

# The Relationship Between Stress and Bullying Among Secondary School Students

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## Abstract

*Background:* In Hong Kong, secondary school students face high levels of stress due to the examination oriented curricula. According to Sun (2006), some secondary school students cannot bear the pressure when facing the examinations, and some of them may exhibit destructive behaviors such as suicide and bullying. Therefore, cases of school bullying break out frequently (Ming Pao, 2003, 2004). Moreover, school alienation contributes to the risk of bullying while support from teachers and peers decreases one's tendency towards bullying (Natvig et al., 2001).

*Aims:* The objective of this study is to investigate the relationship between students' stress and bullying. Based on an insight into prevention of bullying in school, some applicable strategies to prevent students' academic and interpersonal stress will be suggested.

*Sample:* Altogether 340 Fung Kai No. 1 Secondary School students, 200 boys and 140 girls, participated in the present study.

*Methods:* Students completed and returned two questionnaires: the Subjective Stress Scale (Li and Ng, 1992) and the Bullying Checklist (Chui, 2001), in class.

*Results:* The results show that girls felt more stressed than boys in the family, and they also exhibited more social bullying than boys did. Both interpersonal and personal stress are factors leading to bullying.

*Conclusion:* In the present study, girls felt more stressed than boys in the family. They were eager to be more independent from the family. This arouses conflict between parents and daughter. It was found that Form 3 perceived higher levels of academic and personal stress than Form 1 students. It is understood that they were experiencing identity formation and making decisions on future study in art or science. Provision of a one-week orientation program for Form 1 students before the commencement of the school term is recommended. Finally, workshops for parents were introduced to enhance parent-child relationships and to help them communicate effectively with their children.

**Keywords:** stress, bullying, and prevention.

## 中學生的壓力與欺凌行為的相關研究

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### 概要

*背景:* 香港學生面對沉重的考試壓力，在未能承受有關的壓力下而透過自 或欺凌行為抒發不安的情緒。近年學校欺凌事件時有發生。研究發現老師及同儕的支持有助 少學童欺凌行為。

*目的:* 探索壓力與欺凌行為的關係，並根據所得的結果建議如何預防壓力及欺凌行為的發生。

*調查對象:* 340名就讀鳳溪第一中學的學生參與此項研究。當中包括200名男生及140名女生，全部就讀中一及中三年級。

*調查方法:* 他們在班中填寫兩份有關壓力及欺凌行為的自陳式問卷。

*調查結果:* 果發現女同學承受較大的家庭壓力，她們亦通常表現更多社會性欺凌，例如造謠、嘲笑侮辱他人、或孤立同學。另外，本研究顯示人際壓力及個人壓力最能引致欺凌行為的出現。

*總結:* 學校可於入學前提供約一星期的中一新生適應課程，讓他們多了解有關中學生的生活，包括學習、人際關係、課堂的適應、遇上困難時如何求助等。建立家長支援中心提供講座及情緒支援，增強家校合作，讓家長、學校、學生三方面作有效的溝通。

**關鍵詞:** 壓力、欺凌、預防

In Hong Kong, secondary school students face high levels of stress due to the examination oriented curricula. Two important public examinations—HKCEE and ALEVEL—are strongly related to students' future study and career opportunities. According to Sun (2006), some secondary school students cannot bear the pressure when facing the examinations, and some of them may exhibit destructive behaviors such as suicide and bullying. Therefore, cases of school bullying break out frequently (Ming Pao, 2003, 2004). Bullying has a close relationship with one's personality, social cognitive development, and social phenomena (Chan & Chan, 2005). Moreover, school alienation contributes to the risk of bullying while support from teachers and peers decreases one's tendency towards bullying (Natvig et al., 2001).

The objective of this research is to investigate the relationship between the students' stress and bullying. Based on insight into prevention of bullying in school, some applicable strategies to prevent students' academic and interpersonal stress will be suggested. Meanwhile, differences between genders and forms in perceiving stress and practicing bullying are also investigated.

