



Impact of a positive youth development program on junior high school students in mainland China: A pioneer study

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ABSTRACT

Objectives: Using a quasi-experimental design, this pioneer study examined the impacts of a positive youth development (PYD) program (“Tin Ka Ping P.A.T.H.S. Project”) implemented in a junior secondary school by comparing student changes between the experimental ($n = 539$) and control ($n = 505$) groups.

Method: Both groups completed questionnaires assessing perceived PYD attributes, life satisfaction, depression, and delinquency prior to and after project implementation.

Results: Experimental group students showed greater improvement in perceived PYD attributes than did control group students. While the control group showed significant decrease in self-report life satisfaction and increase in self-report depression, the experimental group did not. Furthermore, the experimental group showed significant decline in perceived delinquency whereas the control group did not.

Conclusion: The present findings provide support for the positive impacts of a culturally adapted curriculum-based PYD program on different developmental outcomes among junior high school students in mainland China.

1. Introduction

1.1. Youth developmental issues and youth programs in mainland China

Since the 1980s, China's economy has been developing rapidly, with an increase of urbanization and industrialization as well as substantial social changes. Generally speaking, a quicker pace of work and greater identification of Western values (e.g., individualism) have taken place in cities, while traditional ways of life have also been replaced by a more urbanized lifestyle in rural areas. These unprecedented social changes have major impacts on the beliefs, values, behaviors, and well-being of Chinese people, especially the younger generations. First, young people who were born in this age of rapid social transformation have been considered more individualized and materialistic compared to previous generations (Cai, Zou, Feng, Liu, & Jing, 2018). It is noteworthy that over-emphasis on materialism impairs adolescent self-esteem, intrinsic learning motivation, school performance, life satisfaction as well as mental health (Auerbach et al., 2010; Kasser et al., 2014; Ku, Dittmar, & Banerjee, 2012).

Second, with rapid economic development and social changes, the younger generations face increasingly fierce competition. Chinese adolescents are expected by themselves as well as significant others to achieve academic excellence which is considered a key to achieve

financial success and high social status (Hesketh & Ding, 2005). Besides, the strong emphasis on educational success makes Chinese adolescents experience greater academic pressure than do their Western peers (Liu & Lu, 2011). However, many Chinese adolescents lack sufficient skills to cope with such pressure, which would further lead to adolescent mental illnesses and problem behaviors (Moksnes, Løhre, Lillefjell, Byrne, & Haugan, 2016; Quach, Epstein, Riley, Falconier, & Fang, 2015).

Third, there is indeed a worrying picture on the developmental problems among Chinese adolescents. For example, Yang et al. (2014) found that approximately 9.49% of school children and adolescents in Northeast China had psychiatric disorders, such as depression and anxiety. Wan, Xu, Chen, Hu, and Tao (2015) assessed 17,622 students aged between 12 and 24 years old for their non-suicidal self-injury behaviors (NSSI). They found that 17% of the students reported performing NSSI in the past 12 months. The prevalence of game addiction in China was estimated to be 27.5% and adolescents of 12–16 years old were at a very high risk of developing internet-game addictive symptoms (Li, 2019). Obviously, adolescents' developmental problems are closely associated with adolescents' subsequent health problems, poor educational achievement and family conflicts (Cook, Pflieger, Connell, & Connell, 2015; Ko et al., 2015).

In view of the challenges related to youth developmental issues,

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scholars have recognized the urgency to promote young people's well-being through effective youth programs. For instance, [Huang, Chen, Cheung, Greene, and Lu \(2019\)](#) advocated the promotion of youth positive development and the management of youth problems through improving their resilience, mindfulness, and life skills. The Chinese government has also acknowledged that a healthy population is vital to national prosperity and hence launched the Healthy China Initiative (2019–2030) ([National Health Commission of China, 2019a](#)). A whole chapter is devoted to address the significance and goals of promoting adolescent healthy development as well as the needed collaborative efforts from individuals, families, communities, and the whole society. The "Healthy China Initiative: Children and Adolescent Mental Health Action Plan" further proposed different campaigns for health promotion among children and adolescents, including knowledge education, prevention, and intervention programs as well as action plans to create beneficial ecological environments, such as enhancing parent – child communication and community involvement ([National Health Commission of China, 2019b](#)).

Unfortunately, most of the existing youth programs in mainland China adopt a deficit perspective, which focuses on "solving" specific youth problems such as depression, bullying, smoking, and drug abuse, but overlooks the importance of promoting adolescent holistic development ([Lai et al., 2016](#); [Zhao, White, & McD Young, 2019](#)). It is noteworthy that the effectiveness of such "deficit" programs is inconclusive ([Kim et al., 2012](#); [Lai et al., 2016](#)). Besides, it is also unrealistic to design and implement interventions for each single adolescent problem behavior. In fact, the current picture is in sharp contrast to that in the Western societies where the strength-based perspective has been widely adopted in youth programs to highlight adolescents' inner strengths and the positive sides of development ([Tolan, Ross, Arkin, Godine, & Clark, 2016](#)). The strength-based perspective contends that multiple youth problems can be alleviated or prevented through promoting common protective factors such as adolescents' internal and external developmental assets or social-emotional skills ([Shek, Dou, Zhu, & Chai, 2019](#)). The underlying belief is that with sufficient psychosocial strengths, adolescents will be more likely to thrive and less likely to develop problem behaviors.

1.2. Positive youth development (PYD) programs

Based on the strength-based perspective, PYD programs aim to cultivate and enhance youths' PYD attributes, which enable them to cope with developmental challenges in an adaptive manner and maintain healthy functioning. In contrast to the deficit model, the PYD approach sees adolescents as "valuable resources" instead of "troubles" and focuses on equipping them with multiple psychological competencies such as resilience, emotional skills, and moral competence ([Shek, Dou et al., 2019](#)). There are rich empirical findings supporting the effectiveness of PYD programs in promoting adolescent holistic development and preventing youth problems ([Waid & Urich, 2019](#)).

For instance, the asset-building strategy that aims at enhancing positive attributes of both adolescents and their developmental ecologies has been widely adopted by multiple national systems (e.g., Y-USA, the Salvation Army, and Boys and Girls Clubs of America) in organizing and implementing youth programs ([Benson, Scales, & Syvertsen, 2011](#)). An effective "asset-building" program is the "Building Assets Reducing Risk" (BARR) funded by the U.S. Department of Education. This program successfully promoted assets development, enhanced academic achievement, improved learning experience, and decreased failure rates among 9th grade students ([BARR, 2018](#)). "Social and emotional learning" (SEL) is another PYD framework that focuses on the promotion of social-emotional skills that are keys to enhance students' academic and social adjustment as well as to reduce adolescent developmental problems ([Taylor, Oberle, Durlak, & Weissberg, 2017](#)). Meta-analytic reviews have repeatedly revealed noticeable and sustainable positive impacts displayed by school-based SEL programs in promoting

student participants' social and emotional skills, academic performance, prosocial behavior, and mental health as well as in reducing emotional and behavioral problems ([Domitrovich, Durlak, Staley, & Weissberg, 2017](#); [Taylor et al., 2017](#)).

