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Victimization and Poly-Victimization Among School-Aged Chinese Adolescents: Prevalence and Associations with Health

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Prevalence and Associations with Health

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**Abstract**

*Objective:* Given the limited number of systematic studies on child victimization in China, this study aimed to investigate the prevalence of child victimization and poly-victimization, and to examine the associations between victimization and negative health outcomes.

*Method:* Using a 2-stage stratified sampling procedure, 18,341 adolescents aged 15 to 17 years old were recruited from 6 cities in China during 2009 and 2010. Adolescents completed a self-administered questionnaire containing items about child victimization and health outcomes (e.g. health-related quality of life, posttraumatic stress disorder [PTSD], depression, deliberate self-harm, and suicide ideation). Structured multiphase logistic regression analyses were conducted to examine the associations between these factors.

*Results:* The lifetime prevalence of at least one form of victimization was 71%, whereas that of poly-victimization was 14%. Child victimization in the preceding year was associated with gender, age, number of siblings, and location of schools. Child victims were more likely to report PTSD and depressive symptoms, self-harm ideation, and poor physical and mental health.

*Conclusion:* This study provided reliable estimates of the association between child victimization and health using a large and diverse sample in China. Based on the nature of the documented associations, several suggestions for public health professionals were offered.

**Keywords**

Child victimization; Health; PTSD; Depression; Self-harm; China

## Introduction

Even a single form of maltreatment, abuse, or violence against children can have deleterious effects on their health across different domains (e.g. Chou et al., 2011; Hesketh et al., 2010; Ozer & McDonald, 2006). Poly-victimization, which refers to exposure to high levels and multiple forms of victimization (e.g. physical maltreatment, sexual abuse, peer bullying, and neighborhood violence), may have even more harmful and less reversible effects on victims (Finkelhor et al., 2007a). A relatively new concept in violence against children, poly-victimization was introduced in the studies by Finkelhor and his colleagues in the last decade (Finkelhor, Ormrod et al., 2005) and has been tested by the researchers in several exploratory studies in the U.S. during the following years (e.g. Finkelhor et al., 2007a, 2007b, 2009b). However, as noted by the researchers (Finkelhor, Ormrod et al., 2005), the scarcity of studies on poly-victimization has hindered our understanding of its effects of poly-victimization on child victims.

Poly-victimization is even more rarely studied in the Chinese populations. The issue is especially unclear in Mainland China, where accurate estimates of the prevalence of child victimization and poly-victimization have been lacking. Generalizability is one major issue: existing studies on child victimization were often focused on a single form of violence, included a small size of sample, or conducted in only one or two cities or regions in China (e.g. Chou et al., 2011; Lau et al., 1999; Lee et al., 2011; Sun et al., 2008; Wong et al., 2009). To fill this research gap, we aimed to obtain reliable child victimization prevalence rates using the well-validated Juvenile Victimization Questionnaire (Finkelhor, Hamby et al., 2005), as well as to examine the association between victimization and victims' physical and mental health using a large and diversified sample recruited from different geographic regions in China. Based on the past findings on the health impacts of child victimization (e.g. Chou et al., 2011; Foshee et al., 2004; Hesketh et al., 2010; Lau et al., 1999; Ozer & McDonald, 2006; Sun et al., 2008; Wong et al., 2009), it was hypothesized that child victimization would be associated

with poorer health-related quality of life, posttraumatic stress disorder (PTSD), depression, as well as suicidal thinking and planning.

