

## Self-harm and Suicide Attempts among Young Chinese Adolescents in Hong Kong: Prevalence, Correlates, and Changes

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### ABSTRACT

**Objective:** To examine the prevalence of and changes in self-harm and suicide attempts and to predict these behaviors in relation to family functioning and positive youth development.

**Design:** We used quantitative data based on a large sample of adolescent participants. Participants had joined this study in a previous year when they were in Grade 7 (Wave 1). The present study focused on Wave 2 data and the comparison with Wave 1 data.

**Setting and Participants:** The participants consisted of 2,579 Grade 8 students from 28 secondary schools in Hong Kong. A multi-stage cluster random sampling was adopted.

**Main Outcome Measure:** Self-harm behavior, suicide attempt, the Chinese Family Assessment Instrument, the Chinese Positive Youth Development Scale.

**Results:** Approximately 23.5% of Grade 8 students had engaged in self-harm behavior in the preceding 12 months. Girls showed more self-harm behavior compared with the boys. Nearly 4.0% of adolescents attempted suicide in the preceding 12 months. Perceived family functioning and positive youth development predicted self-harm and suicidal ideation. Among the 4 second-order positive youth development qualities, the construct "general positive youth development qualities" was the strongest predictor of self-harm and suicide attempts. Compared with the Wave 1 data, more suicidal symptoms were observed in Wave 2, although the prevalence of self-harm behavior was similar across time.

**Conclusions:** The prevalence of self-harm behavior among Chinese adolescents was high, but the level of suicidal behavior was low. Perceived family functioning and positive youth development can be regarded as protective factors for adolescents against self-harm and suicidal behaviors. General positive youth development quality is most important among the 4 second-order positive youth development qualities.

**Key Words:** Self-harm, Suicide, Chinese adolescents, Positive youth development, Family functioning

### Introduction

We explore self-harm and suicidal behavior among a large sample of young Chinese adolescents in Hong Kong over a period of 2 years based on prevalence, correlates, and changes. According to the World Health Organization, almost one million people die from suicide yearly, with a mortality rate of 16 per 100,000.<sup>1</sup> The suicide rates among young people have increased in the last 45 years. Currently, youth is at the highest risk of suicide in one-third of countries worldwide.<sup>1</sup> Suicide is the second leading cause of death for those aged between 10 and 24.<sup>1</sup> Hong Kong reviews suggest that whereas the suicide rates among adolescents aged 10 to 24 were consistently lower than those among local adult groups, a rising trend in suicide was observed among late adolescents in the 1990s compared with the trend in the 1980s.<sup>2,3</sup> From 2000 to 2009, the suicide rate for young people under 15 dropped from 1.0% to 0.3% per 100,000, whereas the rate for those aged between

15 and 24 increased from 7.7% to 8.5% per 100,000. Gender difference was also observed. In 2009, the suicide rates among adolescents under 15 were 0% for boys and 1.3% for girls, whereas those among young people aged between 15 and 24 were 11.0% for men and 5.8% for women.<sup>1</sup> The pattern was reversed in the 2 age groups.

The suicide rates among adolescents in Hong Kong can be regarded as comparatively low.<sup>1</sup> Empirical studies demonstrated that among Chinese adolescents, suicidal ideation and suicide attempts were lower among those with a higher sense of gratitude and self-esteem.<sup>4,5</sup> A low gender difference was indicated for Hong Kong suicide attempts.<sup>6,7</sup> Negative emotions or mental states were found to be predictors of suicidal ideation in China, Hong Kong, and Taiwan.<sup>4,8–12</sup> Yip et al suggested that an unhappy family life is the key factor leading to adolescent suicide.<sup>13</sup>

In addition to negative emotion, gender and family are also associated with suicidal ideation. Chinese girls reported more suicidal thoughts compared with boys.<sup>8,14,15</sup> Compared with their Western counterparts, Chinese adolescents were more affected by interpersonal relationships, resulting in suicide attempts.<sup>16</sup> Although family is an important social context for adolescent development, it is