While the benefits of PYD programs have been well-recognized worldwide, most of the identified and effective PYD programs were implemented in Western societies ([Wium & Dimitrova, 2019](#)). One noticeable exception is the "P.A.T.H.S. Project" in Hong Kong ("Hong Kong P.A.T.H.S. Project" hereafter) with the full name entitled "Positive Adolescent Training through Holistic Social Programmes". This project is distinctive in several aspects. First, it is a curriculum-based universal youth program designed for junior high school students in Hong Kong. Second, building on [Catalano, Berglund, Ryan, Lonczak, and Hawkins \(2004\)](#) framework of the 15 PYD constructs (e.g., "emotional competence", "moral competence", "self-efficacy", etc.), the project aims to foster holistic development among youths. Third, an experiential learning pedagogy and multiple interactive learning strategies such as reflection, group discussion, and role play are incorporated to engage student participants and secure learning outcomes. Fourth, twelve evaluation strategies including longitudinal-experimental design, subjective outcome evaluation, weekly diary, process evaluation, and focus group are utilized to rigorously assess the fidelity and effectiveness of the program implementation ([Shek & Sun, 2013](#); [Shek, Yu, et al., 2014](#)).

From 2005/06 to 2012/13 school years, the curriculum-based "Hong Kong P.A.T.H.S. Project" was implemented in approximately 280 high schools in Hong Kong through both school- and community-based modes of implementation. Results obtained from different evaluation strategies showed high implementation fidelity and quality, smooth implementation process, positive teaching and learning experiences, and perceived benefits to both student participants and program implementers ([Shek & Sun, 2013](#); [Shek, Yu, et al., 2014](#)). In particular, a 5-year longitudinal randomized group trial was launched in 2006/07 school year in 24 pairs of schools. Each experimental school and its paired control school were comparable in terms of their background characteristics such as the religious background and gender ratio. In the experimental schools, all Grade 7 students joined the "Hong Kong P.A.T.H.S. Project" for three years and were followed up for another two years while students in the control schools did not join the project. Comparisons based on 8-wave data demonstrated significant and sustainable treatment effects ([Shek & Ma, 2012](#); [Shek & Yu, 2012](#)). Specifically, experimental school students developed better in psychosocial competence indicators such as moral competence and behavioral skills while exhibited slower increase in risk behaviors such as substance use and delinquency than did control school students. One-group pretest and posttest evaluations for the community-based program implementation also revealed that student participants showed significant improvement in multiple psychosocial competencies (e.g., emotional competence and resilience) and well-being (e.g., life satisfaction and thriving) assessed by self-report measures ([Ma, Shek, & Chen, 2019](#); [Ma, Shek, & Leung, 2019](#)).

The "Hong Kong P.A.T.H.S. Project" was very successful and well-known as the only effective PYD program in Chinese society ([Catalano et al., 2012](#)). The project was also recognized by [World Health Organization \(2016\)](#) and "YouthPower Learning" ([Alvarado et al., 2017](#)) as an effective youth program for the promotion of life skills and well-being among adolescents. In contrast, there is a severe lack of PYD programs in mainland China. As such, the "Hong Kong P.A.T.H.S. Project" was modified and transplanted to mainland China as the "Tin Ka Ping P.A.T.H.S. Project".

1.3. Overview of the "Tin Ka Ping P.A.T.H.S. Project"

In view of the positive outcomes of the "Hong Kong P.A.T.H.S. Project", the "P.A.T.H.S. Project" was introduced to mainland China. From 2007/08 to 2009/10, the "P.A.T.H.S. Project" was initially implemented in "Mei Lung Secondary School" in Shanghai. Different

stakeholders, including student participants, school principal and teachers, social workers, and scholars in a local university, all gave positive evaluation of the project (Shek, Han, & Ma, 2009).

Given the success in Hong Kong and the encouraging results of the initial implementation in Shanghai, Tin Ka Ping (TKP) Foundation funded the pilot implementation from 2011/12 to 2013/14 in four secondary schools in Shanghai, Suzhou, Changzhou, and Yangzhou. A quasi-experimental study was conducted with the inclusion of these four project schools (experimental group) and four non-project schools were recruited from the same cities to form the control group (Shek, Yu, et al., 2014). While students in the two groups showed comparable performance in PYD attributes and well-being at pretest, students in the experimental group displayed better performance at posttest than students in the control group. Evaluation findings also revealed that the program was implemented with high fidelity and adherence and over 90% of the participating students perceived positive learning experience and considered the program helpful to their development (Shek, Han, Lee, & Yu, 2013, 2014; Shek, Yu, et al., 2014).

During this pilot implementation period, the junior secondary curriculum used in Hong Kong was successfully adapted and validated for local use in China mainland (Shek, Zhu, Leung, Lee, & Wu, 2019). The adaptation of the curriculum was accomplished through collaboration of the P.A.T.H.S. research team, scholars in a university in Shanghai, and over 35 teachers who delivered the “P.A.T.H.S. curriculum” in the four experimental schools. Major adaptations were as follows: (1) simplified Chinese characters instead of traditional Chinese characters were used; (2) Cantonese wording and expressions originally used in Hong Kong were reviewed and modified to Mandarin expressions; (3) teaching materials showing Hong Kong’s socio-cultural features were replaced by conceptually similar ones that fit to mainland Chinese context.

Second, to prepare for a larger-scale implementation of the “Tin Ka Ping P.A.T.H.S. Project”, four training workshops with a total of 69 h of training were conducted in the 2014/15 academic year. These training workshops were delivered by scholars in the research team including developmental psychologists, professional social workers, and academic researchers in education or developmental psychology fields. In total, 474 secondary school teachers who were prospective implementers voluntarily joined the training. The training helped these teachers to get a better understanding of PYD theories (e.g., the 15 PYD constructs) and philosophies of the “P.A.T.H.S. Project”. The training also helped the participating teachers to better master the student-centered teaching methods (e.g., experiential and interactive teaching pedagogy) adopted in the curriculum (Shek, Leung, & Wu, 2017). For example, in a unit aiming to promote students’ self-efficacy, there was a class sharing activity entitled “A Big Hand for Me” which aimed at affirming the value of students and their qualities to be appreciated. In this activity, students were encouraged to write on a color paper one to three areas where they deserve parental appreciation and share their experiences with classmates. In the training, each participant was asked to perform this activity by taking turns to express appreciation for one thing to the teacher sitting right next to him or her. After the activity, participants were invited to share their feelings for being appreciated and think about how to better utilize this activity in their classroom to enhance students’ self-efficacy. Evaluation findings have shown that the training programs promoted the knowledge, attitudes, and skills among the potential teachers in implementing the “Tin Ka Ping P.A.T.H.S. Project” (Shek, Leung et al., 2017; Shek, Zhu, & Leung, 2017).

Third, from the 2015/16 academic year, 30 high schools located in 25 cities in China mainland were selected by TKP Foundation to join the project and implement the “Tin Ka Ping P.A.T.H.S.” curriculum. All the project schools met the following requirements: (1) the senior management team including the school principal endorsed strength-based youth work and the implementation of the project; (2) the schools established a “P.A.T.H.S. team” consisting of at least five “P.A.T.H.S. teachers” who had received more than 20-hour training during 2014/

15 year; and (3) the schools decided to continuously support and participate in future project activities such as teacher training and school sharing. In some or all classes at one or more grade levels, the project schools incorporated the “Tin Ka Ping P.A.T.H.S. Project” into their formal school curricula and scheduled a “P.A.T.H.S. class” once a week or once every two weeks. The project schools were allowed to have a certain level of flexibility in implementing the program because not all schools were able to teach “P.A.T.H.S. classes” every week due to the constraints of manpower, administrative, and financial resources. Project schools delivered 16 to 28 classes per school year with 45 min per class, resulting in a range of 12 to 21 h in total.

