



A Cross-Sectional Study of the Prevalence of and Related Factors for Bullying among Bullied Students in a Medical College in Zhuzhou, China

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Abstract

Objectives: To explore the risk factors for bullying among bullied students in a medical college in Zhuzhou City, China.

Design, Setting and Participants: A cross-sectional study was conducted among the bullied students in a medical college in Zhuzhou City. Thirty-six classes were selected by multistage cluster random sampling, and 249 bullied students were investigated using a structured questionnaire.

Main Outcome Measures: The bullied individuals were screened by using the WHO health and life experience questionnaire. A self-administered questionnaire was used to survey bullying behaviours. Participants were asked about general personal information, family information, individual behaviour and academic performance. Multivariate binary logistic regression was performed to explore the influencing factors for bullying behaviours among bullied students.

Results: A total of 249 individuals who were bullied by others were enrolled in this study. The prevalence of bullying among bullied undergraduates was 39.80%. Multivariate binary logistic regression analysis revealed that the main risk factors for bullying behaviour were liking violent TV programme (OR 2.61, 95% CI 1.09 to 6.28), alcohol consumption (OR 3.42, 95% CI 1.08 to 10.80) and aged less than 18 years (OR 3.45, 95% CI 1.30 to 9.15).

Conclusion: The prevalence of bullying behaviour among bullied students in medical college is relatively high. Liking violent TV programme, alcohol consumption and aged less than 18 years were risk factors for bullying behaviour.

Keywords: College; Bullying; Bullied; Prevalence; Factors

Introduction

Bullying is a major health problem in schools worldwide [1]. Olweus defines bullying as when a student is exposed to the victimized environment for a long period of time and suffers from negative activities imposed by one or more peers. Negative activities include behaviors that one person intentionally hits, hurts or makes another person feel uncomfortable [2]. Researchers have systemized bullying into two forms: direct physical (hitting, kicking, pushing, sexual abuse, harassment, threatening gestures, stealing or damaging belongings) and verbal (name-calling, teasing, cursing) aggression; and indirect actions, such as social isolation or exclusion, and spreading rumors [3]. Generally, bullying is barely noticeable to adults since it is subtle [2]. Campus bullying refers to bullying behaviour occurring on campus or on the way to or from regular sessions at a school.

Campus bullying is increasing in frequency and severity [4]. In 2000, a survey by the U.S. Department of Education and the National Center for Educational Statistics found that campus bullying accounted for 50% and occurred in 7% of schools [5]. The prevalence of bullying on university campuses is consistent with that of social violence [6]. The WHO survey found that the prevalence of campus bullying in 48 countries was as high as 60% [7]. An international survey found that some countries reported that 15% to 20% of students were bullied at least once, a rate that rises up to 70% in other countries [8,9]. According to a survey of 31 universities around the world, 17% to 45% of students have personally attacked one dating partner in the past year [10].

Campus bullying affects the physical and mental health of college students. Severe bullied injury

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can lead to Post-Traumatic Stress Disorder (PTSD) [11]. Bullying causes a number of negative consequences, including emotional distress, low self-esteem, running away from home, decreased academic performance, depression and an increased incidence of accidents [12,13]. More than that, studies have shown that youth who bully others or are being bullied are strongly inclined to have suicidal ideation or have committed suicide [14-16]. School bullying disrupts school order and imposes a heavy burden on families and society.

Studies have shown a link between being bullied physically and bullying behaviours [17]. Many perpetrators learn to bully others from their victimization experiences. Perpetrators were more likely to have been described as having been bullied by their peers [3]. Bullied youth often retaliate in an aggressive manner in response to being bullied [18,19]. The research of Albus points out that teenagers' health risk behaviors including bullying behaviors are closely related to their experiences of exposure to the violence [20]. An analysis of a group of teenagers with serious criminal behavior found that 76% had been pushed or slapped, 40% had been threatened by physical attacks and 45% had been attacked by weapons [21].

Several studies revealed multi-domain factors related to bullying can be categorized into three groups: (1) General personal factors including gender, age, ethnicity, grade, specialty, and residence [22-26]. (2) The family factors such as only-child status, educational background of parents, monthly living expenses, parent's quarrel, and corporal punishment from parents [27-29]. (3) Individual behaviour including the average daily time online, enjoyment of computer games, smoking, alcohol consumption, preference for violent TV programmes and students satisfaction on school management etc., However, most of those studies were conducted among ordinary college students and there are few epidemiological studies on bullying behaviour among students themselves being bullied in colleges, especially in medical colleges [24,30,31].