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also associated with suicide attempts. Poor parenting, parental separation, and parents' personal problems contributed to adolescent suicide attempts in China.<sup>15</sup> In Hong Kong, family factors could contribute to suicide attempts.<sup>17</sup>

A related but distinctive behavior is self-harm, a deliberate or intentional act by an individual to harm himself or herself physically.<sup>18</sup> Self-harm is more prevalent among adolescents than adults.<sup>19</sup> Underlying motivation for self-harm may include relief from anxiety, stress, and low self-esteem.<sup>20</sup> Self-harm is also prevalent among adolescents with a history of abuse.<sup>19</sup> A close relationship between self-harm and suicide is observed.<sup>21</sup> In Hong Kong, self-harm was significantly associated with self-reported suicide attempts.<sup>22</sup> Self-injury and suicide were viewed as a continuum of risks among Hong Kong Chinese adolescents.<sup>14</sup> Methods of self-harm included drug overdose, self-hitting, pinching, scratching, biting, self-cutting, burning, jumping from a high place, or self-poisoning.<sup>23,24</sup> A study involving a large sample of adolescents in China showed that 17.0% had harmed themselves in the past 12 months.<sup>25</sup> The most common form of self-harm was found to be self-hitting.

Several observations regarding studies on adolescent suicide attempts and self-harm have been noted. First, with reference to Hong Kong, a descriptive profile on adolescent suicide attempts and self-harm is almost non-existent. Second, studies on self-harm among Chinese adolescents are rarely reported. Third, few longitudinal studies exploring the changes or stability of self-harm behavior and suicidal behavior among adolescents have been conducted. Fourth, studies seldom investigate how family functioning relates to self-harm and suicidal behavior. Fifth, protective factors such as positive youth development for suicide attempts or self-harm among youth have not been examined. Sixth, although family functioning and positive youth development were found to be predictors of adolescent suicide attempt and self-harm, no studies exploring suicide attempts and self-harm with the aforementioned factors have been reported.

Self-esteem is the most widely studied protective factor for adolescent suicide.<sup>26</sup> A large group of adolescent protective factors is under the rubric of positive youth development. Following the development of positive psychology, the whole doctrine of positive youth development argues that problem-free youth is not positive youth.<sup>27</sup> We have to focus on youth as resources. Benson proposed 40 developmental internal and external assets.<sup>28</sup> The internal assets include commitment to learning, positive values, social competence, and positive identity. The external assets include positive family communication and support, parental involvement, other adult relationships, caring neighborhood and school climate, empowerment (eg, from the community), youth as resources, family and school boundaries, and peer influence. In a large youth promotion program in Hong Kong, Shek endorsed 15 positive youth development qualities.<sup>29</sup> These qualities are promotion of bonding, resilience, social competence, emotional competence, cognitive competence, behavioral competence, moral competence, self-determination, spirituality, self-efficacy, positive identity, belief in the future, recognition for

positive behavior, prosocial involvement, and prosocial norms. In addition to providing direction for positive youth development programs, these qualities in general can be regarded as protective factors for adolescents against suicide attempts and self-harm.

Family correlates are also important in influencing adolescent destructive thinking and behavior. Family influence can be viewed from the perspective of family functioning. Siu and Shek suggested that mutuality among family members, communication and cohesiveness, conflict and harmony, parental concern, and parental control are significant dimensions in understanding family atmosphere in Chinese communities.<sup>30</sup> Destructive family dynamics can upset adolescent development, which may result in self-harm and suicidal ideation among adolescents.

