

“Boy Crisis” or “Girl Risk”? The Gender Difference in Nonsuicidal Self-Injurious Behavior Among Middle-School Students in China and its Relationship to Gender Role Conflict and Violent Experiences

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Abstract

Purpose: We attempted to test if there were gender differences in nonsuicidal self-injurious (NSSI) behaviors among Chinese middle-school students, and analyze the impact of gender role conflict and violent experiences on these behaviors among middle-school students of different genders.

Method: Based on the survey data from seven middle schools in Xi'an region of China, the gender difference in NSSI behaviors and its associated factors were analyzed in this study.

Results: There was no significant gender difference in NSSI behaviors among middle-school students; however, female middle-school students were more likely to experience gender role conflicts while male students were more likely to experience all kinds of violence earlier. Gender role conflicts and violent experiences can explain the prevalence of NSSI behaviors by gender, to some extent.

Conclusions: The hypothesis on gender patterns of “boy crisis” or “girl risk” on NSSI prevalence was not verified; however, a “girl risk” for gender role conflicts and a “boy crisis” in violent experiences were found. The gender role conflicts were significantly associated with NSSI prevalence among middle-school students to some extent; however, this relationship was adjusted by variables of violent experiences. The different variables of violent experiences were the important predictors of NSSI prevalence among male and female middle-school students with specific contents varying across genders.

Keywords

Chinese middle-school students, boy crisis or girl risk, NSSI prevalence, gender role conflict, violent experiences

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The prevalence of nonsuicidal self-injurious (NSSI) behaviors among middle-school students in China is higher than among those in Western countries and other Asia-pacific areas including Japan and South Korea, and fluctuates in a wider range (Xiao, Tao, Xu, Su, & Huang, 2008; Matsumoto & Imamura, 2008; Xiao, 2009; Li & Lin, 2008; Wang & Wang, 2009; Ae et al., 2012; Lee, 2016; Kang et al., 2014). NSSI behaviors among adolescents refer to behaviors wherein adolescents harm their body tissues and organs without intent to die (Pattison & Kahan, 1983; Favazza, 1998). About 4% of adults in the general population reported NSSI behaviors (Klonsky, Oltmanns, & Turkheimer, 2003), but this ratio was much higher among adolescents, fluctuating between 10% and

20%, and highest among adolescents aged 15–19 years; the prevalence of NSSI behaviors among female adolescents was higher than that of males, and therefore was viewed as a “feminine” behavior (Ross & Heath, 2002; Whitlock, Eckenrode, & Silverman, 2006; Brunner et al.,

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2007; Van Camp, Desmet, & Verhaeghe, 2011). A recent meta-analysis also found a female bias in NSSI prevalence among adolescents worldwide (Bresin & Schoenleber, 2015). Thus, special attention should be paid to NSSI behaviors among middle-school students and female adolescents.

There are no clear and consistent gender differences in NSSI behaviors among Chinese middle-school students, and only two studies have explored this aspect (Chao, Yang, & Luo, 2016; Yang & Feldman, 2017). First, a survey was conducted among undergraduate students in a university of northwest China in 2013, which showed that the prevalence of these behaviors among male students (25.2%) was significantly higher than among female students (20.4%). This suggested a crisis among males in the prevalence of NSSI behaviors among adolescents in China (Chao, Yang, & Luo, 2016). Second, a literature review was conducted on NSSI behaviors in Chinese people from Chinese and English literature databases, and a meta-analysis was carried out on gender differences in the prevalence of these behaviors. The assumption of "boy crisis" was supported by studies with college students; however, the prevalence of NSSI behaviors among middle-school students still operated on the assumption of "girl risk," meaning that prevalence of these behaviors was higher among female than among male middle-school students (Yang & Feldman, 2017). Here, the "boy crisis" was proposed in the 1990s in the United States to describe the phenomenon that male students had fallen behind in academic achievement as compared with their female peers (Husain & Millimet, 2009). In this article, this term was used to describe the higher NSSI prevalence among male adolescents than among their female peers. "Girl risk" was proposed to describe the higher survival risk of girls in China due to the culture of son preference (Li & Zhu, 2001). In this article, this term, as a corresponding term to "boy crisis," was used to describe the higher NSSI prevalence among female adolescents than among their male peers.

However, the studies we identified regarding NSSI behaviors among Chinese indicated that almost no studies among middle-school students have specifically analyzed gender differences in the prevalence of these behaviors and causes, suggesting that the "boy crisis" or "girl risk" hypothesis of NSSI prevalence among middle-school students in China has not yet been confirmed.