Fourth, the research team took several measures to ensure the fidelity of project implementation and continuous improvement. For example, all implementers were required to follow the procedures of delivering each “P.A.T.H.S. class” shown in the teaching manuals and they were required to submit implementation reports to the research team every four months. The research team monitored program implementation by communicating with each project school regularly through online platforms, visiting project schools, observing their curriculum teaching, and reviewing implementation reports. In addition, teacher training was held every four months during the full-scale implementation period. More details about the full-scale implementation can be found elsewhere (Shek, Zhu et al., 2019).

In the first year of the full-scale implementation (i.e., 2015/16), subjective outcome evaluation as a quantitative strategy and student diary as a qualitative strategy were employed to evaluate the project effectiveness in terms of the perceptions of both participating students and teacher implementers toward curriculum quality, teaching quality, and project benefits. It was found that more than 90% of the students and teachers held very positive perceptions and felt highly satisfied with the program benefits such as improvement in various psychosocial competencies as well as decrease in deviant behaviors among participating students (Shek, Zhu, & Leung, 2018; Shek, Zhu et al., 2019).

Although the above-mentioned findings support the effectiveness of the “Tin Ka Ping P.A.T.H.S. Project” in China mainland, it is desirable to evaluate the project impacts in a more rigorous manner using an experimental design involving both experimental and control groups. As such, during the second year of the full-scale implementation stage (i.e., 2016/17), we conducted a quasi-experimental evaluation study in one project school with the assignment of classes to an experimental group and a control group (McMillan & Schumacher, 2010). By recruiting experimental and control participants in a single school instead of recruiting control students in another school, we can reduce confounding caused by contextual factors at the school level (e.g., school administration, school climate, and overall student characteristics) as much as possible. In addition, carrying out the present study in one school is more cost-effective with administrative convenience.

While a true-experimental design with randomization is considered to be the best choice to inform the cause-effect relationship between an intervention and outcomes, it is difficult to exercise it in school settings due to its high demands for resource and expertise (Royse, Thyer, & Padgett, 2015; Shek, 2013). Alternatively, a cost-effective and viable solution is to conduct quasi-experimental studies by assigning students into experimental and control groups based on existing classes (McMillan & Schumacher, 2010). This kind of quasi-experimental design is conducive to improving ecological validity in a school context and has been increasingly used to evaluate educational programs. For example, Ige and Hlalele (2017) employed this research design to compare the impacts of civic education among computer-aided, blended, and conventional classroom teaching strategies. Guan and Deng (2019) also used this research design to test the program impacts of a community-based intervention in improving well-being of left-behind children.

1.4. The present study

This study attempted to evaluate the effectiveness of the “TKP P.A.T.H.S. Project” implemented in the 2016/17 school year through a quasi-experimental design. We analyzed and compared student changes from the pretest to the posttest between the two groups (experimental group vs. control group) on three categories of self-report outcome measures: PYD attributes, well-being, and developmental problems (depression and delinquency). We expected significant interaction effects of time (pretest versus posttest) and group (experimental group versus control group), with more positive development (or less negative development) in experimental group students relative control group students.

2. Methods

2.1. Procedures

A pretest–posttest quasi-experimental design was employed in the present study, which was conducted in one project school located in Guangdong province during the school year of 2016/17. Power analysis was performed using G*Power 3 (Faul, Erdfelder, Lang, & Buchner, 2007). Based on Cohn (1988) effect size specification, the minimum sample size for detecting a small treatment effect (i.e., partial eta squared = 0.01) was 780 with the significance level (α) and Type II error probability (β) as 0.05 and 0.20 respectively. Second, we invited a school which was cooperative and willing to join the project. The participants were all newly admitted Grade 7 students (i.e. 511 students in 12 classes) and Grade 8 students who had not joined the project last year (i.e. 718 students in 13 classes). This sample size was adequate to have sensitive detection of statistical effects. The procedures of the present study are illustrated in Fig. 1.

First, group assignment was conducted by the school at the beginning of the first semester instead of matching the experimental and control groups based on their pretest scores. The school had 13 qualified “P.A.T.H.S. teachers” who had completed at least 20-hour training. These 13 “P.A.T.H.S. teachers” were also the “class teachers” for 13 classes (6 classes at Grade 7 and 7 classes at Grade 8). The “class teacher” was responsible for taking care of all students in the class and regulating their study and behavior in school. As such, these 13 classes were assigned to the experimental group while the other classes were in the control group. This arrangement is reasonable because sufficient training in the program implementers is very important for the success of PYD programs and it is a common practice in the scientific literature that teachers in the control group do not receive the related PYD training. As “P.A.T.H.S. teachers” participated in training voluntarily, one may argue that they possessed some pre-dispositions (i.e., they were more enthusiastic), which may enable their students to naturally benefit from their teaching rather than from the project itself. However, as the “P.A.T.H.S. teachers” were assigned instead of “opted” to teach experimental group students, the “pre-disposition” hypothesis did not have strong support. In addition, because of the experiential learning nature of the “P.A.T.H.S. Project”, teachers in the experimental and control groups are expected to teach differently.

Second, during the second week, students in the two groups were invited to complete a battery of questionnaires (i.e., the pretest). The “class teachers” distributed the questionnaires and the students completed the questionnaires in a paper-and-pencil manner in the classroom on their own. Because some students were absent (e.g., sick leave or participating in other school activities) when the pretest took place, a total of 475 Grade 7 students (response rate = 89.43%) and 664 Grade 8 students (response rate = 92.48%) completed the questionnaire at the pretest.

