ARTICLE

A Cross-national Study of Violence-Related Behaviors in Adolescents

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Background: Violent behavior among adolescents is a significant problem worldwide, and a cross-national comparison of adolescent violent behaviors can provide information about the development and pattern of physical violence in young adolescents.

Objectives: To determine and compare frequencies of adolescent violence-related behaviors in 5 countries and to examine associations between violence-related behaviors and potential explanatory characteristics.

Design, Setting, and Participants: Cross-sectional, school-based nationally representative survey at ages 11.5, 13.5, and 15.5 years in 5 countries (Ireland, Israel, Portugal, Sweden, and the United States).

Main Outcome Measures: Frequency of physical fighting, bullying, weapon carrying, and fighting injuries in relation to other risk behaviors and characteristics in home and school settings.

Results: Fighting frequency among US youth was similar to that of all 5 countries (nonfighters: US, 60.2%; mean frequency of 5 countries, 60.2%), as were the frequencies of weapon carrying (noncarriers: US, 89.6%; mean frequency of 5 countries, 89.6%) and fighting injury (noninjured: US, 84.5%; mean frequency of 5 countries, 84.6%). Bullying frequency varied widely cross-nationally (nonbullies: from 57.0% for Israel to 85.2% for Sweden). Fighting was most highly associated with smoking, drinking, feeling irritable or bad tempered, and having been bullied.

Conclusions: Adolescents in 5 countries behaved similarly in their expression of violence-related behaviors. Occasional fighting and bullying were common, whereas frequent fighting, frequent bullying, any weapon carrying, or any fighting injury were infrequent behaviors. These findings were consistent across countries, with little cross-national variation except for bullying rates. Traditional risk-taking behaviors (smoking and drinking) and being bullied were highly associated with the expression of violence-related behavior.

Arch Pediatr Adolesc Med. 2004;158:539-544

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AGGRESSIVE AND VIOLENT behavior is a significant public health problem worldwide. In the United States, physical assault is the sixth leading cause of nonfatal injury in 15- to 19-year-olds and the seventh leading cause in 10- to 14-year-olds.[1] Furthermore, homicide is the second leading cause of death in 15- to 19-year-olds and the fourth leading cause in 10- to 14-year-olds.[2] Although violence-related mortality in the United States surpasses that of other developed countries,[3-5] recent data show that violence-related deaths among adolescents in the European Union are increasing.[5] In fact, 3 developed countries, Israel, France, and Norway, now join the United States as nations in which firearms are the second leading mechanism of death in 15- to 24-year-olds.[3]

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A significant body of information currently exists about violent behavior in the adolescent population of the United States. It is known that occasional fighting is a relatively common behavior for youths.[6-8] It is also known that strong relationships exist between frequent fighting and other manifestations of violence, risk-taking behavior, and misconduct.[7-9] In addition, a profile is emerging that describes US adolescents who are more likely to engage in violent behavior. These youths are frequently male, of junior high school age, and cigarette and alcohol users.[10-13]

The literature on violent behavior in youth outside the United States is relatively limited, however, which provides little context in which to frame the US find-

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Table 1. Number of Respondents by Country, Sex, Age Group, and Overall Response Rate

	Sex		Age Group				
	Boys	Girls	11 y	13 y	15 y	Total	Overall Response Rate, %
Ireland	2157	2237	1495	1442	1457	**4394**	74.0
Israel	2423	2631	2299	1370	1385	**5054**	75.0
Portugal	1649	2072	1217	1259	1245	**3721**	94.0
Sweden	1986	1816	1294	1357	1151	**3802**	91.7
United States	2395	2774	1558	1803	1808	**5168**	87.0

ings. A direct comparison of youth fighting rates in the United States vs other developed countries has not been done. Furthermore, it is unknown if youths who engage in violent behavior in other countries resemble their US counterparts in terms of related characteristics. Critical questions may be answered once this behavior is better characterized. For example, can a profile of violent behavior be generalized across different countries and cultures? Is violent behavior in adolescence a function of environmental, cultural, and political influences, or is it part of a normal developmental process, or both? Cross-national variation in the level of violence and/or in the relationships between violence and potential explanatory factors would suggest at least an element of cultural and environmental influence on these phenomena. Conversely, if these relationships are stable across the study countries, one may conclude that to some extent, violent behavior is part of the human developmental process.