## **Materials and Methods**

### *Sample and Study Design*

Given China's enormous population and racial diversity, recruiting a representative sample of the whole nation was very challenging. Instead, we adopted a two-stage stratified sampling procedure to recruit a diverse sample of school-aged adolescents during 2009 and 2010. At the first stage, six research sites were purposively selected: Tianjin, Shenzhen, Shanghai, Xi'an, Wuhan, and Hong Kong. The first five sites were cities located in the northern, southern, eastern, western, and central regions of Mainland China respectively. One major reason for the choice of these five cities was that they were relatively more developed in the specific geographical regions while still having some rural districts. This was to maximize the diversity and representativeness of the participations. During this stage, two urban districts and one rural district (as defined by the Government of People's Republic of China) will be randomly selected in these Mainland cities. On the other hand, Hong Kong, the last research site, is a city (special administrative region) generally regarded as having different socioeconomic, political, and legal characteristics from other cities in Mainland China. A total of 196 high schools were randomly sampled from all of the normal and special schools in Hong Kong and the three selected districts (two urban and one rural) of the Mainland cities. Among them, 150 schools agreed to participate and provided informed consent, yielding a school-level response rate of 77%. There were no significant differences between the participating and nonparticipating schools in terms of school enrolment size or geographic location.

At the second stage, one or two classes were randomly sampled from each grade of the participating schools. Students, who were 15 to 17 years old, were invited to complete a self-report survey on normal school days. In this study, there were 19,142 eligible students and

18,341 returned a completed survey, yielding an individual-level response rate of 96%. No significant differences in age or gender were found between the students who participated and those who did not.

### *Measures*

A structured questionnaire was used to capture information from participating students. In addition to respondents' gender, age, and number of siblings, the following information was assessed.

#### *Child victimization*

The Chinese version of the Juvenile Victimization Questionnaire (JVQ; Chan et al., 2011; Finkelhor, Hamby et al., 2005), a 34-item scale with five subscales covering five aspects of violence among children and adolescents, was used to assess adolescents' victimization experiences. The five subscales included: (1) conventional crime; (2) child maltreatment; (3) peer and sibling victimization; (4) sexual victimization; and (5) witnessing of, or indirect, victimization. All items were rated on a 3-point Likert scale (0 = *no experience of violence*; 1 = *experience of specific violence in the preceding year*; and 2 = *experience of specific violence before the preceding year*). Participants who responded with a 1 to any item were included in the preceding-year prevalence, whereas those responding with a 1 or 2 were considered to be in the lifetime prevalence category. Respondents who reported four types of victimization or more were considered to be poly-victims (Finkelhor, Ormrod et al., 2005). The five subscales of the Chinese JVQ demonstrated good internal consistency ( $\alpha = .63$  to  $.97$ ), concordant with prior research (Chan et al., 2011).

#### *Symptoms of posttraumatic stress disorder (PTSD)*

The 48-item UCLA PTSD index was used to assess adolescents' exposure to 26 types of traumatic events based on DSM-IV PTSD diagnostic criteria (Rodriguez et al., 1999). The scale was translated into Chinese using a back-translation procedure before it was incorporated

into the structured questionnaire. Items were rated on a yes/no scale and the translated PTSD index evidenced good reliability ( $\alpha = .95$ ).

#### *Symptoms of depression*

Symptoms of depression were assessed using the Chinese version of the Beck Depression Inventory, version II (BDI-II; Leung, 2001). The BDI-II consists of 21 groups of statements; respondents were required to choose one statement in each group that best described how they felt during the past two weeks. A 4-point Likert scale from 0 to 3 was employed, with a higher score indicating more severe depressive symptoms. The Chinese version of the BDI-II has been shown to have satisfactory validity and reliability in Leung's validation study ( $\alpha = .86-.87$ ), as well as in this study ( $\alpha = .90$ ).

#### *Health-related quality of life*

Health status was measured with the Chinese version of the 12-item Short Form Health Survey (SF-12v2; Lam et al., 2005). In accordance with the instruction manual, item scores were weighted and summarized into two component scores: physical component (PCS) and mental component (MCS) summary scores. Both PCS and MCS scores ranged from 0 to 100, with higher scores indicating better health-related quality of life. The Chinese version of the SF-12v2 demonstrated satisfactory reliability ( $\alpha = .75-.83$ ), consistent with previous research ( $\alpha = .62-.75$ ; Lam et al., 2005).

