

Epidemiological Pattern of Bullying Among School Children in Mazandaran Province, Iran

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Background: School bullying, the most common type of school violence, comprises a spectrum of aggressive behaviors that involve both perpetrators and victims.

Objectives: The current study aimed to investigate the extent and nature of school bullying among middle school students in the North of Iran.

Patients and Methods: A cross-sectional study was conducted on a sample of 834 Iranian middle school students. Participants completed a self-report anonymous questionnaire measuring bullying and victimization (Iranian-Olweus bullying questionnaire). Descriptive statistics and the Pearson's chi-squared test and multinomial logistic regressions with area, gender and grade variables were applied.

Results: Prevalence rates of bullying behaviors based on the cut-off point at 2 or 3 times a month were 5.4% for only bully, 22.1% for only victim and 11% for both bully-victim. The prevalence of each form of victimization were 24.7% verbal, 15% relational, 10.3% physical and for each form of bullies 11% verbal, 5.3% relational, 6.4% physical. Boys were more involved in all forms of bullying behaviors. The students from rural areas were more involved in bullying. The most common places of victimization were the playground or athletic fields. The majority of victims were bullied by their classmates.

Conclusions: Different forms of bullying have a distinct nature and the epidemiological pattern indicates that bullying exists in the Iranian schools. Thus, the effective bullying prevention and appropriate intervention programs are recommended.

Keywords: Crime Victim; bullying; Epidemiology; Adolescent

1. Background

School bullying, the widespread type of school violence, includes a spectrum of aggressive behaviors that involve both bullies and victims (1). Bullying is defined as a special form of aggression which is intentional, repeated (2), and involves an imbalance of power between the victim and bullies (3). Three forms of bullying are identified as; only bullies (those who bully other adolescents only); only victims (adolescents who are victimized by bullies); bully-victims (adolescents who are involved in bullying other adolescents and are also victims of bullying) (4).

Bullying has many forms such as physical (e.g. hitting, pushing, and kicking), verbal (e.g. name-calling and teasing, aggressively), relational or social (e.g. social exclusion and spreading rumors), and other ways (cyber-bullying, etc.), among which physical and verbal bullying are both considered as direct types, and relational bullying as an indirect type of bullying (5, 6).

In different studies conducted by diverse instruments, a notable variability in the prevalence of bullying was reported. For example, in a nationally representative sample of adolescents in the United States, Nansel et al.

(3) showed that the prevalence of frequent involvement in school bullying is 29.9%, (13.0% as bullies, 10.6% as victims, and 6.3% as both). Another study in Cyprus revealed that 17% of the children are involved in bullying and victimization (7). In a Korean study, 40% of the children were involved in school bullying (17.0% as bullies, 14.0% as victims, and 9.0% as both) (1). Verbal bullying was found more common in many studies (5, 8, 9). Results of a study in Turkey showed that 33.5, 35.5%, and 28.3% of the students had been bullied, at least once during the academic year, verbally, physically, and relationally, respectively (9).

Studies show that bullying is more common in boys than girls (3, 4, 10, 11) and they are more likely to be involved in direct bullying (5, 12). However, exposure to bullying varies across different countries, ranging from 8.6% to 45.2% among boys, and 4.8% to 35.8% among girls (13). Bullying takes place in different locations; the playgrounds, athletic fields, and the classrooms (while the teachers are absent) were the most common places, according to many studies (14, 15). Most researchers believed that bullying has extensive negative consequences

for the victims, bullies, or both (16); for example, they are associated with alcohol misuse (17), substance misuse (18), school achievements and psychological well-being for both victims and perpetrators (5).

Some studies have found that children involved in bullying are at increased risk for psychosomatic problems such as headache, backache, abdominal pain and also sleeping problems, bad appetite, and bed-wetting (19). Research on the prevalence and location of bullying is conducted in many high income countries, including Norway, Sweden, Denmark, Finland, Germany, Spain, Italy, England, Scotland, Ireland, Australia, Canada, and the United States (20), and also in Asian countries including Japan and Korea. However, in the Eastern Mediterranean states the epidemiology of bullying among schoolchildren is not reported well.

2. Objectives

The current study aimed to investigate the extent and nature of school bullying as an epidemiological approach among the middle school students in North of Iran.

3. Patients and Methods

The participants were 834 pupils from the 8th and 9th grades of 26 middle schools randomly selected from public schools in the urban and rural areas of Mazandaran province in North of Iran. Sampling procedure was stratified-clustering, according to the students' population at strata (area, gender) and each of the schools as clusters, randomly selected with an equal number of students from the 8th and 9th grades.