The present study aims to investigate the prevalence of adolescent suicide attempts and self-harm in Hong Kong through a large group of Grade 8 students. Psychosocial correlates, including positive youth development and perceived family functioning, were used to predict suicide attempts and self-harm. The result of the current study was compared with that of the previous one using the same group (Wave 1),<sup>31</sup> which comprised the same participants who were then in Grade 7. As the trend of suicide among adolescents is observed to rise as they grew older,<sup>2,3</sup> we predicted that the suicide rate from Grade 7 to Grade 8 would increase. However, as the trend of adolescent self-harm was not fully investigated in the literature, no specific hypothesis was proposed.

## Materials and Methods

The participants consisted of 2,579 Grade 8 students from 28 randomly selected secondary schools in Hong Kong in 2010. The participants joined the same study (Wave 1) in the preceding year when they were in Grade 7. We have focused specifically on the Wave 2 data and hence the comparison with Wave 1 data.

A multi-stage cluster random sampling was adopted. Schools from different parts of Hong Kong were invited to participate in this study after the university institutional review board ethical approval was obtained. The participants were considered heterogeneous because they came from different areas and socioeconomic classes. As the sample size was large, and as random sampling was adopted, additional measures to counterbalance any effects were not necessary owing to sampling bias.

Only the participants who have joined Wave 1 and Wave 2 would be analyzed. Those who only joined either Wave 1 or Wave 2 would be excluded in the current analysis so that comparison is possible.

The purpose of the study was revealed during data collection, and the confidentiality of the collected data was repeatedly emphasized to all students present on the day of testing. Students who did not want to participate in the study were asked to indicate their refusal in the questionnaire. All participants responded to all instrument scales in the questionnaire in a self-administered manner. Adequate time was provided for the adolescents to complete the questionnaire. A trained research assistant was present throughout

the administration process. The same questionnaire was used to study the same group of adolescents after 1 year.

Positive youth development was measured using the Chinese Positive Youth Development Scale.<sup>31</sup> The scale consisted of 80 items examining 15 positive youth development qualities that represented 15 factors. The global score was the total score of the 80 items. Only the global score was used in this study. Shek and Ma also performed confirmatory factor analysis and reported that the 15 factors were categorized under 4 higher-order factors, namely, cognitive-behavioral competencies, prosocial attributes, general positive youth development qualities, and positive identity.<sup>32</sup> Cognitive-behavioral competencies include self-determination, behavioral competence, and cognitive competence. Prosocial attributes consist of prosocial involvement and norms. General positive youth development qualities include resilience, self-efficacy, prosocial bonding, spirituality, recognition of positive behavior, as well as social, moral, and emotional competence. Finally, positive identity consists of belief in the future and self-identity. The internal consistency score of the whole scale was evaluated at 0.96. The internal consistency scores of the 4 subscales are 0.92 (cognitive-behavioral competencies), .94 (prosocial attributes), 0.96 (general positive youth development qualities), and 0.89 (positive identity).

Perceived family relationship was measured using the Chinese Family Assessment Inventory,<sup>33</sup> a 33-item self-report instrument developed to assess family functioning with the 5 dimensions enumerated earlier. The total score of the subscales indicates a higher level of dysfunction. Reverse scoring was adopted in this study for a more straightforward understanding. The total score was again used in this study. The internal consistency score of the whole scale is 0.96.

A checklist of self-harm behaviors was used. The list included wrist cutting, burning with cigarette or fire, carving words or marks on the body, self-scratching, self-biting, rubbing sandpaper against the body, acid dripping, bleach scrubbing, putting sharp objects into the body, rubbing glass against the body, breaking bones, head banging, self-punching, and preventing wounds from healing. Suicidal signs were assessed in terms of suicidal thoughts, plans, and attempts.

The data analysis plan was as follows. Self-harm behaviors and suicidal signs were compared with Wave 1 data.<sup>31</sup> Moreover, positive youth development global scores and family functioning as predictors of self-harm behaviors and suicide attempts were explored. As gender may be critical in influencing both behaviors, it would be controlled in the hierarchical multiple regression. Finally, the 4 higher-order positive youth developmental attributes as predictors of self-harm or suicidal behaviors were examined.

