

Psychosomatic Problems and their Relation with Types of Involvement in School Bullying in Iranian Students: A Cross-Sectional Study

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Received November 27, 2019; Revised December 14, 2019; Accepted December 20, 2019

Abstract

Background: There are few studies on the association between bullying types and psychosomatic issues in pupils. The current study aimed to examine the association of verbal, relational, physical, and cyber bullying with psychosomatic problems among students.

Methods: This was a cross-sectional study conducted in northern Iran on 834 participants, which were in 8th and 9th grades in 2014. Bullying and psychosomatic problems were measured by the Iranian-version of the Olweus Bullying and the Health and Illness Questionnaires. Descriptive statistics and multilevel logistic regression analysis were used for data analysis.

Results: Findings revealed that bad temper was the most prevalent psychosomatic problem and the prevalence of headache ($P=0.021$), feeling low ($P=0.009$), bad temperedness ($P=0.004$), nervousness ($P<0.001$), sadness ($P=0.001$), and anxiety ($P<0.001$) was higher in girls than boys. Only-bullies and bully-victims in the verbal form, and only-victims and bully-victims in the physical form had more psychosomatic issues. Difficulties in getting to sleep, anxiety, feeling low, dizziness, sadness, and headache were the most common conditions related to the types of bullying. For instance, the risk of difficulties in getting to sleep increased 1.5 to 3 times among the victims of verbal bullying (OR=1.54 for only-victim, OR=2.22 for bully-victims, and OR=3.08 for only-bully), relational only-bully (OR=2.69), physical only-victim and bully-victim, cyber only-bully and only-victim.

Conclusions: The results showed the different psychological and somatic burdens associated with various types of bullying. Therefore, it is necessary to implement preventive and interventional programs so as to reduce bullying behaviors in Iran. Implications of these findings for health care professionals, educational systems, and parents were further discussed.

Keywords: School Bullying, Psychosomatic Problems, Adolescents, Education System

How to Cite: Rezapour M, Soori H, Nezam Tabar A, Khanjani N. Psychosomatic Problems and their Relation with Types of Involvement in School Bullying in Iranian Students: A Cross-Sectional Study. Int. J. School. Health. 2020;7(1):6-13.

1. Introduction

Psychosomatic problems that are seldom related to a specific diagnosis or disease are a major public health concern in adolescents (1). These issues, which encompass somatic symptoms such as headache, stomachache, fatigue, and psychological symptoms, including irritability, nervousness, difficulty in sleeping, sadness, and anxiety have different prevalence among school-aged children (2), and even lead to absenteeism or advanced mental disorders (3). Headache, stomachache, and tiredness are the prevalent psychosomatic complaints in children and adolescents (4). A previous study (5) investigated the prevalence of psychosomatic symptoms in European school-aged children and reported that 45.7% of the children experienced at least one psychosomatic symptom. Ahadi and colleagues (6) conducted a national survey in Iran and reported that the prevalence of psychosomatic problems was 17.7% in Iranian pupils aged 10 to 18 years.

School bullying is a major public health issue and a widespread type of school violence (7). Bullying is known as a deliberate and aggressive behavior repeated against victims who are not able to defend themselves; moreover, there is a certain imbalance of power or strength between the bully and the victim (8). Students involved in bullying behaviors are divided into three categories: only-victims, only-bullies, and bully-victims, each including various forms such as physical (hitting, shoving, and kicking), verbal (name-calling and teasing in a hurtful way), relational or social (social exclusion and spreading rumors) and cyber (mobile phones, internet, email, online social networking or creating nasty websites) (9-11). International studies with geographic and cultural variations show that 5-70% of children are involved in bullying (12). A study on Iranian middle school students found that 38.5% of all students were involved in school bullying; specifically, 5.4% were perpetrators, 22.1% were victims, and 11.0% were both perpetrators and victims (13).

The relation between school bullying and psychopathological behaviors has been extensively debated (14-20). A meta-analysis study showed that only-victims, only-bullies, and bully-victims had more health issues compared with non-involved children (21). In this meta-analysis, only-victims and bully-victims were reported the most affected while only-bullies were reported to have fewer health problems compared with the two former groups (21). Bullying types (verbal, physical, relational and cyber) are not similar in their psychological and clinical burden, circumstances of occurrence or duration of involvement. Although Rezapour and colleagues (22) have recently shown the association of bullying types with general life satisfaction and self-rated health among Iranian pupils, there are no major studies regarding this topic conducted in Iran; even in other countries, there are few studies on the relation between different types of involvement in school bullying and psychosomatic problems.