The World Health Organization–coordinated cross-national study of Health Behaviour in School-aged Children (HBSC)[14] provides a unique opportunity to answer these questions and compare the patterns of violence and related behaviors among youth of different industrialized countries. The HBSC study surveys health risk behaviors, lifestyles, and their context in young adolescents in multiple developed countries using standardized measures and procedures. Our study used this information to derive country-specific distributions of certain violent behaviors and to assess country-specific explanatory factors, which then provided a basis for comparing violence-related behaviors in 5 developed countries.

METHODS

The HBSC study is a collaborative cross-national, school-based survey of young adolescents conducted every 4 years and coordinated by the World Health Organization Regional Office for Europe (Copenhagen, Denmark). Analysis is based on nationally representative cross-sectional samples of students at mean ages of 11.5, 13.5, and 15.5 years. Data are obtained from anonymous surveys conducted during the 1997-1998 academic year according to a common research protocol established to standardize sampling methods, data collection, and measurements.[14] In each of the 30 participating countries, a cluster sample design of classrooms within schools is used to obtain recommended self-weighting samples according to required precision estimates for each age group of 95% with confidence intervals of ±3% and a design effect of no more than 1.44 in any country. A more detailed description of the sample design and statistical requirements is available elsewhere.[15]

Each participating country was required to obtain approval to conduct the survey from an institutional review board or the equivalent approval body. The US national survey was conducted with the approval and oversight of the institutional review boards of both the National Institute of Child Health and Human Development (Bethesda, Md) and Macro International Inc (Calverton, Md).

The number of participating students is presented by country, age, sex, and overall response rate (**Table 1**). Most countries had lower percentages of male respondents, with the greatest discrepancy in Portugal, where 20.4% fewer boys responded than girls. The United States, Israel, and Ireland had 13.7%, 7.9%, and 3.6% fewer responses from boys than girls, respectively. Sweden was the only country with fewer female respondents (8.6%) than male. A difference in age distribution was notable in the Israeli data owing to an oversample of the 11-year-old population, so a weighting scheme was developed to accommodate this scenario. A weighting scheme was also used for the intentionally oversampled Arab population in Israel. Analyses for all other countries in our study were based on unweighted data.

MEASUREMENTS

The 1997-1998 multinational HBSC study asked standard questions about demographic characteristics and health-related behaviors. The 5 countries listed previously elected to use an optional set of questions about violent behaviors. One other country, Estonia, included the violence questions in its survey, but it is not included in this analysis because of a much smaller sample size and lower response rate. Of note, some countries (Israel, Sweden, and Portugal) asked the violent-behavior questions only of the 11- and 13-year-olds to include other questions (usually regarding sexual activity) in the oldest group. Measurements had been developed and used in previous HBSC surveys or in other studies (eg, the Youth Risk Behavior Survey[16]) and were pretested prior to this administration of the HBSC study. The responses of 22 139 students from these countries comprise the international sample available for this analysis.

Fighting frequency was ascertained by the question, "During the past 12 months, how many times were you in a physical fight?" with response options of "I have not been in a physical fight," "1 time," "2 times," "3 times," or "4 or more times." Questions about bullying were preceded with an explanation:

Here are some questions about bullying. We say a student is being bullied when another student, or a group of students, say or do nasty and unpleasant things to him or her. It is also bullying when a student is teased repeatedly in a way he or she doesn't like. But it is not bullying when 2 students of about the same strength quarrel or fight.

Bullying was determined with the following questions: (1) "How often have you been bullied in school this term?" with response

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Table 2. Distribution of Violence Indicators for All Countries*