## Results

### Participants' Demographic Profile

Of the 2,579 participants, 1,282 (49.7%) were boys and 1,297 (50.3%) were girls. Of the participants, 1,991 were born in Hong Kong (77.2%), 554 were born in mainland

**Table 1**

Self-harm Behaviors in the Past 12 Months per Gender (N = 2,579)

	Male n (%)	Female n (%)	Total n (%)	$\chi^2$
Wrist-cutting	58 (4.6)	159 (12.4)	217 (8.5)	49.93 <sup>†</sup>
Burn with cigarette	8 (.6)	10 (.8)	18 (.7)	.20 ns
Burn with fire	12 (1.0)	9 (.7)	21 (.8)	.48 ns
Carving word on body	33 (2.6)	85 (6.6)	118 (4.6)	23.35 <sup>†</sup>
Carving marks on body	38 (3.0)	74 (5.8)	112 (4.4)	11.67 <sup>†</sup>
Self-scratching	79 (6.2)	184 (7.2)	263 (10.3)	45.11 <sup>†</sup>
Biting	55 (4.4)	112 (8.7)	167 (6.6)	19.83 <sup>†</sup>
Rubbing sand paper	10 (.8)	5 (.4)	15 (.6)	1.76 ns
Acid dripping	4 (.3)	2 (.2)	7 (.3)	.16 ns
Bleach scrubbing	4 (.3)	8 (.6)	12 (.5)	1.28 ns
Sharp objects into body	15 (1.2)	39 (3.0)	54 (2.1)	10.46 <sup>†</sup>
Rub glass into skin	7 (.6)	20 (1.6)	27 (1.1)	6.14*
Break bones	6 (.5)	3 (.2)	9 (.4)	1.06 ns
Head banging	40 (3.2)	43 (3.4)	83 (3.3)	.08 ns
Self-punching	43 (3.4)	82 (6.4)	125 (4.9)	12.19 <sup>†</sup>
Prevent wound from healing	87 (6.9)	146 (11.4)	233 (9.2)	15.49 <sup>†</sup>
Other forms of self-harm	38 (3.0)	48 (3.8)	86 (3.4)	1.03 ns
Any self-harm	225 (17.7)	375 (29.2)	600 (23.5)	44.37 <sup>†</sup>

ns, Not significant

\*  $P < .05$ .

†  $P < .001$ .

China (21.5%), and 34 were born elsewhere (1.3%). Among the participants, 2,236 (86.7%) came from intact families and 343 participants (13.3%) were from divorced, separated, or remarried families.

### Profile of Self-harm and Suicide Attempts

Table 1 presents the findings on self-harm among the participants. The overall prevalence rate of 23.5% (ie, roughly 1 in 4 to 5 adolescents attempted self-harm in the past 12 months) could be regarded as on the high side. The top 3 forms of self-harm included self-scratching (10.3%), preventing wounds from healing (9.2%), and wrist cutting (8.5%). Chinese adolescents in Hong Kong seldom used the following methods of self-harm: acid dripping (0.3%), bleach scrubbing (0.5%), and sandpaper rubbing (0.6%).

Gender difference was revealed. The prevalence of self-harm behavior among the girls was significantly higher compared with the boys (girls 29.2%, boys 17.7%,  $\chi^2 = 44.37$ ,  $P < .001$ ). The girls manifested the following self-harm behaviors more than the boys: wrist cutting, word or mark carving, self-scratching, biting, inserting sharp objects into the body, self-punching, and preventing wound from healing ( $P < .05$  in all cases). The largest differences were observed in wrist cutting and word carving.

Table 2 shows the signs related to suicidal behavior. Almost 13% of the adolescents manifested suicidal thoughts, 5% made suicidal plans, and 4% attempted suicide. The girls reported significantly more suicidal signs, particularly suicidal thoughts, than the boys (girls = 17.8%, boys = 7.8%,  $\chi^2 = 56.21$ ,  $P < .001$ ).