Third, from the third week, experimental group students took a “Tin

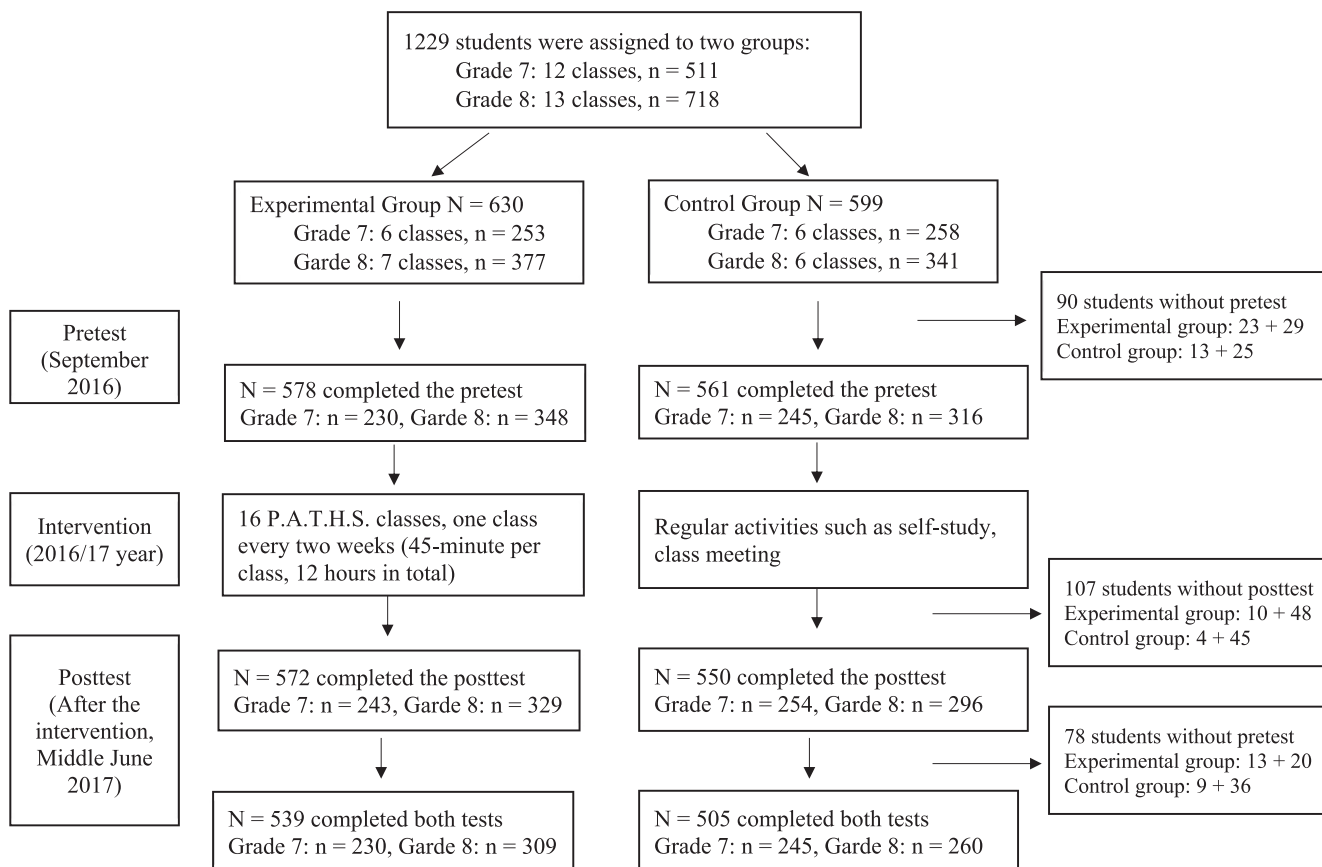


Fig. 1. A flowchart showing the procedures of the present study.

Ka Ping P.A.T.H.S.” class once every two weeks (16 classes in total with 45 min for each class) whereas the control group had regular class activities such as self-study or class meeting in which the “class teacher” summarized student performance during the past week and pointed out areas for improvement.

Fourth, after the experimental group completed the “Ting Ka Ping P.A.T.H.S.” classes in the 2016/17 school year, both groups responded to the same questionnaires (i.e., posttest) in mid-June 2017 (the students had final examinations in late June).

In the first day of Semester 1 in 2016/17 year, Grade 7 and 8 students brought home “parent notice and consent form” which explained that there would be a 1-year positive youth development project involving two times of data collection in the school as well as key principles upheld in data collection and usage (e.g., voluntary participation, confidentiality, and anonymity). Parents were asked to indicate if they would like to let their children join the study by signing the consent form. Students brought back the signed parent consent form and handed it to the “class teachers”. All parents gave their consent for children’s participation. Before the pretest and posttest, all students were informed about the study purpose, confidentiality and anonymity of the data analysis as well as their choice to withdraw from the study. They also signed the consent form before responding to the questionnaires.

2.2. Participants

Among the 630 students in the experimental group, 578 and 572 completed the pretest and posttest, respectively, resulting in a matched sample of 539 students with complete test scores. Among the 599 students in the control group, 561 and 550 students completed the pretest and posttest, respectively, resulting in a matched sample of 505 students with complete test scores (see Fig. 1). Comparisons between the matched sample (N = 1044 = 539 + 505) and those who only had pretest scores (n = 95) did not yield significant differences between the two groups in gender composition, mean age, and pretest scores of the outcome measures.

Data analyses were based on the matched sample (N = 1,044), including 539 in the experimental group (Grade 7: n = 230, 139 males, mean age = 12.46; Grade 8: n = 309, 196 males, mean age = 13.54) and 505 in the control group (Grade 7: n = 245, 144 males, mean age = 12.48; Grade 8: n = 260, 142 males, mean age = 13.57). At each grade level or in the experimental and control groups, male students accounted for a relatively higher proportion of the participants. The proportions were close to or slightly higher than that (55%) in the overall adolescent population for Grade 7–8 students, according to the information provided by the Education Bureau in Guangdong province where the school is located. Detailed characteristics are shown in Table 1 and comparisons of baseline conditions between the two groups are reported in the result section.

2.3. Measures

The outcome measures covered in the pretest and posttest included PYD attributes, well-being (i.e., life satisfaction), and adolescent developmental problems (i.e., depression as an indicator of internalizing problem and delinquency as an externalizing problem). The PYD attributes were the primary outcome measures while the well-being and developmental problems were the secondary outcome measures. These measures are outlined below.

2.3.1. PYD attributes

The 80-item “Chinese Positive Youth Development Scale” (CPYDS) was utilized (Shek & Ma, 2010). Based on 15 PYD constructs covered in effective PYD programs, CPYDS has 15 subscales based on 15 primary PYD factors. Besides, there are four composite subscales based on higher-order PYD factors, including: (1) “Cognitive-behavioral

Table 1
Demographic characteristics and pretest scores of the matched sample (N = 1044) in the experimental and control groups.

	Experimental Group (n = 539)		Control Group (n = 505)		Comparison		
	N	%	N	%			
Gender					$\chi^2_{(1)} = 3.03,$ $p = .09, \phi = 0.05$		
Male	335	62.14	286	56.63			
Female	202	37.48	215	42.57			
Did not report	2	0.37	4	0.79			
	<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>	<i>Mean difference</i>	<i>t</i>	<i>Cohen’s d</i>
Age	13.08	0.76	13.04	0.78	0.04	0.88	0.05
Pretest scores							
PYD attributes							
CBC	4.93	0.73	5.07	0.78	-0.14	3.04**	0.20
PA	4.96	0.80	5.03	0.89	-0.07	1.45	0.09
General PYD	4.92	0.69	5.03	0.77	-0.11	2.38*	0.15
PI	4.68	0.90	4.82	0.95	-0.15	2.62**	0.16
Total PYD	4.90	0.68	5.01	0.75	-0.12	2.66**	0.15
Life satisfaction	4.14	1.18	4.32	1.19	-0.18	2.48*	0.15
Depression	1.72	0.49	1.71	0.45	0.01	0.38	0.02
Delinquency	0.38	0.50	0.38	0.59	0.01	0.20	0.01

Note. PYD = Positive youth development, CBC = Cognitive-behavioral competence, PA = Prosocial attributes, PI = Positive identity. * $p < .05$; ** $p < .01$.

competence” measure comprising the “cognitive competence”, “behavioral competence”, and “prosocial involvement” subscales; (2) “Prosocial attributes” measure including “prosocial norms” and “prosocial involvement” subscales; (3) “General PYD qualities” measure comprising “bonding”, “resilience”, “social competence”, “recognition for positive behavior”, “emotional competence”, “moral competence”, “self-efficacy”, and “spirituality” subscales; and (4) “Positive identity” measure comprising “clear and positive identity” and “beliefs in the future” subscales. A 6-point reporting scale (“1 = strongly disagree”; “6 = strongly agree”) was used throughout the scale. In the present study, scores of higher-order factors as well as total PYD score averaged by all items were computed. In this study, 14 out of 15 subscales demonstrated acceptable internal reliability (Cronbach’s α s ranged from 0.79 to 0.88 in the pretest and from 0.79 to 0.91 in the posttest). The only exception was the “self-efficacy” subscale with two items, of which Cronbach’s α estimate was 0.59 in the pretest and 0.53 in the posttest. However, the values of inter-item and item-total correlation in this scale were acceptable.