Permission to carry out the survey was obtained from the educational authority in Mazandaran province. Informed consent letters were obtained from the Community Parents and Educators of the selected schools. Data were collected through anonymous self-report questionnaires distributed in the classrooms and completed under the supervision of trained co-researchers. The selected pupils were informed about the purposes and importance of the study, and they were assured about the confidentiality of their answers. They were also told that it was not obligatory to complete the questionnaire. No time limit was imposed; however, the average time to complete the questionnaires was about half an hour.

To measure the frequency of bullying and victimization, the Iranian validated version (21) of Olweus bullying questionnaire (OBQ) (5, 11, 22-26) was employed, which was reported reliable and valid. The obtained reliability and validity for 9 items of perpetrator bullying with Cronbach's Alpha was 0.81, and the exploratory factor analysis (EFA) with Varimax rotation revealed 4 factors solution explaining 73% of the total variance (forms of perpetrator bullying): verbal (3 items), relational (2 items), physical (2 items), and other forms (2 items), also the obtained reliability and validity for 10 items of victimization bullying with Cronbach's alpha was 0.80, and the EFA with Vari-

max rotation revealed 4 factors solution explaining 64% of the total variance. Confirmatory factor analysis (CFA) confirmed the four-factor structure both victimization and perpetration of bullying scales. For the purpose of the present study, only the questions measuring frequency of bullying and victimization types were analyzed. Students were asked to indicate how often they bullied others or were victimized in the last three months.

The cutoff point of 2 or 3 times a month recommended as the most suitable criteria for break up involved and noninvolved in bullying (11) was addressed.

All analyses were conducted using SPSS for windows version 16.0. To analyze each form of bullying the statistics and multinomial logistic regressions were used. Descriptive analyses were conducted to measure the prevalence of bullying and victimization, and also overall and simple statistical procedures based on the chi-squared tests. Multinomial logistic regression models were used to compare bullies, victims, and bully-victims with those never involved, considering the background variables (area, gender and grade).

4. Results

The participants were 417 grade 8 and 417 grade 9 middle school pupils. Overall, 412 (49.4. %) were girls, and 553 (66.3%) from the urban areas. The mean age of the pupils was 15 years. Table 1 presents the prevalence rate of involvement in different forms of bullying among middle school children a couple of months prior to data collection. Overall 38.5% of pupils were victims of different forms of bullying. Bullying was more common among victims (22.1%) and 82.1% of them was verbal form. Table 2 shows the rate of involvement in each form of victimization and bullies by gender, area and grade. As a victim, verbal and physical bullying was more common among boys ($P < 0.001$) with no significant differences by residential area and school grade. As bullies, there were significant differences for verbal and other forms of bullying by gender and residential area. There was also a statistically significant difference for relational and physical forms of bullying by sex among bullies.

Table 3 shows the occurrence locations of bullying among the subjects. Overall, playgrounds and sport fields (24.0%), on the way to and from the school (13.9%) and in the classroom when the teachers not available were the most common places for bullying. Regarding gender, there was a significant difference among some places of bullying such as playground or sport field and on the way to and from school.

Multinomial logistic regressions were performed for each of the four forms of bullying as physical, verbal, relational, others, and total. In each of the four multinomial logistic regressions, the bullying classification was the outcome variable, with noninvolved as the reference category, and with area, gender and grade variables as predictors. The odds ratios and their corresponding 95% confidence intervals from the multivariate analyses are

reported in Table 4.

In total, pupils from rural areas were more likely to be involved in bullying for both bullies and victims in form of verbal. Boys compared to girls were more likely to be involved in bullying, totally and in different categories

(bullies, victims, and bully-victims) for physical bullying. They were also more likely to be involved in verbal bullying. There was no difference between the 8th and 9th graders regarding the involvement in different forms and categories of bullying.

Table 1. Prevalence Rate of Involvement in Different Forms of Bullying Among Middle School Students (n = 834)^a

	Non Bullying	Bully Only	Victim Only	Victim and Bully
Verbal	70.8 (590)	4.4 (37)	18.1 (151)	6.6 (55)
Relational	81.8 (682)	3.1 (26)	13.0 (107)	2.2 (18)
Physical	86.0 (714)	3.7 (31)	7.6 (64)	2.6 (22)
Others	93.4 (776)	2.2 (19)	3.4 (28)	1.1 (9)
Total	61.5 (513)	5.4 (45)	22.1 (184)	11.0 (92)

^a All of the values are present as No. (%).

