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Violence among high school students in Malatya: a prevalence study

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Aim: To determine the prevalence of violence-related behaviors on school property and to identify the predictors of youth violence among high school adolescents in Malatya.

Materials and methods: Using a cluster sampling method, a cross-sectional descriptive study was carried out involving 1175 students. Backward logistic regression analysis was performed to evaluate the independent association existing between the potential risk factors and violence-related behaviors.

Results: Of the students, 24.5% had been in a physical fight, 5.5% were injured and had to be treated by a doctor or nurse, and 4.3% had carried a weapon on school property during the 12 months preceding the survey. Of the students, 4.7% reported that they were a gang member.

Conclusion: Male sex, gang membership, exposure to violence, family income, grade, and school type were predictors of violence-related behaviors. Further quantitative studies are recommended to examine the causes of and solutions for violence for students at risk.

Key words: School violence, adolescent, prevalence

Malatya'da lise öğrencilerinde şiddet: yaygınlık çalışması

Amaç: Bu çalışmanın amacı, Malatya'da lise öğrencileri arasında okulda şiddet ile ilgili davranışları olanların sıklığını saptamak ve şiddet ile ilgili faktörleri belirlemektir.

Yöntem ve gereç: Bu kesitsel tanımlayıcı çalışmada 1175 öğrenci içeren küme örnekleme yöntemi kullanıldı. Potansiyel risk faktörleri ve şiddet ile ilgili davranışlar arasındaki mevcut bağımsız değişkenleri belirlemek amacıyla Backward lojistik regresyon analizi yapıldı.

Bulgular: Öğrencilerin % 24,5'i fiziksel bir kavgaya karışmıştı, % 5,5'i bir doktor veya hemşire tarafından tedavi edilmesi gerekecek şekilde yaralanmıştı ve % 4,3'ü okul alanında araştırmadan önceki 12 ay boyunca üzerinde bir silah taşımıştı. Öğrencilerin % 4,7'si bir çete üyesi olduğunu bildirmişti.

Sonuç: Erkek olmak, çete üyeliği, şiddete maruz kalmış olmak, aile geliri, okul sınıfı ve okul türü; şiddeti tahmin edici faktörlerdir. Risk altındaki öğrenciler için şiddet nedenleri ve çözüme yönelik daha ileri çalışmalar yapılmalıdır.

Anahtar sözcükler: Okulda şiddet, ergenlik, yaygınlık

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Introduction

Violence is a serious issue and major cause of morbidity and mortality among adolescents and young adults all over the world (1-3). Violence-related behaviors such as fighting and carrying weapons may lead to serious physical and psychosocial consequences for adolescents. Violence-related deaths in schools have been an emerging issue over the last 2 decades (4-7). Pickett et al. reported that adolescent involvement in fighting in North America and Europe varied among countries, ranging from 37% to 69% for boys and 13% to 32% for girls (8). Yavuz et al. reported that the prevalence of being subjected to violence in high school in İstanbul was 23.4% for boys and 10.1% for girls (9). In another study, it was reported that exposure to physical violence and the use of physical violence within the last year were 2.8 times higher in smokers and in all substance users (10).

Studies among adults in different countries have shown that different factors are associated with aggressive behaviors and that the likelihood of being a victim of different types of violence also varies from country to country and from city to city within a country (11-13). The motivating factors of young people toward violence can be classified as individual, familial, and societal factors. As individual factors, attitudes and beliefs, the lack of communication skills, alcohol and substance use, previous exposure to or witnessing of violence, and ease of obtaining weapons can be considered. Familial factors are the lack of parental love and support, exposure to violence or abuse at home, and a parent or sibling who commits crimes. Social factors are discrimination in society between people and sex disparities, poverty, distorted urbanization and excessive population growth, the negative impact of mass media, social values that support violent behavior, and legal and social arrangements that make it easy to obtain weapons (14).

Information on violence-related behavior among adolescents is limited in Malatya, which is an eastern province in Turkey. The aim of this study was to determine the prevalence of violence-related behaviors on school property with the associated factors in the city of Malatya.

Materials and methods

Study population

This cross-sectional study was carried out in the city of Malatya, in Malatya Province. The study population was 22,343 high school students attending 27 high schools in the city of Malatya. The schools were divided into 2 strata, based on urban and suburban areas. The schools were assigned as clusters; 6 schools were chosen from the urban schools and 1 school was randomly chosen from the nonurban areas. Sampling of schools and classes was done using stratified random sampling. After selecting the schools, the classes were randomly selected out of all 9th, 10th, and 11th grade classes from the selected schools. Sample size estimation showed that 1292 completed interviews were needed from an enrollment of 22,343 for a ±0.05 confidence interval, 99% confidence levels, and design effect. Eventually, 1175 high school students were involved in the study and the response rate was 89.2%.

