

# Intentional Injury in Young People in Vietnam: Prevalence and Social Correlates

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## ABSTRACT

**INTRODUCTION** Violent acts in young people constitute one of the most serious forms of violence in any society. Violence by young people in schools, on the streets, and in their families has been documented in many studies worldwide. Homicide and non-fatal assaults involving young people have been reported as a great global burden of premature death, injury and disability. Adolescents and young people are both the main victims and perpetrators of such violence. In Vietnam, an emerging pattern of health problems in adolescents related to intentional injury and violence is drawing increasingly more attention from government and the public.

**OBJECTIVE** Describe the situation of intentional injury among Vietnamese youth, including risk and protective factors, in order to suggest policy implications.

**METHODS** The 2003 Survey Assessment of Vietnamese Youth was used as a data source, providing a nationally representative sample of 7584 youth aged 14–25 years, resident in 42 of the country's 61 provinces. This sample was drawn from the 45,000 households in the 2002 Vietnam Living Standards Survey, with a multi-staged and stratified design, using the probability-proportional-to-size method to maintain representativity. Data were analyzed using bivariate and multivariate statistical techniques.

**RESULTS** Of the sample of young people, 2.2% reported injury resulting from violent behavior by a family member and 8.0% by non-family members, the latter demonstrating a significantly higher rate among males than females (13.6% vs. 2.4%). Characteristics of youth most likely to hurt others included: male sex, inebriation at some point, victims of intentional injury, group riot participants and carriers of weapons. Youth who had been members of mass social organizations or clubs in the community were half as likely to hurt other people as those who were unaffiliated with such groups. Females were almost four times more likely than males to attempt suicide. Other risk factors for suicide attempts were past inebriation (OR 2.7, 95% CI 1.3–5.4), ever having been a victim of intentional injury by a family member (OR 3.3, 95% CI 1.1–11.5) or ever having had feelings of hopelessness (OR 6.5, 95% CI 3.3–13.6).

**CONCLUSIONS** Prevalence of violence and self-harm among Vietnamese youth is comparatively less than in Western and other Asian countries. Risk and protective factors appear similar to those found in most populations. In particular, this study indicated a possible protective effect of membership in social groups. National policy for injury prevention should include strategies to reduce violence and self-harm within this population group.

**KEYWORDS** Adolescent; youth; adolescent behavior; risk factors; violence; domestic violence; suicide; suicide, attempted; suicidal ideation; Vietnam

## INTRODUCTION

Violent acts in young people are among the most serious forms of violence in any society. Adolescents and young people are both the main victims and perpetrators of such violence.[1] Violence in schools or by young people on the streets or in their families has been documented in many studies worldwide. Homicides and non-fatal assaults involving young people contribute substantially to the global burden of injury-related death and disability.[1,2]

Krug et al. classified violence as follows: 1) self-directed violence, or violence in which the perpetrator is the victim (e.g. suicide); 2) interpersonal violence, or violence inflicted by another individual or a small group of individuals; and 3) collective violence, or violence committed by larger groups, such as states, organized political groups, militia groups, and terrorist organizations.[3] The first two categories are the main theme of this paper.

Many studies in the West have shown the burden of interpersonal injury. A study in Israel of youth aged <18 years reported an annual incidence of violent injuries requiring emergency room treatment of about 0.2%. The same study reported youth homicide rates of 0.0013% in males and 0.0004% in females.[4] Injuries were found to be among the leading causes of death in Jamaica where homicide rates have been sharply increasing since 1991; in 1997, the homicide rate in Jamaica was over five times the US rate (45 per 100,000 vs. 7.9 per 100,000).[5]

In Asia, Lee's 2007 study of secondary school students in Malaysia found that 27.9% of students had been involved in a physical fight; 6.6% had been injured in a fight; 5.9% had carried a weapon; and

7.2% had felt unsafe in the previous 12 months (data collected in 2001). Adolescents who carried weapons to school, smoked, used drugs, felt sad or hopeless, and were truant were more likely to be involved in physical fights after adjusting for age, sex, and ethnicity.[6]

Globally, the following interpersonal violence risk factors have been suggested: a) individual characteristics (some personality and behavioral factors that may predict youth violence are hyperactivity, impulsiveness, poor behavioral control and attention problems); b) negative parental behavior and family environment; c) peer influences during adolescence (generally considered positive and important in shaping interpersonal relationships, but also with potentially negative effects); d) local community factors (gangs, riots, carrying weapons, instability); and e) broader social environment: poor social integration within a community, limited community participation, income inequality and negative social changes.[3]

