

Frequency of Aggressive Behaviors in a Nationally Representative Sample of Iranian Children and Adolescents: The CASPIAN-IV Study

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ABSTRACT

Background: This study aims to explore the frequency of aggressive behaviors among a nationally representative sample of Iranian children and adolescents.

Methods: This nationwide study was performed on a multi-stage sample of 6–18 years students, living in 30 provinces in Iran. Students were asked to confidentially report the frequency of aggressive behaviors including physical fighting, bullying and being bullied in the previous 12 months, using the questionnaire of the World Health Organization Global School Health Survey.

Results: In this cross-sectional study, 13,486 students completed the study (90.6% participation rate); they consisted of 49.2% girls and 75.6% urban residents. The mean age of participants was 12.47 years (95% confidence interval: 12.29, 12.65). In total, physical fight was more prevalent among boys than girls (48% vs. 31%, $P < 0.001$). Higher rates of involvement in two other behaviors namely being bullied and bullying to other classmates had a higher frequency among boys compared to girls (29% vs. 25%, $P < 0.001$ for being bullied) and (20% vs. 14%, $P < 0.001$ for bullying to others). Physical fighting was more prevalent among rural residents (40% vs. 39%, respectively, $P = 0.61$), while being bullied was more common among urban students (27% vs. 26%, respectively, $P = 0.69$).

Conclusions: Although in this study the frequency of aggressive behaviors was lower than many other populations, still these findings emphasize on the importance of designing preventive interventions that target the students, especially in early adolescence, and to increase their awareness toward aggressive behaviors. Implications for future research and aggression prevention programming are recommended.

Keywords: Bullying, children and adolescents, Iran, physical fight, prevalence, violence

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INTRODUCTION

Aggression and violence are considered as important public health issues worldwide.^[1,2] Physical fighting and bullying can be defined as two main manifestations of aggressive behaviors. Bullying represents as a repetitive physical or psychosocial force usually exerted by a stronger person, and could lead to unbalanced power

between bully and victim.^[3-5] Bullying and physical fight are reported to be frequent behavioral disorders in early adolescence.^[6-8]

Exposure to bullying predisposes individuals to both short- and long-term physical and psychological symptoms. In addition to its short-term effects as somatic symptoms, anxiety, depression and social problems,^[3] exposure to bullying during childhood and adolescence might lead to lower self-esteem, poor peer relationships and higher rates of depression in adulthood.^[9-11]

Although bullying and fighting are happening globally, the current literature indicates large variation in their prevalence rate across the world. As an example, 6.3% girls in Sweden and 41.4% of boys in Lithuania reported the experience of bullying.^[12]

The majority of research studies in this field are conducted in Europe and US,^[8,13,14] little information is available regarding the prevalence of aggressive behaviors in developing countries. The current study aims to investigate the frequency of aggressive behaviors including fighting, bullying and being bullied among a nationally representative sample of Iranian children and adolescents.

METHODS

This study was conducted as the fourth survey of a surveillance program entitled Childhood and Adolescence Surveillance and Prevention of Adult Non-Communicable Disease Study. It was conducted in 2011–2012 in urban and rural areas of 30 provinces in Iran. Study details and protocols are described elsewhere.^[15] Data were checked at the district level by expert academic supervisors (expert of school health), and controlled by national supervisors and operators. The study population consisted of students from three grades including elementary, middle-, and high-schools selected by multi-stage cluster sampling method (48 clusters of 10 students in each province). Students were asked to confidentially report the frequency of aggressive behaviors including physical fighting, bullying and being bullied in the previous 12 months. We used the questionnaire of the World Health Organization Global School Health Survey (WHO-GSHS) translated to Persian. The validity and reliability of questionnaires were confirmed previously.^[16]

Statistical analysis

Data were analyzed using STATA package (Release 12. College Station, TX: StataCorp LP. Package). All analyses were performed using survey analysis method. Mean, confidence intervals (95% CI) and percentages

were calculated for continuous and categorical variables, respectively. $P > 0.05$ was considered as statistically significant.

RESULTS

This cross-sectional nationwide study had a participation rate of 90.6%. They consisted of 49.2% were girls and 75.6% urban residents with mean (95% CI) age of 12.47 (12.29, 12.65) years.

Table 1 shows the main characteristics of study participants according to the three categories of aggressive behaviors. Table 2 demonstrates the prevalence of aggressive behaviors including involvement in physical fighting, being bullied and bullying to other students. In total, physical fight was more prevalent among boys than girls (48% vs. 31%, respectively, $P < 0.001$). Higher rates of involvement in two other behaviors namely being bullied and bullying to other classmates was documented among boys compared to girls (29% vs. 25%, respectively, $P < 0.001$ for being bullied) and (20% vs. 14%, respectively, $P < 0.001$ for bullying to others).