Table 2. Rate of Involvement in Each Form of Victimization and Bullies by Gender, Area and Grade (n = 834)^{a, b}

	Gender				Residential Area			Grade of Schooling		
	Total	Female	Male	P Value	Urban	Rural	P Value	8th Grade	9th Grade	P Value
Verbal	24.7 (206)	14.6 (60)	34.6 (146)	< 0.001	23.0 (127)	28.1 (79)	NS	26.1 (109)	23.3 (97)	NS
Relational	15.0 (125)	14.1 (58)	15.9 (67)	NS	14.1 (78)	16.7 (47)	NS	15.3 (64)	14.7 (61)	NS
Physical	10.3 (86)	6.3 (26)	14.2 (60)	< 0.001	9.6 (53)	11.7 (33)	NS	9.6 (40)	11.0 (46)	NS
Others	4.4 (37)	3.2 (13)	5.7 (24)	NS	3.6 (20)	6.0 (17)	NS	4.6 (19)	4.3 (18)	NS
Bullies										
Verbal	11.0 (92)	7.3 (30)	14.7 (62)	0.001	8.9 (49)	15.3 (43)	0.005	11.0 (46)	11.1 (46)	NS
Relational	5.3 (44)	3.6 (15)	6.9 (29)	0.03	4.3 (24)	7.1 (20)	NS	5.5 (23)	5.0 (21)	NS
Physical	6.4 (53)	3.2 (13)	9.5 (40)	< 0.001	6.1 (34)	6.8 (19)	NS	7.2 (30)	5.5 (23)	NS
Others	4.6 (38)	2.9 (12)	6.2 (26)	0.005	3.4 (19)	6.8 (19)	<.01	4.8 (20)	4.3 (18)	NS

^a Abbreviation: NS, not significant.

^b all of the values are presented as No. (%).

Table 3. Locations of Bullying Among the Subjects

Place of bullying	Total, %	Gender		Residential area		Grade of Schooling	
		Female	Male	Urban	Rural	8th	9th
Playground/sport field	24.0	7.8	15.4 ^a	10.8	13.2	13.7	9.6
Hallways/stairwells	10.0	4.9	5.2	5.6	3.9	6.2	3.8
Classroom (when the teacher was available)	7.2	3.6	3.6	3.6	3.6	4.3	2.9
Classroom (when the teacher was not available)	13.5	7.3	6.2	7.2	5.7	5.5	7.9
Locker rooms	2.4	1.2	1.2	1.4	0.7	1.2	1.2
Lunch room	1.5	0.7	0.7	0.7	0.7	1	0.5
On the way to and from school	13.9	4.9	9.0 ^a	7.8	5.3	7.4	6.5
In the school bus	2.9	2.2	0.7	1.6	1.1	1.9	1
Pray room	3.1	1.2	1.7	1.3	1.8	2.2	0.7
Other Places	14.2	6.6	6.2	4.9	9.3 ^a	7.7	5

^a P value < 0.01.

Table 4. Relationship of Area, Gender and Grade With the Four Forms of Bullying Using Multinomial Logistic Regressions

Categories ^a	Verbal		Relational		Physical		Others		Total (Bullying)	
	OR ^b	CI 95%	OR	CI 95%	OR	CI 95%	OR	CI 95%	OR	CI 95%
Area (urban)										
Bully only	0.68	(0.34-1.35)	0.67	(0.31-1.49)	1.09	(0.5-2.36)	0.32	(0.12-0.83)	1.01	(0.52-1.96)
Victim only	0.92	(0.62-1.36)	0.9	(0.59-1.38)	0.82	(0.48-1.40)	0.42	(0.2-0.9)	0.96	(0.67-1.38)
Both	0.45	(0.26-0.79)	0.5	(0.19-1.28)	0.75	(0.31-1.79)	1.79	(0.37-8.71)	0.42	(0.26-0.66)
Gender (male)										
Bully only	1.93	(0.98-1.35)	2.31	(0.99-5.38)	3.88	(1.65-9.12)	3.51	(1.4-10.80)	2.20	(1.17-4.12)
Victim only	3.12	(2.12-4.59)	1.14	(0.76-1.72)	2.60	(1.49-4.55)	1.57	(0.72-3.41)	1.94	(1.38-2.73)
Both	3.51	(1.89-6.50)	1.61	(0.62-4.22)	2.98	(1.15-7.72)	3.67	(0.76-17.89)	3.22	(1.96-5.27)
Grade (8th)										
Bully only	0.98	(0.5-1.91)	0.85	(0.39-1.87)	1.22	(0.59-2.5)	1.2	(0.46-3.09)	1.31	(0.71-2.43)
Victim only	1.21	(0.83-1.74)	1	(0.66-1.50)	0.74	(0.44-1.25)	0.85	(0.4-1.83)	1.09	(0.78-1.53)
Both	1.05	(0.6-1.85)	1.55	(0.59-4)	1.42	(0.6-3.40)	2.08	(0.51-8.4)	1.06	(0.68-1.68)