The studies we identified about NSSI behaviors show that gender role conflict and violent experiences such as sexual abuse during childhood were significantly associated with NSSI behaviors among adolescents (Briere, 1992; Lynn & O'Neill, 1995). Gender role conflict is defined as a psychological state in which the socialized male gender role has negative consequences for the person and others and is commonly used to explain suicidal

behavior (Fitzpatrick, Euton, Jones, & Schmidt, 2005; O'Neil, 2008). Due to the similarity between suicidal and NSSI behaviors, gender role conflicts were adopted for explaining the latter (Chao, Yang, & Luo, 2016). Violent experiences often come from interpersonal interactions between adolescents and their parents, teachers, or peers, including physical, language, sexual, and cold violence (Briere, 1992; Lynn & O'Neill, 1995; Carlson, 1990; Welsh, Archambault, Janus, & Brown, 1995). Cold violence is defined as a child being ignored, neglected, despised, or isolated by another person including an adult (Serra, Volpini, Serra, & Volpini, 2016). A previous study with college students revealed violent experiences were associated with NSSI behaviors among male and female college students, in which language violence was significantly associated with these behaviors. Visual violence and sexual violence were also significantly associated with the NSSI behaviors among female college students (Chao, Yang, & Luo, 2016).

This study aimed to answer the following questions: Is there a gender difference in NSSI behaviors among middle-school students in China? Does this gender difference follow the "girl risk" pattern regarding the prevalence of NSSI behaviors evidenced in western countries or the previously validated "boy crisis" pattern regarding the prevalence of NSSI behaviors among Chinese college students? Are gender role conflict and violent experiences associated with the gender differences in the prevalence of NSSI behaviors among middle-school students?

There are very few studies on gender difference in NSSI behaviors among Chinese adolescents, and even fewer studies explaining the NSSI behaviors with gender perspectives. Therefore, this study will be helpful to enrich the literature on NSSI behaviors among Chinese adolescents.

Methods

This was an exploratory, cross-sectional study with Chinese youth to assess the impacts of gender role conflicts and violent experiences on NSSI behaviors.

Study Design

The study included three key measurements.

NSSI behaviors for adolescents. The Non-Suicidal Self-Injury Assessment Tool (NSSI behaviors-AT) developed by Janis Whitlock and Amanda Purington of Cornell University was used for measuring the NSSI behaviors of adolescents (Whitlock & Purington, 2007), and the specific measurements related to these behaviors were as follows:

- (1) NSSI behaviors, measured with 0 = *no*, 1 = *yes*, were assessed by asking, "Have you ever intentionally injured yourself without the intention to die?" To make it easy to understand, 18 specific items were outlined in the questionnaire, wherein 14 NSSI behaviors were referenced from NSSI-AT and four other specific NSSI behaviors were defined based on the existing research among middle-school students in the Chinese context. These included (a) Swallow items that cannot be digested, such as plastic, stone, and so on; (b) take or swallow excessive medicine (more than the amount prescribed); (c) take illegal drugs, such as methamphetamine, ecstasy, and so on; and (d) use a cigarette to burn themselves, and so on.
- (2) The frequency of NSSI behaviors, measured with 1 = *once*, 2 = *2–3 times*, 3 = *3.4–5 times*, 4 = *6–10 times*, 5 = *11–20 times*, 6 = *21–50 times*, and 7 = *50 times or more* was assessed by asking, "How many times have you intentionally injured yourself?"
- (3) The types of NSSI behaviors were calculated by summing all the selections in the above-mentioned 18 NSSI behaviors, with one NSSI behavior being calculated as one type.
- (4) The motivations for NSSI behaviors, measured with 1 = *completely impossible*, 2 = *impossible*, 3 = *uncertain*, 4 = *possible*, 5 = *completely possible* was assessed by asking, "Are you going to intentionally injure yourself again?"
- (5) The body parts involved in NSSI behaviors were measured for 15 specific body parts including 1 = *hand*, 2 = *wrist*, 3 = *arm*, and so on by asking, "Which body part have you intentionally injured?" (See NSSI-AT).
- (6) The methods of NSSI behaviors were measured using 18 specific NSSI behaviors mentioned above (see NSSI-AT).
- (7) The motivations for NSSI behaviors, measured using 16 specific motivations, such as 1 = *friend's suggestion*, 2 = *relevant information from TV, magazines or network*, and so on were assessed by asking, "What are the motivations for your NSSI behaviors?" (See NSSI-AT).
- (8) The consequence of NSSI behaviors, measured with six specific consequences, such as 1 = *difficulty in dealing with interpersonal relationships*, 2 = *cannot successfully complete their studies or work*, and so on were assessed by asking, "What are the consequences of your NSSI behaviors?" (See NSSI-AT).

Gender role conflict. The gender role conflict scale is commonly used to measure conflicts that men experience in

gender role adaptation, such as Gender Role Conflict Scale (GRCS) (O'Neil, Hemls, Gable, David, & Wrightsman, 1986), or to measure conflicts that women experience when in a male-dominant professional position, such as Athletic Sex Role Conflict Inventory (ASRCI) developed by Sage and Loudermilk (1979) as well as Sex Role Conflict Scale for workplace by Koberg and Chusmir (1987). Blazina, Pisecco, and O'Neil (2005) developed a Gender Role Conflict Scale for adolescents (GRCS-A) based on O'Neil's study. However, existing research lacks the gender role conflict scale for both genders. The Masculine Gender Role Stress (MGRS) (Eisler & Skidmore, 1987) and Feminine Gender Role Stress (FGRS) (Gillespie & Eisler, 1992) scales were developed to measure the stress that men and women adapt to in their gender roles, which could be used to measure the gender role conflicts among both genders. It was indicated in existing research that the two scales were applied across different countries including United States, the Netherlands, Poland, and China and with diverse populations including middle-school students, college students, and adults, and the reliability and validity of the two scales were confirmed (Tang & Lau, 1996; Van Well, Kolk, & Arrindell, 2005; Kazmierczak, 2010; Young, 2012).

