

The Prevalence of Risky Behaviors Related to Violence in High School Students in a Southern City, Turkey

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ABSTRACT

Injuries are the leading cause of mortality and morbidity in adolescents and can be grouped as unintentional (such as motor vehicle crashes and fires) and intentional (violence and suicide). The aim of this study was to find the prevalence of high risk behaviors related to violence in high school students. The population comprised 2,480 randomly selected students from 10 schools among 46,271 students from 72 high schools in 1999–2000 in Adana and 2,352 (94.8%) were reached. They completed a Youth Risk Behavior Survey Questionnaire (YRBSQ). The mean age was 16.5 ± 1 (14–21) years. 275 (11.7%) students stated that they carried a knife or a sharp weapon during the last 30 days, 151 (6.4%) carried a gun, 710 (30.2%) participated in a physical fight, 68 (2.9%) were threatened or injured by a weapon, 73 (3.1%) could not attend school because of threats from other students, 96 (4.1%) were forced into sexual intercourse. Male students were significantly more likely than female students to report all types of high risk behaviors except forced sexual intercourse. The rate of risky behaviors increased with higher grade. Violence towards and by adolescents is a severe problem. Families, teachers, and health care professionals should be aware of risk factors and be active in prevention of high risk behaviors in youth.

Key words: violence, behavior, adolescent, questionnaire, Turkey

Introduction

On the basis of mortality rates alone, adolescence was previously considered to be one of the healthiest periods in human life. However, there is growing recognition of the wide-ranging health problems faced by adolescents due to biological, psychological and social factors¹. There are relatively few deaths due to illnesses in adolescents. Many adolescents die prematurely due to other causes such as accidents and high risk behavior. As a child moves through the school-age years and adolescence, prevention of risky behaviors takes on a greater importance. Many habits and lifestyle choices during these critical years contribute greatly to the overall health of an adult. The World Health Organization (WHO) estimates that 70% of premature deaths in adults are largely due to behavior initiated during adolescence¹.

Injuries are the leading cause of mortality and morbidity in adolescents and can be grouped as unintentional (such as motor vehicle crashes and fires) and intentional (violence and suicide)². Every year, an estimated 1.7 million young men and women between ages of 10–19 lose their lives—mostly through accidents, suicide, violence, pregnancy-related complications and other illnesses that are either preventable or treatable³. Violence towards and by young people is a severe problem. Violence is an outcome of a complex interaction among many factors. This relationship is captured in an ecological model that classifies risk factors for violence by four levels: individual, relationship, community, and societal. Although some risk factors may be unique to a particular type of violence, the various types of violence more commonly share a number of risk factors⁴.

Social environment – not just parents and peers, but also school, community, the legal system, the media, and the cultural belief system – restricts or allows adolescent

risky behavior⁵. Studies indicated that the most common risky behaviors in Turkish adolescents are smoking, drinking, fighting, and traffic-related risk behaviors⁶. Although this city in Southern Turkey has a reputation for violent behavior, there is no satisfactory information on the prevalence of risky behaviors in Adana⁷.

The aim of this study was to find the prevalence of violence related risky behaviors and the related socio-demographic factors in adolescents in Adana.

Materials and Methods

This study was part of a cross-sectional study performed to determine high risk behaviors in adolescents of Adana, the fifth largest city in Turkey.

Subjects

Two thousand four hundred and eighty students (5% of all students) were randomly selected among the total population of students from 72 high schools in Adana (n=46,271) in 1999–2000. The sampling procedure was as follows (Figure 1): The city of Adana has two main re-

gions called Yuregir and Seyhan. We randomly selected three out of nine high schools in the Yuregir region and seven out of 63 high schools in the Seyhan region after classifying the schools as »high schools with a majority of female students«, »high schools with a majority of male students« and »high schools with mixed genders«. Ten schools were randomly selected depending on stratum’s population. As there were three grades in the high schools (ninth, tenth and eleventh grades), two classes were selected randomly from each grade.

Maximum acceptable difference was set as 10%, design effect was taken as two, with the total number of clusters six, estimated true rate at 10%, and confidence interval of 95%, the required sample size needed was 72 (6 clusters with 12 in each) students⁸. Out of the targeted 2,480 students, 94.8% (n=2,352) participated in the study.