^a Reference groups for area, gender and grade are rural, girl and grade 9.

^b Alpha of 0.05 was used as the significance level.

5. Discussion

The current study showed that 38.5% of the students of Mazandaran province in North of Iran, were involved in bullying (bully only: 5.4, victim only: 22.1 and victim-bully: 11). The results were inconsistent with those of many studies carried out in this field in various countries (1, 3, 5, 11, 15, 27-29). This prevalence rate was lower in comparison with those of some studies, especially for bully only that may contain a variety of reasons such as: good management of schools, higher peer supports, and religious beliefs that condemn bullying. In addition, there are limitations in the Iranian schools in terms of creating the conditions for the occurrence of different types of bullying behavior (cell phone ban, gender segregation, etc.).

Unlike the studies conducted in the US (5), Norway (11), Italy (30) and Ireland (14), in this study, the difference between the prevalence of bullies and victims were large. Ethnic minorities are quite rare in Iranian schools and there is mainly no race minority in this country. Findings of the current study showed that bullying (bullies, victims and their forms) was more common among boys than girls, which was reinforced by some other studies (1, 3, 7, 11, 30). Playgrounds or sport fields, and classrooms (in the absence of teachers) and also on the way to and from school were the most common locations of bullying. Similar results were found by studies conducted in Ireland (14) and elsewhere (15, 31). However, in some of the studies classrooms were the most common place where the students were bullied (9, 32).

In the current study, the majority of victims were bullied by their classmates. Perpetrators of bullying on victims were mainly 1 to 3 students, which was consistent

with the results of a study conducted in Ireland (14). According to the scrutiny prevalence rates and correlates for the four different forms of bullying behaviors: physical, verbal, relational, and others, the findings of this study offer the distinct natures of these four forms.

In epidemiology and natural history of non-communicable diseases, latent and hidden stage before the appearance of overt clinical disease occurs (33), and since the bullying behaviors is a spectrum (1). Therefore, this mode can be considered for natural history of bullying behaviors: relational form as invisible or latent bullying and verbal form as interstitial and physical forms of bullying as overt bullying. Indeed, verbal and relational forms are early stages of bullying behaviors, therefore it can be claimed that latent forms have better prognosis compared with overt forms. According to the low prevalence of overt forms of bullying in the present study, it can be considered a better prognosis compared with similar studies conducted in America and Turkey (5, 9).

It was the first study examined bullying behaviors among the students in Iran with an epidemiological approach. Selection bias was controlled using a random sampling among all the eligible subjects in the population. However, there were some limitations in this study. First, it was a self-report study and some response biases may have occurred. Testing information from multiple sources is recommended for future studies. Another limitation was the lack of assessment for cyber bullying that is suggested for future studies. Since this study was conducted only in one province, the results cannot be confidently generalized to the whole country. Therefore,

it is recommended to conduct further studies in various provinces. Finally, only the public secondary schools were assessed in this study and private schools were excluded.

In conclusion, the pattern of bullying in Iranian schools was similar to those of many western countries, but the prevalence rate of bullies in Iran seems lower than that of the western countries. Bullying in schools is generally carried out by a minority of children, and forms of bullying are of a distinct nature in a spectrum. Results of the current study showed that bullying exists in the Iranian schools and the establishment of a surveillance system and employment of effective and appropriate interventions on this public health problem is recommended. Relevant organizations such as Ministry of Education and Ministry of Health should consider bullying among children as a serious problem.

Authors' Contributions

Study concept and design: Hamid Soori; acquisition of data: Meysam Rezapour; analysis and interpretation of data: Soheyla Khodakarim and Hamid Soori; drafting of the manuscript: Hamid Soori and Rezapour; critical revision of the manuscript for important intellectual content: Hamid Soori; statistical analysis: Khodakarim; administrative, technical, and material support: Rezapour and Soori; study supervision: Hamid Soori.

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