#### *Deliberate self-harm and suicide ideation*

Two items assessed adolescents' ideation of suicide and deliberate self-harm (e.g., self-cutting and self-burning). In particular, adolescents were asked whether they had ever thought about committing suicide or carrying out deliberate self-harm and rated their responses using a 4-point Likert scale (1 = *strongly agree* to 4 = *strongly disagree*).

#### *Procedure*

Informed consent was obtained from participating students and one of their parents



before the administration of the survey. Students were provided with an information sheet explaining the nature of the study and their rights, and were given sufficient opportunities to ask questions about the study prior to responding. They were also explained thoroughly about their right to refuse or to terminate the survey even their parent had provided consent. To ensure privacy, students were instructed to seal the completed questionnaire in an envelope, which was then returned to the researchers. An information card containing details of social services related to maltreatment and violence was provided to each student. Ethical approval was granted by the institutional review board of The University of Hong Kong and the Hospital Authority Hong Kong West Cluster, and the local institutional review boards of the five Mainland cities.

#### *Statistical Analyses*

The prevalence rates of child victimization and poly-victimization, as well as other health-related factors, were summarized. Due to the differing populations of the six research sites, prevalence of child victimization was weighted and adjusted according to the distribution of gender, age, and ethnicity at each research site (as reported by the National Bureau of Statistics in China, 2012).

To examine the associations between child victimization, demographic characteristics, and health-related factors, a structured 2-phase logistic regression analysis was performed. In phase 1, individual logistic regression on child victimization was performed with each demographic factor (i.e. research site, age, gender, and the presence of siblings) while adjusting for the remaining demographic factors. Multicollinearity was checked, with no indication being found. In phase 2, child victimization was regressed on each health-related factors (i.e. PTSD, depression, deliberate self-harm and suicide ideation, and physical and mental health-related quality of life) in separate regression models, while controlling for all demographic factors and the remaining health-related factors. In all analyses, missing data

were handled with listwise deletion and model goodness-of-fit was tested with the Hosmer and Lemeshow (H-L) test.

## Results

The final sample ( $N = 18,341$ ) was consisted of 53.3% boys and 46.7% girls. The mean age was 15.9 years ( $SD = 0.1$ ). About 21.4% of the adolescents were from Hong Kong, while the remaining 78.6% were from the five research sites in Mainland China. Overall, 41.1% of the adolescents were only children. In this sample, a significantly higher percentage of boys were only children (boys = 45.5%, girls = 36.2%,  $p < 0.001$ ).

Table 1 shows the weighted prevalence rates of child victimization. After adjusting for population rates at each site, the lifetime and preceding-year prevalence of child victimization were 71.4% and 58.5% respectively, while the corresponding prevalence of poly-victimization was 14.0% (lifetime) and 9.5% (preceding year). Significantly more boys than girls were poly-victims (lifetime: 16.2% versus 11.7%,  $p < 0.001$ ; preceding-year: 11.4% versus 7.5%,  $p < 0.001$ ).

[Table 1 about here]

Table 2 presents the distribution of adolescents across different health-related factors by the number of forms of victimization experienced. Significant differences between non-victims, victims of one to three types of violence, and poly-victims were found in various health-related factors. In general, poly-victims were more likely than the other two groups to report PTSD, depression, deliberate self-harm and suicide ideation, as well as poorer health-related quality of life.

[Table 2 about here]

Table 3 shows the results of the 2-phase logistic regression analysis. Living in cities in Mainland China, being a boy, and having siblings were positively associated with child victimization in the preceding year, whereas age was negatively related (all  $p < 0.001$ ). As for

the health-related factors, PTSD symptoms, depressive symptoms, and deliberate self-harm and suicide ideation were associated with higher odds of preceding-year victimization, while physical and mental health-related quality of life was related to a decreased odds of preceding-year victimization (all  $p < 0.001$ ).