Violence Indicator	Israel	Ireland	United States	Sweden	Portugal	Total
Physical fighting, times per year						
0	54.6 (52.6 to 56.6)	55.5 (53.5 to 57.5)	60.2 (58.4 to 62.0)	61.2 (59.2 to 63.2)	68.8 (67.0 to 70.6)	59.7 (58.9 to 60.5)
1	1.5 (–1.2 to 4.2)	19.9 (17.2 to 22.6)	17.1 (14.6 to 19.6)	14.2 (11.3 to 17.1)	15.8 (12.9 to 18.7)	13.6 (12.4 to 14.8)
2	26.9 (24.5 to 29.3)	9.9 (7.0 to 12.8)	9.4 (6.9 to 11.9)	9.3 (6.4 to 12.2)	7.4 (4.3 to 10.5)	12.8 (11.6 to 14.0)
3	6.4 (3.7 to 9.1)	4.8 (1.9 to 7.7)	4.8 (2.1 to 7.5)	5.6 (2.5 to 8.7)	3.2 (0.1 to 6.3)	5.0 (3.8 to 6.2)
≥4	10.7 (8.2 to 13.2)	9.8 (6.9 to 12.7)	8.5 (6.0 to 11.0)	9.7 (6.8 to 12.6)	4.8 (1.7 to 7.9)	8.9 (7.7 to 10.1)
Weapon carrying, days per month						
0	84.0 (82.8 to 84.2)	89.6 (88.6 to 90.6)	89.6 (88.6 to 90.6)	NA	94.4 (93.6 to 95.2)	89.2 (88.8 to 89.6)
1	1.0 (–1.7 to 3.7)	3.7 (0.8 to 6.6)	3.3 (0.6 to 6.0)		2.0 (–1.1 to 5.1)	2.6 (1.2 to 4.0)
2-3	8.7 (6.0 to 11.4)	2.3 (–0.6 to 5.2)	2.4 (–0.3 to 5.1)		1.1 (–2.0 to 4.2)	3.6 (2.2 to 5.0)
4-5	2.0 (–0.7 to 4.7)	0.8 (–2.1 to 3.7)	0.9 (–1.8 to 3.6)		0.5 (–2.6 to 3.6)	1.0 (–0.4 to 2.4)
≥6	4.3 (1.6 to 3.0)	3.3 (0.4 to 6.2)	3.8 (1.1 to 6.5)		1.9 (–1.2 to 5.0)	3.5 (2.1 to 4.9)
Injuries from fighting, times per year						
0	82.1 (80.9 to 83.3)	82.4 (81.0 to 83.8)	84.5 (82.5 to 86.5)	NA	87.8 (86.6 to 89.0)	84.2 (83.6 to 84.8)
1	10.6 (8.1 to 13.1)	14.2 (11.3 to 17.1)	12.5 (9.8 to 15.2)		10.6 (7.5 to 13.7)	11.9 (10.5 to 13.3)
2	3.5 (0.8 to 6.2)	1.4 (–1.7 to 4.5)	1.4 (–1.3 to 4.1)		0.8 (–2.5 to 4.1)	1.8 (0.4 to 3.2)
3	1.6 (–1.1 to 4.3)	0.6 (–2.5 to 3.7)	0.5 (–2.2 to 3.2)		0.2 (–3.1 to 3.5)	0.8 (–0.6 to 2.2)
≥4	2.2 (–0.5 to 4.9)	1.3 (–1.8 to 4.4)	1.1 (–1.6 to 3.8)		0.5 (–2.8 to 3.8)	1.3 (–0.1 to 2.7)
Have bullied, times per school term						
None	57.0 (55.2 to 58.8)	75.5 (74.1 to 76.9)	60.8 (59.0 to 62.6)	85.2 (84.0 to 86.4)	63.8 (61.8 to 65.8)	66.2 (65.4 to 67.0)
Once or twice	24.1 (21.7 to 26.5)	18.7 (16.0 to 21.4)	24.3 (21.9 to 26.7)	10.9 (8.0 to 13.8)	24.5 (21.8 to 27.2)	21.6 (20.4 to 22.8)
Sometimes	12.3 (9.8 to 14.8)	3.8 (0.9 to 6.7)	8.8 (6.3 to 11.3)	2.4 (–0.7 to 5.5)	9.2 (6.1 to 12.3)	8.0 (6.8 to 9.2)
Once a week	3.0 (0.3 to 5.7)	0.8 (–2.1 to 3.7)	2.5 (–0.2 to 5.2)	0.6 (–2.5 to 3.7)	1.0 (–2.1 to 4.1)	1.8 (0.6 to 3.0)
Several times a week	3.5 (0.8 to 6.2)	1.2 (–1.7 to 4.1)	3.6 (0.9 to 6.3)	0.9 (–2.2 to 4.0)	1.5 (–1.6 to 4.6)	2.3 (1.1 to 3.5)

Abbreviation: NA, not applicable.
*Data are presented as percentage (95% confidence interval).

options of "I haven't been bullied in school this term," "Once or twice," "Sometimes," "About once a week," or "Several times a week"; and (2) "How often have you taken part in bullying other students in school this term?" with response options of "I haven't bullied others in school this term," "Once or twice," "Sometimes," "About once a week," or "Several times a week."