**Table 2**

Suicidal Signs in the Past 12 Months per Gender (N = 2,579)

	Male n (%)	Female n (%)	Total n (%)	$\chi^2$
Suicidal thoughts	99 (7.8)	228 (17.8)	327 (12.9)	56.21 <sup>†</sup>
Suicidal plans	42 (3.3)	77 (6.0)	119 (4.7)	10.29 <sup>†</sup>
Suicide attempts	32 (2.5)	69 (5.4)	101 (4.0)	13.64 <sup>†</sup>

†  $P < .01$ .

‡  $P < .001$ .

**Table 3**

Correlations among Family Functioning, Positive Youth Development, Self-harm, and Suicidal Attempts

	PYD	SH	SA
CFAI	.52	–.24	–.29
PYD		–.21	–.25
SH			.38

CFAI, Chinese Family Assessment Inventory; PYD, Positive youth development; SA, Suicide attempts; SH, Self-harm

All values:  $P < .001$ .

The following forms of self-harm increased as the participants transitioned from Grade 7 to Grade 8: cigarette burning, carving words on the body, self-scratching, acid dripping, bleach scrubbing, and preventing wounds from healing ( $P < .05$  in all cases). However, when all forms of self-harm were added, paired t-test analysis showed no statistical differences in the prevalence values ( $P > .05$ ).

We compared the suicide attempts of the participants when they were in Grade 7<sup>31</sup> to those when they were in Grade 8. The suicide attempts among the participants were more serious when they were in Grade 8 than when they were in Grade 7 ( $t = -31.62$ ,  $P < .001$ ). The effect size is moderately large (Cohen's  $d = 0.53$ ).

#### Prediction of Self-harm and Suicide Attempts

This study examined the prediction of self-harm and suicidal attempts based on positive youth development and family functioning. Table 3 shows the correlation coefficients of all variables, which indicates significant association amongst themselves. Suicide attempts exhibited a high correlation with self-harm. The correlations between positive youth development and self-harm/suicide attempts as well as between family functioning and self-harm/suicide attempts were similar (ie, from  $-0.29$  to  $-0.21$ ).

The descriptive statistics indicated gender difference for both self-harm and suicide attempts. To validate further the generalizability of these 2 predictors, hierarchical regression analysis was performed to eliminate the effect of gender (Table 4). After Step 1, with gender, the variances explained were 0.02 and 0.01 for self-harm and suicide attempts, respectively. After Step 2, with the addition of the 2 predictors, the variances increased to 0.09 and 0.07 for self-harm and suicide attempts, respectively. All variables could significantly predict self-harm and suicide attempts when gender was controlled.

**Table 4**

Hierarchical Regression Analyses of Predictors for Self-harm and Suicide attempts

	Self-harm $\beta$	Suicide attempts
Step 1		
Gender	.14*	.11*
$R^2$	.02	.01
F for $R^2$ change	45.09*	25.10*
Step 2		
Gender	.13*	.11*
PYD	–.13*	–.11*
CFAI	–.18*	–.17*
$R^2$	.09	.07
F for $R^2$ change	74.21*	54.10*

CFAI, Chinese Family Assessment Inventory; PYD, Positive youth development

\*  $P < .001$ .**Table 5**

Correlations among 4 Second-order positive Youth Development Qualities, Self-harm, and Suicide Attempts

	PA	GPYDQ	PIT	SH	SA
CBC	.57*	.79*	.70*	–.17*	–.16*
PA		.72*	.61*	–.14*	–.16*
GPYDQ			.74*	–.22*	–.27*
PIT				–.17*	–.19*
SH					.38*

CBC, Cognitive behavioral competencies; GPYDQ, General positive youth development qualities; PA, Prosocial attributes; PIT, Prosocial identity; SA, Suicide attempts; SH, Self-harm

\*  $P < .001$ .