[Table 3 about here]

## Discussion

This study successfully obtained a large and diversified sample in China, and is one of the largest adolescent-based survey studies to investigate the prevalence of poly-victimization and the associations of child victimization with demographics and health-related factors in the Chinese population. Over 71% of Chinese adolescents had experienced at least one form of victimization in their life, and almost one in seven of them (14%) were poly-victims. The lifetime prevalence of one to three forms of victimization was comparable to the past findings in the U.S. (66%-71%; Finkelhor, Hamby et al., 2005; Turner et al., 2010) and in China (69%; Cheng et al., 2010). Nonetheless, the lifetime prevalence rate of poly-victimization was lower than that in Finkelhor et al.'s studies (2007b, 2009b). The lower prevalence rates of poly-victimization could be expected, given that parental supervision is relatively strict in areas of China where the one-child policy is adopted (Sun et al., 2008). Chinese parents are usually very protective of their only child and this may reduce the likelihood of Chinese adolescents experiencing multiple forms of violence.

Overall, poly-victims demonstrated poorer health. They were more likely than non-victims and victims of one to three forms of violence to show symptoms of PTSD and depression, ideation of deliberate self-harm and suicide, as well as poorer health-related quality of life. These results provided preliminary supporting evidence for the claim that poly-victimization has a more negative impact on victims' physical and mental health than any single form of victimization.

The associations between victimization and health-related factors were furthered supported by the findings of logistic regression. All negative health impacts tested in this study were related to higher odds of preceding-year victimization. This result replicated the past findings on single form of victimization that have shown significant relationships between child victimization and PTSD (Chou et al., 2011), depression (Ozer & McDonald, 2006), and suicidal thinking (Sun et al., 2008). In contrast, better health-related quality of life, was related to decreased odds of victimization. Overall, the present findings with a large and diversified sample provided support associations between child victimization and negative health outcomes existed within the Chinese population.

#### *Study Limitations and Strengths*

This study is among the first to provide reliable estimates of child victimization, and to examine the association between victimization and negative health outcomes using a large and diversified Chinese sample recruited from different geographical regions. However, several limitations were present. First, the current sample was confined to six cities in Mainland China; therefore, the findings may not be generalizable to the whole country. Furthermore, due to its cross-sectional nature, it is impossible to establish a causal relationship between child victimization and health-related factors. Regarding the analysis procedure, only selected demographic and health factors were controlled for in the regression analyses. There may be other confounding factors for child victimization (e.g., personality characteristics and presence of family and community violence), but the current study may be unable to reveal the effects of these confounding factors on the relationship between victimization and health.

#### *Conclusion*

Using a large and diverse Chinese sample, the current study provided supporting evidence for the relationship between child victimization and various negative health

outcomes. The present findings merited several implications. First, children of multiple victimization and poly-victimization need prioritized intervention and treatment. The high prevalence of victimization and poly-victimization in China and the negative consequences related to poly-victimization warranted the development of more integrated screening and identification procedure for all forms of child victimization when one is detected. One feasible way is the administration of the comprehensive JVQ in health or medical settings. With reference to the association between victimization and poor health, mental and physical health care should be provided to child victims in addition to routine intervention programs. This study also underscored the need for integrated treatments of child victimization and problematic behaviors, such as deliberate self-harm and suicide ideation. Since these problems may be interrelated, prevention or intervention programs that consider all of the related factors may be more effective in helping child victims. For example, the comparable rates of victimization as reported by the adolescents in China and the Western countries reflected that the Chinese adolescents were as willing as their Western counterparts to disclose their violence experiences on a written form. Taking reference to this, prevention or intervention programs may make use of written or computer-aided forms of self-report to encourage the disclosure of violence victimization. From a policy perspective, this study provided compelling evidence to the government that poly-victimization is a significant health problem in China. Furthermore, the significant associations between victimization and negative health impacts also merit the strengthening of the existing policy in China on protection, victimization surveillance and welfare of children.

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**Conflicts of Interest**

The author declares that there are no conflicts of interest.