2.3.2. Life satisfaction (LS)

LS was assessed by the 5-item Chinese translated version of the “Satisfaction with Life Scale”, which has been validated and widely adopted in measuring Chinese people’s LS (Leung & Shek, 2019; Shek, 2004; Shek & Liang, 2018). Participants reported the degree of their endorsement (“1 = strongly disagree”; “6 = strongly agree”) of the five statements about their overall life quality such as their satisfaction with life. The scale demonstrated good internal consistency (Cronbach’s = 0.84 and 0.85 at pretest and posttest, respectively).

2.3.3. Depression

Depression was measured by the 20-item “Center for Epidemiologic Studies Depression Scale” (CES-D) developed by Radloff (1997). CES-D has been widely employed as a valid and reliable measure of depressive symptomatology among various populations (e.g., adolescents, adults, and elderly) in different regions including Chinese communities (Wang

Table 2
Results of repeated-measures multivariate general linear model analyses.

Variable	Group	N	Pretest		Posttest		Mean difference M2 - M1	Between-group difference of M2 - M1 [95% C.I.]	Test effect (Pretest-posttest)		Group effect		Test × group	
			M1	SD1	M2	SD2			F	η_p^2	F	η_p^2	F	η_p^2
1. Positive Youth Development														
Cognitive-behavioral competence	Experimental	531	4.95	0.73	5.16	0.74	0.21	0.07 [-0.02, 0.20]	13.64***	0.06	3.30**	0.02	2.30*	0.01
	Control	494	5.09	0.78	5.23	0.73	0.14		45.31***	0.04	7.50**	0.01	1.75	0.002
	Combined	1025	5.02	0.75	5.19	0.73	0.17							
Prosocial attributes	Experimental	531	4.97	0.80	5.22	0.76	0.26	0.12 [-0.01, 0.25]	41.99***	0.04	0.14	0.0001	3.46	0.003
	Control	494	5.04	0.88	5.18	0.90	0.14							
	Combined	1025	5.00	0.84	5.20	0.83	0.20							
General PYD	Experimental	531	4.93	0.69	5.12	0.70	0.19	0.13 [0.05, 0.26]	26.42***	0.03	0.86	0.001	7.44**	0.01
	Control	494	5.04	0.77	5.10	0.78	0.06							
	Combined	1025	4.98	0.73	5.11	0.74	0.13							
Positive identity	Experimental	531	4.68	0.91	4.83	0.91	0.15	0.15 [0.05, 0.31]	5.19*	0.01	2.38	0.002	5.79*	0.01
	Control	494	4.83	0.95	4.83	1.00	0.00							
	Combined	1025	4.76	0.93	4.83	0.95	0.07							
Total PYD	Experimental	531	4.91	0.67	5.11	0.67	0.20	0.12 [0.04, 0.24]	35.26***	0.03	1.98	0.002	6.64*	0.01
	Control	494	5.02	0.75	5.10	0.73	0.08							
	Combined	1025	4.96	0.71	5.10	0.70	0.14							
2. Life satisfaction	Experimental	529	4.15	1.18	4.05	1.12	-0.09	0.13 [-0.04, 0.32]	13.83***	0.01	3.57	0.003	2.07	0.002
	Control	491	4.32	1.20	4.10	1.26	-0.22							
	Combined	1020	4.23	1.20	4.07	1.19	-0.16							
3. Depression	Experimental	488	1.72	0.49	1.71	0.48	-0.02	-0.07 [-0.13, -0.001]	1.51	0.001	0.37	0.0004	4.43*	0.01
	Control	472	1.70	0.45	1.76	0.54	0.05							
	Combined	960	1.71	0.47	1.73	0.51	0.02							
4. Delinquency	Experimental	525	0.38	0.50	0.32	0.39	-0.06	-0.05 [-0.11, 0.03]	3.26	0.003	0.73	0.001	2.18	0.002
	Control	500	0.38	0.59	0.37	0.65	-0.01							
	Combined	1025	0.38	0.55	0.35	0.53	-0.03							

Note. C.I. = Confidence interval. * $p < .05$; ** $p < .01$; *** $p < .001$.

et al., 2013). On each item scored 1 (“rarely or none of the time”) to 4 (“most of or all of the time”), participants reported frequency of symptoms during the past week. The scale showed good internal consistency in the pretest (Cronbach’s $\alpha = 0.87$) and posttest (Cronbach’s $\alpha = 0.98$).

2.3.4. Delinquency

Delinquency was measured by a scale including 12 delinquent behaviors (“stealing”, “cheating”, “truancy”, “running away from home”, “damaging others’ properties”, “beating others”, “having sexual intercourse with others”, “gang fighting”, “speaking foul language”, “staying outside the home overnight without parental consent”, “bullying” and “trespassing”). On each item scored from 0 (“never”) to 6 (“more than 10 times”), participants reported frequency of behaviors during the last year. Noteworthy, some behaviors included in the scale, such as “stealing” and “damaging others’ properties”, can be regarded as illegal while others, such as “running away from home” and “having sexual intercourse with others”, are not illegal yet considered risky for early adolescents in Chinese culture. This scale was developed to measure Chinese adolescents’ delinquency and it has been validated among this population (Shek & Zhu, 2019). The scale was unidimensional and possessed adequate factorial validity and reliability indicated by multiple measures (e.g., mean factor loading, Average Variance Extracted, and Composite Reliability) (Shek & Zhu, 2019). The Cronbach’s α of the scale was 0.76 in the pretest and 0.74 in the posttest, indicating adequate internal reliability of the scale in the present study.

2.4. Data analysis plan

First, independent-samples t-tests were performed to compare baseline conditions (i.e., the pretest scores) in each outcome measure between the experimental and the control groups.

Second, to investigate the effectiveness of the “TKP P.A.T.H.S. Project”, we performed general linear model (GLM) analyses with repeated-measures multivariate tests on the four outcome measures (i.e., “PYD attributes”, “life satisfaction”, “depression”, and “delinquency”).

In each GLM analysis, time (pretest versus posttest scores) was treated as a within-subjects variable and the intervention group (i.e., experimental group versus control group) as well as grade level (Grade 7 versus Grade 8) were treated as two between-subjects variables. In short, three-way (Test × Group × Grade) GLM analyses were performed. Partial eta squared (η_p^2) was used to indicate effect size in GLM, with values of 0.01, 0.06, and 0.14 as benchmarks for small, medium, and large effect sizes, respectively (Richardson, 2011).