Therefore, in this study, the two scales were adopted to conduct cross-cultural and cross-group modifications with experts' review methods for male and female adolescents in the Chinese context. Finally, gender role conflict scales for female middle-school students (35 items) and for male middle-school students (40 items) were obtained. The internal consistency coefficients of the two scales from data analysis indicated good reliability for both scales (male: 0.94; female: 0.93). The total scores of each scale were obtained by adding each score of each item within the scale. The higher the score, the stronger was the gender role conflict. As there were 40 questions for the male gender role conflict scale as compared to 35 questions for females, the total score of the female gender role conflict scale was adjusted, making the total scores of female and male gender role conflict scales comparable. The formula was as follows:

Adjusted total score of female gender role conflict scale = original total score/35 × 40 (formula 1)

Violent experiences. Based on the previous qualitative interviews among college students and middle-school students and the existing research (Carlson, 1990; Briere, 1992; Lynn & O'Neill, 1995; Welsh, Archambault, Janus, & Brown, 1995), the violent experiences were categorized into five types, including language, physical, visual, cold, and sexual violence. Therefore, the violent experiences in this study were measured with 1 = *never*; 2 = *seldom*; 3 = *sometimes*; 4 = *often*; 5 = *always* by asking,

"Have you ever experienced language/physical/visual/cold/sexual violence?" Here, "cold violence" was specifically defined as "being completely ignored by others."

To explore the violent experiences in detail, the sources of language/physical/cold/sexual violence (parents or guardians/siblings/classmates or peers/girlfriend or boyfriend/relatives/teachers/strangers/other people) were determined by asking "Who committed the violence against you?" The sources of visual violence (TV or movie/video game/internet/seeing violence by eyes / other) were determined by asking "Where were you exposed to visual violence?" The ages of first/last violent experiences were determined through the question, "At what age did you first/last experience the language/physical/visual/cold/sexual violence?"

Additionally, variables such as age, whether he or she was the only child, parents' educational level, and family economics were also included.

Participants and Study Protocol

The data used in this study are from "the survey on health risk behavior among middle-school students" conducted in September and October in 2014 in Xi'an. The stratified proportion sampling methods were adopted for selecting boys and girls from grades 7 to 12 of seven middle schools in Xi'an (four key and three ordinary middle schools). The study protocol was evaluated and approved by the Academic Committee of Public Administration College of Xi'an Jiaotong University, and informed consents were signed by the parents before the formal survey. We sent 1,200 questionnaires and 1,180 valid questionnaires were returned (return rate: 98.33%), of which 655 were male students, 55.5%; and 525 were female students, 44.5%. Moreover, 124 students were in grade 7, 10.8%; 230 in grade 8, 20%; 256 in grade 9, 22.3%; 260 in grade 10, 22.6%; 189 in grade 11, 16.4%; and 90 in grade 12, 7.8%.

Data Analysis

First, the independent sample *t*-test and crosstab analysis methods were adopted to analyze the gender differences in NSSI behaviors, gender role conflicts, and violent experiences among middle-school students.

Second, three models were constructed with "whether NSSI behavior was adopted" as the dependent variable among the samples of male students using the binary logistic regression method. Model 1 adopted the gender role conflict as the independent variable; Model 2 added the violent experiences as the other independent variable to Model 1; Model 3 added age, whether he or she is the only child, father's educational level, mother's educational level, and family economic situation as control variables to Model 2.

Third, three models were constructed with "whether NSSI behavior was adopted" as the dependent variable among the samples of female students using a binary logistic regression method. Model 4 adopted gender role conflict as the independent variable; Model 5 added violent experiences as the other independent variable to Model 4; Model 6 added age, whether he or she is the only child, father's educational level, mother's educational level, and family economic situation as control variables to Model 5.

Results

Table 1 presents the results of gender differences in NSSI behaviors among middle-school students. There was no significant gender difference in the prevalence of NSSI behaviors, the frequency of these behaviors, body parts, methods, motivations, and consequences of NSSI behaviors. Only the types of NSSI behaviors was significantly higher for male (1.18) compared to female students (0.88) ($t = 1.96^*$).

Table 2 presents the differences in gender role conflict and violent experiences of middle-school students. The mean score of gender role conflict was significantly higher for female compared to male middle-school students ($t = 12.438, p < .001$). Except for the experiences of cold violence, the experiences of language, physical, visual, and sexual violence were significantly higher for male compared to female students (language violence: $t = -5.408, p < .001$; physical violence: $t = -4.41, p < .001$; visual violence: $t = -12.73, p < .001$; sexual violence: $t = -2.64, p < .01$).