This study investigated whether the 4 second-order positive youth development qualities predicted self-harm and suicide attempts. Table 5 reveals the association of the 4 factors with self-harm and suicide attempts. Among these 4 factors, general positive youth development qualities and the 2 kinds of self-injurious behavior exhibited the strongest associations.

This result was consistent with that of the multiple regression analyses (Tables 6 and 7). General positive youth development was identified as the most important predictor. The variance explained that family and positive youth development as a whole could more accurately predict self-harm compared with suicide attempts. The 4 second-order positive youth development qualities could more accurately predict suicide attempts compared with self-harm. However, the variance explained by these 4 predictors was not high (0.07 and 0.09), and not all predictors were significant.

#### Discussion

The prevalence of self-harm behaviors among the Grade 8 adolescents was nearly 23.5%. Statistical analysis showed that this result is similar with that in the Grade 7 group.<sup>31</sup> Although the trend did not increase, the prevalence remains alarming. This percentage is higher than that in another study in China, wherein almost 17% of adolescents manifested self-harm in the past 12 months.<sup>25</sup> However, this percentage is lower than that observed in a similar study in the United States (32%).<sup>34</sup> The differences of societal atmosphere, cultural norms, demands for young people, and youth's habitual coping styles can be the reasons for the differences. A Chinese saying states, “*xin ti fa fu, xiu zi fu mu*” (our bodies are from our parents, and we should take care of our bodies). We speculate that the Chinese participants are more influenced by traditional

**Table 6**

Regression Analysis of Self-harm from Second-order Positive Youth Qualities

Predictors	$R^2 = .07$			
	<i>b</i>	<i>SE</i>	$\beta$	<i>T</i>
Constant	1.17	.01		
CBC	.01	.00	.05	1.53
PA	.01	.00	.08	2.71*
GPYDQ	–.05	.01	–.37	–8.93†
PIT	.00	.00	.04	1.09

CBC, Cognitive behavioral competencies; GPYDQ, General positive youth development qualities; PA, Prosocial attributes; PIT, Prosocial identity

\*  $P < .05$ .†  $P < .001$ .



**Table 7**  
Regression Analysis of Suicide Attempts from Second-order Positive Youth Qualities

Predictors	$R^2 = .09$			
	<i>b</i>	<i>SE</i>	$\beta$	<i>T</i>
Constant	1.41	.03		
CBC	.04	.01	.16	4.67 <sup>†</sup>
PA	.02	.01	.06	2.14*
GPYDQ	-.13	.01	-.44	-10.80 <sup>†</sup>
PIT	-.01	.01	-.02	-.50

CBC, Cognitive behavioral competencies; GPYDQ, General positive youth development qualities; PA, Prosocial attributes; PIT, Prosocial identity; SA, Suicide attempts; SH, Self-harm

\*  $P < .05$ .

†  $P < .001$ .

Chinese thinking than their Hong Kong counterparts. By contrast, American adolescents are not restrained by such cultural norms, hence contributing to the higher prevalence of self-harm. Other than cultural reasons, the societal atmosphere of China, Hong Kong, and the United States can constitute another significant factor for the differences in self-harm behaviors.

The most common forms of self-harm among Chinese adolescents in Hong Kong were related to inflicting wounds by direct cutting or scratching. This finding varies from that of its counterparts in mainland China, in which self-hitting was reported as the most prevalent.<sup>25</sup> The least common form of self-harm was found to involve the use of chemicals. Self-harm does not entail sophisticated methods, and adolescents are not known to attempt using toxic chemicals. Moreover, several acts by adolescents are considered self-harm by adults.

Students became more susceptible to suicide attempts when they reached Grade 8, which is an alarming sign.<sup>31</sup> Some adolescents who could not cope with academic pressure and social stressors develop depressive symptoms, become hopeless, and resort to suicidal ideations.<sup>23</sup> The suicide rate among Chinese adolescents is lower compared with those in other countries. This low rate can be explained by the overall social and economic environment. In general, the most predictive factors of population suicide rate are economic prosperity and political stability.<sup>1</sup> Hong Kong has experienced economic prosperity and freedom for decades. Not many adolescents experienced economic hardships because the government and the schools subsidized many school activities and textbook costs.