Therefore, our study aimed to investigate and explore the prevalence of and risk factors for bullying behaviour among bullied students in a medical college in Zhuzhou City. We hope that this study will provide some valuable information for campus bullying prevention among the students in colleges in China.

Methods

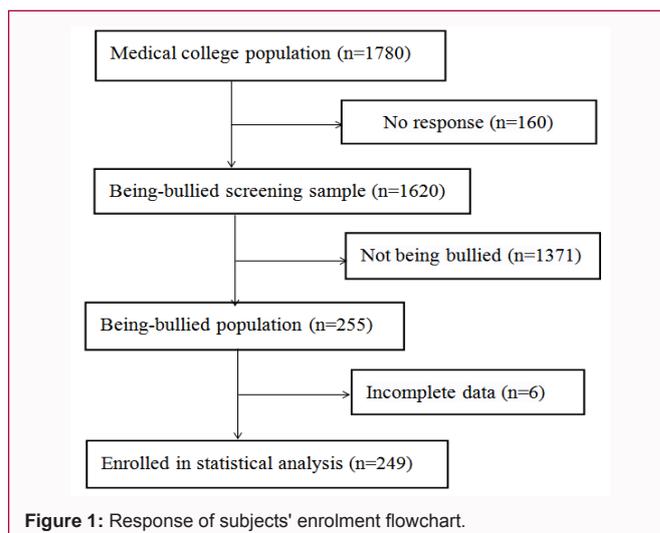
Study design

This was a cross-sectional study carried out in Zhuzhou City in Hunan Province in China from April to July 2016. The study was approved by Xiangya School of Public Health at Central South University (No.XYGW-2016-36). Informed consent was obtained from all participants.

Study population and procedure

This study selected a university of traditional Chinese medicine which is equivalent to a junior college in Hunan Province as the research site.

We used a stratified cluster random sampling method to select a representative sample of the medical college population in a medical college in Zhuzhou City in Hunan province. Sampling was stratified according to the grade of the medical college. A total of 36 out of 68 classes were selected by randomly selecting 12 classes from each grade. All the students in the 36 classes were surveyed, and the number of participants was 1780.



Participants were screened by using the WHO health and life experience questionnaire [30]. A questionnaire adapted from WHO Health and Life Experience investigation were used to measure the bullied experience in the past year (Cronbach' =0.84). The 9 items, which include 2 mental bullying items, 5 physical bullying items and 2 sexual bullying items, has been increasingly used worldwide. The participants were asked how often they think each statement describe them. Examples of the statements are "Has anyone ever verbally scorn you in the past year?" Three choices were available for this question: 0= "no"; 1= "once"; 2= "twice"; 3= "three times or more". The participants whose answers of all the 9 items are "no" were regarded as not being bullied, or else being bullied.

A total of 1780 questionnaires were issued, and 1620 valid questionnaires were returned; the response rate was 91.01%, resulting in a screening sample of 1620 people. Screening identified 255 individuals who were bullied. Six of the 255 individuals were excluded for incomplete data. A total of 249 undergraduates from 36 classes who were bullied in the past year were enrolled in our study (Figure 1).

Data collection and measurements

General personal information: General personal information was collected by trained staff using a set of structured questionnaires, which included gender, age, ethnicity, grade, specialty, and residence. Age was assessed by asking the participants to select from the following choices: under 18 years of age, between 19 and 20, and older than 21. Ethnicity was classified as Han or minority, with minority including 55 ethnics except Han.

Family information: Family information for subjects was collected through self-administered questionnaires and included only-child status, educational background of parents, monthly allowance, parents quarrel and corporal punishment from parents. Monthly allowance was assessed by asking the participants to select their level of expenses from the following choices: less than 500 yuan, 501-800 yuan, 801-1200 yuan, 1201-1500 yuan, and more than 1501 yuan. Parents quarrel was classified as <10 times/month or ≥ 10 times/month. Corporal punishment from parents was defined as parents correcting or controlling the behaviour of children by using their physical strength to cause pain but not harm [32].

Individual behaviour and academic performance: The

Table 1: Personal Characteristics of Bullying Victims.

