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Abstract: The present study attempted to investigate the perceptions of Chinese secondary school students with greater psychosocial needs of the Tier 2 Program in the community-based phase of P.A.T.H.S. Project in Hong Kong ($n=4245$). Using a subjective outcome evaluation tool (Form C), the results revealed that a great majority of the students held positive attitudes toward the program, implementers and the effectiveness of the program. Also, the three domains of the program (“program quality”, “implementer quality” and “program effectiveness”) were significantly associated with each other. In line with previous findings, both program content and program implementer quality were significant predictors of program effectiveness. The current findings further reinforce the thesis that the community-based Tier 2 programs of the P.A.T.H.S. Project are effective in promoting the holistic development of adolescents with greater psychosocial needs in Hong Kong.

Keywords: Chinese adolescents; positive youth development; program evaluation; problem behavior; Project P.A.T.H.S.

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Introduction

Adolescents are typically at risk of engaging in developmental problems including substance abuse, criminal behavior, mental health and unhealthy lifestyles such as underage smoking, drinking and moral issues [1, 2]. Such developmental problems adversely affect adolescent development on multiple levels, including physical, psychological, emotional, social and spiritual domains, which may eventually adversely affect social stability [3].

For instance, bullying behavior in school is a widespread problem with roughly 25%–30% of students involved in bullying in each school year [4]. A national study among US adolescents showed that the prevalence of having bullied others or having been bullied physically, verbally, socially and electronically at school for at least once in the last 2 months was 20.8%, 53.6%, 51.4% and 13.6%, respectively [5]. Besides, cyberbullying or electronic bullying is emerging with the rapid development of technology [6, 7]. After reviewing 35 articles in this field, research showed that approximately 24% of youth had been cyberbullied [8]. In recent years, researchers have demonstrated many harmful effects of bullying on adolescent school achievement, pro-social skills and psychological well-being [9, 10]. Previous research also found that risk factors for being bullied included poor academic achievement, unhealthy friendship and peer relationships, bad communication with parents and being isolated [11]. Furthermore, youth who were victimized were at a greater risk of developing psychosocial and internalizing problems [12]. Particularly, cyberbullying victims were more likely to be isolated, felt hopeless and reported severe depressive symptoms [13]. Recognizing these complex and urgent problems, various school-based programs using different prevention approaches have been developed to reduce bullying and other aggressive behaviors among adolescents. A recent systematic meta-analytic review of anti-bullying program evaluation in school showed that the average reduction in bullying and victimization in these programs was 20%–23% [14].

Another example of adolescent developmental issues is substance abuse. Results from a national comorbidity adolescent survey found that alcohol and drug use were quite common in the US, with 78.2% of adolescents consuming alcohol and about 16.4% indulging in illicit drug abuse [15]. A study using meta-analysis to examine the effectiveness of drug treatment programs showed that although most types of treatment had a short-term effect in reducing substance abuse, smaller long-term improvement outcomes were reported [16]. Turning to Hong Kong, based on the result of students' drug use survey released in 2015 by the Narcotics Division of the Hong Kong Special Administrative Government, although there was a drop in lifetime prevalence in drug-taking amongst students, 0.7%, 2.2% and 2.5% of students in upper primary, secondary and post-secondary levels reported to have abused drugs, respectively. Moreover, the number of abusers of cannabis increased to 59.1%. Compared with the results of the survey in 2011, most of the adolescent abusers (80.9%) still never sought help from others [17].

In view of the existing adolescent developmental problems, minimizing the occurrence of adolescent problem behaviors and helping them develop in a healthy manner is of critical importance. An alternative approach, which is different from the past and centered on pathologies and problems of adolescents, has been proposed with a focus on addressing positive youth development (PYD) [18]. PYD emphasizes discovering and developing adolescents' talents, strengths, future potentials and interests [19]. As a strategy to facilitate the healthy growth of youth development and positive health outcomes, the support for PYD has been endorsed by the Division of Reproductive Health at the Disease Control and Prevention Centers in the USA [20].

In the process of becoming an adult, youth developmental challenges include identity formation, career exploration and increased social responsibility. Hence, programs should be designed to meet adolescent developmental needs and promote their psychosocial competences [21]. Through a review of 77 existing PYD programs, Catalano et al. [22] identified 15 PYD constructs that were commonly covered in successful PYD programs. These constructs included "bonding, resilience, social competence, recognition of positive behavior, emotional competence, cognitive competence, behavioral competence, moral competence, self-determination, self-efficacy, clear and positive identity, beliefs in the future, prosocial involvement, prosocial norms and spirituality".