Four countries except Sweden also included questions about weapon carrying and injuries from fighting. Weapon carrying was determined by the question, "During the past 30 days, on how many days did you carry a weapon, such as a gun, knife, or club, for self-defense?" with response options of "I did not carry a weapon during the past 30 days," "1 day," "2 to 3 days," "4 to 5 days," or "6 or more days." The question about injuries from fighting was worded "During the past 12 months, how many times were you in a physical fight in which you were injured and treated by a doctor or a nurse?" with response options of "I was not in a physical fight," "1 time," "2 times," "3 times," or "4 or more times."

We defined these 4 variables—fighting, bullying, weapon carrying, and injuries from fighting—as violence indicators because they were used to quantify specific adolescent violent behaviors. Explanatory factors are defined as potential explanatory or associated behaviors and characteristics. Explanatory factors were selected according to how they fit into the categories of peer relationships (having been bullied or feeling alone at school), school factors (academic achievement, liking school, truancy, or feeling safe at school), risk-taking behavior (current smoking or having been drunk), affect (feeling irritable or bad tempered or feeling helpless), and family setting (living with mother, living with father, or ease of talking to mother).

STATISTICAL ANALYSIS

The first steps of the analysis applied univariate and bivariate statistics for the 3 violence indicators. Special attention was devoted to the association between potential explanatory factors and fighting. Significance testing was performed for differences between countries in the distributions of violence indicators and explanatory factors. We used χ^2 tests for the distributions and regression models to show the independent effect of each explanatory factor on violent behavior and how these relationships varied cross-nationally.

Analyses of the data took into account the complex survey design. According to the HBSC protocol, the international file was unweighted to facilitate cross-national comparisons; approximately equal weights were generated for each country's data by subsampling the original country-specific student sample file. For the cross-national analyses, countries constituted the primary strata. Within each country, similar cluster sample designs were used with some variations; schools functioned as ultimate clusters. Most of the analyses were performed with SUDAAN statistical software (Research Triangle Institute, Research Triangle Park, NC), including the estimation of variances, standard errors, and confidence intervals, to account for complex design elements such as clustering and weighting. Multivariate analyses were performed with SPSS statistical software (SPSS Inc, Chicago, Ill).

RESULTS

Percentage distributions of the 4 violence indicators were calculated across the 5 study countries (**Table 2**). For all countries combined, "Any fighting" (frequency >0) was the most frequent response (40.3%), with "Any bullying" second (33.7%), "Any fighting injuries" third (15.8%), and "Any weapon carrying" the least frequent (10.7%) for all ages and both sexes combined. In each country, only a small percentage of youths engaged in violent behaviors at the highest frequency (range, 1.3% for ≥4 fighting injuries to 8.9% for ≥4 fights).

The frequencies of any fighting and frequent fighting were remarkably similar across countries, with virtually identical frequencies for the United States and Sweden. Simi-

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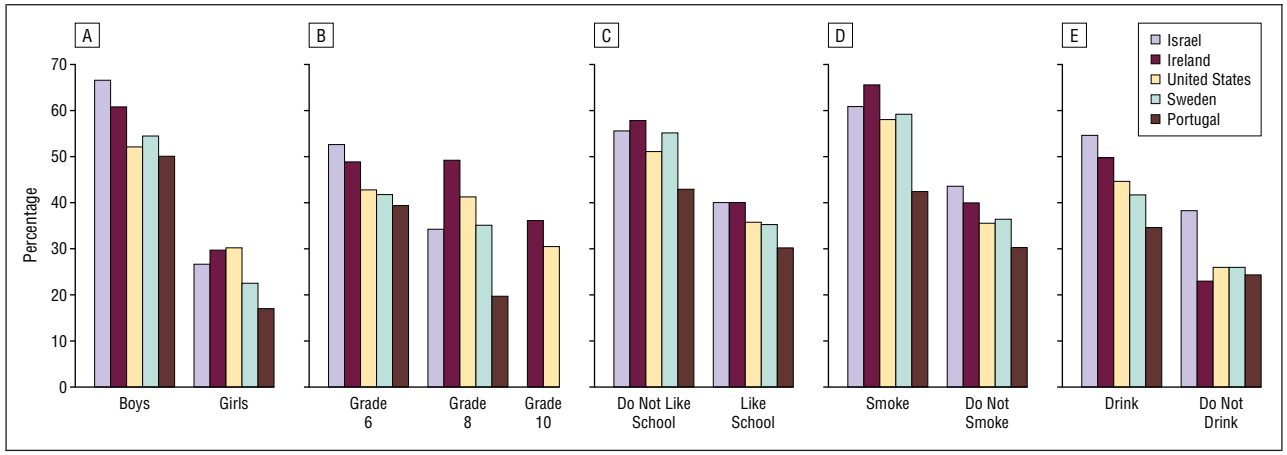