## **Literature Review**

### *Researches Related to Academic Stress*

Owen (2005) replicated Kyriacou and Butcher's study (1993); the results showed that students worried about their examinations and homework due to comparisons with their classmates (Mortenson, 2006; Owen, 2005).

The arguments concerning a link between gender and academic stress are fierce. On the one hand, Owen (2005) suggested that girls are under higher stress in examinations, while other researches

found that boys suffered from more academic stress than girls (Little & Garber, 2004). On the other hand, a study conducted by Yu and Chen (2001) showed that there was no gender difference in perceiving academic stress. Therefore, it is significant to examine the gender difference in academic stress in this study.

The academic stress of students is influenced by Chinese culture. Since parents have excessive expectations of their children (Chui, 2000), they like to compare their children's examination results with those of others (Chui, 2000; Yu & Chen, 2001), which has a negative impact on students' beliefs. From the students' perspective, their failure in examinations results in losing face, and therefore damages their relationships with parents and friends (Chui, 2000; Yu & Chen, 2001).

### *Researches Related to Interpersonal Stress*

Students who do not have good friends in school easily meet with interpersonal stress (Matsushima & Shiomi, 2003). Siann and colleagues (1993) discovered characteristics of the victims such as having few friends, difficulty in communication, and low self-efficacy. These factors had positive correlations with interpersonal stress (Matsushima & Shiomi, 2003). Besides, girls had more interpersonal stress because they were more concerned about their families and friends while boys were more concerned about themselves (Gore et al., 1993).

### *Definition of Bullying*

Bullying is a kind of aggressive behavior (Olweus, 1999). Since this kind of behavior occurs in school, bullying is included as a kind of school violence (Olweus, 1999).

*Social-cognition perspective*

Bullying can be modeled. Social learning and reinforcement affect students who model the bullying behavior (Orpinas & Horne, 2006). Moreover, they can learn from their family and culture (Macklem, 2003). If their families use aggressive behavior to solve problems, children learn to communicate with others and achieve their goals aggressive ways (Orpinas & Horne, 2006).

Reinforcement and punishment encourage students to perform bullying (Orpinas & Horne, 2006). Bullying can reinforce students gaining a higher status in their group (Fox & Boulton, 2005). Also, bullying can give students various kinds of reinforcements, such as enjoying laughing with their peers and receiving money from their victims (Orpinas & Horne, 2006).

Self-efficacy affects stressed students' bullying of others (Bartlett, 1998). People have many goals in their lives. When their self-efficacy is low, their goals become the stressors (Bartlett, 1998). They think that they cannot control events in their lives, and then feel stress (Matsushima & Shiomi, 2003). Usually, they use aggression to solve their problems and to reduce their stress, and repeat it (Orpinas & Horne, 2006).

*Researches related to bullying*

Bullying is very common in schools. In the United States, 75 percent of middle school and high school students reported that they had experienced bullying (Harachi et al., 1999). In Scotland, 16.7 percent of students claimed they were victims (Karatzias et al., 2002). In Japan, 75 percent of students had suffered bullying (Morita et al., 1999).

According to these results, the United States and Japan had similar bullying rates and the rates were high (Harachi et al., 1999; Morita et al., 1999). They shared a similar classroom environment: in

Japan there were about 33 students per class and in the United States there were 24 to 26 students per class (Harachi et al., 1999; Morita et al., 1999). The results showed that the crowded classroom environment was one of the factors in bullying. In Hong Kong, it was reported that there were around 38 students per class in secondary school (Education Bureau, 2007). As a result, Hong Kong secondary schools had a higher chance of having higher bullying rates.

Many researchers found that boys performed physical bullying (Chan and Chan, 2005; Harachi et al., 1999; Morita et al., 1999), while girls performed relational aggression (Chan & Chan, 2005; Defour, 2005). Boys preferred performing physical bullying to express their masculinity (Chui, 2000). They wanted to show their power and wanted to control others (Macklem, 2003). Furthermore, boys were able to gain happiness and pleasure when they bullied (Chan & Chan, 2005). Girls bullied their peers by spreading rumors to others, excluding victims, and sending intimidating letters to victims (Macklem, 2003). In relational bullying, physical strength was not an important factor. Therefore, girl bullies could be smaller (Macklem, 2003). Firstly, girls bullies tried to gain attention from other people through bullying others. Secondly, one research proposed that girls bullied their peers in order to create excitement in their school lives due to boredom (Owen, 2005).

