misreading facial expressions and body language), and insecurity (their sense of self-worth tends to fluctuate based on how they perceive they look or are seen).¹³ Adolescence is not just a transitory period, but it is also a time when risky behaviors and other problems might emerge.⁵

As far as we know, no studies have covered bullying among Menoufia Governorate school students. So, the aim of this study was to estimate the prevalence of bullying behavior amongst governmental preparatory and secondary school students in Menoufia governorate, to analyze various risk factors of bullying and to assess its impact on school performance as well as its effect on mental health and self-esteem among students.

METHODS

A cross-sectional research was conducted, with field work at the time period from first of October till the end of November 2023. The research was approved by the faculty of medicine (Menoufia University), Ethics Committee, and an official permission letter was acquired from the undersecretary of Ministry of Education in Menoufia.

The study setting was chosen by a multi-stage random sampling strategy as following: The first stage: One district (Birket El Sab' district) out of 10 was chosen using simple random sampling technique. The second stage: Three out of 39 preparatory schools and three out of 13 general secondary schools, one out of 12 technical secondary schools were chosen randomly. The only language school in the district including both preparatory and secondary grades was also included. The third stage: One class was chosen randomly from each grade in the selected schools hence the total number of classes was 27 with total number of 810 students of whom 458 were regularly attending the

Table 1: Prevalence of bullying and victimization among the studied group (N=340).

	No	(%)
Unique bullying	9	2.6
Forms of total bullying (n=340)		
• Physical bullying	85	25
• Verbal bullying	158	46.5
• Social bullying	56	16.5
• Cyber bullying	60	17.6
• Sexual bullying	23	6.8
• Unique victimization	66	19.4
Forms of total victimization (n=340)		
• Physical victimization	147	43.2
• Verbal victimization	187	55
• Social victimization	232	68.2
• Cyber victimization	139	40.9
• Sexual victimization	73	21.5
• Bullying-victimization	233	68.5
None	32	9.4

school. Out of 458 students, 349 students were selected by simple random sampling technique. After exclusion of 9 invalid papers, the total studied sample became 340 students (253 students in preparatory schools and 87 students in secondary schools).

Galal et al.,⁷ had reported that the prevalence of bullying Sample size was estimated to be 77.8%. Sample size was calculated using this prevalence with margin of error of 5% and it was estimated to be 262 students. Accounting for a drop-out of 25%, the sample had been increased to 349 students. After exclusion those who refused to participate, the final number that entered in the analysis was 340 students. A five sections questionnaire was used in collection of data. *First section:* An anonymized self-administered questionnaire, upon informed consent, was distributed among the studied participants. The questionnaire involved basic data like age, gender, grade, and residence. The socioeconomic level was also appraised using Ibrahim and Abd El Ghaffar's socioeconomic scoring system.¹⁴ *Second section:* Various risk factors of bullying-victimization including: Personal risk factors (e.g., using electronic devices, watching violent movies, carrying a weapon, smoking, drug addiction). Family related factors, (birth order, number of siblings, absence of one of parents, witnessing fights in family, hearing insulting words in family, seeing beating scenes in family).