While PYD programs were built and implemented in the West [23], the literature review revealed that systematic, multi-year and evidence-based PYD programs are

lacking in Hong Kong [24]. Against this backdrop, using the 15 PYD constructs as the conceptual framework, a multi-year project entitled Positive Adolescent Training through Holistic Social Programs (Project P.A.T.H.S.) was launched in 2005. The project was funded by The Hong Kong Jockey Club Charities Trust (HK\$400 million) in collaboration with the Research Team, the Education Bureau (formerly Education and Manpower Bureau) and the Social Welfare Department. With the involvement of roughly half of the Hong Kong secondary schools, this PYD programs has been successfully implemented since 2005/2006 school year, with very encouraging evaluation findings [25]. From 2009 to 2010 school year, the HKCCT earmarked additional funding (HK\$350 million) to further promote a 3-year extension of the P.A.T.H.S. Project.

One unique feature of this PYD project is that several evaluation methods have been applied to examine the impact of the project [26]. Various evaluative strategies have been used to examine the project, including subjective outcome evaluation based on program participants and program implementers, objective outcome evaluation, qualitative evaluation, process evaluation, classroom observations, repertory grid tests and student products such as students' weekly diaries and drawings [27]. According to the results from eight waves of data collected over five consecutive years, the program showed a positive impact in promoting youth holistic development and preventing youth problem behaviors [28]. With the great success in the school-based program, a community-based project was implemented in 2013 lasting until the end of 2017.

The P.A.T.H.S. Project consists of two tiers of programs. Based on a systematic, evidence-based and comprehensive curriculum that normally provides 10–20 h training for the students each year, the Tier 1 program is developed for Secondary 1–3 students. The Tier 2 program is developed for students in each grade with greater psychosocial needs [27]. As previous research on bullying intervention programs suggested that victimization is mainly influenced by parents and friends [6] and that programs with parental involvement are more effective [29], programs involving parents are also designed. Hence, participants of the community-based Tier 2 program are different from those of school-based programs. In the past years, while students, implementers and parents were involved in some programs, there were some programs that engaged only students or both students and implementers.

It is noteworthy that under the community-based phase, non-governmental organizations (NGOs) were also

involved in the Tier 2 program. The NGOs took the responsibility to plan the most appropriate programs to meet participants' needs. Previous studies showed that changing of social systems could successfully affect adolescents [29]. In the community-based phase, different programs aiming to strengthen adolescent psychosocial competence were developed [30]. Generally speaking, various program modes were developed in the Tier 2 Program. These included "adventure-based counseling programs" (ABC), "voluntary training and service programs" (VTS), programs with both ABC and VTS elements and programs with other elements such as parental involvement [31]. The results of data analyses of 153,761 students in previous Tier 2 programs suggested that most of the students regarded the program as successful in promoting their holistic development [25].

To replicate the previous findings and to examine program effectiveness among participants in the community-based implementation phase, the subjective outcome evaluation approach was used to examine participants' views of the program. As an economical and efficient tool, subjective outcome evaluation is commonly used to investigate client satisfaction [32]. Typically, participants are asked questions including "whether they are satisfied with the program and whether they perceive the program to be beneficial to them". To assess the influence of different aspects of the program (such as implementers' qualities, content, time arrangement and effectiveness of the program) on participants' perceptions, client satisfaction scales with different dimensions were used [33]. Previous research showed that reports completed by the program implementers could reveal program effectiveness [34]. Besides, objective outcome and subjective outcome ratings were significantly correlated.

In this study, a subjective outcome evaluation scale (Form C) was given to the students after completing the whole program. In previous studies, the factor structure and reliability of Form C were established [35].

Based on the above background, the following research questions were proposed in the present study:

1. What are the perceptions of the program participants toward the Tier 2 program in the community-based P.A.T.H.S. Program? Previous results consistently revealed that the perceptions of the program participants were positive [25]. Hence, we expected similar findings in this study (Hypothesis 1).
2. Are there any inter-relationships amongst the three aspects (program qualities, implementers qualities and program effectiveness) assessed by Form C? Previous studies showed significant relationships among these three dimensions [36]. Therefore, we

also expected significant relationships among these dimensions (Hypotheses 2a, 2b and 2c).