Figures 1–5 present the detailed sources of violent experiences by gender. As shown in the figures, classmates or peers were most likely to commit language violence against both genders, followed by parents or guardians and strangers, with more language violence being experienced by boys than girls. Parents or guardians were most likely to commit physical violence against both genders, followed by classmates or peers and teachers, with more physical violence being experienced by boys than girls. Both genders were most likely to be exposed to visual violence through TV or movies, followed by video games and seeing violence by eyes, with more visual violence experienced by boys than girls. Classmates or peers were most likely to commit cold violence against both genders, followed by parents or guardians, with similar levels of cold violence experienced by boys and girls. Classmates or peers were most likely to commit sexual violence against both genders, followed by parents or guardians, boyfriend or girlfriend, strangers, teachers, and siblings, with more sexual violence being experienced by boys than girls.

Figure 6 presents the ages of first and last violent experiences by gender. As shown in Figure 6, the age of

Table 1. The Gender Difference in NSSI Behaviors Among Middle-School Students.

| | Male middle-school students | | Female middle-school students | |
|--|---|-------------|---|-------------|
| | Cases/mean (percentage/ <i>SD</i>) | | Cases/mean (percentage/ <i>SD</i>) | |
| | Yes | No | Yes | No |
| The prevalence of NSSI behaviors | 163 (37.6%) | 271 (62.4%) | 132 (39.1%) | 206 (60.9%) |
| | | | $\chi^2 = 0.71$ | |
| The frequency of NSSI behaviors | 0.54 (1.35) | | 0.55 (1.18) | |
| | | | $t = 0.095$ | |
| The types of NSSI behaviors | 1.18 (0.13) | | 0.88 (0.08) | |
| | | | $t = 1.96^*$ | |
| The motivations of NSSI behaviors | 2.36 (1.34) | | 2.36 (1.23) | |
| | | | $t = -0.022$ | |
| Body parts of NSSI behaviors (top five) | Hand (48 person-times) Arm (46 person-times) Wrist (35 person-times) Head (20 person-times) Face (20 person-times) | | Hand (54 person-times) Arm (53 person-times) Wrist (29 person-times) Face (12 person-times) Thigh (10 person-times) | |
| Methods of NSSI behaviors (top three) | To scratch or tear skin (51 person-times) Not to let the wound heal intentionally (39 person-times) To pull hair, eyelashes or eyebrows consciously and violently (34 person-times) | | To scratch or tear skin (56 person-times) To severely scratch skin with nails or other objects (e.g., glass slag, needles, thumbtacks), resulting in bleeding and leaving scars (41 person-times) To pull hair, eyelashes or eyebrows consciously and violently (32 person-times) | |
| Motivations of NSSI behaviors (top three) | I am very angry with myself, so decided to try (20 person-times) Unable to remember (19 person-times) To show courage (18 person-times) | | I am very angry with myself, so decided to try (18 person-times) Unable to remember (14 person-times) I am very angry with others, and decide to try (12 person-times) | |
| Consequences of NSSI behaviors (top three) | Difficult to deal with interpersonal relationships (32 person-times) Unable to complete studies or work (27 person-times) Unable to engage in things of interest (20 person-times) | | Difficult to deal with interpersonal relationships (17 person-times) Difficult to realize self-worth/self-esteem (15 person-times) Unable to engage in things of interest (13 person-times) | |

Note. NSSI = nonsuicidal self-injurious. * $p < .05$.

first violent experience for both genders ranged from 3 to 5, with boys experiencing it for the first time at a younger age than girls, while the age of last violent experience for both genders ranged from 7 to 11, with boys experiencing it for the last time at a younger age than girls.

Table 3 presents the results from binary logistic regression on factors associated with the prevalence of NSSI behaviors among middle-school students by gender. In Model 1, the gender role conflict had no significant impact on the NSSI behaviors among male students. When the five variables of violent experiences were included in Model 2, except the gender role conflict and the new added variable of the experiences of visual violence, the experience of language, physical, cold, and sexual violence all

had a significantly positive impact on the NSSI behaviors among the male middle-school students (language violence: $EXP(\beta) = 1.362, p < .05$; physical violence: $EXP(\beta) = 1.385, p < .05$; cold violence: $EXP(\beta) = 1.307, p < .05$; and sexual violence: $EXP(\beta) = 2.368, p < .01$). When the control variables were included in Model 3, the impacts of gender role conflict and all variables of violent experiences on NSSI behaviors remained almost unchanged in direction and coefficient size; however, they significantly decreased to some extent. The newly added control variables had no significant impact on the NSSI behaviors among male middle-school students.