Scholastic risk factors like school achievement in the last year, punishment in school, absence from school due to bullying acts. The school achievement grades were obtained from school records, and they were categorized as following; (excellent: $\geq 90\%$, very good: $80 - <90\%$, good: $70 - <80\%$, just passed: $50 - <70\%$, didn't pass: $<50\%$). Street related factors (hearing insulting words, witnessing physical violence scenes, and threatening by weapons scenes in the street). *Third section:* The short version of the Aggression-victimization scale,¹⁵ was utilized to assess bullying experiences at school during the last week (e.g. if the student has been involved in any way either as being a bully or victim or both bully-victim), questions which determine the common types of bullying among the studied students either physical bullying (e.g. beating, hitting, or stealing), verbal bullying (e.g. being called by nasty names or being threatened), and social bullying (e.g. telling others not to be friends with someone or exclude someone). The scale has twelve questions, six for aggression and six for victimization, and we used two additional questions from The Olweus Bully/Victim Questionnaire¹⁶ in both aggression and victimization parts to include cyber and sexual forms of bullying and victimization, so the used scale included 8 questions for each of them. Responses can range from 0 times to 6 or more times per week referring to how many times specific behaviors occurred during the past 7 days. The student was considered a bully if he/she did any form of bullying acts in the last 7 days, a victim if he/she was exposed to any form of bullying acts in the last 7 days, and a bully-victim if both bullied and was a victim of bullying. *Fourth section:* The participants' sense of self-worth was measured using the Rosenberg Self-Esteem Scale,¹⁷ a 10-item scale that considers both positive and negative self-perceptions. The Rosenberg Self-Esteem Scale has a Cronbach alpha of 0.86.¹⁸ *Fifth section:* Participants' mental health was evaluated using a 21-item version of the Depression, Anxiety, and Stress Scale (DASS), a set of three self-reported measures designed to measure depression, anxiety, and stress. The DASS-21 consists of three scales, each with seven items that are further separated into subscales with similar content, the Arabic version showed good reliability with Cronbach alpha 0.79.¹⁹

Table 2a: Association between bullying and risk factors of the studied students (N=340).

	None (n=32)	Bully (n=9)	Victim (n=66)	Bully-victim (n=233)	P- value	OR (95% CI)
(1) Sociodemographic factors						
Age (years)	14.2 ± 1.6	13.9 ± 1.4	13.9 ± 1.4	13.6 ± 1.4	-----	-----
Gender						
Male	11 (34.4)	3 (33.3)	33 (50)	95 (40.8)	1=0.61	1= 0.96 (0.20 - 4.57)
Female	21 (65.6)	6 (66.7)	33 (50)	138 (59.2)	2= 0.31 3= 0.03*	2= 2 (0.38 - 4.77) 3= 1.314 (0.61 - 2.85)
Grade						
Preparatory	17 (53.1)	6 (66.7)	44 (66.7)	186 (79.8)	1=0.95	1= 1.77 (0.38 - 8.31)
Secondary	15 (46.9)	3 (33.3)	22 (33.3)	47 (20.2)	2= 0.15 3= 0.49	2= 1.77 (0.75 - 4.18) 3= 3.49 (1.63 - 7.50)
Residence						
Urban	6 (18.8)	4 (44.4)	23 (34.8)	109 (46.8)	1=0.47	1= 3.47 (0.71 - 16.94)
Rural	26 (81.2)	5 (55.6)	43 (65.2)	124 (53.2)	2= 0.20 3= 0.001*	2= 2.32 (0.83 - 6.44) 3= 3.81 (1.51 - 9.60)
(2) Personal factors						
Using Electronic devices	27 (84.4)	7 (77.8)	50 (75.8)	194 (83.3)	1=0.64 2= 0.33 3= 0.87	1= 0.65 (0.10 - 4.08) 2= 0.58 (0.19 - 1.75) 3= 0.92 (0.33 - 2.54)
Watching violent movies	15 (46.9)	4 (44.4)	30 (45.5)	125 (53.6)	1=0.90 2= 0.90 3= 0.47	1= 0.91 (0.21 - 4.01) 2= 0.94 (0.41 - 2.20) 3= 1.35 (0.64 - 2.83)
Carrying a weapon	3 (9.4)	0 (0.0)	3 (4.5)	8 (3.4)	1=0.34 2= 0.35 3= 0.11	1= --- 2= 0.46 (0.09 - 2.42) 3= 0.35 (0.09 - 1.38)
Smoking	1 (3.1)	0 (0.0)	0 (0.0)	9 (3.9 %)	1=0.95 2= 0.15 3= 0.84	1= --- 2= --- 3= 1.25 (0.15 - 10.21)
Drug addiction	2 (6.3)	0 (0.0)	0 (0.0)	2 (0.9)	1=0.44 2= 0.04* 3= 0.02*	1= --- 2= ---- 3= 0.13 (0.02 - 0.96)
Sexual harassment	2 (6.3)	0 (0.0)	1 (1.5)	9 (3.9)	1=0.44 2= 0.20 3= 0.53	1= --- 2= 0.23 (0.02 - 2.65) 3= 0.60 (0.12 - 2.92)
Violent friend	5 (15.6)	3 (33.3)	18 (27.3)	84 (36.1)	1=0.24 2= 0.20 3= 0.02*	1= 2.70 (0.50 - 14.52) 2= 2.03 (0.68 - 6.07) 3= 3.04 (1.13 - 8.20)
Smoker friend	2 (6.3)	0	5 (7.6)	19 (8.2)	1=0.44 2= 0.81 3= 0.71	1= ----- 2= 1.23 (0.23 - 6.71) 3= 1.33 (0.30 - 6.01)
Addict friend	1 (3.1)	0	2 (3)	10 (4.3)	1=0.59 2= 0.98 3= 0.76	1= --- 2= 0.97 (0.09 - 11.10) 3= 1.39 (0.17 - 11.23)