Objectives

The purpose of the current study was to examine the association between types of involvement in school bullying (verbal, relational, physical and cyber forms) and psychosomatic problems in Iranian middle school pupils. We further investigated the prevalence of different psychosomatic issues across genders (male and female) and grades (8th and 9th).

Methods

Participants

The sample of this cross-sectional study included 834, 8th and 9th graders (412 boys and 422 girls) aged 14-15 years. These students were selected by three-stage stratified sampling in February and March, 2014. In the first stage, four cities (including Ramsar, Mahmoodabad, Juibar, and Behshahr) were randomly chosen from Mazandran province. In the second stage, from each city, four schools (two male schools and two female schools) were randomly selected from a list of public middle schools. In the final stage, proportionate to school size, all students in one or two class were selected. Overall, 16 public middle schools were selected from four cities, namely Ramsar (16.7%), Mahmud Abad (24.3%), Juibar (20.5%), and Behshahr (38.5%).

Measurement Tools

Olweus Bullying (Bully/Victim) Questionnaire:

Students' involvement in bullying behaviors (victimization or perpetration) during the past three months was measured by the Persian-Olweus Bullying Questionnaire (P-OBQ), which is a modified version of the Olweus Bullying Questionnaire (OBQ) validated among Iranian pupils (23). In this questionnaire, victimization is assessed by 9 items with Cronbach's $\alpha=0.80$ (3 items for verbal, 2 items for relational, 3 items for physical, and 1 item for cyber forms), and perpetration of bullying is further evaluated by 9 items with Cronbach's $\alpha=0.81$ (3 items for verbal, 2 items for relational, 3 item for physical, and 1 item for cyber forms). The response options are based on a scale of "never," "only once or twice," "2 or 3 times a month," "about once a week," or "several times a week". The cut-off point of "2 or 3 times a month" was selected as the appropriate cut-off point for dividing the population into involved and uninvolved in bullying. According to this cutoff point, pupils were classified into four groups, namely not-involved, only-victims, only-bullies, and bully-victims in verbal, relational, physical, and cyber forms.

Health and Illness Scale: Psychosomatic problems were measured by the Health and Illness Scale from the Global School Health Survey (GSHS) validated in Persian (24). In this scale, 10 items assess psychosomatic problems (headache, stomachache, backache, feeling low, bad temperedness, nervousness, difficulties in getting to sleep and dizziness, sadness, and anxiety) over the previous six months. Responses are categorized into "weekly" (about every day [5], more than once a week [4], about every week [3]) and "rarely or never" (about every months [2], rarely or never [1]). The Cronbach's α of the questionnaire was 0.74 in the present study.

Procedure

This study was approved by the Ethics Committee of Shahid Beheshti University of Medical Sciences. Permission to conduct this study was granted by the Educational Authority of Mazandaran province. Informed consent was sought from the parents and administrators of the selected schools. Prior to filling out the anonymous self-report questionnaires, the pupils were given a definition of bullying and the purpose and importance of the study were further elucidated. Afterwards, they were asked to complete the questionnaires on a voluntary and honest basis. The subjects completed the questionnaires in their classrooms over a 45-minute period.

Statistical Analyses

The prevalence of psychosomatic problems was

calculated across genders and grade subgroups and was compared with Chi-square test. Because the pupils were clustered within schools, observations were not independent and ignoring clustering in an analytic framework could lead to biased parameter estimates. Therefore, two-level logistic regression analysis (random intercept) was used to assess the association between various forms of bullying and psychosomatic issues adjusted for gender and grade. All analyses were performed using STATA 12.

Results

Participants included 417 pupils from grade 8 and 417 from grade 9. 412 pupils (49.4%) were girls and the mean age of pupils was 14.5 ± 0.5 years.

Figure 1 and 2 present the prevalence (%) of psychosomatic problems in gender and grade subgroups. The prevalence of headache ($P=0.021$), feeling low ($P=0.009$), bad temperedness ($P=0.004$), nervousness ($P<0.001$), sadness ($P=0.001$), and anxiety ($P<0.001$) was higher in girls compared with boys; however, the prevalence of all psychosomatic problems, except for stomachache ($P=0.049$) and backache ($P=0.024$) was similar between 8th and 9th graders ($P>0.05$). Bad temper was the most prevalent psychosomatic problem.