Country-specific associations of percentage of youth who reported any fighting with subgroups defined by sex (A), grade (B), attitude toward school (C), and use of tobacco (D) or alcohol (E).

Table 3. Adjusted Odds Ratios for Risk Behaviors as Predictors of Fighting for All Target Countries*

Explanatory Factor	Israel	Ireland	United States	Sweden	Portugal	Total
Having been drunk	**1.36 (1.08 to 1.72)**	**1.99 (1.65 to 2.40)**	**2.65 (2.21 to 3.18)**	**2.02 (1.55 to 2.61)**	**2.48 (1.98 to 3.12)**	**1.81 (1.66 to 1.97)**
Currently smoking	**1.36 (1.05 to 1.76)**	**1.68 (1.36 to 2.06)**	**1.47 (1.21 to 1.78)**	**1.86 (1.38 to 2.52)**	**1.54 (1.18 to 2.02)**	**1.59 (1.44 to 1.76)**
Feeling irritable or bad tempered	**1.27 (1.00 to 1.61)**	**1.70 (1.42 to 2.05)**	**1.54 (1.31 to 1.83)**	**1.30 (1.02 to 1.65)**	**1.38 (1.14 to 1.67)**	**1.53 (1.42 to 1.66)**
Having been bullied	**1.39 (1.29 to 1.50)**	**1.16 (1.05 to 1.28)**	**1.20 (1.12 to 1.29)**	**1.43 (1.25 to 1.63)**	**1.48 (1.35 to 1.62)**	**1.31 (1.26 to 1.35)**
Not living with the father	1.02 (0.77 to 1.37)	1.20 (0.90 to 1.58)	**1.43 (1.24 to 1.65)**	1.09 (0.86 to 1.37)	**1.57 (1.17 to 2.09)**	**1.25 (1.14 to 1.36)**
Disliking school	**1.16 (1.07 to 1.26)**	1.06 (0.96 to 1.16)	**1.11 (1.02 to 1.20)**	**1.30 (1.15 to 1.48)**	1.04 (0.92 to 1.18)	**1.17 (1.12 to 1.21)**
Difficulty talking to the mother	**1.14 (1.06 to 1.23)**	**1.09 (1.00 to 1.18)**	**1.16 (1.09 to 1.24)**	1.11 (1.00 to 1.23)	1.09 (0.99 to 1.21)	**1.10 (1.06 to 1.14)**
Feeling alone at school	1.03 (0.95 to 1.13)	1.00 (0.91 to 1.10)	1.05 (0.98 to 1.13)	**1.13 (1.01 to 1.28)**	1.04 (0.93 to 1.17)	**1.08 (1.04 to 1.12)**
Truancy	**1.14 (1.07 to 1.21)**	**1.20 (1.12 to 1.29)**	**1.15 (1.09 to 1.21)**	**1.24 (1.13 to 1.36)**	1.00 (0.94 to 1.07)	**1.07 (1.05 to 1.10)**
Poor academic achievement	**1.17 (1.07 to 1.28)**	1.07 (0.97 to 1.18)	**1.18 (1.09 to 1.28)**	**1.17 (1.04 to 1.33)**	1.10 (0.96 to 1.25)	**1.07 (1.03 to 1.11)**
Feeling unsafe at school	1.03 (0.95 to 1.11)	**1.10 (1.00 to 1.22)**	**1.16 (1.10 to 1.23)**	1.10 (0.99 to 1.22)	1.04 (0.95 to 1.14)	**1.05 (1.02 to 1.09)**
Feeling helpless	**1.38 (1.10 to 1.74)**	1.05 (0.90 to 1.23)	0.99 (0.84 to 1.15)	1.01 (0.84 to 1.21)	1.16 (0.96 to 1.41)	0.99 (0.92 to 1.07)