Validation: Three experts in the fields of public health, psychiatry, and family medicine revised extensively reviewed the non-previous validated scales to ensure its correctness after it had been translated from English to Arabic and back to English by additional independent specialists. Questions were reviewed for their appropriateness, readability, thoroughness, and usefulness. The instrument was evaluated to demonstrate the reliability of translated version and showed a Cronbach alpha of 0.88. Pilot research was conducted on 40 students to calculate how long it will take to gather the necessary data and

explore the obstacles and determine the appropriate procedure to deal with them, the questionnaire took an average time of fifteen to twenty minutes.

Definition: Operational definition for domestic physical abuse was defined as physical contact that causes fear or pain to control the victim and occur in domestic settings.

Statistical analysis: SPSS (statistical software for social science; SPSS Inc., Chicago, IL, USA) version 26.0 was used to analyze the data on an IBM compatible computer. Qualitative variables were presented as number and percentage and Chi-square

Table 2b: Association between bullying and risk factors of the studied students (N=340).

	None (n=32)	Bully (n=9)	Victim (n=66)	Bully-victim (n=233)	P- value	OR (95% CI)
(3) Family related factors						
Living with						
Both parents	30 (93.7)	9 (100)	60 (90.9)	213 (91.4)	1=0.44	1= ---
Single parent	2 (6.3)	0 (0.0)	6 (9.1)	20 (8.6)	2= 0.63 3= 0.65	2= 0.67 (0.13 - 3.50) 3= 0.71 (0.16 - 3.19)
Socio-economic status						
High	13 (40.6)	5 (55.6)	26 (39.4)	108 (46.4)	1=0.43	-----
Middle	19 (49.4)	4 (44.4)	39 (59.1)	115 (49.3)	2= 0.78	
Low	0 (0.0)	0 (0.0)	1 (1.5)	10 (4.3)	3= 0.34	
Witness domestic violence	4 (12.5)	3 (33.3)	18 (27.3)	67 (28.8)	1=0.14 2= 0.10 3= 0.05	1= 3.50 (0.62 - 19.89) 2= 2.63 (0.81 - 8.54) 3= 2.83 (0.95 - 8.36)
Domestic verbal abuse	4 (12.5)	4 (44.4)	16 (24.2)	50 (21.5)	1=0.03* 2= 0.18 3= 0.24	1= 5.60 (1.04 - 30.08) 2= 2.24 (0.68 - 7.36) 3= 1.91 (0.64 - 5.71)
Witness domestic physical abuse	4 (12.5)	3 (33.3)	16 (24.2)	44 (18.9)	1=0.14 2= 0.18 3= 0.38	1= 3.50 (0.62 - 19.89) 2= 2.24 (0.68 - 7.36) 3= 1.63 (0.54 - 4.89)
Threatening by weapons at home	0 (0.0)	0 (0.0)	2 (3.0)	5 (2.1)	1=--- 2= 0.32 3= 0.40	1= ----- 2= ----- 3= -----
Domestic violence using weapons	1 (3.1)	0 (0.0)	1 (1.5)	7 (3.0)	1=0.59 2= 0.60 3= 0.97	1= ----- 2= 0.48 (0.03 - 7.88) 3= 0.96 (0.11 - 8.07)
Exposure to domestic physical abuse	2 (6.3)	0 (0.0)	4 (6.1)	32 (13.7)	1=0.44 2= 0.97 3= 0.24	1= ----- 2= 0.97 (0.17 - 5.58) 3= 2.39 (0.54 - 10.48)