Suicidal thoughts and attempts are the most common objects of research regarding self-inflicted injury. A study of adolescents aged 12–17 years in Hong Kong found suicidal behavior in 3.4% of boys and 14.1% of girls.[7] In Liu's study of high school students in China, 19% of the sample reported suicidal ideation and 7% reported attempting suicide during the previous 6 months.[8] Chen's study in Malaysia showed that from 4.7% to 16% of females vs. 2.4% to 11.4% of males among different racial and ethnic groups attempted suicide.[9] Risk factors found in this study mainly included female sex, depression, feeling hopeless or unsafe, and alcohol consumption.

In Vietnam, the pattern of intentional injury and violence as an emerging health problem in adolescents is drawing increasing

governmental and public attention. The 2001 Vietnam Multi-center Injury Survey (VMIS)—the first nationally representative community-based study of its kind—revealed that injury accounted for 70% of years of potential life lost in people aged <20 years, compared to 17% due to chronic non-communicable diseases and only 13% from infectious diseases.[10] VMIS showed that 95% of nonfatal injuries in the same age group were unintentional and 4% were intentional, with 1% being of undetermined intent. About 28% of fatal injuries in this age group were intentional and the rest (71%) unintentional.[10] However, due to limited size of the sample surveyed, VMIS findings cannot provide more details about patterns in adolescent and young adult age groups, nor about intentional interpersonal and self-inflicted physical injuries.

Other smaller-scale surveys in Vietnam focused mainly on spousal violence toward women in rural families. It was found that 9.2% of the women had been exposed to physical or sexual violence during the previous 12 months; of these, 32.1% had been subjected to one or more controlling behaviors by their partners. The authors concluded that physical or sexual violence combined with control tactics acted synergistically to worsen rural Vietnamese women's health.[11]

Recognizing the increasing burden of injury, in December 2001, the Vietnamese government established the first national policy on injury prevention, the National Policy on Accident and Injury Prevention: Phase 2002–2010.[12] The goal was to reduce accidents in school, at work, at home, and in the community by the year 2010. It is noted that this policy only addresses unintentional injury and accident prevention (the formal terminology in Vietnamese—*tai nan thuong tich*—translates into English as “accident-injury,” which may imply that the event could not have been prevented).

However, until the current study, there were no national-level data to provide a comprehensive understanding of the burden of intentional injury and violence in Vietnamese youth. The opportunity for such an analysis arose with the advent of the 2003 Survey Assessment of Vietnamese Youth (SAVY), carried out by the Vietnamese Ministry of Health in collaboration with WHO and UNICEF. It was the largest and most comprehensive survey of youth ever undertaken in Vietnam and the first national survey to provide a comprehensive description of the private and social life and health problems of Vietnamese adolescents and youth.

The objective of this research is to describe the status of intentional injury among Vietnamese young people, particularly interpersonal violence and self-harm, with a view to identifying implications for national injury prevention policies.

### METHODS

**Sampling scheme and sample size** A nationally representative sample of youth (aged 14–25 years), living in households in all eight economic regions of Vietnam, was drawn from the 45,000 households in the 2002 Vietnam Living Standards Survey (VLSS), with a multi-staged and stratified design. The largest cities (Hanoi and Ho Chi Minh City) were over-sampled to achieve increased statistical power in that segment of the total youth population. Specifically, in 2003, 42 provinces including 1643 census enumeration areas (EA) were selected (out of 61 provinces with 2250 EAs) for the SAVY sample, using the probability-

proportional-to-size method to maintain representativity. At the next stage of sampling, EAs in each province were selected, in which all youth aged 14–25 years (by January 2003) were then identified—i.e., those born between 1978 and 1989—males and females, married and unmarried. In total, 446 EAs were finally selected for the SAVY sample; these contained 8920 households corresponding to a population of 40,140 inhabitants (about 4.5 persons per household). As youth aged 14–25 years accounted for 24.5% of the total population of Vietnam (the figure in the 1999 census—the most recent census data available at the time), the anticipated number of youth in the SAVY sample was approximately 9835. SAVY data collection in the field found that, among those youths registered by local authorities, 85% were actually present in their households.