Several hypotheses were examined in this research. First, gender differences in perceiving different sources of stress, such as stress from family, academic stress, personal stress, interpersonal stress, and environmental stress were investigated. Second, gender differences in performing different types of bullying, such as physical bullying, verbal bullying, and social bullying, were also examined. Third, the

question was asked: what sources of stress could lead to student bullying? Fourth, it was asked: what sources of stress could lead to students bullying the opposite gender?

## Method

### *Participants*

In total, 340 Form 1 and Form 3 students from one of the oldest secondary schools in the northern district of the New Territories participated in the study (140 girls and 200 boys). Students completed and returned the questionnaires in class. All questionnaires were collected by mid March 2008.

### *Instruments*

The subjective stress scale developed by Li and Ng (1992) contains 25 items assessing five factors of stressors, which were rated on three levels: 0 “no distress”, 1 “distress”, and 2 “very distressed”. The stressors were (1) family stressors (items 4–8), (2) interpersonal stressors (items 9–13), (3) academic stressors (items 14–18), (4) personal stressors (items 16–20), and (5) environmental stressors (items 24–28). Each factor contained five items. It was widely used in Hong Kong (Li & Ng, 1992; Fung & Sun, 1997; Sun, 2000). The overall reliability of this scale was .90 (Sun, 2000).

The bullying checklist developed by Chui (2001) contains 17 items, a self-report scale scored as: 3 for “always”, 2 for “often”, 1 for “sometimes”, and 0 for “no”. This rating scale checked the frequency of performing bullying behavior in previous half years. It included physical bullying including “fighting”, “hurting others physically”, and “demolishing” (items 32, 34, 36, and 40–42), verbal bullying including “insulting others verbally”, “speaking dirty language to others”, and “verbal attacks on others” (items 29, 30, 35, and 37–39), and social bullying including

“isolating others” and “spreading rumors” (items 31, 33, and 43–45). Thirty subjects from Form 1 and Form 3 were selected for a pilot test conducted to examine the reliability of the scale; the overall reliability was 0.75 with the deletion of items 34, 35, and 45.

Therefore, the two scales were selected for the study provided that they demonstrated high reliabilities and have been widely used in Hong Kong.

### *Data Analysis*

Independent sample *t*-tests were employed to examine the gender and form differences in perceiving stress and performing bullying behavior. Multiple regression was used to determine the stressors leading to different types of bullying.

## Results

### *Part A*

#### *Demographic Data*

There were 194 Form 1 students (male = 106, female = 88) and 146 Form 3 students (male = 94, female = 52). Altogether 340 students participated in the present study.

#### *Reliability of Instruments*

*Subjective stress scale.* The overall reliability of the Subjective Stress Scale was  $\alpha = .90$ , which was consistent with the literature (Sun, 2000). The reliability of the subscales ranged from 0.63 to 0.83. They were listed as follows: family stress  $\alpha = .66$ , including “quarreling with parents”, “parents’ over-expectations”, and “family suffering from financial difficulties”; interpersonal stress  $\alpha = .73$ , including “always feeling alone”, “being rejected”, “quarreling with friends”, and “academic results less good than those of classmates”; academic stress

$\alpha = .79$ , including “examination stress”, “heavy study load”, “over-expectation in terms of academic achievement”, and “worry about study”; personal stress  $\alpha = .83$ , including “unstable emotionally”, “lack of confidence”, and “weak personality”; and environmental stress  $\alpha = .74$ , including “crowded living environment”, “inconvenient transportation”, “lack of community facilities”, and “fear of triad gangsters”.

*Bullying checklist.* The reliability of the bullying checklist with the deletion of three items (34, 35, and 45) was  $\alpha = .82$ . The reliability was reported as slightly higher than that of the pilot study due to the larger sample size.