Because PYD attributes included five indicators (i.e., four higher-order PYD composite scores plus the average total PYD score), we utilized the Bonferroni procedure to reduce Type I errors so that we can detect significant multivariate within-subjects effects with higher sensitivity. If the omnibus test effect was significant, follow-up univariate analyses would be performed to further examine the pretest–posttest change in each PYD indicator.

3. Results

3.1. Background and baseline conditions

As shown in Table 1, no significant difference was identified between the two groups regarding gender composition and mean age. For the pretest scores, t-tests revealed that the two groups did not show significant differences in prosocial attributes, depression, and delinquency ($ps > 0.05$). But experimental group participants scored higher in four out of five PYD indicators (t ranged between 2.38 and 3.04, $ps < 0.05$, Cohen’s d ranged between 0.15 and 0.20) and life satisfaction ($t = 2.48$, $p < .08$, Cohen’s $d = 0.15$) than did the control group participants. Nevertheless, as the effect sizes were small, it can be concluded that the two groups were comparable regarding their background and baseline conditions.

3.2. Pretest-posttest changes

Because three-way (Test × Group × Grade) GLM analyses did not yield any significant interactions between grade level and the other two

variables, we combined two grade levels to perform two-way (Test × Group) GLM analyses. As shown in Table 2, the main effects of the test were significant in most outcome measures ($ps < 0.05$) except for depression and delinquency ($ps > 0.05$), indicating an increasing trend in PYD indicators and a decreasing trend in life satisfaction from the pretest to the posttest among the whole sample. In addition, significant group effects were identified for one PYD composite score (i.e., “cognitive-behavioral competence”) ($p < .01$), with the control group reporting higher levels than did the experimental group.

As expected, Test × Group interaction effects were significant for three out of five PYD indicators (“general PYD qualities”, “positive identity”, and “total PYD score”) and depression. The interaction effects indicated that students in the experimental group showed significantly greater improvement in perceived “general PYD qualities” (mean between-group difference for change = 0.13, $F = 7.44$, $p < .01$, $\eta_p^2 = .01$), “positive identity” (mean between-group difference for change = 0.15, $F = 5.79$, $p < .05$, $\eta_p^2 = .01$), and “total PYD score” (mean between-group difference for change = 0.12, $F = 6.64$, $p < .05$, $\eta_p^2 = .01$), but less increase in perceived depressive symptoms (mean between-group difference for change = -0.07 , $F = 4.43$, $p < .01$, $\eta_p^2 = .01$) (see Table 2), than did students in the control group. The interaction effects on the outcome measures remained significant after gender and age were statistically controlled in the GLM analyses.

In view of the Test × Group interaction effects, to better understand the intervention effects, we further performed post-hoc GLM analyses, separately for the experimental and control groups. As shown in Table 3 and Fig. 2, students in the experimental group showed significant improvement in all perceived PYD attributes (F ranged between 12.30 and 43.99, $ps < 0.001$, η_p^2 ranged between 0.02 and 0.08). Students in the control group perceived significant improvement in three PYD indicators (“cognitive-behavioral competence”, “Prosocial attributes”, and “Total PYD”; F ranged between 4.78 and 13.74, $ps < 0.05$, η_p^2 ranged between 0.01 and 0.03) with relatively smaller effect sizes in comparison to that in the experimental group (0.03 versus 0.06 for “cognitive-behavioral competence”, 0.02 versus 0.08 for “prosocial attributes”, and 0.01 versus 0.08 for “Total PYD”). Additionally, while the control group perceived significant decline in life satisfaction ($F = 11.07$, $p < .001$, $\eta_p^2 = .02$) and increase in depression ($F = 4.38$, $p < .05$, $\eta_p^2 = .01$), the experimental group did not show any related change (see Table 3, Fig. 3a and b). Finally, the experimental group showed significant decrease in self-report delinquency ($F = 8.81$, $p < .01$, $\eta_p^2 = .02$) while the control group did not (see Table 3 and Fig. 3c). In short, the present findings showed that students joining the “Tin Ka Ping P.A.T.H.S. Project” displayed greater improvement in perceived PYD attributes, less decrease in perceived life satisfaction, less increase in self-report depression, and less increase in self-report delinquency.

4. Discussion

Using a pretest–posttest quasi-experimental design, the present study investigated whether the students joining the “Tin Ka Ping P.A.T.H.S.” program (i.e., the experimental group) changed in a more positive manner than the students who did not join the program (i.e., the control group) using both positive outcomes (PYD qualities and life satisfaction) and negative developmental indicators (depression and delinquency). In comparison to control group students, experimental group students showed higher levels of improvement in perceived PYD attributes, a lower level of decline in self-report life satisfaction, less increase in self-report depression and more decrease in perceived delinquency. Although the effect sizes of the positive changes based on the self-report measures in the experimental group only ranged between small to medium magnitude, our findings are generally aligned with the previously reported positive evaluation findings based on student diary (Shek, Zhu et al., 2019) or subjective perceptions of teachers and students (Shek, Lee, & Ma, 2018; Shek, Zhu et al., 2018).

In conjunction with positive evaluation findings of the “P.A.T.H.S. Project” in Hong Kong (Ma et al., 2019; Shek, 2019) and Macau (Luk, Leong, & Au, 2012), the present findings further suggest that the project is promising in promoting positive development and reducing developmental problems based on self-report measures among Chinese adolescents in different Chinese communities. In a broader context, our findings support the effectiveness of youth programs adopting a strength-based approach in promoting adolescent holistic development. For example, Castro-Olivo (2014) reported a higher level of increment in resiliency among Latino adolescents in the intervention group who received a culturally adapted SEL program entitled “Strong Teens” as compared to the control group.

Regarding the PYD attributes, control group students perceived improvement in some dimensions (e.g., “cognitive and behavioral competence”) during the study period. This is reasonable as adolescence is characterized by cognitive development and students can acquire life skills through school learning. However, while control group students did not show “natural improvement” in perceived positive identity and the general PYD attributes which are pertinent to bonding, social skills, emotional competence, morality, resilience, and spirituality, experimental group students improved in these areas. These findings suggest that PYD programs could be particularly beneficial for helping students form a positive and healthy sense of self as well as promoting their non-cognitive capabilities. This demonstrates the unique value of PYD programs given the importance of the development of self-identity and psychosocial competence during adolescence in shaping one’s life in a long run (Tsang, Hui, & Law, 2012).

In addition, perceived life satisfaction decreased while self-report depression increased in the control group, suggesting a decline in subjective well-being among the students. This observation is consistent

Table 3
Results of repeated-measures multivariate general linear model analyses by groups.