A multilevel logistic regression model without

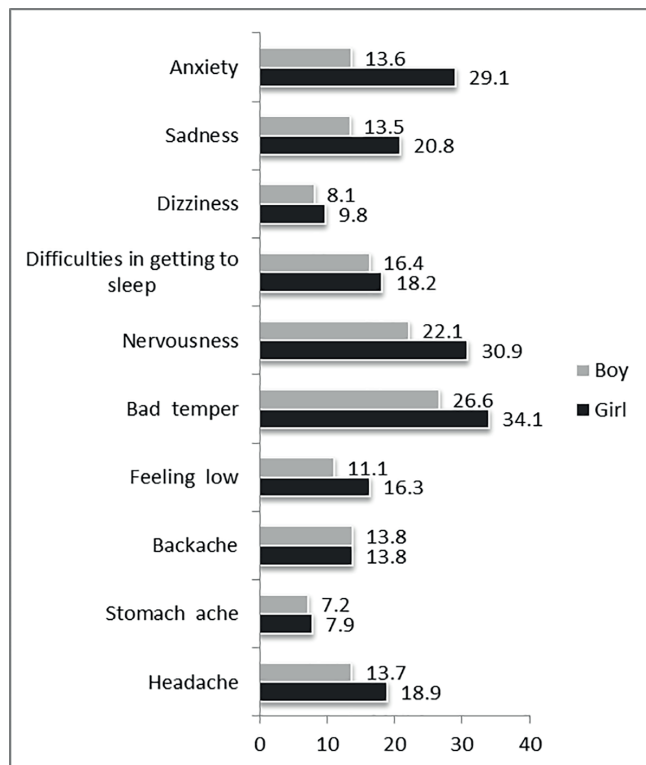


Figure 1: The figure shows the prevalence (%) of psychosomatic problems in gender subgroups.

predictors was run to estimate the variance component (and SE) of each dependent variable. ICCs ($ICC = \sigma^2_{\text{school level}} / (\sigma^2_{\text{school level}} + 3.29)$) was then computed to indicate the variability of school level regarding psychosomatic problems. The ICCs of psychosomatic problems ranged from 0.00 (for backache, difficulties in getting to sleep and dizziness) to 0.032 (for headache). The ICCs were low, but the average cluster size of 53 students (in each school) could result in a design effect of more than 1, justifying the multi-level analysis ($\text{design effect} = 1 + (\text{average cluster size} - 1) \times ICC$).

Accordingly, two-level logistic regression (random intercept) was employed to determine the association between bullying behaviors (various forms) and psychosomatic problems, separately adjusted for gender and grade (Tables 1 to 4).

Results of Table 1 show that compared with uninvolved pupils, only-bullies in verbal form were more likely to experience headache ($OR=2.18$), backache ($OR=1.62$), feeling low ($OR=2.48$), bad temperedness ($OR=3.62$), nervousness ($OR=1.88$), difficulties in getting to sleep ($OR=3.08$), and anxiety ($OR=2.69$). Only-victims in verbal form were more likely to experience backache ($OR=1.43$), feeling low ($OR=2.16$), difficulties in getting to sleep ($OR=1.54$), sadness ($OR=1.72$), and anxiety ($OR=1.77$). Furthermore, bully-