analysis for them was provided. The online statistical tool OpenEpi was used to compute OR. The measured scores were put through a Spearman test to assess correlation. Independent risk variables for various forms of bullying were identified using binary logistic regression analysis (inter method). The research used a significance level of 0.05 as its baseline. (a value of P less than 0.05 was judged to be significant).

RESULTS

Three hundred and forty (340) subjects were enrolled in this cross-sectional research. Regarding the prevalence of bullying among them, 2.6% were unique bullies, 19.4% were unique victims, and 68.5% were bully victims. The prevalence of bullying behavior is 71.2 %, among those, 25 % were physical bullies, 46.5 % were verbal bullies, 16.5 % were social bullies, 17.6 % were cyber bullies, and 6.8% were sexual bullies. The prevalence of victimization (being a victim) of aggression was 87.9 %, among those, 43.2 % were physical victims, 55 % were verbal victims, 68.2 % were social victims, 40.9 % were cyber victims, and 21.5 % were sexual victims. [Table 1]. There was a

substantial variance among unique bullies and the non-bully, non-victim students regarding hearing insulting words in their families, ($p = 0.03$), OR (95% CI) = 5.60 (1.04 - 30.08). The unique victims exposed more significantly to school punishment, $p = (0.006)$, 3.34 (1.38 - 8.10), street violence, $p = (0.01)$, 3.58 (1.43 - 9.04), and street insulting words, $p = (0.04)$, 2.484 (1.02 - 6.05). The bully-victims were significantly more exposed to school punishment, $p < 0.001$, 3.79 (1.74 - 8.26), street violence, $p < 0.001$, 4.67 (2.15 - 10.18), and street insulting words, $p < 0.001$, 5.57 (2.50 - 12.39). The bully-victims had significantly higher rate among preparatory grade students, $p = 0.001$, 3.49 (1.63 - 7.50), those from urban areas, $p = 0.003$, 3.81 (1.51 - 9.60), and those who had a violent friend, $p = 0.02$, 3.04 (1.13 - 8.20). [Table 2]. The regression analysis showed that exposure to insulting words at home was considered an independent risk factor for being a unique bully with odds ratio (OR) (95% CI) = 5.60 (1.04- 30.08). While exposure to school punishment was considered an independent risk factor for being a unique victim with OR 3.09 (1.15- 8.36).

Table 2c: Association between bullying and risk factors of the studied students (N=340).