The prevalence of aggressive disorders was not significantly different in urban and rural residents. Physical fighting was reported in 40% of rural and 39% of urban residents ($P = 0.61$), while being bullied was reported in 27% of urban and 26% of rural students ($P = 0.69$). Physical fight was documented among 48% of urban boys compared to 47% of their peers in rural areas ($P = 0.70$).

Involvement in physical fight was more frequent among middle-school students (44%) compared to the students of other grades ($P < 0.001$). Being bullied and bullying to others were more prevalent among students of middle-school as well (29% and 21%, respectively, $P < 0.001$).

All three kinds of aggressive behaviors including physical fight (55%), being bullied (32%) and bullying to others (24%) was more frequent among boys of middle-schools compared to other grades (all $P < 0.001$, except for bullying to others with $P = 0.002$). The similar pattern was observed for middle-school girls who had 35% of physical fight, 27% of being bullied and 18% of bullying to other students in comparison to elementary and high-school girls.

DISCUSSION

The current study, which to our knowledge is the first of its kind in the Middle East and North Africa (MENA) region, was conducted to report the existence and

Table 1: Characteristics of participants according to aggressive behaviors: The CASPIAN-IV Study

| | Physical fight | P | Being bullied | P | Bulling to others | P |
|---------------------------------------|----------------|--------|---------------|--------|-------------------|--------|
| Age ^a (year) | | | | | | |
| Boys | 12.46 | 0.1 | 12.02 | 0.000 | 12.68 | 0.001 |
| Girls | 12.7 | 0.1 | 12.58 | 0.98 | 13.26 | <0.001 |
| Urban | 12.87 | 0.32 | 12.53 | <0.001 | 13.27 | <0.001 |
| Rural | 11.59 | 0.1 | 11.45 | 0.83 | 11.85 | 0.008 |
| Total | 12.55 | 0.1 | 12.27 | 0.002 | 12.92 | <0.001 |
| Height ^a (cm) | | | | | | |
| Boys | 148.75 | 0.09 | 146.38 | 0.000 | 150.20 | 0.001 |
| Girls | 146.97 | 0.004 | 146.28 | 0.29 | 150.00 | <0.001 |
| Urban | 150.28 | 0.001 | 148.19 | 0.005 | 152.38 | <0.001 |
| Rural | 141.37 | 0.011 | 140.53 | 0.42 | 143.29 | <0.001 |
| Total | 148.07 | <0.001 | 146.34 | 0.04 | 150.12 | <0.001 |
| Weight ^a (kg) | | | | | | |
| Boys | 43.48 | 0.19 | 41.13 | <0.001 | 44.69 | 0.003 |
| Girls | 42.52 | 0.03 | 42.23 | 0.21 | 45.17 | <0.001 |
| Urban | 45.33 | 0.014 | 43.50 | 0.002 | 47.20 | <0.001 |
| Rural | 36.38 | 0.063 | 35.74 | 0.74 | 37.86 | 0.001 |
| Total | 43.11 | 0.005 | 41.63 | 0.01 | 44.88 | <0.001 |
| BMI ^a (kg/m ²) | | | | | | |
| Boys | 18.85 | 0.069 | 18.44 | 0.002 | 19.09 | 0.006 |
| Girls | 19.12 | 0.116 | 19.19 | 0.04 | 19.67 | <0.001 |
| Urban | 19.39 | 0.11 | 19.18 | 0.20 | 19.80 | <0.001 |
| Rural | 17.63 | 0.16 | 17.52 | 0.79 | 17.87 | 0.03 |
| Total | 18.96 | 0.06 | 18.78 | 0.36 | 19.32 | <0.001 |
| WC ^a (cm) | | | | | | |
| Boys | 68.34 | 0.01 | 67.08 | 0.009 | 68.77 | 0.01 |
| Girls | 66.74 | 0.04 | 66.64 | 0.10 | 67.84 | <0.001 |
| Urban | 69.20 | <0.001 | 68.15 | 0.22 | 69.94 | <0.001 |
| Rural | 63.27 | 0.05 | 62.89 | 0.51 | 63.71 | 0.03 |
| Total | 67.73 | <0.001 | 66.88 | 0.47 | 68.40 | <0.001 |
| WHtR | | | | | | |
| Boys | 0.046 | 0.09 | 0.45 | 0.75 | 0.45 | 0.95 |
| Girls | 0.45 | 0.90 | 0.45 | 0.21 | 0.45 | 0.51 |
| Urban | 0.46 | 0.03 | 0.46 | 0.21 | 0.45 | 0.65 |
| Rural | 0.44 | 0.88 | 0.44 | 0.81 | 0.44 | 0.30 |
| Total | 0.45 | 0.10 | 0.45 | 0.22 | 0.45 | 0.87 |
| Abdominal obesity (%) | | | | | | |
| Boys | 0.50 | 0.17 | 0.29 | 0.88 | 0.20 | 0.83 |
| Girls | 0.32 | 0.49 | 0.26 | 0.36 | 0.14 | 0.64 |
| Urban | 0.42 | 0.01 | 0.28 | 0.50 | 0.18 | 0.29 |
| Rural | 0.40 | 0.91 | 0.28 | 0.57 | 0.15 | 0.31 |
| Total | 0.41 | 0.03 | 0.28 | 0.38 | 0.17 | 0.67 |
| Over weight (%) | | | | | | |
| Boys | 0.49 | 0.59 | 0.26 | 0.12 | 0.20 | 0.71 |
| Girls | 0.29 | 0.22 | 0.24 | 0.81 | 0.15 | 0.42 |
| Urban | 0.38 | 0.58 | 0.25 | 0.24 | 0.18 | 0.60 |
| Rural | 0.40 | 0.83 | 0.24 | 0.48 | 0.16 | 0.47 |
| Total | 0.39 | 0.51 | 0.25 | 0.18 | 0.17 | 0.89 |