*Data are presented as odds ratio (95% confidence interval). Odds ratios are adjusted for grade and sex. Statistically significant values are in bold type.

larly, the frequencies of weapon carrying and injuries from fighting fit into narrow ranges cross-nationally. The exception to this pattern was bullying, which had greater variation in prevalence rates, ranging from 14.8% in Sweden to 42.9% in Israel for adolescents who bullied once or more per school term. A consistent ordering of countries was also seen across the respective behaviors; participation in the most violent behaviors increased from Portugal and Sweden (lowest participation) to Ireland and Israel (highest participation). Once again, bullying was an exception, with rates lowest in Sweden and Ireland and with Portugal falling in the middle of the range.

These violence-related behaviors often occurred together in adolescents cross-nationally. A large proportion of adolescents who fought also bullied and vice versa; the percentages of those both bullying and fighting were 29.5% in Israel, 22.1% in the United States, 17.8% in Portugal, and 15.9% in Ireland. The percentage dropped to 9.8% in Sweden, but this value was still relatively high considering that only 14.8% of Swedish youths engaged in any bullying at all.

The **Figure** illustrates the country-specific associations of any fighting with subgroups defined by sex, grade, attitude toward school, and use of tobacco or alcohol. These particular factors were chosen because they represent 2 key demographic characteristics, 2 sentinel risk-taking behaviors, and a general measure of attitude toward school. Fighting was frequent for boys in all countries, ranging from half to two thirds of boys. Even for girls the frequency of fighting, although less than for boys, was between 15% and 30%. Across all countries, fighting frequencies declined with increasing grade levels, increased with the use of alcohol or tobacco, and decreased as children reported liking school more.

Multivariate analyses included logistic regression models for any fighting and frequent fighting, with similar results for both dependent variables. The previously defined explanatory factors were the independent variables in both analyses. When adjusted for country, grade, and sex, the odds ratios of association with any fighting were highest for smoking and alcohol use both in the pooled analysis and for most countries individually (**Table 3**). The next highest odds ratios were for the variables of feeling irritable or bad tempered, having been bullied, and not living with the father. Feeling helpless was not statistically significant in any country except Is-

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rael, where it was the second most highly associated factor with fighting. Israel also deviated from the other countries because being bullied was the most highly associated factor with fighting. Not living with the mother was not statistically significant in any model.

COMMENT

In this cross-national comparison of violence-related behaviors in adolescents, our results show that youth in 5 different countries behaved remarkably similarly with respect to violent behaviors. Our prevalence rates show that occasional fighting (1-2 times per year) and bullying ("Once or twice" or "Sometimes" per school term) occurred frequently in young adolescents, which is consistent with fighting and bullying rates from other studies, both US-based and international.[17-20] Engaging in at least an occasional fight was so frequent, particularly in boys but also in girls, and was so consistent across countries that it might not be considered abnormal or alarming. In contrast, frequent fighting and frequent bullying were relatively rare behaviors, as were fighting injuries or weapon carrying at any frequency. We found that adolescents who fight are more likely to be boys in a lower grade (6th grade vs 10th) who currently smoke, have been drunk, and dislike school. These findings are consistent with previous US-based studies,[14,21] although international confirmation did not previously exist. We also observed that adolescents who engage in fighting are more likely to manifest the characteristics of frequently feeling irritable or bad tempered and having been bullied.

If confirmed in other settings, the consistency of the patterns of violent behavior prevalence rates among 5 geographically, culturally, and economically disparate countries suggests that these rates of involvement are indicative of the normal development and behavior of adolescents. That is, occasional fighting, a common behavior among the study youth, is part of the normal but not necessarily desirable developmental process of adolescents. In contrast, weapon carrying and injuries from fighting are not.

When the participating countries were arrayed in rank order according to the prevalence rates of their country-specific violence-related behaviors, they exhibited specific and consistent ranking patterns with Israel and Portugal at the respective high and low extremes of frequency. However, the disparity in the country-specific sex distribution of the study sample must be considered. Because we found that fighting rates were lower for girls than boys in all countries, a contributor to the lower fighting rates in Portugal could be the relatively higher percentage of girls in that sample. Although the sex discrepancies make it hard to precisely differentiate individual study countries as most violent or least violent, certain trends prevail with Portugal and Sweden expressing behaviors less frequently than Israel, Ireland, and the United States. These findings suggest that whereas sociopolitical factors may have a superimposed effect on adolescents' expression of violent behaviors, the contribution of national environment appears secondary to the overall pattern of adolescent development.