Data collection

The study questionnaire was established with reference to the Youth Risk Behavior Surveillance (YRBS) survey conducted in the United States (15). Data were collected using a supervised self-administered questionnaire. Written consent was sought from the Malatya Province National Education Directorate, and informed consent was received from all of the study participants. To ensure maximal response, students were assured that the information gathered would be treated confidentially by strongly emphasizing the anonymity of questionnaire responses. To maximize the confidentiality of answers, teachers were not present during the survey and no discussions were permitted throughout the survey.

Definitions and measurements

Overall violent behavior: Includes students who engaged in a physical fight, carried a weapon, or were a member of a gang.

Physical violence: If the student had ever been hit, pushed, slapped, kicked, or physically hurt in some other way during the 12 months preceding the survey.

Emotional violence: If the student had ever been humiliated, scorned, insulted, threatened to be hit, threatened to be killed, abandoned, frightened or

rejected by parents, or shouted at loudly during the 12 months preceding the survey.

Sexual violence: If the student had ever been sexually physically or verbally abused during the 12 months preceding the survey.

Data analysis

Data entry and statistical analysis were performed using SPSS 9.0 for Windows. A chi-square test was performed to detect any association between the prevalence of violence-related behaviors and personal characteristics, and the prevalence of exposure to or witnessing of violence. $P < 0.05$ was considered statistically significant. Backward logistic regression analysis was performed to evaluate the independent association existing between the potential risk factors and violence-related behaviors. Independent variables that were significant at the $P < 0.05$ level in the univariate analysis were included in the multivariate analysis to control for confounding in regression models. Sex, grade, family income (3 categories with the middle income level as a reference group), school type, and success in school were all variables included in the regression model as dichotomous variables. The results were presented as odds ratios (OR) and 95% confidence intervals.

Results

Of the students who participated in the study, 63.6% were boys and 36.4% were girls, and their average age was 16.10 ± 0.03 years. Most of the students were from general high schools (78.2%) and most were from public schools (90.2%), in accordance with the actual enrolled students. Table 1 shows the prevalence of violence-related behaviors among the adolescents.

As seen in Table 1, the overall prevalence of having been in a physical fight on school property 1 or more times during the 12 months preceding the survey was 24.5%. Students reported that 5.5% had been in a physical fight at least once during the 12 months preceding the survey, in which they were injured and had to be treated by a doctor or nurse; 12.5% had carried a weapon (e.g., a gun, knife, club, or screwdriver), 6.7% had carried a gun, and 5.7% had carried a weapon on school property on 1 or more days during the 12 months preceding the survey; and 4.7% reported that they were a gang member.

As seen in Table 2, almost all of the variables related to violence-related behaviors were significantly associated with variables related to exposure to violence and the witnessing of violence in the chi-square analysis. Therefore, the significant variables were included in the logistic regression analysis to see which were the independent predictors of violence-related behaviors. Violence-related behaviors were significantly higher among boys. Incidence of being injured in a physical fight and gang membership were significantly higher among students from a higher income level, while carrying a weapon was more prevalent among low-income students. Carrying a weapon and being injured as a result of fight were significantly higher among 11th grade students.

The results of the logistic regression analysis are presented in Table 3. For overall violence-related behavior, the predictors were: being male (OR = 2.4), having a high family income (OR = 2.2), attending a vocational high school (OR = 1.9), having poor success in school (OR = 1.7), being exposed to physical violence on school property (OR = 2.0), being threatened or injured with a weapon on school property (OR = 2.1), being exposed to emotional violence in the neighborhood (OR = 1.5), being exposed to physical violence at home (OR = 2.0), and having seen others threatened or injured with a weapon at home (OR = 1.9).

As shown in Table 4, 8.3% of the students had been absent from school for safety concerns during the 12 months preceding the survey. Absence or truancy from school was significantly higher among boys than girls: 77 male students (10.3%) and 21 female students (4.9%) stated that they did not go to school because they felt unsafe.

Discussion

The present study shows the overall prevalence of violence-related behaviors during the 12 months preceding the survey among high school adolescents in Malatya at 44.0%. Nearly half of the students exhibited violent behavior within the last year. Girls were about 50% less likely to have been involved in a fight than boys (females 28.5%, males 52.9%). Involvement in physical fighting is very common among high school adolescents in many parts of the

Table 1. Prevalence of adolescent students engaging in or exposed to violence-related behaviors by some variables.