Contd...

Table 1: Contd...

| | Physical fight | P | Being bullied | P | Bulling to others | P |
|-----------------------------|----------------|--------|---------------|-------|-------------------|--------|
| Obesity (%) | | | | | | |
| Boys | 0.49 | 0.73 | 0.29 | 0.84 | 0.22 | 0.21 |
| Girls | 0.35 | 0.02 | 0.29 | 0.01 | 0.16 | 0.15 |
| Urban | 0.42 | 0.03 | 0.29 | 0.07 | 0.19 | 0.04 |
| Rural | 0.47 | 0.03 | 0.30 | 0.33 | 0.21 | 0.17 |
| Total | 0.43 | 0.006 | 0.29 | 0.04 | 0.19 | 0.02 |
| Family size (% ≤4 person) | | | | | | |
| Boys | 0.49 | 0.29 | 0.30 | 0.03 | 0.20 | 0.56 |
| Girls | 0.29 | 0.01 | 0.25 | 0.43 | 0.14 | 0.41 |
| Urban | 0.39 | 0.14 | 0.28 | 0.16 | 0.17 | 0.61 |
| Rural | 0.42 | 0.03 | 0.28 | 0.06 | 0.19 | 0.09 |
| Total | 0.39 | 0.71 | 0.28 | 0.03 | 0.17 | 0.72 |
| SES (% low) | | | | | | |
| Boys | 0.47 | 0.27 | 0.29 | 0.23 | 0.20 | 0.04 |
| Girls | 0.33 | 0.000 | 0.24 | 0.69 | 0.13 | 0.87 |
| Urban | 0.39 | 0.04 | 0.26 | 0.54 | 0.17 | 0.20 |
| Rural | 0.41 | 0.62 | 0.27 | 0.89 | 0.17 | 0.7 |
| Total | 0.40 | 0.03 | 0.27 | 0.74 | 0.17 | 0.16 |
| Sleep duration ^a | | | | | | |
| Boys | 9.03 | 0.97 | 9.06 | 0.25 | 9.01 | 0.69 |
| Girls | 9.01 | 0.65 | 8.96 | 0.33 | 8.96 | 0.57 |
| Urban | 8.93 | 0.79 | 8.96 | 0.27 | 8.91 | 0.56 |
| Rural | 9.28 | 0.73 | 9.19 | 0.16 | 9.25 | 0.83 |
| Total | 9.02 | 0.46 | 9.02 | 0.82 | 8.99 | 0.57 |
| Physical activity (% mild) | | | | | | |
| Boys | 0.47 | 0.01 | 0.28 | 0.12 | 0.21 | 0.44 |
| Girls | 0.31 | 0.37 | 0.26 | 0.23 | 0.16 | 0.01 |
| Urban | 0.38 | 0.001 | 0.27 | 0.88 | 0.18 | 0.01 |
| Rural | 0.38 | 0.26 | 0.26 | 0.58 | 0.15 | 0.18 |
| Total | 0.38 | 0.000 | 0.27 | 0.90 | 0.18 | 0.10 |
| Computer usage (% >2 h/day) | | | | | | |
| Boys | 0.54 | 0.000 | 0.28 | 0.53 | 0.26 | <0.001 |
| Girls | 0.39 | 0.000 | 0.30 | 0.01 | 0.27 | <0.001 |
| Urban | 0.49 | 0.000 | 0.27 | 0.69 | 0.26 | <0.001 |
| Rural | 0.46 | 0.17 | 0.38 | 0.000 | 0.26 | 0.006 |
| Total | 0.49 | 0.000 | 0.29 | 0.14 | 0.26 | 0.000 |
| Screen time (% >4 h/day) | | | | | | |
| Boys | 0.55 | <0.001 | 0.29 | 0.90 | 0.25 | <0.001 |
| Girls | 0.38 | <0.001 | 0.29 | 0.000 | 0.24 | <0.001 |
| Urban | 0.48 | <0.001 | 0.28 | 0.18 | 0.24 | <0.001 |
| Rural | 0.48 | 0.002 | 0.34 | 0.002 | 0.28 | <0.001 |
| Total | 0.48 | <0.001 | 0.29 | 0.01 | 0.25 | <0.001 |
| Skipping breakfast (%) | | | | | | |
| Boys | 51.7 | 0.001 | 0.31 | 0.09 | 0.24 | <0.001 |
| Girls | 0.35 | <0.001 | 0.26 | 0.03 | 0.17 | <0.001 |
| Urban | 0.42 | <0.001 | 0.28 | 0.13 | 0.19 | <0.001 |
| Rural | 0.43 | 0.04 | 0.29 | 0.05 | 0.22 | <0.001 |
| Total | 0.42 | <0.001 | 0.28 | 0.02 | 0.20 | <0.001 |