Variables	Total (N=249)	Bullying behavior		χ^2 -value	P-value
		yes (n=99)	no (n=150)		
Gender				5.275	0.022
Male	59	31(31.3)	28(18.7)		
Female	190	68(68.7)	122(81.3)		
Age				2.251	0.324
<19	61	29(29.3)	32(21.3)		
19 to 20	147	56(56.6)	91(60.7)		
>20	41	14(14.1)	27(18.0)		
Ethnic				1.434	0.231
Han	212	81(81.8)	131(87.3)		
Minority	37	18(18.2)	19(12.7)		
Grade				2.116	0.347
Freshman	64	30(30.3)	34(22.7)		
Sophomore	89	35(35.4)	54(36.0)		
Junior	96	34(34.3)	62(41.3)		
Major				9.984	0.019
Medicine	56	28(28.3)	28(18.7)		
Pharmacy	57	27(27.3)	30(20.0)		
Nursing	71	18(18.2)	53(35.3)		
Acupuncture rehabilitation	65	26(26.3)	39(26.0)		
Residence				3.875	0.144
City	44	23(23.2)	21(14.0)		
Town	62	21(21.2)	41(27.3)		
Countryside	143	55(55.6)	88(58.7)		

The p -value was determined by χ^2 test.

individual behaviour and academic performance of subjects were collected by self-administered questionnaires and included the average daily time online, enjoyment of computer games, smoking, alcohol consumption, preference for violent TV programme and students satisfaction on school management. The average daily time online was assessed by asking the participants to select their level of daily time online from the following choices: less than 1 hour, 1 h to 3 h, 4 h to 6 h, and more than 7 h. According to the Third National Health Service Survey in 200332, the definition of smoking is continuously or cumulatively smoking for 6 months or more and smoking at least 1 cigarette a day. According to a U.S. Department of Agriculture standard, a standard drink is a beverage containing 12 g of ethanol, which is equivalent to 30 ml of 50 degrees of spirit in China, 125 ml of wine or 375 ml of ordinary beer [33]. Never drinking or drinking less than once monthly in the past year were collectively defined as not drinking. Anyone who drank more than this was defined as drinking.

Bullying-related information assessment: Self-administered questionnaires were used to investigate information about bullying others.

The bullying behaviour was determined by a single question Have you used the 1-9 methods: verbal scorn; threats; corporal punishment; pushing, slapping or punching others maliciously; kicking or dragging others on the ground; beating others with a knife, stick or anything else that hurt; trying to strangle or burn others; sexual harassment; and sexual assault for your classmates, friends, teachers, parents

or others? If the answer was 'yes', the respondents will complete additional questions about the reasons and the frequency of bullying behavior.

Statistical analysis

Data statistics and analysis were run by SPSS 18.0 statistical analysis software. The categorized data are represented as n (%). A chi square test was used to explore the differences between groups with or without bullying behaviour among bullied individuals.

The stepwise backward maximum likelihood binary logistic regression was used to analyse the influencing factors for bullying among bullied college students. The strength of association was estimated as Odds Ratios (OR) and 95% Confidence Intervals (CI). All statistical tests were two-tailed and $p < 0.05$ was considered statistically significant.

Results

Characteristics of study subjects

A total of 1780 questionnaires were given out and 1620 valid questionnaires were returned. In this study, 249 students in the medical school were bullied by others in the past year; with the prevalence of being bullied in the past year was 15.37%. 42.17%, 18.07%, 39.76% of students were bullied once, twice and three times or more respectively.

Among the 249 bullied students, 59 were boys (23.7%) and 190 were girls (76.3%). There were 61 students under 18 years of age

Table 2: Family Characteristics of Bullying Victims.

Variables	Total (N=249)	Bullying behavior		χ^2 -value	P-value
		yes (n=99)	no (n=150)		
Only-child status				0.39	0.532
Yes	70	30 (30.3)	40 (26.7)		
No	179	69 (69.7)	110 (73.3)		
Educational background of father				1.658	0.646
Junior high school or less	110	43 (43.4)	67 (44.7)		
Senior high school and secondary school	102	40 (40.4)	62 (41.3)		
Junior college	18	6 (6.1)	12 (8.0)		
Undergraduate and above	19	10 (10.1)	9 (6.0)		
Educational background of mother				5.863	0.118
Junior high school or less	143	49 (49.5)	94 (62.7)		
Senior high school and secondary school	74	32 (32.3)	42 (28.0)		
Junior college	13	7 (7.1)	6 (4.0)		
Undergraduate and above	19	11 (11.1)	8 (5.3)		
Living allowance (Yuan/month)				1.955	0.744
≤ 500	22	7 (7.1)	15 (10.0)		
501 to 800	78	35 (35.4)	43 (28.7)		
801 to 1200	98	36 (36.4)	62 (41.3)		
1201 to 1500	40	16 (16.2)	24 (16.0)		
≥ 1501	11	5 (5.1)	6 (4.0)		
Parents quarrel				0.033	0.857
≥ 10 times/month	39	15 (15.2)	24 (16.0)		
<10 times/month	210	84 (84.8)	126 (84.0)		
Corporal punishment from parents				0.09	0.764
No	204	82 (82.8)	122(81.3)		
Yes	45	17(17.2)	28 (18.7)		