*Part B*

*The Gender Difference in Perceiving Stress*

*The gender difference in perceiving stress.* For total stress, the independent sample t-test indicated that  $t(338) = -.98, p > .05$ . As a result, there was no gender difference in perceiving overall stress. However, for family stress, girls ( $M = 8.54, SD = 2.53$ ) reported perceiving significantly higher stress than boys did ( $M = 7.81, SD = 1.98$ ),  $t(338) = -3.04, p < .001$ .

Table 1 *Gender Difference in Perceiving Stress*

Stress	M (SD)		t
	Boys	Girls	
Family stress	7.81 (1.94)	8.54 (2.10)	-3.04***
Interpersonal stress	7.10 (1.98)	7.06 (1.86)	.189
Academic stress	8.59 (2.54)	8.71 (2.49)	-.45
Personal stress	7.52 (2.50)	7.66 (2.58)	-.49
Environmental stress	6.90 (2.16)	6.89 (2.16)	.60
Overall stress	37.92 (8.79)	38.86 (8.80)	-.98

\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

Table 2 *Form Difference in Perceiving Stress*

Stress	M (SD)		t
	Form 1	Form 3	
Family stress	8.23 (2.20)	7.99 (2.24)	1.10
Interpersonal stress	7.24 (2.15)	6.88 (1.89)	1.61
Academic stress	8.32 (2.45)	9.07 (2.56)	-2.74**
Personal stress	5.27 (2.42)	7.99 (2.61)	-2.62**
Environmental stress	6.92 (1.99)	6.86 (2.36)	.23
Overall stress	37.97 (8.55)	38.75 (8.85)	-.83

\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

*Form Difference in Perceiving Stress*

With respect to the difference between forms in perceiving overall stress, in Table 2 it can be seen that for overall stress, the result of an independent sample t-test indicated that  $t(338) = -.83, p > .05$ . Therefore, there was no significant difference between forms in perceiving overall stress.

With respect to academic stress, the results showed that  $t(338) = -2.74, p < .05$ ; Form 3 students ( $M = 9.07, SD = 1.97$ ) perceived significantly higher stress than Form 1 students did ( $M = 9.32, SD = 1.65$ ).

The results indicated that for the difference in personal stress between forms,  $t(338) = -2.62, p < .05$ .  $H_0$  was rejected. There was a significant difference in perceiving personal stress between Form 1 and Form 3. Therefore, Form 3 students ( $M = 7.99, SD = 2.14$ ) experienced more stress from their self-concept than Form 1 students did ( $M = 5.27, SD = 2.56$ ).

Table 3 *The Gender Difference in Performing Bullying*

Bullying	M (SD)		t
	Boys	Girls	
Physical bullying	8.02 (1.60)	7.39 (1.46)	1.10
Verbal bullying	10.33 (2.12)	10.10 (2.17)	1.61
Social bullying	5.44 (1.28)	6.03 (1.42)	-2.74**
Total	24.95 (3.78)	24.20 (3.73)	-1.81

\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

### The Gender Difference in Performing Bullying

For the overall bullying score, the results indicated that  $t(338) = -1.81, p > .05$ ; there was no significant gender difference in performing bullying. Girls ( $M = 6.03, SD, 1.23$ ) were found to be performing significantly more social bullying than boys ( $M = 5.44, SD = 1.67$ ), with  $t(388) = -2.74, p < .01$ . Both boys ( $M = 10.33$ ) and girls ( $M = 10.10$ ) showed the highest score in verbal bullying.

Table 4 Form Difference in Bullying

Bullying	M		t
	Form 1	Form 3	
Physical bullying	7.90 (1.52)	7.58 (1.64)	2.57**
Verbal bullying	10.32 (2.00)	10.12 (2.31)	1.87
Social bullying	5.70 (1.46)	5.22 (1.11)	.84
Total	25.09 (3.85)	24.04 (3.59)	3.31***

\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

### Form Difference in Bullying

With regard to bullying, Form 1 students showed higher scores on three subscales than Form 3 students did. Form 1 students scored significantly higher for physical bullying than Form 3 students did. However, the scores for verbal bullying in both Form 1 and Form 3 are the highest among three subscales of bullying.