Young people were invited to go to a central location to complete a face-to-face interview and a self-administered survey. Among those who appeared for the interviews, refusal to participate was virtually nil, and 7584 interviews were thus completed.

Local district statistics staff were mobilized to work as field interviewers and trained before initiating data collection. They were experienced surveyors close in age to the interviewees. Interviewers were matched with interviewees by sex and sat with them side-by-side to conduct the interviews—a method previously tested during pilot and training phases. Interviewers also checked respondents' ability to self-complete the sensitive part in the self-administered section, through interviewing and checking levels of education, and gave clear instructions on how to fill in the questionnaire before giving it to the respondent.[13]

The sample provided sufficient cases for analysis at the national level according to rural and urban populations, and by gender; as well as for region-by-region analysis. A weighting scheme was developed to allow the statistical analysis to take into account sampling design issues.

**Questionnaire** Adolescence is often characterized as the search for the answer to one key question: “Who am I?” In their struggle to define their identities and their journey through these transition years, adolescents build up their own system of values, perceptions and life skills. They also have to deal with many physical, emotional, and social changes. Therefore, SAVY applied a framework of risk and protective factors in which several domains were taken into account: individual characteristics (age, sex, family socioeconomic status, urban/rural, ethnic groups, etc.); family (parental relationship, parental controls); and peers (peer pressure in taking risky behaviors, peers who had displayed violence, participation in gang activities, carrying weapons).[14]

The survey questionnaire was completed in two parts: a face-to-face interview followed by a self-administered section on sensitive topics, including behaviors related to violence and drug use. Questions covered a wide range of topics, including demographic data and basic questions on lifetime experiences of injury and violence. After completion of the questionnaire, the interviewer had the respondent place both portions in an envelope, seal it, and deposit it in a box provided.

In addition to questions about victimization and whether the young person had ever hurt anyone badly enough to require medical attention, SAVY also collected information on other vi-

olent behaviors, including gang membership, participation in a group riots, motorcycle racing, and carrying a weapon. The following questions on interpersonal injury were included in the self-administered portion of the questionnaire:

1. Have you ever been injured as a result of violence from a family member?
2. Have you ever been injured as a result of violence outside your home?
3. Have you ever hurt someone badly enough to require medical attention?
4. Have you ever carried a weapon?
5. Have you ever taken part in a group riot?
6. Have you ever taken part in motorcycle racing?

Response options were dichotomous, yes or no. The first two questions were used as outcome (dependent) variables to indicate whether the respondent had ever been a victim of a violent act. The third question was used as an outcome variable to indicate whether the respondent had caused injury to others. The last three questions were used as independent variables indicating risky behaviors.

For self-inflicted intentional injury, the following questions were included in the self-administered portion of the questionnaire. They were then used as binary outcome variables for self-inflicted behaviors:

1. Have you ever intentionally injured yourself?
2. Have you ever thought of suicide?
3. If yes, have you ever attempted suicide?

**Statistical approach and variables** SPSS package version 12.0 was used for data management and manipulation. Data were weighted during analysis to adjust for complex sampling design, making the results nationally representative; then analyzed using univariate, bivariate, and multivariate statistical techniques. In the descriptive univariate and bivariate analysis phase, demographic variables (age group, gender, urban/rural, ethnicity, socioeconomic status) were analyzed in relation to outcome variables of interest (interpersonal injury and self-harm). These variables were then put into two different logistic regression models to identify predictors of intentional injury to others and attempted suicide.

The following independent variables were examined in the logistic regressions:

- Socioeconomic and demographic variables: age group, gender, urban/rural, ethnicity, educational level, household economic status;
- Family domain: living with or away from parents, death of one or both parents, parental death during childhood, parental divorce, alcohol use in the family, feeling valuable to the family, ever injured as a result of family violence; peer and friend or community domain: social isolation (having no friends), ever injured as a result of violence outside home, membership in mass social organization or club (the specific question in the questionnaire: *Are you a member of any mass social organization or clubs in your community?*);
- Emotional life and personal behaviors: whether the person had ever been drunk, felt hopeless about the future, taken part in group riot, participated in motorcycle racing, carried a weapon, or used opium.