Variable	Experimental Group						Control Group						
	Pretest		Posttest		Test effect (Pretest-posttest)		Pretest		Posttest		Test effect (Pretest-posttest)		
	M	SD	M	SD	F	η_p^2	M	SD	M	SD	F	η_p^2	
1. Positive Youth Development					11.48***	0.10						6.50***	0.06
Cognitive-behavioral competence	4.95	0.73	5.16	0.74	34.54***	0.06	5.09	0.78	5.23	0.73	13.74***	0.03	
Prosocial attributes	4.97	0.80	5.22	0.76	43.99***	0.08	5.04	0.88	5.18	0.90	8.63**	0.02	
General PYD	4.93	0.69	5.12	0.70	37.26***	0.07	5.04	0.77	5.10	0.78	2.45	0.01	
Positive identity	4.68	0.91	4.83	0.91	12.30***	0.02	4.83	0.95	4.83	1.00	0.01	0.00	
Total PYD	4.91	0.67	5.11	0.67	43.32***	0.08	5.02	0.75	5.10	0.73	4.78*	0.01	
2. Life satisfaction	4.15	1.18	4.05	1.12	3.17	0.01	4.32	1.20	4.10	1.26	11.07***	0.02	
3. Depression	1.72	0.49	1.71	0.48	0.62	0.00	1.70	0.45	1.76	0.54	4.38*	0.01	
4. Delinquency	0.38	0.50	0.32	0.39	8.81**	0.02	0.38	0.59	0.37	0.65	0.04	0.00	

* $p < .05$; ** $p < .01$; *** $p < .001$.

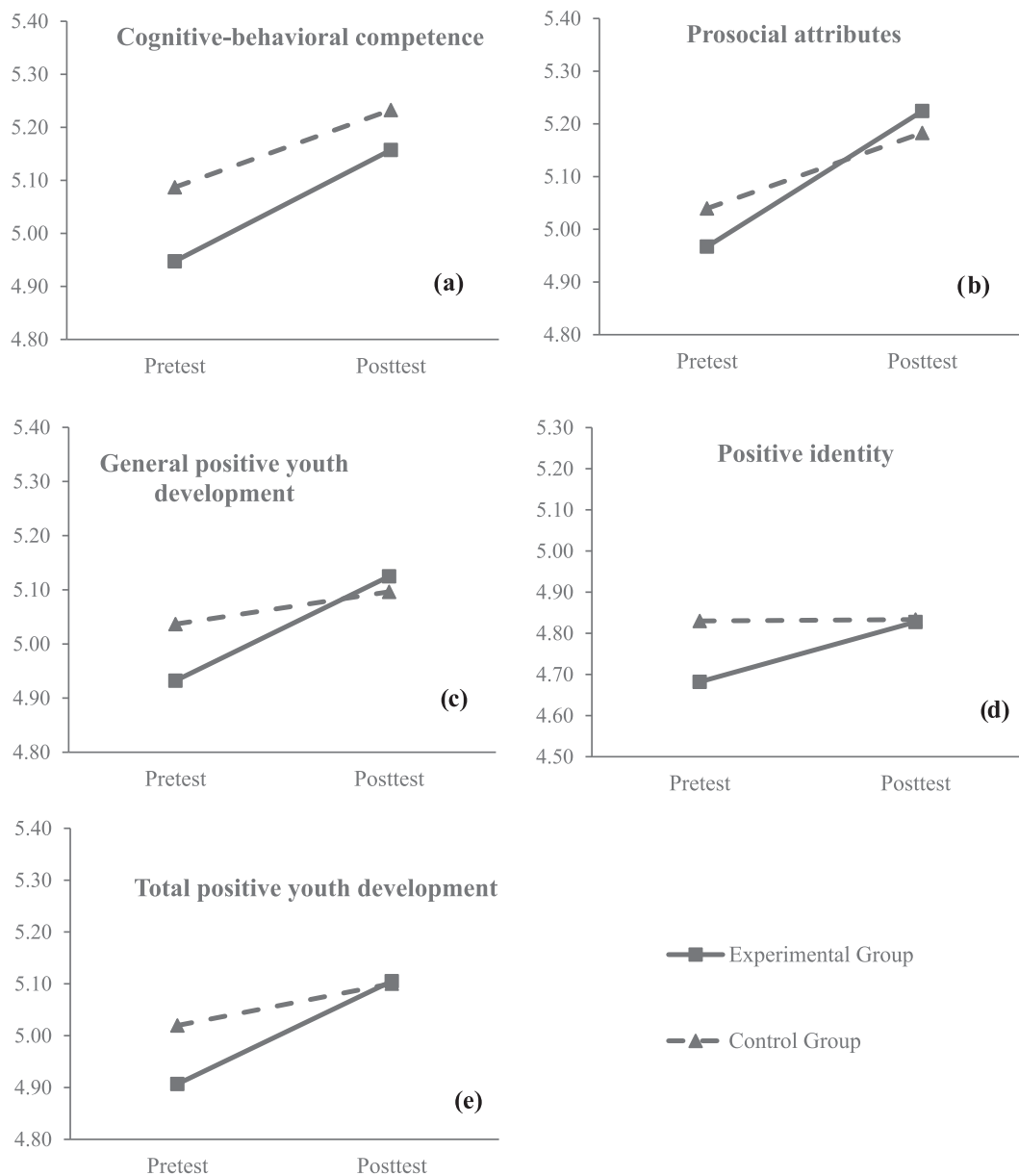


Fig. 2. Interaction effects between test (pretest vs. posttest) and intervention group (experimental vs. control group) on positive youth development attributes (2a: cognitive-behavioral control; 2b: prosocial attributes; 2c: general positive youth development; 2d: positive identity; 2e: total positive youth development).

with previous findings showing a downward trend in life satisfaction but an upward trend in hopelessness since early adolescence (Proctor, Linley, & Maltby, 2009; Shek & Liang, 2018). During adolescent years, although adolescents acquire cognitive skills and become more mature, they may become less satisfied with their life because of the developmental challenges and the increasing pressure they have to face during the transitional period (Goldbeck, Schmitz, Besier, Herschbach, & Henrich, 2007). However, self-report life satisfaction and depression did not significantly change among experimental group students, hence suggesting the protective effect of the “Tin Ka Ping P.A.T.H.S. Project”. This observation is consistent with evidence found in the West contexts where strength-based youth programs are able to protect young people from psychological distress and risk behavior (Ciocanel, Power, Eriksen, & Gillings, 2017; Taylor et al., 2017).

Practically, the present evaluation findings imply the value of culturally adapted curriculum-based PYD programs in mainland China. There are two implications of the present findings. First, the findings suggest that although the theoretical basis of the “P.A.T.H.S. Project”

includes elements originated from the West (e.g., the 15 PYD constructs), the program content could be adapted to fit the unique social-cultural characteristics of mainland China and fulfill the developmental needs of Chinese adolescents in mainland China.