Bullying was the only exception to the cross-national trends among violence-related behaviors. The disparity of bullying rates among the study countries and its deviation from the country rank order of fighting and weapon carrying suggests that bullying may be more susceptible to cultural and environmental influences than the other violence-related behaviors.

Our analyses enable us to characterize a profile of youths who engage in fighting with respect to a variety of related risks as well as other behaviors and characteristics. On the basis of logistic regression analysis, which demonstrated that drinking, smoking, and feeling irritable or bad tempered were most highly associated with fighting, a common profile emerges in which the most likely fighters might be characterized as rebellious youths who engage in other risk-taking behaviors. However, having been bullied was also a predictor of fighting. Fighters who have been bullied could represent a potentially different profile because bullied youth tend to be victims and not necessarily rebels. Just as other analyses have shown that a subset of bullied children are bullies themselves,[20] our study characterizes a bullied child who is also a fighter. This profile may be particularly important in Israel, the only country in which being bullied was most highly associated with fighting and in which feeling helpless, not significant in any other country, was second.

This study has identified many associations between violent behaviors and other characteristics, but its cross-sectional design precludes any determination of the direction of causality. Another limitation of our study is the use of self-report for the characterization of adolescent violence-related behaviors, although other studies have illustrated the reliability and validity of self-report by adolescents for behaviors such as substance use, delinquency, and violence.[22-25] A further concern is that of the translation of the questions and the possibility for diverse interpretations based on different languages or cultures. Therefore, each country was required to have an independent translator back-translate the questionnaire from the native language to English to ensure that mistranslations were eliminated. Because the term *bullying* might be particularly subject to different interpretations cross-culturally, a paragraph defining this term preceded the associated questions.

An important question raised by our findings is why violence-related mortality in the United States is substantially higher than countries[3-5] in which the rates of nonfatal violent behaviors (fighting, weapon carrying, and injuries from fighting) in young adolescents are extremely similar. One possible explanation for this apparent inconsistency is that whereas these reported nonfatal violent behaviors are similar cross-nationally, the means or tools with which US youth carry out their conflicts and aggression may be sufficiently different to explain the increased US mortality rate. Another possible explanation is that US youth may have different attitudes toward death and killing than adolescents in different countries. A recent report published by the World Health Organization[26] found that US youth were much more likely to justify killing to protect property than their European counterparts in Estonia, Finland, Romania, and Russia (54% vs 17%). Adolescents in the United States

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What This Study Adds

A significant body of information currently exists describing violent behavior in the adolescent population of the United States, yet violent behavior in adolescents outside and in relation to the United States is not well characterized. Comparison of violence-related behaviors in US youths with those of their peers in other countries can provide a context for the US findings. Our analysis found that for 3 violence-related behaviors—fighting, weapon carrying, and injuries from fighting—adolescents from 5 European countries were remarkably similar in terms of frequencies, whereas the results were not as uniform cross-nationally for involvement in bullying. This cross-national comparison allows circumspection on whether violent behavior in adolescence is more a function of environmental, cultural, and political influences or to what extent it is part of the normal developmental process of adolescence.

were also more likely to approve of war, indicating that US youth may have different attitudes toward violence and death than those in other countries.

These findings are particularly important in today's climate, in which violent behavior in youth has increased to epidemic proportions[27] and high-publicity school shootings in the United States and recently in Germany have raised public concern about teenage violence even further. Teenagers interviewed in a recent study posited that the strongest motivation for school shootings was revenge for having been "picked on, made fun of, or bullied."[28 (p6)] This is consistent with our finding that being bullied was one of the most highly associated factors with the expression of a violent behavior, fighting, in youths from all 5 of our study countries. We hope that the wide range of cross-national bullying rates indicates that country-specific factors, such as the sociopolitical environment, play a significant role in bullying prevalence and that intervention-prevention programs can reduce both adolescent bullying and its associated violence rates.

Accepted for publication January 29, 2004.

This study was supported by contract N01-HD-3272 from the National Institute of Child Health and Human Development, Bethesda, Md; the World Health Organization Regional Office for Europe, Copenhagen, Denmark; and the respective participating countries.

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