	In a physical fight	In a physical fight on school property	Injured in a physical fight	Carried a weapon	Carried a weapon on school property	Carried a gun	Member of a gang	Overall	Total
Sex	*	*	*	*	*	*	*	*	
Male/female	49.7/26.6	30.4/14.3	7.5/2.1	13.5/1.6	5.9/1.4	7.6/0.9	5.6/3.0	52.9/28.5	747/428
Grade			*	*	*	*			
9	41.9	25.0	5.0	7.6	2.8	3.4	4.8	44.4	565
10	41.2	22.6	3.2	7.2	3.6	3.6	3.2	43.9	221
11	40.4	24.9	7.7	12.6	6.7	8.7	5.4	43.4	389
Family income	*	*	*	*	*		*	*	
High	48.9	37.0	12.0	10.9	3.3	5.4	13.0	53.3	92
Middle	39.6	23.3	4.5	8.0	3.6	4.6	3.4	41.8	974
Low	49.5	24.8	9.2	18.3	11.0	10.1	9.2	56.0	109
School type						*			
Public	41.0	24.2	5.5	9.7	4.6	5.7	4.6	43.8	1060
Private	43.5	27.0	6.1	4.3	0.9	0.9	5.2	46.1	115
School type	*	*		*			*	*	
General	39.8	24.0	5.1	8.9	4.5	5.1	4.7	42.9	919
Vocational	53.3	30.5	8.6	12.7	4.6	6.6	6.1	55.3	197
Science	23.7	11.9	1.7	1.7	0.0	1.7	0.0	23.7	59
School location									
Urban	41.7	24.5	5.6	9.2	3.8	5.0	4.7	44.5	1042
Suburban	37.6	24.8	5.3	9.0	7.5	6.8	4.5	39.8	133
Mother's education			*						
Incomplete	41.5	24.8	3.8	9.1	4.3	4.8	4.8	44.1	395
Primary	40.1	23.0	5.0	10.0	4.2	6.1	5.3	43.3	379
Secondary	42.1	25.7	7.7	8.5	4.2	4.7	4.0	44.6	401
Success in school	*	*	*	*		*	*	*	
Good	34.7	20.6	4.6	6.8	3.9	3.6	3.6	36.7	588
Average	45.9	27.6	5.0	10.1	3.6	6.0	4.8	49.3	416
Poor	52.6	30.4	9.9	15.2	7.0	8.8	8.2	56.1	171
Total	41.3	24.5	5.5	9.2	4.3	5.2	4.7	44.0	1175

*$P < 0.05$

Table 2. Percentage distribution of violence-related behaviors with exposure to or witnessing of violence at school, in the neighborhood, and at home.

	Engaged in a physical fight on school property	Carried a weapon on school property	Member of a gang	Overall	Total
Exposed to violence at school	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No
Physical violence	40.5/19.9	9.2/2.8	9.9/3.2	68.7/36.9	262/913
Threatened or injured with a weapon	54.1/21.5	22.9/2.3	18.3/3.3	82.6/40.1	109/1066
Emotional violence	35.1/19.9	7.6/2.8	7.0/3.7	59.0/37.5	356/819
Property stolen or damaged	36.3/20.7	7.3/3.3	7.3/3.8	57.4/39.6	289/886
Sexual violence	43.1/23.7	11.8/3.9	17.6/4.1	66.7/43.0	51/1124
Exposed to violence in the neighborhood					
Physical violence	49.7/20.3	10.8/3.2	12.0/3.5	75.4/38.8	167/1008
Threatened or injured with a weapon	58.9/21.7	23.3/2.7	17.8/3.6	86.7/40.5	90/1085
Emotional violence	38.4/21.2	9.4/3.0	7.1*/4.1	62.9/39.5	224/951
Property stolen or damaged	39.2/21.4	7.4/3.6	7.8/4.0	60.8/40.5	204/971
Sexual violence	46.9/23.5	22.4/3.5	20.4/4.0	69.4/42.9	49/1126
Exposed to violence at home					
Physical violence	40.9/21.5	8.8/3.4	5.5*/4.5	66.9/39.8	181/994
Threatened or injured with a weapon	58.7/23.1	19.6/3.6	13.0/4.3	80.4/42.5	46/1129
Emotional violence	33.5/22.4	9.7/3.0	5.3*/4.5	59.0/40.4	227/948
Property stolen or damaged	38.4/23.6	9.6/3.9	9.6*/4.4	60.3/42.9	73/1102
Sexual violence	54.5/23.9	36.4/3.6	22.7/4.3	86.4/43.2	22/1153

*P > 0.05, associations that were not significant in the chi-square test; all other associations were significant.

world (16,17). The YRBS, which was carried out in the United States, reported that the prevalence of fighting among young people, at least once in the previous year, was 36% (males 44%, females 27%). There is considerable similarity between our results and those found in the 1999 YRBS (15). A higher prevalence of violence-related behaviors in male adolescents may be related to the tolerance shown to males due to social and cultural conventions (18,19). Traditional communities like Turkish society may evaluate male violence as acceptable. The results show that female adolescents also have a similar tendency of violence-related behaviors. Girls also use violence-related behaviors as a means of problem-solving. This may be taken as a warning, as in the traditional Turkish community, female violence is rarely accepted. The major aim should be educating people to act in a civilized manner without revealing aggression in problem-solving, rather than the masculinization of females.