ACCEPTED MANUSCRIPT

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Table 1

*Weighted Lifetime and Preceding-year Prevalence of Child Victimization in China in 2009-2010, by Gender*

Victimization	Lifetime Prevalence (%)				Preceding-year Prevalence (%)			
	All (n = 1,362,506)	Girls (n = 677,150)	Boys (n = 685,356)	p-value e <sup>a</sup>	All (n = 1,362,506)	Girls (n = 677,150)	Boys (n = 685,356)	p-value e <sup>a</sup>
Child victimization				< 0.001				< 0.001
No victimization	28.6	29.7	27.6		41.5	43.1	39.9	
One type of victimization	24.5	25.6	23.4		21.7	22.7	20.8	
Two types of victimization	18.3	19.4	17.1		15.9	16.5	15.4	
Three types of victimization	14.6	13.5	15.7		11.3	10.2	12.5	
Poly-victimization (Four types of victimization or more)	14.0	11.7	16.2		9.5	7.5	11.4	

Note. <sup>a</sup> P-value by  $\chi^2$  test.

Table 2

*Distributions and Mean Scores of Adolescents in Various Health-related Factors in China in 2009-2010, by the Number of Types of Victimization*

Health-related factor	Percentage (%) / Mean score							
	Lifetime child victimization				Preceding-year child victimization			
	No victimization	Any 1-3 types of victimization	Poly-victimization (4+ types)	<i>p</i> -value <sup>a</sup>	No victimization	Any 1-3 types of victimization	Poly-victimization (4+ types)	<i>p</i> -value <sup>a</sup>
PTSD	0.8	1.0	1.4	< 0.001	0.9	1.0	1.4	< 0.001
Depression	8.2	10.9	17.0	< 0.001	9.0	11.4	17.6	< 0.001
Deliberate self-harm and suicide ideation	14.0	21.1	38.0	< 0.001	15.4	23.3	38.2	< 0.001
Physical health by SF-12 (mean score)	51.6	49.4	46.5	< 0.001	51.5	48.8	46.0	< 0.001
Mental health by SF-12 (mean score)	46.3	44.2	40.0	< 0.001	45.6	43.9	39.8	< 0.001

Note. <sup>a</sup>*P*-value by  $\chi^2$  test or ANOVA test.

Table 3

*Independent Associations between Preceding-year Child Victimization, Demographic Characteristics, and Health-related Factors among the Sample of Adolescents in China in 2009-2010*

Variable	Adjusted OR (95% CI)
(Nagelkerke $R^2 = 15.2\%$ , $p^a < 0.001$ )	
Group 1: Demographic characteristics	
School location	
Cities in mainland China <sup>b</sup>	1.81*** (1.66, 1.98)
Hong Kong	1.00
Gender	
Boy	1.19*** (1.11, 1.28)
Girl	1.00
Age (mean)	0.91*** (0.88, 0.95)
Having a sibling	2.00*** (1.85, 2.16)
Group 2: Health-related factors	
PTSD	1.09*** (1.04, 1.15)
Depression	1.02*** (1.01, 1.03)
Physical health by SF-12	0.95*** (0.95, 0.96)
Mental health by SF-12	0.99*** (0.99, 1.00)
Deliberate self-harm and suicide ideation	1.38*** (1.26, 1.52)

*Note.* OR = odds ratio, CI = confidence interval, PTSD = posttraumatic stress disorder, and SF-12 = 12-item Short Form Health Survey.

\* $p < 0.05$ . \*\* $p < 0.01$ . \*\*\* $p < 0.001$ .

<sup>a</sup>  $P$ -value by the likelihood ratio test

<sup>b</sup> Mainland China = All sites in mainland China (i.e., Shanghai, Shenzhen, Tianjin, Wuhan, and Xi'an).

### Highlights

1. The lifetime prevalence of child victimization was 71%.
2. The lifetime prevalence of multiple forms of victimization was 14%.
3. Victims were more likely to report symptoms of PTSD, depression, and self-harm.
4. Victims tended to report poorer physical and mental health.
5. Poly-victims were more likely to report poorer health and negative outcomes.