Questionnaire

The Youth Risk Behavior Survey (YRBS) is a student health survey conducted every two years since 1990 in the United States. Specifically, the survey was developed to monitor the prevalence of health risk behaviors among high school students (grades nine through 12) which lead

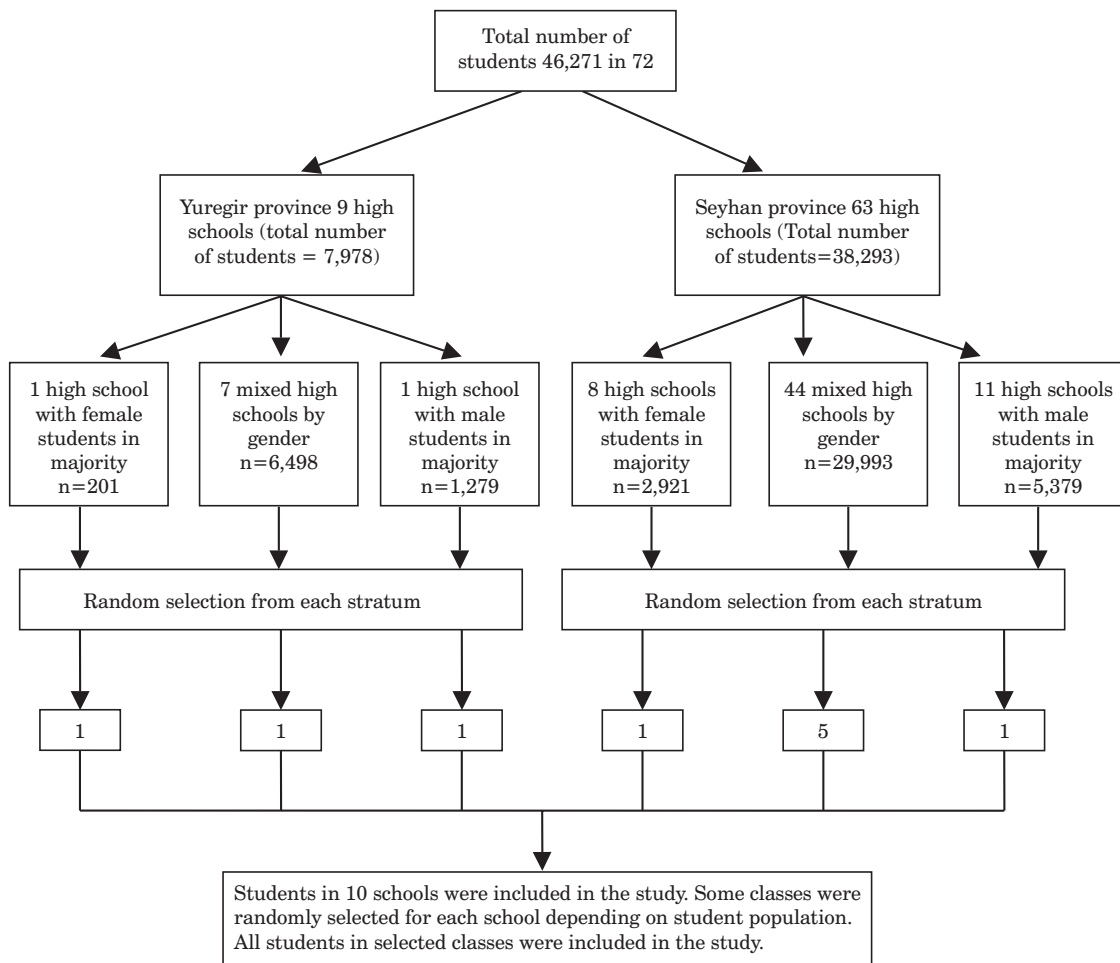


Fig. 1. Sampling scheme.

to the top causes of morbidity and mortality among youth and adults in the United States⁹.

The questionnaire form was adapted from YRBS. It was first translated into Turkish and then back to English. It was piloted on 30 students out of the main sample group. Minor wording changes were made. There are national studies performed using this questionnaire^{10,11}.

The risk behaviors included in the questionnaire were physical fighting, carrying a gun or having been threatened or injured with a gun, knife or sharp weapon during the last 12 months, carrying a knife or a sharp weapon during the last 30 days, and having ever been forced into sexual intercourse. All risk behavior variables were dichotomized (yes/no). Cronbach' alpha was 0.44, 0.39, and 0.49 for the »carrying gun or sharp weapon«, »being threatened or injured by gun or a sharp weapon«, and »forced sexual intercourse« questions, respectively.