Several logistic regressions were performed in a stepwise manner, using  $p > 0.05$  as the cutoff for significance to enter a variable in the model and  $p > 0.10$  as the cutoff to drop a variable. The models included potential risk and protective factors selected based on the literature of the risk and protective conceptual framework described above, not merely on the significance they had in bivariate analysis. Final regression models were saved and the Hosmer–Lemeshow goodness-of-fit chi square test performed,[15] specifying  $p > 0.05$  as the significance level to be considered a good fit.

**Ethical considerations** All respondents provided written informed consent. No names or identifying data were attached to either the record of the face-to-face interview or the self-administered portion. The procedure for collecting forms reassured respondents of the privacy of their responses on the written part of the questionnaire. The study was approved by the Scientific Council of the Ministry of Health of Vietnam.

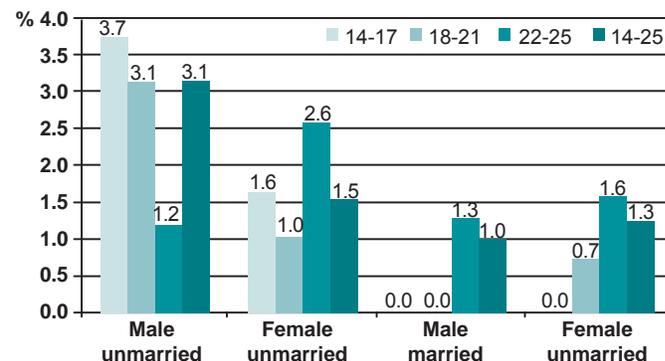
## RESULTS

**Family violence and correlates** Although there were no specific questions on violence severity, SAVY included questions about youth injury by a family member. Overall lifetime prevalence was 2.2%, tending to be higher at younger ages: 2.7% in youth aged 14–17 years; 2% in those aged 18–21 years; and 1.6% in those aged 22–25 years. In males 14–17 years, 3.7% had been physically abused; 3% of those aged 18–21 years; and 1.2% of those aged 22–25 years. Lifetime prevalences of family violence experienced by females were 1.6%, 1% and 2% in these age groups, respectively.

Overall, male youths reported suffering more violence than females and unmarried more than married (Figure 1). Whether a youth had ever been hit by family members differed between rural and urban settings; in bivariate analysis, urban youth were found to be 50% more likely to be injured by family members than their rural counterparts, although overall rates for both were low (3% and 2%, respectively). There were no significant differences by ethnic group or socioeconomic status.

SAVY also explored the lifetime prevalence of youth ever physically abused by a spouse and found a higher prevalence in females compared to males (6.5% in married females aged 14–25 years vs. 2.8% in males). The overall prevalence was 5.2% of the SAVY married sample (both sexes), higher than prevalence of injury by other family members indicated above. Prevalence was

**Figure 1: Lifetime report by Vietnamese youth of injury by a family member (by marital status, age, and gender)**



highest in married females aged 22–25 years (8.2%). Husbands constituted 17.5% of victims of spousal violence and wives 82.5%.

Disaggregation by victim educational level suggested that the higher the education level the less likely a young person was to be physically abused by their spouse. Prevalence in those entirely without schooling was 7.9%; in those who completed elementary school, 6.4%; in those who completed secondary (junior high) school, 4.6%; and in high school graduates, 3.8%. There were no reports of spousal violence toward those at college or other higher educational levels.

**Occurrence and correlates of violence outside the home** Overall, 8% of the sample had been victims of violence outside the home (13.6% of males and 2.4% of females), prevalence ranging from 6.9% to 9% across age groups and, not unexpectedly, significantly higher in males than in females (13.6% vs. 2.4%). No difference was observed between urban and rural males (13.9% and 13.6%, respectively).

Overall, only a small proportion of youth had participated in motorcycle racing (1.2%) or group riots (2.5%); the proportion who had ever carried a weapon was 2.3%. Only 1.4% had ever injured someone seriously enough for the victim to seek medical care (2.4% for males and 0.3% for females). Young males were the main perpetrators of these behaviors; for example, 2.1% of male respondents had participated in motorcycle racing vs. only 0.4% of females. Among males, this rate was highest in those aged 18–21 years (2.9%), followed by those aged 22–25 years (2.6%) and only 1.2% in those aged 14–17 years. Similarly, the proportion of males ever participating in a group riot was 4.5%, compared to 0.4% of females.