### Stressors Leading to Bullying

Multiple regressions were used to investigate the relationship between bullying and stress. From Table 5, it can be seen that both interpersonal stress and environmental stress can lead to bullying,  $r = .42, r^2 = .18, p < .01$ .

Table 5 Summary of Hierarchical Regression Analysis for Variables Predicting Bullying in Stress

Step and predictor variable	B	SE B	$\beta$
Step 1			
Peer stress	.71	.09	.39***
Step 2			
Peer stress	.54	.10	.30***
Environmental stress	.33	.10	.19***

Note.  $R^2 = .15$  for step 1;  $\Delta R^2 = .18$  for step 2 ( $ps < .05$ )

\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

It was found that interpersonal stress, personal stress, and academic stress were the factors leading to bullying of boys in school. Those predictors could predict nearly 20% of the variance ( $R^2 = .17$ ), which was highly significant,  $F(3,196) = 13.77, p < .01$ . In conclusion, interpersonal stress ( $\beta = .31, p < .01$ ), personal stress ( $\beta = .26, p < .01$ ), and academic stress ( $\beta = -.17, p < .05$ ) were found to have significant effects on bullying.

For girl students, bullying was regressed on interpersonal stress, personal stress, and environmental stress. These three predictors accounted for nearly one fourth of the variance in test scores ( $R^2 = .17$ ), which was highly significant;  $F(2,137) = 21.38, p < .01$ . Both interpersonal stress ( $\beta = .46, p < .01$ ) and environmental stress ( $\beta = .28, p < .01$ ) were found to have significant effects on bullying.

### Significant Stressors Leading to Bullying Among Form 1 Students

There were four stressors predicting bullying: environmental stress, interpersonal stress, family stress, and personal stress. They accounted for over 30% of the variance in test scores ( $R^2 = .31$ ), which was highly significant,  $F(4,189) = 21.20, p < .01$ . Thus environmental stress ( $\beta = .73, p < .01$ ),

interpersonal stress ( $\beta = .28, p < .01$ ), family stress ( $\beta = -.49, p < .01$ ), and personal stress ( $\beta = .73, p < .05$ ) demonstrated significant effects on bullying.

### *Significant Stressors Leading to Bullying Among Form 3 Students*

There were two predictors which could predict bullying: interpersonal stress and personal stress, which accounted for around 13% of the variance with  $R^2 = .13, F(2, 145) = 10.43, p < .01$ . Thus the results showed that interpersonal stress ( $\beta = .22, p < .05$ ) and personal stress ( $\beta = .19, p < .05$ ) had significant effects on bullying.

## **Discussion**

### *Implications*

#### *Students perceiving academic stress*

There was a difference between forms in perceiving academic stress. Form 3 students felt more academically stressed than Form 1 students did. In Form 3, students are required to choose their focus area such as science, art, or business. Usually, those students with high examination results have priority in choosing. Since parents also have excessive expectations of their children's examination results, failure in examinations results in losing face (Chui, 2000; Yu & Chen, 2001). Consequently, Form 3 students experienced higher stress due to vigorous competition related to further study.

#### *The gender difference in perceiving family stress.*

According to the results, boys and girls perceived different levels of family stress. Girls experienced higher levels of family stress than boys did, which was consistent with a previous study (Gore et al., 1993). Parents gave more freedom to boys than to girls. At the same time, Girls wanted to

be more independent like boys. When parents insist on controlling their daughters, this stimulates conflict between them (Santrock, 2007).

#### *Form difference in perceiving stress*

There was a significant difference between forms in perceiving personal stress. Most Form 3 students experience a developmental crisis due to their age. They have begun to explore their identity in a meaningful way, which might lead them to be in a stage of identity diffusion (Santrock, 2007).

