

## Violence-Related Behaviors and Self-inflicted Injuries Among 15-18 Year Old Iranian Adolescents

In this population-based cross-sectional study, we determined the prevalence of intentional injuries and associated factors among 1201 adolescents in Tehran, Iran. Overall, 63.9% of adolescents had at least one intentional injury behavior which was significantly higher in males. Gender preference for males by parents, very high or very low supervision, waterpipe smoking, and alcohol consumption were significantly associated with injuries in females. In addition, poor wealth index, parental punishment and smoking were incriminating factors in males.

**Key words:** *Adolescents, Behavior, Intentional injuries, Iran.*

We conducted this cross-sectional study to determine the prevalence of intentional injuries (violence-associated behaviors and self-injury) and their association with socio-demographic characteristics among 1201, 15-18 years old adolescents in Tehran, Iran. For collecting the data, 'Violence and Intentional Injuries' questions of the Youth Risk Behavior Surveillance System were used. The Ethics Committee of Tehran University of Medical Sciences

approved the protocol of the study. The sampling method was multi-stage random cluster sampling. Data were analyzed using SPSS software (Ver 16.0) and STATA (Ver 10). The univariate analysis and multivariate logistic regression analysis were applied.

The mean age of participants (609 females) was 16.74 (1.09). The prevalence of violence-associated behaviors and self-injury in both genders is presented in **Table I**. Overall, 63.9% of studied adolescents had at least one intentional injury behavior which was significantly higher in males than females ( $P < 0.0001$ , OR = 2.52, 95% CI = 1.97-3.22). Gender preference for males by parents [AOR: 1.77]; very high or very low parental supervision [AOR: 2.96 and 2.51]; making decisions in the family only by the father [AOR: 3.79]; adequate family income [AOR: 0.32]; lifetime water pipe smoking [AOR: 3.32]; and alcohol consumption [AOR: 21.24] were factors significantly associated with intentional injuries in females. In addition, poor wealth index [AOR: 3.42], having been punished by parents [AOR: 0.27] and lifetime water pipe smoking [AOR: 2.98] were factors significantly associated with intentional injuries in males.

In public high school students of Tehran, the rate of intentional injuries has been reported to be 58.5% [1]. It seems that the cause of the higher prevalence of such

**TABLE I** VIOLENCE-RELATED BEHAVIORS AND SELF-INFLICTED INJURIES AMONG ADOLESCENTS

Violence-related behaviors and self-inflicted injuries	Female <i>n</i> =609		Male <i>n</i> =592		Total <i>n</i> =1201		<i>P</i> value
	%	CI	%	CI	%	CI	
Carrying a cold weapon*	15.2	18.26-20.40	20.7	17.45-24.13	18	15.85-20.28	0.007
Staying at home because of feeling*	20.6	17.53-24.15	15.1	12.15-18.11	17.9	15.73-20.18	0.01
Being threatened or beaten with cold weapon*	7.9	5.60-9.96	20.7	17.51-24.21	14	12.11-16.13	0.000
Taking part in a physical fight*	18.4	15.42-21.77	48	43.90-52.17	33	30.32-35.75	0.000
Being injured in physical fight and referring to a healthcare center*	21.9	14.72-30.65	29	23.77-34.74	27	31.65-22.64	0.15
Being hit, slap, or physically hurt by a boyfriend or girlfriend <sup>#</sup>	5.8	4.04-7.91	4.8	3.20-6.84	5.3	4.10-6.74	0.48
Being physically forced into sexual relationship	7.5	5.53-9.92	4.4	2.89-6.47	6	4.72-7.54	0.03
Exposure to bullying by others <sup>#</sup>	12	9.53-14.86	24.6	21.17-28.31	18.2	16.04-20.50	0.000
Feeling despair and sadness <sup>#</sup>	42.2	38.18-46.27	44.3	40.17-48.39	43.2	40.36-46.09	0.47
Having suicidal thoughts <sup>#</sup>	16	13.16-19.18	11.1	8.63-13.87	13.6	11.65-15.63	0.008
Having a serious plan for suicide <sup>#†</sup>	42.2	31.88-53.09	64.1	51.10-75.68	51.3	43.12-59.42	0.01
Trying suicide <sup>#†</sup>	38	28.11-48.76	38.1	26.14-51.20	38.1	30.39-46.20	0.47

*During the last 30 days; <sup>#</sup>During the last 12 months; <sup>†</sup>Among the 26.6% of the adolescents who had the experience of smoking.*

behaviors in this study is due to differences in the studied population. The current study was home-based and all adolescents had the chance to participate in the study. Although the prevalence of violence-related behaviors in this study was lower than that of other parts of the world [2], the prevalence of some behaviors such as participation in physical fighting and being injured was higher than that of 12-19 year old students in Malaysia [3]. Consistent with other studies, the current results show that socio-demographic factors are effective factors in committing violence-related behaviors [3-5].

The obtained findings indicate high prevalence of intentional injuries among adolescents, particularly males. Since numerous studies report effectiveness of rage control programs in preventing violence, planning for such programs and workshops can have a significant role in decreasing violent behaviors among adolescents.

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#### REFERENCES

1. Garmaroudi GHR, Makarem J, Alavi S. Health related risk behaviors among high school students In Tehran, Iran. *Payesh*. 2010;9:13-9.
2. Grunbaum JA, Lowry R, Kann L, Pateman B. Prevalence of health risk behaviors among Asian American/Pacific Islander high school students. *J Adolesc Health*. 2000;27:322-30.
3. Lee L, Chen PCY, Lee K, Kaur J. Violence-related behaviours among Malaysian adolescents: a cross sectional survey among secondary school students in Negeri Sembilan. *Ann Acad Med Singapore*. 2007;36:169.
4. Bergen GS, Statistics NCFH. Injury in the United States: 2007 chartbook: US Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics; 2008.
5. McQuillan R, Campbell H. Gender differences in adolescent injury characteristics: a population-based study of hospital A&E data. *Public Health*. 2006;120: 732-41.

## Etiology of Acute Bacterial Meningitis in Hospitalized Children in Western Uttar Pradesh

We retrospectively studied clinical and etiological profile of acute bacterial meningitis in hospitalized children for two consecutive years at a pediatric hospital in western Uttar Pradesh. Etiological diagnosis could be made in 30 (44.8%) out of 67 cases with either culture or latex agglutination test. Pneumococcus was the commonest pathogen found in 17 (25. 4%) cases. The overall mortality was 10. 5%.

**Key words:** *Epidemiology, Pneumonococcus, Pyogenic Meningitis.*

There is a paucity of data on etiology of acute bacterial meningitis (ABM) in different regions of the country. In this retrospective study, we report the etiology and outcome of children with ABM hospitalized in a

secondary care private sector pediatric hospital in Western Uttar Pradesh.

All children above 1 month of age, admitted from January 2009 through December 2010, with clinical and laboratory evidence of ABM were included. Cases were categorized as 'suspected', 'probable' and 'confirmed' ABM based on published criteria [1]. Cerebrospinal fluid (CSF) culture and latex agglutination test (LAT) were done to identify etiological agents.

Among 3543 admissions, 67 (1.9%) met the inclusion criteria of probable ABM cases; 46 (68.7%) were males. Thirty-six cases had cell CSF count <100 and therefore not included in this analysis. History of immunization was available in only 10 cases; however, none had received Hib or pneumococcal vaccines. The mean (SD) age of children was 41.5 (± 26.9) months. Seasonality was evident as 41 (61.2%) cases occurred during September to November. Fever (91%), altered sensorium (62.7%), vomiting (50.8%), seizures (47.8%) and refusal of feeds (23.9%)