3. Do perceived program quality and perceived implementer quality predict participants' views on the effectiveness of the program? Based on previous findings [36], we hypothesized that these two qualities would predict perceived effectiveness of the program (Hypotheses 3a and 3b).

Methods

The participants of the current study were Secondary 1–Secondary 3 students showing greater psychosocial needs. From 78 schools and 15 community centers, 4245 participants took part in the Tier 2 Program of the Project P.A.T.H.S. in 2015. Among all of the participants, there were about 2739 in Secondary 1, 1848 in Secondary 2 and the rest 658 from Secondary 3.

To examine the participants' perception of the program, the Research Team developed a detailed and clear manual including the procedures and instructions for students to complete the evaluation form (Form C). An e-learning platform documenting all the procedures and instructions was also designed for collecting evaluation data using Form C. Once the program is finished, Form C was given to the students to complete. In the present study, a total of 3958 completed questionnaires were collected.

Instruments

Comprising both rating scales and open-ended questions, the present study adopted a subjective outcome evaluation form (Form C) in the Tier 2 Program. Focus on understanding participants' perceptions, several major aspects including program content, implementer performance and program effectiveness were examined in Form C. For the structured assessment items, the present study used a 6-point scale (1 = "strongly disagree"; 6 = "strongly agree").

Data analyses

Descriptive statistics were used to examine the percentages of students' perceptions of the three dimensions of the program ("program qualities", "implementer qualities" and "program effectiveness") in Form C. Reliability analysis was conducted to investigate the internal consistency of the scale. Pearson correlation analyses were performed to examine the inter-relationships amongst the three dimensions. Finally, multiple regression analyses were used to find whether the program and implementer qualities could predict the effectiveness of the program.

Results

Using descriptive data analysis, the current study examined the percentages of responses toward program qualities, implementer

qualities and program effectiveness based on Form C. Results revealed that a great majority of the students held positive attitudes toward the program. Results in Table 1 showed that overall 95.4% respondents were satisfied with the program and perceived that “the activities were carefully planned” (95.3%). Approximately 94.8% of the respondents gave high recognition for the program. In Table 2, the same positive findings could be found regarding the participants’ perceptions of the implementers. About 95.9% participants were satisfied with the workers and perceived that they had professional knowledge and well prepared for the program. Views toward program effectiveness also showed positive results (Table 3): 94.2% of the respondents felt that the program was beneficial to their problem-solving ability; 94% of them believed that the program could help their development (94.0%).

Reliability analyses (Table 4) showed that program content ($\alpha=0.96$), program implementers ($\alpha=0.96$) and program effectiveness ($\alpha=0.96$) subscales as well as the total scale of Form C were reliable ($\alpha=0.97$). Regarding the inter-relationships among the items on “program content” (eight items), “program implementers”

(eight items) and “program effectiveness” (eight items), Pearson correlation analyses (Table 5) showed correlation between “program content” and “program effectiveness” ($r=0.65, p<0.001$), “program implementers” and “program effectiveness” ($r=0.65, p<0.001$) and “program content” and “program implementers” ($r=0.77, p<0.001$) in different grades.

Finally, multiple regression findings in Table 6 showed that program content (S1: $\beta=0.50, p<0.001$; S2: $\beta=0.35, p<0.001$; S3: $\beta=0.21, p<0.001$; overall: $\beta=0.38, p<0.001$) and the program implementers (S1: $\beta=0.36, p<0.001$; S2: $\beta=0.25, p<0.001$; S3: $\beta=0.53, p<0.001$; overall: $\beta=0.35, p<0.001$) were significant predictors of program effectiveness.

Discussion

Based on the data analyses of Form C collected from secondary school students with greater psychosocial needs,

Table 1: Comparison of the positive views toward Tier 2 Program across different grades.