^aContinuous variables. CASPIAN-IV=Childhood and Adolescence Surveillance and Prevention of Adult Non-Communicable Disease, BMI=Body mass index, WC=Waist circumference, WHtR=Waist-to-height ratio, SES=Socioeconomic status

Table 2: The prevalence of aggressive behaviors according to gender and place living: The CASPIAN-IV study

| | Aggressive behaviors | | |
|------------------------|----------------------|---------------|--------------------|
| | Physical fight | Being bullied | Bullying to others |
| Gender | | | |
| Boys | 0.48 | 0.29 | 0.20 |
| Girls | 0.31 | 0.25 | 0.14 |
| P | <0.001 | <0.001 | <0.001 |
| Place living | | | |
| Urban | 0.39 | 0.27 | 0.17 |
| Rural | 0.40 | 0.26 | 0.17 |
| P | 0.61 | 0.69 | 0.81 |
| Gender-place living | | | |
| Boys | | | |
| Urban | 0.48 | 0.29 | 0.20 |
| Rural | 0.47 | 0.28 | 0.21 |
| P | 0.70 | 0.59 | 0.45 |
| Girls | | | |
| Urban | 0.30 | 0.25 | 0.14 |
| Rural | 0.32 | 0.25 | 0.13 |
| P | 0.38 | 0.88 | 0.48 |
| Urban | | | |
| Boys | 0.48 | 0.29 | 0.20 |
| Girls | 0.30 | 0.25 | 0.14 |
| P | <0.001 | <0.001 | <0.001 |
| Rural | | | |
| Boys | 0.47 | 0.28 | 0.21 |
| Girls | 0.32 | 0.25 | 0.13 |
| P | <0.001 | 0.06 | <0.001 |
| Level of education | | | |
| Elementary school | 0.38 | 0.28 | 0.15 |
| Guidance school | 0.44 | 0.29 | 0.21 |
| High-school | 0.37 | 0.23 | 0.18 |
| P | <0.001 | <0.001 | <0.001 |
| Level of education-sex | | | |
| Boys | | | |
| Elementary school | 0.46 | 0.31 | 0.18 |
| Guidance school | 0.55 | 0.32 | 0.24 |
| High-school | 0.45 | 0.23 | 0.21 |
| P | <0.001 | <0.001 | 0.002 |
| Girls | | | |
| Elementary school | 0.29 | 0.25 | 0.10 |
| Guidance school | 0.35 | 0.27 | 0.18 |
| High-school | 0.28 | 0.23 | 0.15 |
| P | 0.003 | 0.078 | <0.001 |
| Elementary school | | | |
| Boys | 0.46 | 0.31 | 0.18 |
| Girls | 0.29 | 0.25 | 0.10 |
| P | <0.001 | <0.001 | <0.001 |

Contd...