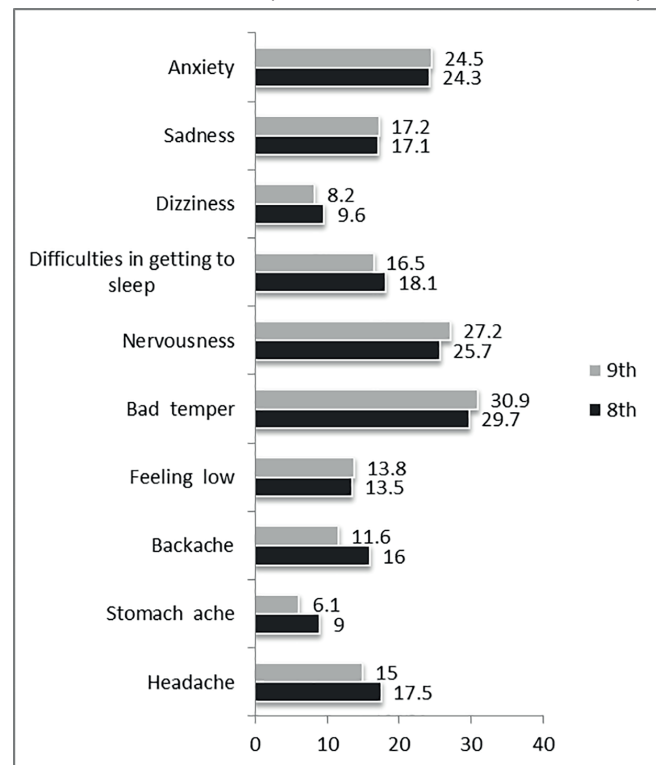


Figure 2: The figure shows the prevalence (%) of psychosomatic problems in grade 8 and 9.

Table 1: Odds ratios (OR) of the association between verbal bullying and psychosomatic problems adjusted for gender and grade using multilevel logistic regression analyses (n=834)

	Gender	Grade	Verbal bullying ^a			Variance of random intercept (SE)
			Only bully (1)	Only victim (2)	Bully-victim (3)	
Psychosomatic problems ^b						
Headache	0.65 (0.43-0.98)*	0.87 (0.67-1.14)	2.18 (1.28-3.72)**	1.31 (0.93-1.84)	1.76 (0.84-3.72)	0.067 (0.089)
Stomach ache	0.94 (0.58-1.51)	0.68 (0.47-0.98)*	1.71 (0.92-3.17)	1.19 (0.77-1.84)	1.36 (0.61-3.02)	0.084 (0.047)
Backache	0.97 (0.71-1.32)	0.72 (0.56-0.92)**	1.62 (1.09-2.42)*	1.43 (1.07-1.90)*	2.23 (1.14-4.39)*	<0.001 (<0.001)
Feeling low	0.49 (0.35-0.68)***	1.17 (0.82-1.67)	2.48 (1.17-5.24)*	2.16 (1.31-3.57)**	4.50 (2.73-7.40)***	<0.001 (<0.001)
Bad temper	0.57 (0.46-0.71)***	1.30 (0.99-1.70)	3.62 (1.36-9.64)*	1.39 (0.93-2.07)	2.35 (1.21-4.55)*	<0.001 (<0.001)
Nervousness	0.48 (0.35-0.65)***	1.32 (0.99-1.75)	1.88 (0.83-4.25)	2.25 (1.39-3.66)	1.91 (1.15-3.15)	0.029 (0.042)
Difficulties in getting to sleep	0.82 (0.65-1.03)	0.98 (0.79-1.21)	3.08 (1.43-6.63)**	1.54 (1.05-2.25)*	2.22 (1.45-3.42)***	<0.001 (<0.001)
Dizziness	0.76 (0.52-1.12)	0.90 (0.68-1.19)	2.33 (1.20-4.55)	1.28 (0.82-1.99)	2.19 (1.53-3.13)	<0.001 (<0.001)
Sadness	0.53 (0.38-0.74)***	1.11 (0.81-1.54)	1.09 (0.52-2.11)	1.72 (1.25-2.38)**	2.01 (1.02-3.97)*	0.003 (0.02)
Anxiety	0.43 (0.30-0.63)***	1.15 (0.82-1.62)	2.69 (1.48-4.89)**	1.77 (1.21-2.60)**	3.39 (1.65-6.95)**	0.018 (0.045)

^aReference category: non-involvement in bullying; * P<0.05, ** P<0.01, *** P<0.001; ^bdependent variables, two category, Reference groups for Psychosomatic problems: rarely. Not-involvement: 511 (62.8%), Only-bully: 44 (5.4%), Only-victim: 184 (22.6%); Bully-victim: 75 (9.2%).