As the variables were included into the models step by step, their explanatory power increasingly improved. The

Table 2. Gender Difference in Gender Role Conflict and Violent Experiences of Middle-School Students.

| | Male middle-school students | | Female middle-school students | |
|-----------------------|-----------------------------|-------|-------------------------------|-------|
| | Mean | SD | Mean | SD |
| Gender role conflicts | 88.79 | 27.56 | 109.44 | 25.95 |
| | | | $t = 12.438^{***}$ | |
| Language violence | 2.39 | 1.08 | 2.06 | 0.97 |
| | | | $t = -5.408^{***}$ | |
| Physical violence | 1.96 | 0.89 | 1.73 | 0.85 |
| | | | $t = -4.41^{***}$ | |
| Visual violence | 2.67 | 1.28 | 1.85 | 0.89 |
| | | | $t = -12.73^{***}$ | |
| Cold violence | 1.90 | 1.02 | 1.97 | 0.91 |
| | | | $t = -1.08$ | |
| Sexual violence | 1.15 | 0.61 | 1.07 | 0.43 |
| | | | $t = -2.64^{**}$ | |

Note. $^{**}p < .01$. $^{***}p < .001$.

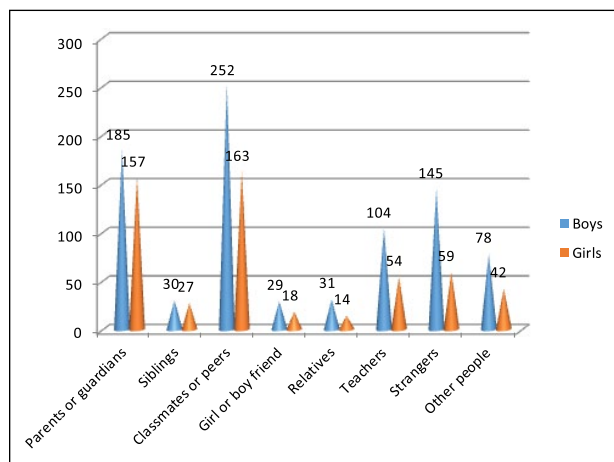


Figure 1. Who committed the language violence against boys and girls?

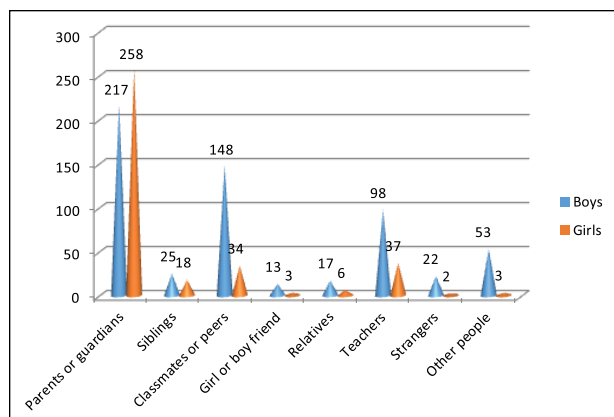


Figure 2. Who committed the physical violence against boys and girls?

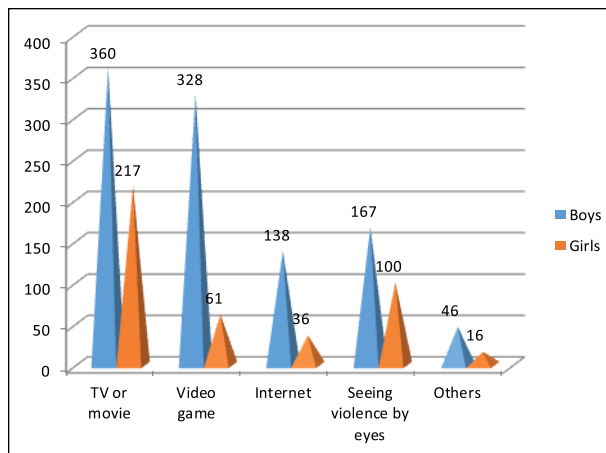


Figure 3. Where were the boys and girls exposed to visual violence?

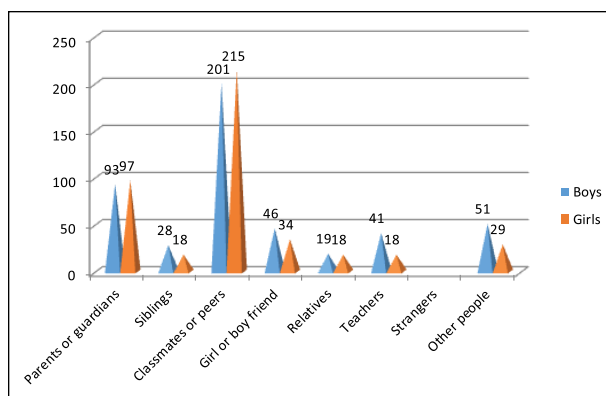


Figure 4. Who committed the cold violence against boys and girls?

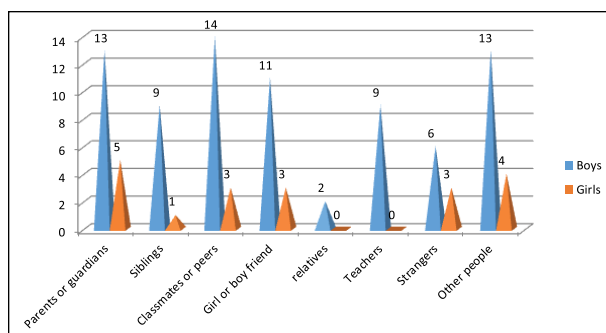


Figure 5. Who committed the sexual violence against boys and girls?