The lack of studies explaining self-harm and suicidal behaviors led us to propose possible reasons in appropriate social and cultural contexts. Chinese culture discourages self-harm because of the belief that our bodies come from our parents and should be appreciated. All Chinese adolescents in Hong Kong are required to attend secondary schools; thus, the academic pressure in Hong Kong is particularly high. Variables related to academic performance cause stress and depression.<sup>17</sup> Chinese adolescents are particularly concerned about academic achievements because they believe that these achievements will lead to a future career. Confucian beliefs and folklore also encourage young people to study hard. In the past few years, Hong Kong's education system underwent a drastic reform, including changes to the curriculum and public examination formats. Thus, adolescents have to adapt to the

numerous changes in school, which could deepen the pressure they experience in their studies. Many Chinese adolescents in Hong Kong are required to attend private tutorials after school in addition to their formal schooling.<sup>35</sup> The academic pressure may also be exacerbated by parental expectations. These environmental stressors can influence adolescents along with their own appraisal of the stress.

How can we account for the self-destructive behavior and suicide attempts, specifically among Grade 8 students in Hong Kong aside from the general difficulties they face? Studies related to self-destructive behavior and suicide attempts are scarcely reported because these phenomena are local rather than universal. Field experience is necessary to understand these phenomena. Teachers consider Grade 8 as the most difficult level to teach among all secondary levels in Hong Kong. Grade 7 (Secondary 1), as the first grade in secondary school, entails adapting to the new academic environment. Grade 9 students study harder to qualify for their desired classes when they reach Grade 10. Curriculum streaming, which is based on Grade 9 academic performance, starts in Grade 10. In grades 10 to 12, students are required to prepare academically for a university or for their other career endeavors. The education system and examination structure provide clear goals for adolescents. However, Grade 8 students generally do not have a clear vision and future plan initiated by the school system. According to our review of the curricula for Grades 7 and 8 in Hong Kong, the Grade 7 materials are considered of Grade 6 (primary school) standard by a number of teachers. Grade 7 is a year for students to adapt to a new school rather than to learn something entirely new or difficult. On the contrary, Grade 8 students take subjects entirely new to them such as trigonometry and a more demanding language course. They may feel stressed and tend to procrastinate, which can result in greater stress. The reasons for this "terrible secondary two" (Grade 8) phenomenon in Hong Kong include the difficulty of the curriculum and the lack of urgency to establish a clear life goal. Further empirical evidence can shed light on this matter.

According to the descriptive profile, girls were more prone to perform self-harm behaviors and suicide attempts compared with boys. Early puberty causes more stress for girls during this academic transition. Social comparison and the Hong Kong media exaggerate the importance of physical appearance and body image. These factors contribute to the relatively high prevalence of self-harm and suicide attempts among girls because self-harm is related to social stress. Compared with boys, girls are more sensitive to interpersonal relationships such as those with peers and family.<sup>36</sup> They are also more inclined than boys to hide negative emotions.<sup>36</sup> This observation also explains why girls exhibit a stronger tendency to manifest self-harm and suicidal behaviors compared with boys. Gender difference related to suicide attempts deserves attention despite age instead of gender being a moderating factor.<sup>3</sup> As Chinese adolescent girls are more prone to stress and psychopathology, they may need more support and care to resolve stress and depressive moods more effectively.