The questionnaires were administered to students in a single session at school after informed consent taken by the study coordinator. Participation was voluntary. Students were asked not to write their names and school numbers. Assurance of confidentiality was provided. The Ethics Committee of the Faculty of Medicine at Cukurova University approved the study.

Data was uploaded using the Visual dBase program and was analyzed using the Statistical Package for Social Science (SPSS) for Windows version 9.0¹².

Results

Of 2352 students, 50.1% were male. Mean age was 16.5 ± 1.0 (range: 14–21) years. Of mothers, 33.7% were high school or university graduate, and of fathers, this was 43.6%. Of students, 31.1% had family income below the minimum wage (300 US dollars) (Table 1).

Table 2 summarizes reported risky behaviors related to violence according to gender and grade. 6.4% of the students ($n=151$) stated that they had carried a gun during the last 12 months (3.1 ± 2.6 times) and 17.2% of these students ($n=26$) carried it on school property (1.8 ± 1.3 times). There was a significant correlation between the prevalence of gun carrying and higher school grade ($p=0.01$) and male gender ($p=0.0001$). 1.4% of the students ($n=34$) stated that they had been threatened by a gun on school property during the last 12 months (1.4 ± 0.7 times). The prevalence of being threatened increased in higher grades ($p=0.01$). 11.7% of the students ($n=275$) stated that they had carried a knife during the last 30 days (8.1 ± 7.8 times) and 48.4% of them ($n=133$) carried it on school property (6.2 ± 5.5 times). There was a significant correlation between carrying a knife and male gender and higher grade ($p=0.03$, $p=0.0001$, respectively). The highest mean number of students carrying knives was found in the highest grade (9.6 ± 8.8 times) ($p=0.04$). Nearly 3% of the students ($n=68$) declared that they had been injured or threatened by a knife during the last 12 months (2.4 ± 2.0 times). The majority of the threatened or injured students were males ($p=0.0001$) and 3.1%

($n=73$) could not attend school during the last 12 months due to threats by other students (3.5 ± 2.8 days). There was a significant correlation between the rate of non-attendance at school and higher grade ($p=0.002$). Almost one out of three students (30.2%, $n=710$) stated that they had been in a physical fight during the last 12 months (5.5 ± 3.8 times), and 59.6% ($n=423$) of these students declared that the fight took place on school property (2.5 ± 2.0 times). There was no significant correlation between being in fight and grade ($p>0.05$) whereas the mean number of physical fight increased as grade increased (3.4 ± 3.2 , 3.7 ± 3.3 and 4.4 ± 4.0 for the ninth, tenth and eleventh grades, respectively) ($p=0.01$). Both the prevalence and mean number of physical fights (3.9 ± 3.7 vs. 3.3 ± 3.2) were higher in males than females ($p=0.0001$, $p=0.04$, respectively). Ninety six students (4.1%) stated that they had been forced into sexual intercourse. There was significant correlation between being forced into sexual intercourse and higher grade ($p=0.0001$) and being female ($p=0.002$).

TABLE 1
DEMOGRAPHIC FEATURES OF THE STUDENTS

		N(%)
Age (years)	<15	332 (14.1)
	16	846 (36.0)
	17	783 (33.3)
	18	350 (14.9)
	>19	41 (1.7)
Gender	Female	1173 (49.9)
	Male	1179 (50.1)
Grade	9	815 (34.7)
	10	860 (36.6)
	11	677 (28.7)
Maternal education	Illiterate	268 (11.4)
	Basic reading-writing	91 (3.9)
	Primary school	888 (37.8)
	Secondary school	312 (13.2)
	High school	523 (22.2)
Paternal education	University	270 (11.5)
	Illiterate	53 (22.5)
	Basic reading-writing	54 (2.2)
	Primary school	816 (34.7)
	Secondary school	401 (17.0)
Family income	High school	556 (23.6)
	University	472 (20.0)
	Below minimum wage**	731 (31.1)
	3 folds of minimum wage**	1063 (45.2)
	4–6 folds of minimum wage**	377 (16.0)
	More than 6 folds of minimum wage**	181 (7.7)

*column percentage, **300 US dollars

TABLE 2
 REPORTED RISKY BEHAVIORS DURING THE LAST 30 DAYS AND 12 MONTHS IN MALE AND FEMALE STUDENTS
 FROM THREE DIFFERENT GRADES