The p -value was determined by χ^2 test

(24.5%), 147 students aged between 19 and 20 (59%) and 41 students who were older than 21 (16.5%). The number of students of Han nationality was 212 (85.1%); there were 37 minority students (14.9%). Freshmen accounted for 25.7% of all participants, sophomores for 35.7% and juniors for 38.6%. Students majoring in medicine accounted for 22.5% of the study population, students majoring in pharmacy for 22.9%, students majoring in nursing for 28.5% and students majoring in acupuncture rehabilitation for 26.1%. Students from the countryside accounted for 17.7% of participants, from town for 24.9%, and students from the city for 57.4%.

Bullying related results

Among the 249 bullied students, there were 99 bullied students who reported using bullying behaviour against classmates, friends, teachers, parents and other people, and the prevalence of bullying was 39.8%. As for motivation, 23.3% of students bullied others for no reason, 10.4% of students for revenge, 6.4% of students for friendship, 5.6% of students for showing prestige, and 4% of students for being like others, and 1.6% of students for money. Among the participants, 26.1% of students imposed bullying behaviour on others only once, 8.4% of students reported engaging in the behaviour twice and 5.6% students three times or more.

An analysis of the influencing factors for bullying behaviour among bullied students

The effects of general personal factors on bullying: There were statistically significant differences in the prevalence of bullying by gender ($p < 0.05$). There were statistically significant differences in the prevalence of bullying in the four different specialities ($p < 0.05$), with the medical specialty having the highest prevalence. There were no statistically significant ($p > 0.05$) differences concerning grade, age, ethnicity and residence (Table 1).

The effects of family factors on bullying: There were no statistically significant ($p > 0.05$) differences regarding the following aspects: only-child status, educational background of parents, monthly allowance, parents quarrel and corporal punishment from parents (Table 2).

The effects of individual behaviour on bullying: Students who drank alcohol and liked violent TV programme had higher rates of bullying than those who did not, with significant differences ($P < 0.05$) (Table 3).

Analysis of main factors influencing on bullying

Whether bullying occurred or not was chosen as a dependent variable and the following aspects were independent variables: personal information including grade, gender, age, ethnic, residence,

Table 3: Individual Behavior Characteristics of Bullying Victims.

Variables	Total (N=249)	Bullying behavior		χ ² -value	P-value
		yes (n=99)	no (n=150)		
Average daily time online (h/d)				2.982	0.394
<1	69	29 (29.3)	40 (26.7)		
1~3	118	45 (45.5)	73 (48.7)		
4~6	48	22 (22.2)	26 (17.3)		
>7	14	3 (3.0)	11 (7.3)		
Enjoyment of computer games				0.178	0.673
No	197	77 (77.8)	120 (80.0)		
Yes	52	22 (22.2)	30 (20.0)		
Smoking				0.209	0.648
No	224	88 (88.9)	136 (90.7)		
Yes	25	11 (11.1)	14 (9.3)		
Alcohol consumption				3.898	0.048
No	223	84 (84.8)	139 (92.7)		
Yes	26	15 (15.2)	11 (9.3)		
Preference for violent TV programme				8.459	0.015
Like	31	19 (19.2)	12 (8.0)		
Generally	116	38 (38.4)	78 (52.0)		
Dislike	102	42 (42.4)	60 (40.0)		
Satisfaction on school management				1.775	0.412
Totally dissatisfied	48	20 (20.2)	28 (18.7)		
Partly dissatisfied	171	64 (54.6)	107 (71.3)		
Satisfied	30	15 (15.2)	15 (10.0)		

The p-value was determined by χ² test

Table 4: Analysis of Multivariate Non-conditional Logistic Regression Results.

Variables	b	SE	Walds	p-value	OR (95% CI)
Age					
>20					1
19~20	0.671	0.435	2.386	0.122	1.96 (0.84~4.59)
<19	1.239	0.497	6.222	0.013	3.45 (1.30~9.15)
Alcohol consumption					
No					1
Yes	1.23	0.587	4.394	0.036	3.42 (1.08~10.81)
Preference for violent TV programme					
Dislike					1
Generally	-0.291	0.294	0.979	0.322	0.75 (0.42~1.33)
Like	0.961	0.447	4.613	0.032	2.61 (1.09~6.28)

all family information, all individual behaviour and academic performance. The multivariate binary logistic regression was introduced by a stepwise backward maximum likelihood method, and the results showed that liking violent TV programme (OR 2.61, 95% CI 1.09 to 6.28), alcohol drinking (OR 3.42, 95% CI 1.08 to 10.80), aged less than 18 years (OR 3.45; 95% CI 1.30~9.15) were the main risk factors for bullying behaviour (Table 4).