	None (n=32)	Bully (n=9)	Victim (n=66)	Bully-victim (n=233)	P- value	OR (95% CI)
(4) School related factors						
Punishment in school	11 (34.4)	5 (55.6)	42 (63.6)	155 (66.5)	1=0.25 2= 0.01* 3 <0.001*	1= 2.39 (0.53 – 10.73) 2= 3.34 (1.38 – 8.10) 3= 3.79 (1.74 – 8.26)
Absence from school due to bullying acts	3 (9.4)	1 (11.1)	10 (15.2)	46 (19.7)	1=0.88 2= 0.43 3= 0.16	-----
School achievement						
Excellent & V good	18 (56.3)	9 (100)	40 (60.6)	178 (76.4)	1=0.05	-----
Good	13 (40.6)	0	18 (27.3)	33 (14.2)	2= 0.20	
Just passed or below passing level	1 (3.1)	0	8 (12.1)	22 (9.4)	3= 0.001*	
(5) Street related factors						
Insulting words in street	10 (31.3)	5 (55.6)	35 (53)	167 (71.7)	1=0.18 2= 0.04* 3 <0.001*	1= 2.75 (0.61 – 12.48) 2= 2.48 (1.02 – 6.045) 3= 5.57 (2.50 – 12.39)
Physical violence in street	17 (53.1)	4 (44.4)	53 (80.3)	196 (84.1)	1=0.65 2= 0.01* 3 <0.001*	1= 0.71 (0.16 – 3.12) 2= 3.58 (1.43 – 9.04) 3= 4.67 (2.15 – 10.18)
Threatening by weapons	6 (18.8)	3 (33.3)	20 (30.3)	84 (36.1)	1=0.35 2= 0.22 3= 0.05	1= 2.17 (0.42 – 11.23) 2= 1.88 (0.67 – 5.28) 3= 2.44 (0.97 – 6.17)

*Significant. Groups; 1= bully vs none, 2= victim vs none, and 3= bully-victim vs none. Test of significance used is Chi square test.

Table (3): Binary logistic regression analysis (inter method) for independent risk factors for bullying behaviors.

Predictors		Adjusted OR (95% CI)		P value
Unique bullying	Insulting words in the family	Not exposed	1	
		Exposed	5.600 (1.043- 30.081)	0.045*
	Drug addiction	Not exposed	1	
		Exposed	67.710 (5.800- 790.388)	0.999
	Punishment in school	Not exposed	1	
		Exposed	3.094 (1.145- 8.363)	0.026*
	Insulting words in street	Not exposed	1	
		Exposed	1.482 (0.437 – 5.026)	0.528
	Physical violence in street	Not exposed	1	
		Exposed	2.190 (0.613 – 7.825)	0.228
Unique victimization	Age		2.570 (1.252- 5.273)	0.010*
		Exposed		
	Grade	Secondary	1	
		Preparatory	40.475 (3.787- 432.567)	0.002*
	Residence	Rural	1	
		Urban	2.524 (0.827- 7.708)	0.104
	Drug addiction	Not exposed	1	
		Exposed	0.015 (0.001- 0.172)	0.001*
	Punishment in school	Not exposed	1	
		Exposed	5.406 (2.127 – 13.738)	< 0.001*
Bullying-victimization	Insulting words in street	Not exposed	1	
		Exposed	2.521 (0.889 – 7.152)	0.082
	Physical violence in street	Not exposed	1	
		Exposed	4.166 (1.439 – 12.064)	0.009*

*Significant. Test of significance used is Hosmer test, SE = standard error, CI = confidence interval.

Table (4): Association between bullying and self-esteem scale & DASS results of the studied students (N=340).

	None (n=32)	Bully (n=9)	Victim (n=66)	Bully-victim (n=233)	P- value
Self-esteem scale	32.3 ± 3.5	33.6 ± 6.0	31.0 ± 4.4	31.5 ± 4.7	1=0.343 2= 0.100 3= 0.302
Depression scale	7.5 ± 4.8	10.0 ± 5.2	8.0 ± 5.9	8.2 ± 5.0	1=0.164 2= 0.982 3= 0.488
Anxiety scale	7.4 ± 4.1	8.9 ± 3.6	8.0 ± 5.5	8.1 ± 5.0	1=0.269 2= 0.802 3= 0.576
Stress scale	7.2 ± 3.9	10.1 ± 4.0	9.6 ± 5.9	8.9 ± 5.2	1=0.092 2= 0.090 3= 0.138

Groups; 1= bully vs none, 2= victim vs none, and 3= bully-victim vs none. Test of significance used is Mann-Whitney test.