Risky behaviors related to violence	Gender		p ^a	Grade			p ^a	Total n=2352 N (%)
	Male n=1179 N (%)	Female n=1173 N (%)		Grade 9 n=815 N (%)	Grade 10 n=860 N (%)	Grade 11 n=677 N (%)		
Carrying gun	137 (11.6)	14 (1.2)	0.0001	39 (4.8)	53 (6.2)	59 (8.7)	0.008	151 (6.4)
Carrying gun in school property	22 (1.8)	4 (0.3)	0.471	9 (1.1)	8 (0.9)	9 (1.3)	0.616	26 (1.1)
Threatened or injured by gun in school property	22 (1.9)	12 (1.0)	0.087	4 (0.5)	15 (1.7)	15 (2.2)	0.014	34 (1.4)
Carrying knife or sharp weapon ^b	211 (17.9)	64 (5.5)	0.034	74 (9.1)	94 (10.9)	107 (15.8)	0.0001	275 (11.7)
Carrying knife or sharp weapon in school property ^b	103 (8.7)	30 (2.5)	0.786	35 (4.2)	42 (4.8)	56 (8.2)	0.002	133 (5.6)
Threatened or injured by knife or sharp weapon in school property	58 (4.9)	10 (0.9)	0.0001	17 (2.1)	28 (3.3)	23 (3.4)	0.234	68 (2.9)
Physical fighting	547 (46.4)	163 (13.9)	0.0001	231 (32.5)	263 (37.0)	216 (30.5)	0.311	710 (30.2)
Physical fighting in school property	343 (29.0)	80 (6.8)	0.002	141 (17.3)	147 (17.0)	135 (19.9)	0.309	423 (17.9)
Forced sexual intercourse	33 (2.8)	63 (5.4)	0.002	17 (2.1)	38 (4.4)	41 (6.1)	0.0001	96 (4.1)

^aPearson χ^2 , ^bduring the last 30 days

Carrying a knife was more frequent in students with families having low income ($p=0.04$). Physical fighting was more common in students whose mothers had attained higher levels of education ($p=0.01$). There was no significant relationship between parental educational status and family income and any other risky behavior in the study.

Discussion and Conclusion

Compared with the results from national studies in other countries, carrying a weapon or knife, being threatened or injured by a weapon on school property, being in a physical fight, being treated after injury were lower in our study^{10,13,14}.

A cross-sectional survey covering 35 countries showed that involvement of males in physical fighting ranged from 37% in Finland to 69% in the Czech Republic. Among females, the prevalence of physical fighting ranged from 13% in Finland to 32% in Hungary¹⁵. Our results were similar (males=46.4%, females=13.9%). The rate differences between countries may be due to cultural differences in the acceptance of violence. Males in all countries were more likely to fight than girls. This may also indicate cultural acceptance of more overt forms of aggression as normative male behavior¹⁵.

Involvement in weapon carrying ranged from 10% (Belgium-France) to 22% (United States) for males and 2% (Portugal) to 5% (United States) for females. The type of weapons varied strikingly with country although

knives were the leading weapons reported everywhere. Among youth reporting weapon carrying, those carrying handguns or other firearms ranged from 7% (Belgium-France, Estonia) to 22% (United States) for males¹⁵. In another study it has been found that 12.2% of high school students in El Salvador carried a gun and the prevalence increased with higher grade and male gender¹⁶. International differences in the types of weapons are most likely due to the differences in availability, accessibility and cultural acceptance for different types of weapons¹⁵. On the other hand, the rates of risky behaviors were found to be higher outside school property in the literature^{16,17} similar to our results suggesting that school is a safer place than outside.

Male students were significantly more likely than females to report all types of behaviors surveyed except forced sexual intercourse. In a group of 1871 female high school students in Istanbul, 4.9% of the students reported they were forced for sexual intercourse¹⁸. In a study of nursing students in England 12.8% (female =13.3%, male=10.5%) of students reported forced sexual intercourse¹⁹. It was 8.1% in El Salvador (6.1% and 20.6% for males and females, respectively) and the prevalence increases with higher grade and female gender¹⁸. Our finding for low rate for forced sexual intercourse may be due to underreporting because of shame, fear or traditions. Several studies showed that sexual activity in adolescents is not an isolated experience and is connected to other high risk behaviors. In a study among Croatian adolescents, it was found that early sexual experience was associated with smoking, drinking, mari-

juana taking, and involvement in physical fighting or bullying others²⁰.