Cox & Snell R^2 and Nagelkerke R^2 in Model 1 were only .004 and .006, respectively, while in Model 2, this markedly improved to .146 and .199 when the variables of violent experiences were included, and further improved to .164 and .225 in Model 3.

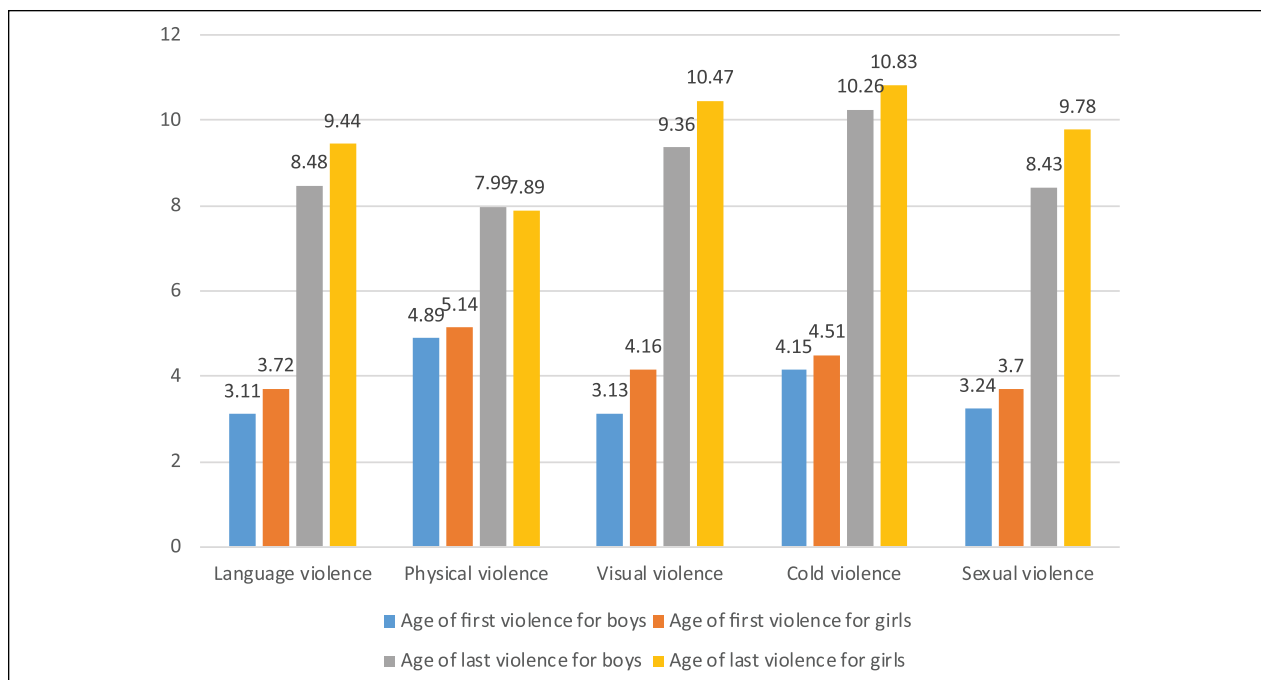


Figure 6. At what ages for the first and most recent violent experiences by gender?

Table 3. The Impact of Gender Role Conflict and Violent Experiences on the Prevalence of the NSSI Behaviors Among Middle-School Students by Gender.

| Dependent: whether NSSI behaviors behavior occurs (reference: No) | | Male students | | | Female students | | | |
|---|--|-------------------|-----------|-----------|-----------------|----------|----------|---------|
| | | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 | |
| Independent variables | Gender role conflict | 1.005 | 0.999 | 0.998 | 1.011* | 1.005 | 0.999 | |
| | Violent experiences | Language violence | | 1.362* | 1.345+ | | 1.373+ | 1.365+ |
| | | Physical violence | | 1.385* | 1.424* | | 1.020 | 0.950 |
| | | Visual violence | | 1.045 | 1.174 | | 1.509** | 1.778** |
| | | Cold violence | | 1.307* | 1.337+ | | 1.038 | 1.026 |
| Sexual violence | | 2.368** | 2.284* | | 0.950 | 1.133 | | |
| Control variables | Age | | | 0.862 | | | 0.739** | |
| | Whether is the only child (reference: No) | | | 0.904 | | | 0.811 | |
| | Father's educational level (reference: primary school and below) middle school | | | 1.201 | | | 0.772 | |
| | | College and above | | | 1.259 | | 1.342 | |
| | Mother's educational level (reference: primary school and below) middle school | | | 0.573 | | | 0.913 | |
| | | College and above | | | 0.926 | | 0.606 | |
| Family economic situation | | | 1.283 | | | 0.850 | | |
| 2 Log Likelihood | | 514.27 | 387.86*** | 326.59*** | 390.78* | 334.40** | 284.00** | |
| Cox & Snell R ² | | 0.004 | 0.146 | 0.164 | 0.014 | 0.082 | 0.143 | |
| Nagelkerke R ² | | 0.006 | 0.199 | 0.225 | 0.019 | 0.110 | 0.192 | |

Note. NSSI = nonsuicidal self-injurious.
 * $p < .05$. ** $p < .01$. *** $p < .001$. + $p < .1$.