Bivariate analysis showed an association between violence and other risk behaviors in these youth. A young person who reported past inebriation was 4 times more likely to have hurt someone seriously enough to require treatment, compared to peers who had never been drunk (2.9% vs. 0.7%,  $p < 0.01$ ). Those who had been intentionally injured by a family member were 4.4 times more likely than those who had not to cause serious injury to others ( $p < 0.01$ ).

Significant predictors of violence toward others in the final regression model are presented in Table 1. Similar to bivariate findings, multivariate regression revealed a higher risk of violent behavior among male youth compared to females (OR 3.6, 95% CI 1.8–7.2). Past inebriation was a significant predictor of violence toward others (OR 1.6, 95% CI 1.1–2.5). Ever having been injured by others increased the likelihood of injuring someone seriously almost fourfold (OR 3.6, 95% CI 2.3–5.8). Participation in a group riot and carrying a weapon increased likelihood of seriously injuring someone else by 6.5 times (95% CI 3.8–11.2) and having carried a gun, 4.1 times (95% CI 2.3–7.3).

There was a small group of young people who were involved with a cluster of high-risk and very violent behaviors. That

**Table 1: Logistic regression model for lifetime report of intentional injury to others by Vietnamese youth (n=7377)**

Predictors (independent variables)	B coefficient	Standard Error	p Value	OR	95% CI
<b>Gender</b>					
Male	1.288	0.350	0.0002	3.6	1.8–7.2
Female*	—	—	—	1	
<b>Had ever been drunk</b>					
Yes	0.468	0.231	0.0432	1.6	1.1–2.5
No*	—	—	—	1	
<b>Had ever been injured by violence outside home</b>					
Yes	1.295	0.234	0.0001	3.6	2.3–5.8
No*	—	—	—	1	
<b>Had ever taken part in group riot</b>					
Yes	1.875	0.276	0.0001	6.5	3.8–11.2
No*	—	—	—	1	
<b>Had ever carried a weapon</b>					
Yes	1.410	0.295	0.0001	4.1	2.3–7.3
No*	—	—	—	1	
<b>Member of mass social organization or club in the community</b>					
Yes*	—	—	—	1	
No	0.691	0.234	0.0031	2.0	1.3–3.2

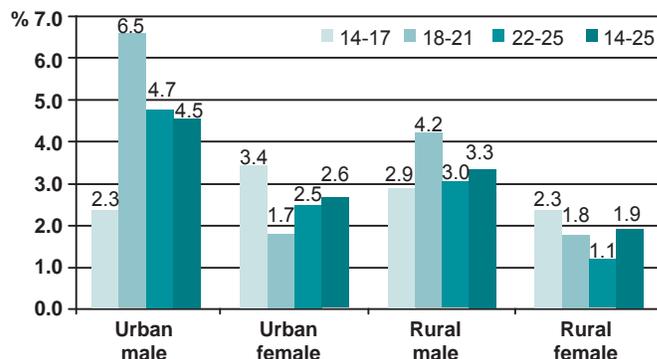
Goodness-of-fit Hosmer & Lemeshow test  $\chi^2 = 4.991$ ;  $df = 6$ ;  $p = 0.545$

\* Reference group — Not applicable

said, there was also one apparent protective factor: participation in community services or clubs. Youth who did not belong to such organizations were twice as likely to seriously injure others (OR 2.0, 95% CI 1.3–3.2) as those who did. Ethnicity, location, region or socioeconomic status were not significant factors.

**Self-inflicted injury, suicide attempt and correlates** In this sample, 2.8% of youth had tried to injure themselves; 3.4% had thought of suicide and, among those, 14.7% had actually attempted suicide. That is, about 0.5% of one percent of all youth in Vietnam reported having attempted suicide (0.5%). Important differences were found between males and females, and between rural and urban settings (Figure 2).