Table 2: Odds ratios (OR) of the association between relational bullying and psychosomatic problems adjusted for gender and grade using multilevel logistic regression analyses (n=834)

	Gender	Grade	Relational bullying ^a			Variance of random intercept (SE)
			Only bully (1)	Only victim (2)	Bully-victim (3)	
Psychosomatic problems ^b						
Headache	0.71 (0.46-1.11)	0.87 (0.67-1.14)	0.82 (0.30-2.23)	1.87 (1.17-2.98)**	1.10 (0.45-2.68)	0.082 (0.097)
Stomach ache	0.95 (0.59-1.53)	0.66 (0.45-0.97)*	2.61 (0.82-8.34)	1.35 (0.86-2.13)	1.14 (0.35-3.67)	0.064 (0.044)
Backache	1.05 (0.76- 1.45)	0.70 (0.56-0.87)**	2.33 (1.06-5.13)*	1.38 (0.82-2.33)	1.36 (0.47-3.98)	<0.001 (<0.001)
Feeling low	0.61 (0.43-0.87)**	1.12 (0.83-1.51)	2.37 (1.18-4.78)*	1.77 (1.16-2.71)**	3.25 (0.85-12.42)	0.002 (0.060)
Bad temper	0.63 (0.52-0.76)***	1.26 (0.94-1.69)	1.84 (0.74-4.56)	1.54 (0.87-2.72)	1.95 (0.44-8.60)	<0.001 (<0.001)
Nervousness	0.56 (0.41-0.77)***	1.26 (0.95-1.69)	1.43 (0.79-2.58)	1.39 (0.95-2.04)	1.27 (0.37-4.38)	0.013 (0.034)
Difficulties in getting to sleep	0.91 (0.71-1.17)	0.94 (0.76-1.17)	2.69 (1.61-4.51)***	1.55 (0.96-2.49)	1.68 (0.63-4.44)	<0.001 (<0.001)
Dizziness	0.80 (0.54-1.17)	0.89 (0.66-1.19)	2.49 (1.27-4.87)**	1.97 (1.06-3.67)*	4.46 (1.68-11.80)**	<0.001 (<0.001)
Sadness	0.57 (0.41-0.81)**	1.10 (0.83-1.46)	1.84 (0.83-4.06)	1.85 (1.25-2.74)**	3.72 (1.16-11.90)*	0.004 (0.020)
Anxiety	0.50 (0.35-0.69)***	1.12 (0.81-1.55)	2.48 (1.30-4.70)**	2.25 (1.61-3.14)***	2.10 (0.75-5.84)	0.019 (0.043)

^aReference category: non-involvement in bullying; Not-involvement: 643 (78.5%), Only-bully: 24 (2.9%), Only-victim: 122 (14.9%), Bully-victim: 30 (3.7%). * P<0.05, ** P<0.01, *** P<0.001; ^bdependent variables, two category, Reference groups for Psychosomatic problems: rarely.

victims in verbal form were more likely to experience backache (OR=2.23), feeling low (OR=4.50), bad temper (OR=2.35), difficulties in getting to sleep (OR=2.22), sadness (OR=2.01), and anxiety (OR=3.39).

the association between psychosomatic problems and relational, physical, and cyber forms of bullying.

Discussion

Tables 2 and 4 present other results pertaining to

Our results revealed the associations between

Table 3: Odds ratios (OR) of the association between physical bullying and psychosomatic problems adjusted for gender and grade using multilevel logistic regression analyses (n=834)

	Gender	Grade	Physical bullying ^a			Variance of random intercept (SE)
			Only bully (1)	Only victim (2)	Bully-victim (3)	
Psychosomatic problems ^b						
Headache	0.64 (0.42-0.98)*	0.85 (0.64-1.12)	1.99 (1.14-3.46)*	2.26 (1.27-4.04)**	2.52 (1.39-4.58)**	0.070 (0.087)
Stomach ache	0.90 (0.53-1.53)	0.64 (0.44-0.92)*	0.69 (0.22-2.10)	3.86 (2.12-7.02)***	1.90 (0.48-7.44)	0.091 (0.047)
Backache	0.99 (0.72-1.36)	0.69 (0.55-0.87)**	1.81 (0.98-3.34)	2.11 (1.16-3.83)*	2.87 (1.22-6.78)*	<0.001 (<0.001)
Feeling low	0.61 (0.43-0.88)**	1.11 (0.82-1.50)	1.04 (0.43-2.50)	1.85 (1.06-3.21)*	2.73 (1.14-6.54)*	0.022 (0.054)
Bad temper	0.59 (0.48-0.72)***	1.27 (0.97-1.67)	3.63 (1.57-8.35)**	1.47 (0.79-2.70)	3.71 (1.52-9.07)**	<0.001 (<0.001)
Nervousness	0.58 (0.43-0.77)***	1.24 (0.93-1.66)	1.02 (0.53-1.93)	1.12 (0.71-1.78)	1.22 (0.59-2.52)	0.006 (0.034)
Difficulties in getting to sleep	0.92 (0.71-1.20)	0.93 (0.76-1.15)	1.02 (0.50-2.09)	1.74 (1.12-2.72)*	2.03 (1.25-3.30)**	<0.001 (<0.001)
Dizziness	0.72 (0.53-0.98)*	0.88 (0.66-1.15)	2.15 (1.25-3.69)**	2.22 (1.14-4.33)*	10.46 (3.58-30.5)***	<0.001 (<0.001)
Sadness	0.53 (0.38-0.74)***	1.08 (0.78-1.49)	2.05 (0.99-4.23)	2.31 (1.50-3.56)***	1.98 (0.81-4.93)	0.012 (0.20)
Anxiety	0.49 (0.34-0.71)***	1.09 (0.78-1.52)	1.23 (0.48-3.14)	1.91 (1.20-3.06)**	3.48 (1.61-7.50)**	0.026 (0.043)