In Model 4, gender role conflict had a significant positive impact on the prevalence of NSSI behaviors among

female students ($EXP(\beta) = 1.011, p < .05$). When variables of violent experiences were included in Model 5, the

impact of gender role conflict on the prevalence of NSSI behaviors was no longer significant, and the experiences of physical, cold, and sexual violence had no significant impact on the prevalence of NSSI behaviors, while the experiences of language and visual violence had a significant positive impact on the prevalence of NSSI behaviors (language violence: $EXP(\beta) = 1.373, p < .1$; visual violence: $EXP(\beta) = 1.509, p < .01$). When the control variables were included in Model 6, the impact of gender role conflict and variables of violent experiences on NSSI behaviors remained almost unchanged in the coefficient size and significance as compared to Model 5; however, age had a significant negative impact on the prevalence of these behaviors ($EXP(\beta) = 0.739, p < .01$).

As the variables were included into the models step by step, their explanatory power increasingly improved. The Cox & Snell R^2 and Nagelkerke R^2 in Model 4 were only .014 and .019, respectively, which improved to .082 and .110 in Model 5, and .143 and .192 in Model 6.

Discussion

The results revealed that the prevalence of NSSI behaviors was slightly lower among male students (37.6%) than among female students (39.1%); however, the difference was not statistically significant. In this study, except for the types of NSSI behaviors, there was no significant gender difference in other characteristics of these behaviors (including prevalence, frequency, intention, methods, body parts, motivations, and consequences) among middle-school students. This suggests that the hypotheses of “boy crisis” or “girl risk” regarding the NSSI behaviors among Chinese middle-school students were not shown (Van Camp, Desmet, & Verhaeghe, 2011).

However, regarding gender differences in gender role conflict and violent experiences, girls' gender role conflict was significantly higher than that of boys, which is similar to findings from a previous study of university students (Chao, Yang, & Luo, 2016). A possible reason is that gender norms, though strict, are increasingly becoming relaxed. Consequently, girls are likely to face greater gender role conflict when growing up in China's transitional male-dominated society (Yang, Lu, & Li, 2011). Most studies of gender role conflicts among Chinese adolescents focused on one gender or did not provide results by gender (Li, 2011; Xu, 2016); therefore, the results of this study contribute to studies on gender role conflicts.

Moreover, irrespective of the type of violence, boys usually experience more violence more than girls, even sexual violence. This contrasts with Western studies (Simmons, 2010), but is consistent with findings from relevant studies in China (Zhu, 2011; Tian, 2010; Niu, 2015; Zhang, 2012; Zhou, 2006). A possible explanation is that gender role expectations of Chinese Confucian

culture are different for boys and girls. In contemporary China, families generally believe that girls should be born into wealth and given more care, but boys should be poorly supported and more strictly disciplined for a better future (Liu & Li, 2015). Given this belief, boys usually face more violent experiences. However, this inference should be validated with more data in the future. Further detailed analysis showed that classmates or peers, parents or guardians, and TV or movies were the top three sources of violent experiences among middle-school students for both genders. The age of first violent experience for both genders ranged from 3 to 5, with boys experiencing it for the first time at a younger age than girls, and the age of last violent experience for both genders ranged from 7 to 11, with boys experiencing it for the last time at a younger age than girls.

The prevalence of NSSI behaviors among male middle-school students is independent of their own gender role conflict, which is inconsistent with findings from a previous study among college students, wherein gender role conflict had an independent and stable positive impact on NSSI behaviors among male college students (Chao, Yang, & Luo, 2016). Some studies were conducted on the relationship between gender role conflicts and suicidal behaviors (Fitzpatrick et al., 2005; Xu, 2016); however, only one was conducted on the relationship between gender role conflicts and NSSI behaviors. Therefore, the results of this study contributed to the interpretation of research on NSSI behaviors.

The NSSI behaviors among male middle-school students were significantly correlated with various violent experiences, and this relationship was very stable with an explanatory power above 14%. Except for visual violence, the other four types of violent experiences had significant impact on the prevalence of NSSI behaviors among male middle-school students, that is, male students who more frequently experienced the four types of violence were more likely to adopt NSSI behaviors. Moreover, the impact of sexual violence on NSSI behaviors was greater and more pronounced than that of the other three violent experiences. This might be explained by the Chinese specific gender norms and the gender differences in rearing patterns of Chinese families. According to Chinese traditional gender norms, it is viewed as a “disadvantage” if a girl has sexual intercourse with a boy; but if the same thing happens to a boy, it is viewed as “taking advantage,” which also leads to insufficient sexual protection for boys in education systems (Liu, He, & Zheng, 2010). As mentioned earlier, boys are easily neglected in the education system of families and schools, which might make this group more susceptible to sexual violence and have a significant impact on prevalence of NSSI behavior among boys (Liu & Li, 2015).