**Figure 2: Lifetime report by Vietnamese youth of self-inflicted harm (by age group and residence)**

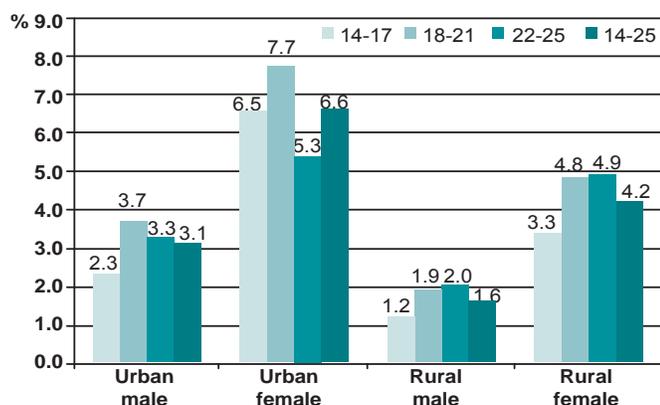


The highest prevalence of history of self-inflicted injury was seen in urban males aged 18–21 years (6.5%), followed by urban males aged 22–25 years (4.7%) and rural males aged 18–21 years (4.2%). In both rural and urban settings, males were more likely than females to have injured themselves intentionally. In contrast, a history of suicidal ideation was less prevalent in males than in females (1.9% vs. 4.8%), somewhat higher in urban than in rural areas (3.1% in urban males and 6.6% in urban females vs. 1.6% in rural males and 4.2% in rural females) (Figure 3).

Although attempted suicide was rare in both sexes, females were more likely than males to have thought of suicide and to have attempted it. Prevalence of a history of attempted suicide in females was 0.7% vs. 0.3% in males ( $p < 0.01$ ) and higher in married youth than in their single counterparts (0.9% vs. 0.4%,  $p < 0.05$ ), particularly in female respondents (1.4% vs. 0.6%,  $p < 0.05$ ).

To identify predictors of self-inflicted violence, a logistic regression model was constructed using the following sets of variables: socioeconomic and demographic variables, family domain, peer and friend or community domain, emotional life, and personal behaviors.

**Figure 3: Lifetime report by Vietnamese youth of suicidal thought (by gender, age group, and residence)**



**Table 2: Logistic regression model for lifetime report of attempted suicide by Vietnamese youth (n=7382)**

Predictors (independent variables)	B Coefficient	Standard Error	p Value	OR	95% CI of OR
<b>Gender</b>					
Male*	—	—	—	1	
Female	1.293	0.444	0.003	3.6	1.5–8.5
<b>Past inebriation</b>					
Yes	0.993	0.375	0.008	2.7	1.3–5.4
No*	—	—	—	1	
<b>Past injury by family members</b>					
Yes	1.206	0.608	0.047	3.3	1.1–11.5
No*	—	—	—	1	
<b>Past feelings of hopelessness</b>					
Yes*	1.871	0.369	0.0001	6.5	3.3–13.6
No	—	—	—	1	

Goodness-of-fit Hosmer & Lemeshow test  $\chi^2 = 5.433$ ;  $df = 8$ ;  $p = 0.710$   
 \* Reference group — Non applicable

Four variables were found to be associated with attempted suicide (Table 2). Similar to the results of bivariate analysis, multivariate regression indicated a higher risk of attempted suicide among females compared to males (OR 3.6, 95% CI 1.5–8.5). Past inebriation was also a significant predictor of attempted suicide (OR 2.7, 95% CI of 1.3–5.4). Unlike the model predicting injury against others, in this model we found past injury by a family member to be strongly associated with attempted suicide (OR 3.3, 95% CI 1.1–11.5). Additionally, having had feelings of hopelessness and emptiness and of having no future career path were associated with a 6.5 times greater risk of attempting suicide (95% CI 3.3–13.6).

**DISCUSSION**

It is noteworthy that this sample did not include youth living in special arrangements, such as armed forces, re-education centers, social protection centers, prisons, factories and college/university dormitories. In addition, as described by the General Statistics Office in their survey report, SAVY has certain characteristics that could lower participation rates, particularly considering that its sampling frame was derived from another survey using household lists created one year earlier, that local people’s committees were asked to mobilize youth, and that the younger population experiences relatively high rates of geographic mobility.[13]

SAVY data revealed a rather low prevalence (2.2%) of violent behavior in the family compared to neighboring countries and some Latin American countries.[5,16] Only 2.2% of youth reported past injury from family violence, with a higher prevalence in males than in females. As mentioned above, the proportion of male youths who had been physically abused at home decreased with age, but increased in females aged 18–21 and 22–25 years. One possible explanation is that unmarried males in the older age groups are less likely than their female age peers to live at home. They may well move out for job or education opportunities, while females of the same age often remain at home, more vulnerable to violent acts by parents and other family members. The prevalence of suffering intentional injury by others outside the home was 8% among Vietnamese youth, and significantly higher in males than in females. However, only 1% of respondents reported having hurt other people seriously enough to require medical attention. Youth most likely to hurt other people were: male sex, those who had ever been drunk, those who had been injured intentionally by others, those who took part in group riots, and those who carried a weapon, as revealed in the logistic regression model.