We have found that the prevalence of all risky behaviors except physical fighting and carrying a gun on school property increased as grade increased. Some of our findings are different from that of other studies; we find no significant relationship between risky behaviors and grade^{13,16} and in contrast to studies showing decrease in the prevalence of some risky behaviors as the grade increased^{18,19}. Although Ruangkanhasetr et al., Gofin et al., and YRBS 1999^{17,21,22} found that the rate decreased as grade increased, we could not find a significant relationship between physical fighting and grade.

The demographic risk factors known to be related to violent behavior in adolescents are gender, age, race, and family composition, mobility of household, availability of weapons in household, educational level of youth and caretakers, and income²³. Although there is no information about parental education and family income from national studies from other countries, we have found a significant correlation between carrying a knife and income and a significant correlation between maternal educational status and physical fight. Ruangkanhasetr et al. found poor paternal relationship as a risk factor for carrying weapons and poor maternal relationship and broken family as risk factors for physical fight²¹. Further studies are needed to determine why physical fight was more common in students whose mothers had higher educational level.

»First World Report on Violence and Health« describes and makes recommendations for action at local, national and international levels. The report strongly makes the case for involving all sections of society in prevention efforts. There are a broad range of viable strategies for preventing youth violence, some of which have

been shown to be particularly effective. No single strategy is likely to be sufficient to reduce youth violence. Instead, multiple concurrent approaches will be required and they will need to be relevant to the particular place where they are implemented²⁴.

First, we need to develop surveillance systems for routine monitoring of trends in violent behaviors and then design national programs to prevent youth violence in Turkey. In these programs, health care professionals should be active in determining high risk adolescents for violence and in training teachers, parents, and adolescents about risky behaviors. Collaboration between families, schools and, other health care professionals is crucial for the successful implementation of such programs.

Limitations

First, we note that all of our data were self-reported, and the extent of underreporting or over reporting for risky behaviors cannot be determined. Second, our data were school-based, and therefore cannot be generalized for all Turkish adolescents. Third, our sample was selected from an urban area and may not be representative for the rural area. Fourth, in our study we did not ask about the demographic risk factors such as racial/ethnic factors, family composition, and mobility of household and availability of weapon in household.

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PREVALENCIJA RIZIČNIH PONAŠANJA VEZANIH UZ NASILJE U SREDNJIM ŠKOLAMA U JUŽNOM GRADU TURSKE

S A Ž E T A K

Ozljede su vodeći uzrok mortaliteta i morbiditeta kod adolescenata i mogu se podijeliti na nenamjerne (kao što su prometne nesreće i požari) i namjerne (nasilje i samoubojstvo). Cilj ovog istraživanja bio je ustanoviti prevalenciju visokorizičnih ponašanja vezanih uz nasilje među srednjoškolskim učenicima. Uzorak se sastojao od 2.480 nasumično odabranih učenika iz 10 škola, među ukupno 46.271 učenika iz 72 srednje škole u periodu od 1999.–2000. godine u Adani, od kojih je 2.352 (94,8%) riješilo upitnik. Oni su popunili Upitnik o rizičnom ponašanju mladih (Youth Risk Behavior Survey Questionnaire-YRBSQ). Prosječna dob bila je $16,5 \pm 1$ (14–21) godina. Dvjesto sedamdeset pet (11,7%) učenika tvrdilo je da su nosili nož ili drugo oštro oružje u posljednjih 30 dana, 151 (6,4%) nosilo je pištolj, 710 (30,2%) sudjelovalo je u fizičkoj tuči, 68 (2,9%) ih je bilo zastrašivano ili ozlijeđeno oružjem, 73 (3,1%) nije moglo pohađati školu zbog prijetnji drugih učenika, a 96 (4,1%) je bilo prisiljavano na spolni odnos. Muški učenici su u značajno većem broju prijavljivali sve oblike visokorizičnog ponašanja osim prisiljavanja na spolni odnos. Stopa rizičnog ponašanja raste prelaskom u viši razred. Nasilje među adolescentima je ozbiljan problem. Obitelji, profesori, i profesionalni zdravstveni radnici moraju biti svjesni rizičnih čimbenika i biti aktivni u prevenciji visokorizičnog ponašanja među mladima.