#### *Gender difference in bullying.*

There was a gender difference in performing social bullying. Girls had a higher rate of social bullying than boys because girls wanted to expand their social network in order to establish their social status by means of social bullying (Chan and Chan, 2005). Girls usually used different means of bullying, like distributing rumors, excluding victims, and sending intimidating letters in order to create excitement due to boredom with school life (Macklem, 2003; Owen, 2005).

#### *Form difference in exhibiting bullying behavior.*

There was a significant difference between forms in performing physical bullying. Form 1 students were the newcomers at the school. They needed to take more time to adapt to life at a new school. Form 3 students were all experiencing identity formation, and might think of physical bullying as a means of showing masculinity and power among peers (Chan & Chan, 2005; Macklem, 2003).

*Interpersonal stress affects all kinds of bullying.* The results of this research show that interpersonal stress affected physical bullying, verbal bullying, and social bullying. Peers were the significant others to help them overcome their developmental crises (Newman and Newman, 2006).

Students felt frustrated and scared if they faced interpersonal stress, family stress, and academic stress without peer support. Therefore, bullying was a way to release stressful emotions.

### *Limitations*

Firstly, the samples were not representative of all secondary school students. All participants came from one of the oldest secondary schools in the North District in the New Territories. The results could not be generalized.

Secondly, a response-set bias, social desirability, was observed during the study. Students tended to respond in what they believed to be the most socially acceptable manner.

### *Suggestions*

*For students.* Learn to cope with stress at the beginning of the semester, when the pressure and stress of the semester begins to build. You are advised to make a list. Include everything that needs to be done on the list, including homework, class assignments, grocery shopping, laundry, and even partying. Then make a weekly schedule. Fit all of your tasks within the weekly schedule. This will help you to be more organized and less overwhelmed, and to remember everything you need to do. It is also suggested that you set realistic expectations for your academic results and discuss them with your parents.

To help reduce interpersonal stress, schools are encouraged to provide after-school workshops to help students build up good interpersonal relationships. Within the workshops, it is good to help students develop a strong sense of identity, to build their self-esteem with goals and accomplishments, and to encourage them to participate in activities that make them more confident.

The workshops also help students to develop a support system, learn to be more assertive, exercise their freedom of choice to cope with peer pressure, and avoid creating resentment.

*For families.* Effective communication between parents and children is essential to reduce family stress. Parents and children understand each other more deeply through effective communication. Parents therefore have more realistic expectations of their children's performance.

Parents should consistently provide structure and supervision to their children that is firm and appropriate for their age and development, recognize when they have done their best, and encourage them to develop interests and personal characteristics.

### *Suggestions for Future Research*

More representative samples should be randomly drawn to enhance the external validity of the study. With regards to the design of the questionnaire, Marlowe's social desirability scale is included to eliminate response bias.

Structural Equation Modeling (SEM) is suggested to construct a conceptual model of stress and bullying among secondary school students. It serves purposes similar to multiple regression, but in a more powerful way which takes into account the modeling of interactions, nonlinearities, correlated independent variables, measurement error, correlated error terms, multiple latent independent variables, each measured by multiple indicators, and one or more latent dependents, also each measured by multiple indicators. This conceptual model will provide a clear picture for both teaching professions and helping professions to aid them in supporting their students.

### Conclusion

In the present study, girls felt more stressed than boys in the family. They were eager to be more independent from the family. This does not conform to parents' expectations, especially in Chinese culture, and it stimulates conflict between parents and daughters. Girls also like to use social bullying to establish their social status among peers. In terms of differences between age groups, it was found that Form 3 perceived higher academic and personal stress than Form 1 students did. It is understood that they were experiencing identity formation and making decisions on future study in art or science. However, Form 1 students performed more physical bullying than Form 3 students, which may be because they felt stressed about coping with new school life and did not know how to release the emotion appropriately.

The results also showed that interpersonal stress and personal stress were the important factors leading to bullying. Both peer influence and lack of self-confidence made students frustrated. Therefore, it is recommended that a one-week orientation program should be provided for Form 1 students before the commencement of the school term.

Finally, workshops for parents have been introduced to enhance parent-child relationships and to help them communicate effectively with each other. Having understood the sources of bullying, this certainly helps us prevent bullying in schools.

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