Interestingly, youth who were members of mass social organizations or clubs in the community were less likely to hurt other people. Although the question in the SAVY questionnaire is rather vague (*Are you a member of any mass social organization or clubs in your community?*), this provides a starting point to explore the possibility that participation in local organizations may have a protective effect with respect to violence. In the Vietnamese context, such organizations could include the local Youth Union and other young people’s clubs. The literature has not reported this specific possible protective factor in the Vietnamese context, although it has been observed elsewhere.[1,16]

Gang membership, participation in a group riot, motorcycle racing, and carrying a weapon have been reported worldwide as risk factors for interpersonal violence by youth.[6] Such behaviors are prohibited by Vietnamese law. Overall, only a small proportion of youth had participated in motorcycle racing or group riots (1.2% and 2.5%

respectively); the proportion of youth who had ever carried a weapon was 2.3%, lower than in most other studies worldwide.[5,6]

In the context of marriage, the lifetime prevalence of experiencing physical spousal abuse was 5.2% (both sexes), higher in females (6%) than in males (2.8%). This was higher than the prevalence of injury by other family members as mentioned above. Prevalence was highest in married females aged 22–25 years (8.2%). So, even though domestic violence was not found to be common in the Vietnamese family, women were at higher risk, particularly those aged 22–25 years. The rate found in SAVY was comparable to other studies of domestic violence in Vietnam. Krantz et al. found that 9.2% of 883 rural married women studied had been exposed to physical or sexual violence during the preceding 12 months.[11] SAVY data could not provide data for comparison among married women exposed to physical violence in the previous 12 months, since questions only asked for lifetime experiences. Studies in Vietnam have usually focused exclusively on female victims; SAVY is the first Vietnamese study to report the proportion of married male victims of spousal violence.

Our study found Vietnam to have one of the lowest rates of youth suicide attempts in the world.[1] In Asia, higher rates have been found in China, Malaysia, and Hong Kong.[8,9,17] In contrast to the pattern for intentional violence directed toward others, female respondents were found to be more likely to have suicidal ideation and to attempt suicide than were their male peers. Prevalence of attempted suicide was higher in married than single youth, particularly in female respondents (1.4% vs. 0.6%). This may indicate that difficulties and problems in married life have a greater negative influence on the young wife's emotional and psychological state than on that of her husband. However, the fact that married respondents were usually older could also contribute to this result.

Self-harm was more common in urban than in rural areas. Alcohol use seemed to be a strong predictor of both violence

against others and self-harm. However, in contrast to the finding for violent acts against others, having been injured by a family member was strongly associated with attempted suicide. Group violence and carrying a weapon were the strongest predictors of violent behavior toward others, while domestic violence and unhappy emotional life put youth, particularly young girls, at a higher risk of attempted suicide. These risk factors have been observed in similar studies in other countries.[7]

Some limitations of this study should be noted. The cross-sectional nature of SAVY does not allow us to further analyze possible causal relationships among the variables. Thus, it is not possible to understand clearly the complexity of the associations observed. For example, a young girl in a highly violent family may be beaten frequently resulting in feelings of hopelessness; she may then try alcohol and get drunk, and subsequently attempt suicide. This series of events cannot be documented in SAVY; however, similar associations and progressions have been described in other research from around the world on adolescent suicide.[7] The long recall period is also a potential source of bias. Since the questionnaire only posed questions about lifetime experiences, we were unable to calculate frequency or incidence.

## CONCLUSIONS

SAVY data revealed a rather low rate of violent behavior in families and intentional injuries caused by others. Several risk and protective factors were found. Alcohol use was related to both violence against others and self-inflicted harm. National policies for injury prevention would be more comprehensive if they addressed intentional injury and violence issues as well as unintentional injuries, with alcohol control as a key component. Promoting local youth involvement, enabling them to take part in useful social events and activities, and to participate in local mass organizations could decrease the risk of violent behavior in youth, resulting in safer communities. 

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