The following variables were considered independent risk factor for being a bully-victim; the students' younger age, OR 2.57 (1.25- 5.27), being in preparatory grade, OR 40.48 (3.79- 432.57), exposure to school punishment, OR 5.41 (2.13 - 13.74), and street violence, OR 4.17 (1.44 - 12.06) [Table 3].

There was no substantial statistical difference in the mean self-esteem score or DAS scores between the unique bully groups vs none, the unique victim groups vs none, or the bully-victim groups vs none [Table 4]. There was a substantial negative relationship between the total victimization score and the self-esteem score. $r = -0.22$, $p < 0.001$. While there was a substantial positive correlation among the total victimization score and the depression, anxiety, and stress scores; $r = 0.34$, 0.37 , and 0.33 respectively, $p < 0.001$ for all. There was also a substantial positive association between the total bullying score and the depression, anxiety, and stress scores; $r = 0.19$, 0.18 , and 0.14 respectively, $p: < 0.001$, 0.001 , and 0.01 respectively. There was no substantial association between the total victimization score or the total bullying score with the school achievement degrees, $p > 0.05$ [Table 5].

DISCUSSION

Bullying in schools is common and harmful to everyone involved. Bullying is described as long-term exposure to negative actions by another or others.²⁰ There must be a power imbalance among the bully and their victim, in addition to the action being repetitive and harmful.²¹ Bullying acts include many forms; physical, verbal, social, sexual, and cyber bullying.

"Bullies" are those who commit these negative acts, and "victims" are those who are the victims of these acts.

This study was conducted on 340 adolescent school students, among whom the prevalence of bullying was 71.2%, victimization was 67.9% and the combined bully victim students, who both bullied their peers and reported being bullied by their peers, were 68.5 % of the students, this might be attributed to a higher probability of bullied individuals becoming abusers as an exit for their wrath and frustration.

Other studies in Egypt also revealed an elevated prevalence of bullying; Galal et al. had concluded that the prevalence of bullying behavior was 77.8%, with the highest frequency for bully-victims (57.8%) among teenage students in rural areas of the country.⁷ Another research in Egypt conducted by El-Maghawry and El-Shafei²² had found that 56.5% of governmental primary school students were bully victims, which is consistent with other study results. Lower rates were discovered in Turkey by Alikasifoglu et al.²³ 59.4% of students were neither bullies nor victims, whereas 22% were victims, 9.4% were bullies and victims, and 9.2% were bullies. Bullying was shown to have a varied prevalence among Jordanian teenagers.²⁴ Approximately 7% reported being involved in bullying as a victim, 7.6% as a bully, and 1.7% as both a victim and a bully. Methodological and cultural variances in characterizing the problem, as well as changes in the equipment utilized, may contribute to this discrepancy in frequency among nations, also the different environmental

Table (5): Correlation between bullying and self-esteem scale & DASS results among the studied group (N=340).

	Bullying score		Victimization score	
	r	P value	R	P value
Academic achievement	-0.039	0.477	0.015	0.784
Self-esteem scale	-0.061	0.289	r = -0.224	<0.001*
Depression scale	0.192	<0.001*	r = 0.354	<0.001*
Anxiety scale	0.183	0.001*	r = 0.373	<0.001*
Stress scale	0.136	0.01*	r = 0.334	<0.001*

*Significant. r=correlation coefficient

circumstances could be accounted for these differences.

Considering the socio-demographic parameters related to bullying behavior in the present study, bullying behavior, as bully-victim, is more prevalent among preparatory than secondary school students, which suggests that maturity lessens the aggression acts. This agrees with the results of Kafle et al research.¹³ The occurrence of bullying in later childhood has been observed far less frequently than among students aged 11–13, according to another research²⁵ Possible causes for the age-related difference in prevalence include the normal physiological, biochemical, and psychological shifts that occur with the passage of time that lessen aggression behavior by increasing age.