^aReference category: non-involvement in bullying; Not-involvement: 640 (77.9), Only-bully: 35 (4.3), Only-victim: 108 (13.1), Bully-victim: 39 (4.7). * P<0.05, ** P<0.01, *** P<0.001; ^bdependent variables, two category, Reference groups for Psychosomatic problems: rarely.

Table 4: Odds ratios (OR) of the association between cyber bullying and psychosomatic problems adjusted for gender and grade using multilevel logistic regression analyses (n=834)

	Gender	Grade	Cyber bullying ^a			Variance of random intercept (SE)
			Only bully (1)	Only victim (2)	Bully-victim (3)	
Psychosomatic problems ^b						
Headache	0.68 (0.46-1.01)	0.87 (0.66-1.14)	1.54 (0.73-3.22)	1.59 (0.65-3.89)	4.74 (1.36-16.54)*	0.065 (0.085)
Stomach ache	0.96 (0.60-1.53)	0.67 (0.46-0.97)*	3.67 (1.31-10.29)	1.20 (0.44-3.25)	0.67 (0.06-6.62)	0.074 (0.046)
Backache	1.08 (0.77-1.50)	0.71 (0.56-0.88)**	1.64 (0.67-4.02)	1.39 (0.53-3.62)	1.24 (0.36-4.25)	<0.001 (<0.001)
Feeling low	0.62 (0.46-0.84)	1.12 (0.81-1.55)	2.58 (1.06-2.80)	0.97 (0.33-2.80)	2.61 (0.37-18.28)	<0.001 (<0.001)
Bad temper	0.59 (0.48-0.73)***	1.27 (0.97-1.67)	3.63 (1.57-8.35)**	1.47 (0.79-2.70)	3.71 (1.52-9.07)**	<0.001 (<0.001)
Nervousness	0.55 (0.41-0.74)***	1.26 (0.95-1.68)	2.26 (1.14-4.45)*	1.94 (0.85-4.39)	2.32 (0.86-6.25)	0.009 (0.032)
Difficulties in getting to sleep	0.91 (0.72-1.15)	0.95 (0.77-1.17)	3.24 (1.10-9.48)*	1.76 (1.07-2.90)*	4.10 (0.98-17.10)	<0.001 (<0.001)
Dizziness	0.77 (0.54-1.09)	0.90 (0.69-1.16)	4.35 (1.49-12.67)**	1.08 (0.35-3.35)	18.92 (3.53-101.38)	<0.001 (<0.001)
Sadness	0.56 (0.39-0.80)**	1.10 (0.81-1.51)	2.20 (0.77-6.29)	2.81 (1.31-5.99)**	3.11 (1.12-8.66)*	0.009 (0.018)
Anxiety	0.48 (0.34-0.68)***	1.12 (0.79-1.58)	5.03 (2.30-11.01)***	1.82 (0.77-4.25)	1.53 (0.56-3.47)	0.023 (0.042)

^aReference category: non-involvement in bullying; Not-involvement: 792 (95.5), Only-bully: 17 (2.1), Only-victim: 15 (1.8), Bully-victim: 5 (0.6). * P<0.05, ** P<0.01, *** P<0.001; ^bdependent variables, two category, Reference groups for Psychosomatic problems: rarely.

different types of bullying (only-bullies, only-victims, and bully-victims in verbal, relational, physical, and cyber forms) and various psychosomatic problems. The current study further showed the prevalence of different psychosomatic problems in gender (girls and

boys) and grade (8th and 9th) groups.