The scope of this work is not exposure to violence and the related factors. However, exposure to violence has a great influence on the prevalence of violence (8,17,19-22). This study showed that the rate of exposure to violence is high in schools and at home. The most prevalent form is emotional violence. Exposure to physical violence, threats with guns, robbery, and sexual violence was quite high, both at home and in the school district. This issue should be investigated in more detail in future studies. The prevalence of violence was higher in those individuals who were exposed to violence than those who did

Table 3. Results of multiple logistic regression analyses for violence-related behaviors.

Overall	B	SEM	P-value	Odds ratio	95% Confidence interval
Sex (male)	0.8691	0.1489	0.0001	2.3847	1.7810-3.1929
Family income (high)	0.8088	0.2515	0.0013	2.2453	1.3716-3.6754
School type (vocational)	0.6236	0.1787	0.0005	1.8657	1.3143-2.6483
Success in school (poor)	0.5397	0.2077	0.0094	1.7155	1.1419-2.5775
Exposed to physical violence on school property (yes)	0.6705	0.1713	0.0001	1.9552	1.3976-2.7352
Threatened or injured with a weapon on school property (yes)	0.7182	0.3219	0.0257	2.0508	1.0912-3.8542
Exposed to emotional violence in the neighborhood (yes)	0.3736	0.1839	0.0422	1.4529	1.0132-2.0835
Exposed to physical violence at home (yes)	0.7113	0.2048	0.0005	2.0366	1.3633-3.0424

SEM = standard error of mean
B = regression coefficient

Table 4. Students absent from school for safety concerns.

Sex	n	%	Total
Male	77	10.3*	747
Female	21	4.9	428
Total	98	8.3	1175

*P < 0.05, chi-square test.

not experience it. Furthermore, experiencing sexual violence at home was significantly related to carrying a weapon at school (OR = 5.3).

The mother's education was not found to be significant in violent behavior, while students from families with higher incomes had a significantly lower tendency of carrying weapons than students from families with lower incomes. These results call for further investigation. The prevalence of carrying weapons was higher in older students. Furthermore, those students who experienced fights in school (OR = 2.9), who were a member of a gang (OR = 9.4), who were threatened (OR = 6.8), and who were abused sexually (OR = 5.3) or emotionally (2.7) at home had a higher incidence of carrying weapons. Fighting, bullying, and carrying weapons were correlated factors. These results are similar to those of previous studies (23-27). The percentage of students that did not attend school for safety reasons was 8.3%. This rate is low in accordance with the prevalence of violence, which may be an indication that the students are accustomed to violence. On the other hand, this proportion of students missing school for safety reasons is important. These students should be worked with in special groups for adolescents with risk factors. The same is true for those students with low success rates in school. Better education should be a primary aim. The physical conditions of schools should be made safer: the entrance of the school should be controlled by a metal detector and cameras should be placed in hazardous areas. The higher absence of boys from school can be explained by more boys resorting to violence compared to girls. Similar results were obtained in previous studies in Turkey (9,10,28).

Behavior management should be taught to all of the high school students to prevent violence. The following information should be provided about violence: types of violence, properties of the environments that facilitate violence and their results, violence prevention, increased risk situations, and nonviolent problem-solving techniques. Children in the risk group are more likely to encounter violence; therefore, it is important to investigate the known

risk group of high school students for the presence of violence-related behaviors. Children and adolescents that are exposed to physical violence will have various physical symptoms, such as injuries. However, in cases of exposure to bullying, verbal abuse, or emotional violence, the students will have different behavioral symptoms, including introversion, truancy, decreased school performance, difficulties in paying attention, or withdrawn behavior. Collecting information from the student with an appropriate approach in a private environment is helpful when these symptoms are seen. It is necessary to take appropriate measures, such as directing the student to the appropriate health or support centers, establishing contact with the parents, or informing the school administration, depending on the seriousness of the events.

Limitations of the study

This study may not be representative of all of Turkey because it was conducted in high schools in Malatya Province, located in the eastern part of Turkey. Consequently, further research in different provinces of Turkey is required. The study is also limited by the fact that the data were collected by means of a retrospective self-report. This inevitably relies on participants' memories of events, which may not be accurate.

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