Discussion

In this study, the prevalence of bullying was 39.8% among bullied students in the medical college, and the prevalence is high. This is

the first study to examine the prevalence and risk factors of bullying behaviors among the bullied students in China. It may be that the subjects who are bullied are in the high-risk group of bullying; likewise, the medical students is also a special group among undergraduates, facing both theoretical and clinical pressures and burdened with high social expectations at the same time.

In this study, there were differences in the prevalence of bullying among students by gender and specialty. The prevalence for male students was higher than for female students, the same as the results of Bowes L and Vieno AI [23,24]. The reason may be that boys are more impulsive and have more access to the outside than girls; thus, they are more likely to cause verbal friction or even a violent fight after being bullied. Boys, then, should be the key prevention target for campus violence. This study indicated that students majoring in medicine were also more likely to be bullied compared to other specialties. Research showed that the psychological health condition of medical students is poor, and they have more mental health problems than average college students the medical students have many professional courses, and their academic pressure is high, both factors that make them prone to psychological problems and bullying behaviors [34]. Therefore, the teachers in medical college should pay special attention to the psychological health of medical students and carry out psychological health education. With regard to family-specific aspects associated with bullying, some articles observed a positive association between bullying and family environments [35,36]. In this study, we did not find differences in the prevalence of bullying among bullied students on family characteristics.

The results of this study showed that the prevalence of bullying among students younger than 18 was 3.454 times that of those above 21 years old and that young age was a risk factor for bullying in medical schools. The study by Garmy P et al., [25] showed the same result. When younger students are exposed bullied threats, they lack security and legal consciousness; at this stage, they are likely to resist being bullied for seeking a sense of security and belonging by bullying others, which exacerbates the campus security environment. The school should establish protection measures especially for younger students and implement discipline related to bullying to avoid bullying behaviour.

Studies have shown that alcohol consumption is positively correlated with the prevalence of bullying [17,37]. Consistent with this survey, drinking alcohol was considered a risk factor for bullying in medical schools, and the prevalence of bullying among students who drank alcohol was 3.421 times that of students who did not drink. Colleges should focus on the undergraduates who have risky health behaviours such as drinking; this can effectively reduce the occurrence of bullying behaviours on campus. Students are prohibited from drinking excessively on campus.

In addition, the risk of bullying among students who like to watch violent TV programmes is 2.614 times that of students who do not like such programmes. Research has shown that exposure to real life and media bullying at the same time increases individual aggression and anti-social behaviour [38-40]. Undergraduates who have encountered bullying are more likely to be stimulated by provocative, violent dramas and blindly imitate violent means portrayed in programmes to solve problems, which results in violence on campus. Media literacy courses can be set up in colleges to guide and correctly supervise students, especially the being-bullied ones, away from violent programmes and to help them avoid the serious consequences that bullying brings to society, families and individuals [41].

In the current literature, this is the first study to explore the risk factors for bullying behaviour among bullied students in medical colleges in China. The findings provide some valuable information for campus bullying prevention among the bullied students in colleges in China. However, our study had several limitations to address. First, we only investigated one college with limited representativeness; further studies are needed to enlarge the sample. Second, self-reporting introduced bias, and further studies are needed to confirm these findings. Third, our study used a cross-sectional study design; therefore, causation cannot be inferred [42]. Thus, future studies need to be conducted to develop a deeper understanding of the relationship between bullying and being bullied among college students.

Conclusion

The prevalence of bullying behaviour among bullied students in medical college in Zhuzhou is relatively high. Liking violent TV programme, alcohol consumption and aged less than 18 years were the main risk factors for bullying behaviour. The findings provide some valuable information for campus bullying prevention among the bullied students in colleges in China.

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Authors Contribution

Huilan Xu had the original idea for the study and Tingting Zhu

carried out the design. Tingting Zhu and Yu Nie collected the data and information as investigators. Yu Nie completed the statistical analyses and drafted the manuscript. Yu Nie checked and revised the manuscript. All authors read and approved the final manuscript.

Ethical Approval

The study was approved by Xiangya School of Public Health IRB (No.XYGW-2016-36).

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