The second implication is that the usage of student-centered pedagogy is important. By upholding a notion that students can learn better through “experiencing, reflecting, thinking, and acting” instead of merely teacher’s lecturing (Kolb, 2014), “P.A.T.H.S. teachers” were trained and encouraged to change their traditional teacher-centered teaching methods (i.e., one-way lecturing) to more interactive ones which incorporate class discussion, group work, self-reflection, debate, role play, and so on. Although it may engender extra challenges to both teachers and students participating in the “P.A.T.H.S. Project”, it appeared that they well adapted to and favored the interactive teaching and learning approaches (Shek, Lee et al., 2018; Shek, Zhu et al., 2018; Shek, Zhu et al., 2019). The welcoming, encouraging, and inspiring learning environment created by the student-centered pedagogy has been proved beneficial for greater learning achievement through

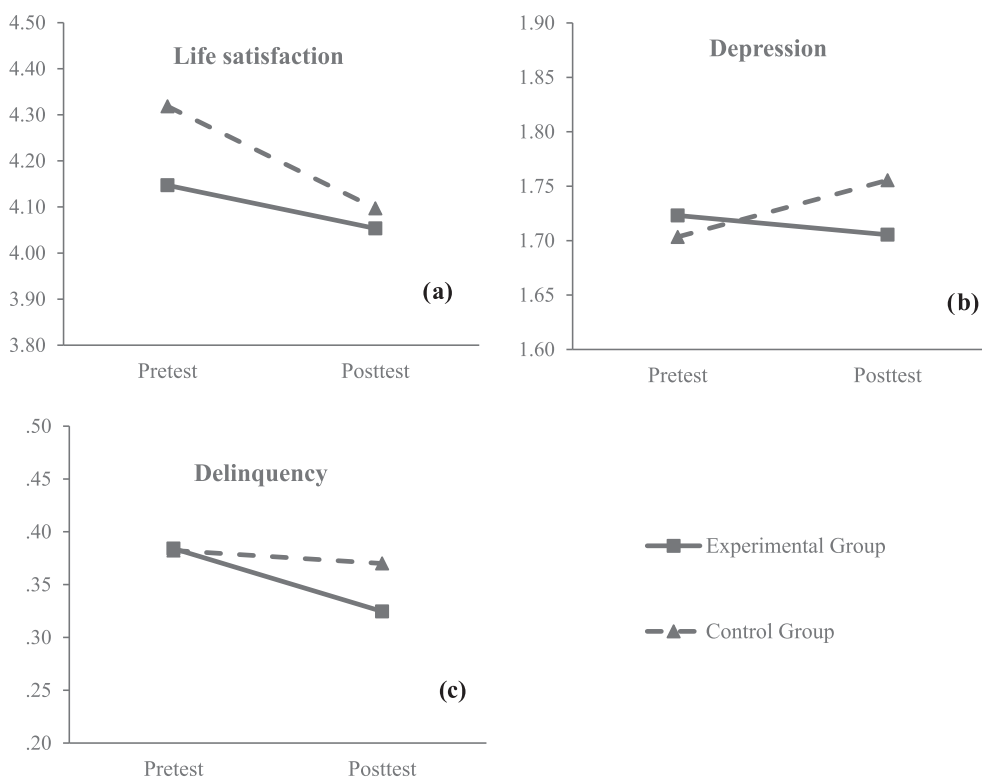


Fig. 3. Interaction effects between test (pretest vs. posttest) and intervention group (experimental vs. control group) on life satisfaction (3a), depression (3b), and delinquency (3c).

cultivating students’ active learning attitude and engagement (Burch et al., 2014; Jiusto & DiBiao, 2006). Indeed, meta-analysis review showed that youth interventions utilizing active delivery (e.g., role-play) were more effective than those using passive methods such as lectures (January, Casey, & Paulson, 2011).

Based on the above-mentioned implications, it is suggested that youth workers such as school teachers or social workers can utilize PYD programs with culturally adapted content and active teaching methodology to teach students valuable life skills (e.g., emotional and communication skills), which can promote their holistic development and enable them to cope with life challenges strategically and effectively (Sanders & Munford, 2014; Waid & Uhrich, 2019). This practice is especially essential in mainland China in view of its central governmental determination in promoting youth health functioning and the development of social work professions (Shek, Zhu et al., 2019). As to school social workers, it represents a fulfillment of the national mission to facilitate young people’s holistic development by designing and implementing tailor-made PYD programs such as the “TKP P.A.T.H.S. Project” in the school context.

Besides, it is also suggested that in collaboration with researchers in the universities, secondary schools should conduct evaluation research studies (such as those based on the quasi-experimental design) to provide convincing empirical evidence for their PYD programs, which is of paramount importance in the light of evidence-based practice (Thyer, Babcock, & Tutweiler, 2017). A true-experimental design with randomization at participant level has been historically regarded as a “gold” standard to establish the cause-effect relationship between an intervention (e.g., a PYD project) and outcome measures (e.g., better youth development) (Shek, 2013). However, although such a design has a higher level of internal validity, it may be susceptible to threats of external validity because of “unnatural” experimental settings (Campbell & Stanley, 1963; Royse et al., 2015). This concern is particularly important in school contexts because random allocation of students to intervention/control groups may contradict “natural groups” in terms of pre-existing classes. Instead of randomizing at a

student level, an alternative is to use “cluster sampling” with pre-existing classes as clusters being randomly selected and assigned into an experimental or a control group. However, cluster sampling was not viable in some situations. For example, in the present study, we were not able to randomly assign classes into different groups due to many administrative constraints. To this end, a quasi-experimental design serves as a more feasible solution to demonstrate educational impacts of a curriculum-based PYD program by assigning already-existing classrooms into experimental/control groups (McMillan & Schumacher, 2010).

One methodological issue to be discussed is the formation of the experimental group and control group by the school before the pretest. Although well justified, this operation may create bias because the two groups may differ from each other in their pretest scores of PYD attributes and life satisfaction. One can argue that the observed differences between the two groups at posttest may be due to the lower baseline scores in the experimental group relative to the control group. However, this possibility related to pre-existing differences can be ruled out because the two groups did not have much differences in the background socio-demographic variables and the outcome measures. Nevertheless, the present findings are subject to replication by future studies in which intrinsic differences between experimental and control groups can be controlled by matching pretest scores or even randomization at student level or using cluster sampling.

Besides the above-mentioned methodology, other limitations of the present study are noted. First, the present findings are limited to one posttest immediately after one year’s “TKP P.A.T.H.S.” classes. To test whether the effectiveness of the project would be long-lasting, future studies should have more follow-up tests over a longer period. Second, the present study only involved one year’s implementation of the “TKP P.A.T.H.S. Project” which addressed the short-term effectiveness of the project. To shed light on the full picture of the project benefits, research efforts should be devoted to following up the experimental group for a longer period during project implementation (e.g., the entire junior high school stage) and comparing developmental trajectories in

outcome measures between the experimental and control groups. Finally, the evaluation was based on the data only obtained from adolescents' self-report. Obviously, self-report measures may cause bias such as socially desired answers. Nevertheless, self-report measures are commonly used in studies assessing effects of PYD programs and research covered in the major meta-analytic studies (García-Poole, Byrne, & Rodrigo, 2019). It can also be argued that adolescents can provide reliable information about their own experience and life (Shek & Zhu, 2019). Of course, it is methodologically preferred to collect data from a wide range of informants including parents, teachers, and peers in the future research.

Despite the above limitations, this quasi-experimental study is pioneering in evaluating the effectiveness of a PYD program in China mainland. The present study showed the positive effects of the "Tin Ka Ping P.A.T.H.S. Project" on junior high school students in terms of better developmental outcomes based on multiple self-report measures. In conjunction with the findings reported elsewhere (Catalano et al., 2012; Ma et al., 2019; Shek, Zhu et al., 2019), the present findings provide evidence for the benefits of the curriculum-based PYD programs in mainland China.

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CRedit authorship contribution statement

Xiaoqin Zhu: Conceptualization, Methodology, Investigation, Formal analysis, Writing - original draft, Writing - review & editing. **Daniel T.L. Shek:** Conceptualization, Writing - review & editing, Supervision, Funding acquisition.

Declaration of competing interest

The authors have no conflicts of interest to disclose.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.chilyouth.2020.105022>.

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