Results reveal that both positive youth development and family functioning could predict self-harm and suicidal

behavior. Among the positive youth development qualities, “general positive youth development qualities” best predicted self-harm and suicidal behavior. The predictive effect of the general positive youth development construct was overwhelming that the effects of other factors became relatively negligible. To our surprise, both cognitive-behavioral competencies and prosocial attributes showed a positive prediction of suicide in the regression equation. One reason is the existence of family functioning for the first hierarchical multiple regression, which may influence the dynamics of the 4 higher-order variables. This study highlights the importance of general positive youth development qualities. The second-order factor consists of resilience, self-efficacy, prosocial bonding, spirituality, recognition of positive behaviors, as well as social, moral, and emotional competencies. These qualities can protect adolescents from performing self-destructive behaviors. With reference to the variance explained, while family functioning and the global positive youth development qualities predicted self-harm instead of suicidal attempts, the 4 second-order positive youth development qualities had greater influence on suicide attempts. Despite the marginal difference, the dynamics of the second-order factors or the 15 positive youth development qualities had differential effects on self-harm and suicide attempts. Hence, more studies in this direction should be conducted.

Sun and Hui suggested that suicide attempts are related to both personal and environmental factors.<sup>26</sup> The present study also recognizes the importance of family functioning and positive youth development, which can be used to design relevant intervention programs for suicide and self-harm. Promotion programs are designed to help adolescents manage stress and discouraging situations. More positive youth programs should be considered for the seventh graders to prepare them for a stressful year in the eighth grade. Parents are also targeted to understand the adverse effect of poor family functioning on adolescents.

The literature in general<sup>18,22</sup> shows that self-harm and suicide attempts operate differently: self-harm originates from anxiety whereas suicide attempts originate from depression.<sup>25,26</sup> The correlation between self-harm and suicide attempts were moderately high ( $r = .38$ ). Against this background, further theoretical and empirical work should be conducted to explore the relationships among these self-destructive behaviors.

Several directions for future research are suggested. First, advanced statistics can be used to test alternative conceptual frameworks. For instance, positive youth development and family functioning can act as moderators instead of mediators. Existing research indicates that self-esteem and depression are 2 major mediators of suicide attempts.<sup>26</sup> The strengths of these 2 mediators against self-harm can be tested. Consistent with other works,<sup>14</sup> the present study demonstrates that both personal assets and social systems can influence self-harm and suicide attempts. Apart from family factors, peer factors can be significant in predicting self-harm and suicidal behavior.<sup>8</sup> Other possible factors include school,<sup>17</sup> stressful life events,<sup>10</sup> and media exposure.<sup>37</sup> In addition to depression, aggression can predict suicide attempts, particularly for boys.<sup>11</sup> A more

comprehensive ecological model in understanding adolescents is sought. Second, the increase in self-harm cases and suicide attempts in the Grade 8 group and the vulnerability among girls require further empirical studies. Third, 15 positive youth development qualities were employed. A more interesting question is which construct can predict self-harm and suicide attempts more significantly. Finally, practice research aimed at reducing self-harm and suicide attempts should be developed. Psychosocial interventions in schools can be positive promotional programs or online programs. One example is P.A.T.H.S., a project sponsored by the Hong Kong Jockey Club Charities Trust. According to longitudinal evaluation, the project effectively promoted holistic development and reduced risk behavior in adolescents.<sup>38–41</sup>

This study has 3 limitations. First, as the explanatory powers of positive youth development and family functioning on self-harm and suicide attempts were not high, other factors should be employed to clarify this phenomenon. Second, the regression coefficients for self-harm and suicide attempts from the 4 second-order factors varied, particularly the cognitive-behavioral competencies (cf, Tables 6 and 7). The findings suggest that suicide and self-harm may be governed by different pathways. Third, no other informants such as the parents and teachers of the adolescents were involved in assessing the developmental outcomes of the participants. Including more stakeholders in other studies would be helpful.

Despite its limitations, this study is a pioneer attempt to delineate the prevalence of self-harm and suicide attempts in Hong Kong to understand self-harm methods, trends, and gender differences. The high rate of self-harm deserves immediate intervention and further examination. The prevalence of self-harm is alarming considering that the results were from a large group of Chinese adolescents. Appropriate action by public health and human service professionals is therefore necessary.

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