Table 2: Contd..

| | | | |
|---------------------------------|--------|--------|--------|
| Guidance school | | | |
| Boys | 0.55 | 0.32 | 0.24 |
| Girls | 0.35 | 0.27 | 0.18 |
| P | <0.001 | 0.01 | 0.003 |
| High-school | | | |
| Boys | 0.45 | 0.23 | 0.21 |
| Girls | 0.28 | 0.23 | 0.15 |
| P | <0.001 | <0.001 | <0.001 |
| Level of education-living place | | | |
| Urban | | | |
| Elementary school | 0.39 | 0.29 | 0.14 |
| Guidance school | 0.44 | 0.30 | 0.21 |
| High-school | 0.37 | 0.22 | 0.17 |
| P | <0.001 | <0.001 | <0.001 |
| Rural | | | |
| Elementary school | 0.38 | 0.25 | 0.15 |
| Guidance school | 0.46 | 0.29 | 0.20 |
| High-school | 0.38 | 0.26 | 0.21 |
| P | 0.01 | 0.34 | 0.01 |
| Elementary school | | | |
| Urban | 0.39 | 0.29 | 0.14 |
| Rural | 0.38 | 0.25 | 0.15 |
| P | 0.63 | 0.04 | 0.50 |
| Guidance school | | | |
| Urban | 0.44 | 0.30 | 0.21 |
| Rural | 0.46 | 0.29 | 0.20 |
| P | 0.39 | 0.85 | 0.83 |
| High-school | | | |
| Urban | 0.37 | 0.22 | 0.17 |
| Rural | 0.38 | 0.26 | 0.21 |
| P | 0.70 | 0.20 | 0.24 |

CASPIAN-IV=Childhood and Adolescence Surveillance and Prevention of Adult Non-Communicable Disease

prevalence of aggressive behaviors among a nationally representative sample of students. According to the present study, all three kinds of aggression were more common among boys compared to girls. In addition, urban boys were more likely to fight in comparison to their rural peers. Students of middle-schools reported higher rates of physical fighting, being bullied and bullying to others.

Aggressive behaviors are recognized to be normal, but not necessarily favorable part of developmental progress in the adolescence period.^[1] Previous studies have documented higher frequency of physical fighting among boys compared to girls.^[1,7] This finding is in line with the present study indicating that engaging in at least an occasional fighting was more frequent in boys than in girls. It might be because of the potential influence of gender norms on the involvement in physical fighting.^[7] Furthermore, previous research has demonstrated that

girls are more likely to fight in the intimate relations, whereas boys more often fight with strangers.^[5,17] These findings suggest that understanding the gender and cultural norms might offer important perspectives into the variations caused by gender disparities. A cross-national comparison between countries has indicated that violence behaviors are influenced by environmental, cultural, and political factors.^[1]

The higher rates of fighting among urban than rural inhabitants might represent the transition stage and adaptation of modern, fast, stressful life-style, which could influence the health risk behaviors.^[18] However, in the current study, we did not find a significant difference in urban and rural inhabitants. This may be because of urbanization of most rural areas in our community.

In the present study, middle-school students had a higher frequency of aggressive behaviors. This might be due to the onset of early adolescence and uncontrollable emotional feelings by teenagers. The similar finding has been proposed before in which the higher prevalence of fighting was reported among lower grade boys.^[19] Therefore, these findings suggest that school-based prevention programs targeting both behavioral interventions addressing aggression and violence prevention should be introduced in middle-schools. In addition, development of health promotion within schools should be encouraged to improve students' feelings of emotions in combination with education programs and communication skills focusing on parental care and engaging families for the promotion of supportive school environments.^[18]

The limitations of this study need to be mentioned. The current study relied on self-reports of aggressive behaviors. We only used the WHO-GSHS questions to assess the aggressive behaviors, the lack of peer and parental reports might be another limitation of our study. Moreover, information about social context including classroom and school atmosphere, school districts and neighborhood was not available in this study. The WHO-GSHS survey has a single item to evaluate the frequency of physical fight and does not assess the underlying causes of fighting.

CONCLUSIONS

The current study highlighted one of the first efforts to document the prevalence and existence of aggression among a nationwide sample of children and adolescents in the MENA region. These findings emphasize on the importance of designing preventive interventions that would target the students, especially in early adolescence, and would increase their awareness toward

aggressive behaviors. Implications for future research and aggression prevention programming are recommended.

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