Consistent with the findings of a previous study conducted in the US (25), we showed that the prevalence of headaches, feeling low, bad temperedness,

nervousness, sadness, and anxiety were higher in girls. Vanaelst and colleagues (5), on the other hand, found no sex difference in psychosomatic complaints among European school-aged children. In the present study, the prevalence of psychosomatic problems, except for backache, were similar between the 8th and 9th grade students; however, in the study of Vanaelst and colleagues (5), the prevalence of psychosomatic complaints (except difficulties in getting to sleep) increased with age.

The current study reported a strong association between bullying behaviors and a wide range of psychosomatic problems. Consistent with previous studies conducted in various countries (21, 26-29), our findings revealed that the experience of bullying as an only-victim, only-bully, or bully-victim was related to higher odds of psychosomatic problems.

Previous studies have shown that victims of bullying have more health problems (30, 31). Fekkes and colleagues hypothesized that victimization ensued more health problems due to more involvement with stress (31). However, the present findings are in accordance with the results of a cohort study from England (32); in this study, the highest odds ratios for psychosomatic problems were observed in bully-victims. These findings seem logical because bully-victims are involved in two different behavioral disorders, namely bullying perpetration and victimization, both increasing their stress. Our results showed that bullies had fewer health problems compared to victims and bully-victims.

A recent study from Turkey (33) reported that cyber bullying as well as traditional bullying (verbal, relational, and physical) increased psychiatric symptoms. However, the current study showed that the cyber form of bullying entailed fewer psychosomatic problems than traditional forms.

Feeling low, difficulties in getting to sleep, sadness, and anxiety were the most prevalent psychosomatic problems among the students involved in bullying behaviors.

In line with the study of Modin and colleagues (34) conducted among Swedish sixth-grade students, the current results indicated that the ICCs of psychosomatic problems were less than 0.03, implying the low impact of latent school factors on psychosomatic problems or the independent nature of psychosomatic problems in the students.

The association between bullying behaviors and psychosomatic problems is probably bidirectional. Stavrinides and colleagues provided evidence as to the reciprocal relation between bullying and psychosocial adjustment. This means that bullying causes future adjustment problems, and, conversely, difficulties associated with psychosocial adjustment can lead to involvement in bullying-related behaviors (27).

Limitations

First of all, data was gathered by self-reported questionnaires. Second, this study was cross-sectional, thereby not allowing for any causal inference as to the direction of the association between bullying and health problems. Third, we only controlled for grade and gender while including parenting and school factors (such as school safety and environment) could have improved the estimation of the associations. Finally, this study was conducted in only one province of Iran.

Although implications for practice must be taken cautiously, this study provided valuable information for teachers, parents, principals, counselors, and health care staff in school. Our findings highlight the necessity to stop bullying in Iranian schools by developing prevention programs and detecting health problems in pupils at early stages.

Conclusions

This study provided further evidence on the association between bullying behaviors and certain psychosomatic problems, showing the different psychological and somatic burdens of various bullying forms. Only-bullies and bully-victims of verbal form, and only-victims and bully-victims of physical form were involved with more psychosomatic problems. Overall, psychosomatic problems were the most prevalent among bully-victims and bullies and victims had almost equal psychosomatic problems regarding various forms of bullying. According to the results of this study, we recommend that students with psychosomatic symptoms be identified and screened for bullying behaviors. School staff are to help these children solve the psychological problems and, if necessary, refer them to psychiatrists and psychologists for more professional care. It is also crucial to create a positive school environment through clear rules and regulations, appropriate school support by access to trained counselors and monitoring children's behavior (10). Knowledge about bullying behaviors

and psychiatric problems should further be promoted among the parents and teachers. This can be conducive to identifying children who suffer from mental health problems and have to refer to health professionals.

Acknowledgements

We are grateful to all the students and school staff for participating in this program. We would also like to acknowledge the Security Office of the Education Authority of Mazandaran Province, Iran.

Ethical Approval: This study was approved by the Ethics Committee of Shahid Beheshti University of Medical Sciences (http://urm.sbm.ac.ir/uploads/25_1580_2737_132.pdf).

Funding/Support

The study was supported by the Safety Promotion and injury Prevention Research Center of Shahid Beheshti University of Medical Sciences.

Conflict of Interest

The authors declared no conflict of interest.

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