This research showed that the percentage of the students who are neither bully nor victims, is significantly higher in rural students, which suggests that living in rural areas is a protective factor against bullying. In concordance with these results, a previous study conducted by Abd Elhamid et al had concluded that residence in urban areas is one of the significant factors linked with the occurrence of bullying among secondary school students.⁸ It was shown that bully-victim engagement was higher among adolescents who reported having violent peers, the same finding was reported by Galal et al.⁷

Regarding school environment punishment was revealed to be an independent risk factor for becoming victim and a bully-victim in the current study, as when victims are punished, they may feel pressured and express their wrath on teachers or other students, contributing to a more hostile learning environment. The same was reported by Galal et al. who had found that kids who were subjected to school punishment had much greater rates of becoming bully victims⁷

similar to that was concluded by Ez-Elarab et al.²⁶ who found that kids who were subjected to physical punishment were more likely to engage in violent behavior when attending public schools.

The current study found that victims and bully-victims were more likely to have witnessed verbal and physical violence in the street. This finding is consistent with the theory that hearing aggressive language in the community encourages students to engage in a similar behavior, especially in social settings. Similar research done by Kafle et al.¹³ found that hearing derogatory comments and witnessing violence on the street were independent predictors of being a victim of bullying. After conducting logistic regression model in the present research, the significant predictor of being a bully was exposure to verbal violence at home. Exposure to school punishment was a significant predictor to be a victim. Additionally, the most substantial predictors in terms of priority for being bully-victims were being in preparatory grade, exposure to school punishment, exposure to physical violence in the street, younger age; however, drug addiction was the least predicting variable. Nearly similar predictors of bullying amongst urban and rural youth were detected in most of previous studies, while slightly different predictors were detected by the research performed in Egypt by Galal et al which were failure in previous scholastic years, witnessing fights among family members using weapons, male gender, having a drug addict friend, exposure to physical violence in the street, and younger age⁷ The lack of a father, mother or teacher relationship, having a single parent, having low academic achievement and being subjected to physical punishment were all other factors identified in research performed by Ez-Elarab in Egypt.²⁶ Students' emotional and psychological well-being are also negatively impacted by bullying and

victimization. There was a substantial positive correlation between the total scores of victimizations and bullying with the score of depression, anxiety, and tension. These findings are consistent with those of Kaltiala-Heino et al. and Seals et al.,^{27,28} who found that bullies suffer from mental health issues such as anxiety, depression, psychosomatic symptoms, and suicidal ideation.

There was a substantial negative correlation between the total victimization score and the self-esteem score, according to the findings of this study. This is consistent with the findings of Birkeland et al. and Fredstrom et al., who found a significant negative correlation between self-esteem and peer victimization; this can be explained by the idea that people with low self-esteem have a greater probability to be victimized than those with high self-esteem; furthermore, those with low self-esteem are less capable of protecting themselves, which encourages bullies to attack them.^{12, 29}

Strengths and limitations: The research was carried out on a large sample of 340 students from two educational levels, and nearly all hazard factors of bullying were evaluated. In terms of limitations, this research was cross-sectional, which negates the causal relationship between the data. In addition, the instrument used to identify bullying and victimization relies solely on the frequency of being a bully, victim, or bully-victim in the past week, which may not provide an accurate estimation of the scope of this issue.

CONCLUSION

Adolescent school pupils were found to experience high rates of bullying, and it was found to have a favorable association with mental health issues such as depression, anxiety, and stress. Self-esteem was also found to be inversely connected to victimization. This highlights the need of creating an efficient intervention program in schools, with primary target to identify students who face hazard factors either due to personal or social circumstances or their family and community features. We suggest that schools should organize a committee to combat bullying, which should include both teachers and parents. Because of the relationship between bullying and school

environment, it is crucial to keep supervising teachers' actions and encourage positive attitude of them.

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