The explanatory power of the gender role conflict in the models was lower than that of the variable of violent experiences, indicating that these were still the most effective variables for explaining the prevalence of NSSI behavior among male and female middle-school students. The explanatory power of violent experiences among male middle-school students was greater than that among female middle-school students, suggesting that, except for the gender role conflict and violent experiences, there are other important variables explaining the NSSI behaviors among female middle-school students, such as emotional disturbance, depression, mental disorder, and social phobia (Suyemoto & MacDonald, 1995; Inalbon, Ruf, & Schmid, 2012).

Limitations

This study had some limitations. First, the data used in this study were from middle schools in urban areas of Xi'an, not including middle schools in rural area. Therefore, the results of the analysis partly reflect the NSSI behavior and associated factors among middle-school students in urban areas of western China, rather than the relevant situation in rural and urban areas in central and western regions. In the future, research on middle-school students in rural areas and urban students in central and western regions should be included when examining this study's hypothesis and the impact of different social environments on NSSI behaviors among middle-school students should be observed.

Second, as the measurements of NSSI behaviors were not normed for Chinese adolescents until now, caution should be exercised when comparing the results of NSSI behaviors obtained in this study with other similar studies among Chinese middle-school students. Due to the limited number of samples, only very simple measurement of important independent variable violent experiences was adopted in this study; when they happened or who committed these acts of violence were excluded from the model. In the future, the measures should be normed for Chinese adolescents and detailed information on violent experiences should be analyzed and discussed.

Third, in this study, we attempted to test if there were gender differences in NSSI behaviors among middle-school students, and analyze the impact of gender role conflict and violent experiences on these behaviors among middle-school students of different genders. Many associated factors were excluded, such as Confucian cultures, personality traits of middle-school students, relationships between teachers and students, peer relationships, and parent-child relationships. In future, these factors associated with gender differences should be summarized with literature review methods

and verified using large-scale survey data. In addition, findings relevant to critical cultural issues shown in this study should be tested in other areas and societies.

Fourth, as the prevalence of NSSI behaviors was not high (37.6% for males and 39.1% for females), the samples who did not demonstrate these behaviors were automatically deleted when the regression analysis was performed, resulting in a smaller sample size, and thus only a relatively simple analytical method was adopted. In the future, a larger range of surveys should be conducted or data from different studies should be combined to use more complicated analysis methodologies for obtaining clearer associated factors and paths for NSSI behaviors among middle-school students.

Implications and Contributions

This is the first evidence-based study focusing on gender differences in NSSI behaviors among Chinese middle-school students, explained in terms of gender role conflicts and violent experiences. The results did not support the hypothesis of "boy crisis" or "girl risk," but still revealed a gender pattern in the relationship of gender role conflicts and violent experiences with NSSI behaviors among middle-school students. We found a "girl risk" for gender role conflicts and a "boy crisis" in violent experiences; specifically, female middle-school students were more likely to experience gender role conflicts while male middle-school students were more likely to experience all kinds of violence at a younger age. In addition, classmates or peers, parents or guardians, and TV or movies were the top three sources of this violence. The findings will be helpful to enrich existing literature on NSSI behaviors and violent experiences among Chinese adolescents, and emphasize the need for continued efforts to explore NSSI behaviors across different societies. Results stress the need for gender and age-specific interventions for Chinese adolescents.

Conclusion

To conclude, there was no significant gender difference in NSSI behaviors among middle-school students. The hypothesis of "boy crisis" or "girl risk" in NSSI behaviors among Chinese middle-school students was not supported in this study.

Second, female middle-school students were more likely to experience gender role conflicts, male middle-school students were more likely to experience all kinds of violence at a younger age, and classmates or peers, parents or guardians, and TV or movies were the top three sources of violent experiences, indicating a "girl risk" for gender role conflicts and a "boy crisis" in violent experiences.

Third, gender role conflict had a positive impact on prevalence of NSSI behaviors among male and female middle-school students to some extent, meaning that, the risk of NSSI behaviors was higher among middle-school students with a stronger gender role conflict, but this impact was adjusted by the variable of violent experiences.

Fourth, violent experiences were the most important variables for explaining the prevalence of NSSI behavior among male and female middle-school students, but the specific variables varied across genders. Male middle-school students who experienced language, physical, cold, and sexual violence and female middle-school students who experienced language and visual violence were more likely to commit NSSI behaviors. Moreover, the power for violent experiences explaining the NSSI behaviors among male middle-school students was greater than that of female middle-school students.

List of Abbreviations

NSSI, nonsuicidal self-injurious
 NSSI behaviors-AT, Non-Suicidal Self-Injury Assessment Tool
 GRCS, Gender Role Conflict Scale
 ASRCI, Athletic Sex Role Conflict Inventory
 GRCS-A, Gender Role Conflict Scale for adolescents
 MGRS, Masculine Gender Role Stress
 FGRS, Feminine Gender Role Stress


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