	Participants with positive responses across different grades							
	S1		S2		S3		Overall	
	n	%	n	%	n	%	n	%
1. The activities were carefully planned	2396	94.9	803	95.9	573	96.3	3772	95.3
2. The quality of the service was high	2385	94.4	795	95.0	571	96.0	3751	94.8
3. The service provided could meet the participants’ needs	2390	94.6	783	93.5	569	95.6	3742	94.5
4. The service delivered could achieve the planned objectives	2385	94.4	791	94.5	567	95.3	3743	94.6
5. I could get the service I wanted	2361	93.5	793	94.7	569	95.6	3723	94.1
6. I had much interaction with other participants	2375	94.0	796	95.1	570	95.8	3741	94.5
7. I would recommend others who have similar needs to participate in the program	2329	92.2	786	93.9	570	95.8	3685	93.1
8. On the whole, I am satisfied with the service	2398	94.9	801	95.7	577	97.0	3776	95.4

All items are on a 6-point Likert scale with 1=strong disagree, 2=disagree, 3=slightly disagree, 4=slightly agree, 5=agree, 6=strongly agree. Only respondents with positive responses (Options 4–6) are shown in the table.

Table 2: Comparison of the positive views toward implementers of the Tier 2 Program across different grades.

	Participants with positive responses across different grades							
	S1		S2		S3		Overall	
	n	%	n	%	n	%	n	%
1. The worker(s) has (have) professional knowledge	2408	95.3	811	96.9	575	96.6	3794	95.9
2. The worker(s) demonstrated good working skills	2401	95.1	805	96.2	580	97.5	3786	95.7
3. The worker(s) was (were) well prepared for the program	2414	95.6	806	96.3	577	97.0	3797	95.9
4. The worker(s) understood the needs of the participants	2396	94.9	797	95.2	574	96.5	3767	95.2
5. The worker(s) cared about the participants	2407	95.3	805	96.2	573	96.3	3785	95.6
6. The worker(s)’ attitudes were very good	2403	95.1	806	96.3	581	97.6	3790	95.8
7. The worker(s) had much interaction with participants	2360	93.4	800	95.6	574	96.5	3734	94.3
8. On the whole, I am satisfied with the worker(s)	2415	95.6	802	95.8	579	97.3	3796	95.9

All items are on a 6-point Likert scale with 1=strong disagree, 2=disagree, 3=slightly disagree, 4=slightly agree, 5=agree, 6=strongly agree. Only respondents with positive responses (Options 4–6) are shown in the table.

Table 3: Comparison of the positive views toward the effectiveness of the Tier 2 Program across different grades.

	Participants with positive responses across different grades							
	S1		S2		S3		Overall	
	n	%	n	%	n	%	n	%
1. The service has helped me a lot	2351	93.1	789	94.3	564	94.8	3704	93.6
2. The service has enhanced my growth	2358	93.3	799	95.5	565	95.0	3722	94.0
3. In the future, I would receive similar service(s) if needed	2323	92.0	780	93.2	570	95.8	3673	92.8
4. I have learned how to help myself through participating in the program	2355	93.2	795	95.0	562	94.5	3712	93.8
5. I have had positive change(s) after joining the program	2358	93.3	792	94.6	563	94.6	3713	93.8
6. I have learned how to solve their problems through participating in the program	2368	93.7	793	94.7	568	95.5	3729	94.2
7. My behavior has become better after joining this program	2312	91.5	780	93.2	560	94.1	3652	92.3
8. Those who know me agree that this program has induced positive changes in me	2306	91.3	788	94.1	561	94.3	3655	92.3

All items are on a 6-point Likert scale with 1=strong disagree, 2=disagree, 3=slightly disagree, 4=slightly agree, 5=agree, 6=strongly agree. Only respondents with positive responses (Options 4–6) are shown in the table.

Table 4: Mean, standard deviations, Cronbach's α s and mean of inter-item correlations among the variables by grade.

	S1		S2		S3		Overall	
	M (SD)	α (Mean ^a)	M (SD)	α (Mean ^a)	M (SD)	α (Mean ^a)	M (SD)	α (Mean ^a)
Program content (eight items)	4.98 (0.83)	0.96 (0.73)	4.93 (0.84)	0.96 (0.75)	4.99 (0.78)	0.96 (0.75)	4.97 (0.83)	0.96 (0.73)
Program implementers (eight items)	5.10 (0.83)	0.96 (0.76)	5.10 (0.83)	0.97 (0.79)	5.11 (0.78)	0.96 (0.76)	5.10 (0.82)	0.96 (0.77)
Program effectiveness (eight items)	4.94 (0.87)	0.96 (0.74)	4.95 (0.81)	0.96 (0.75)	5.01 (0.77)	0.96 (0.73)	4.95 (0.84)	0.96 (0.74)
Total effectiveness (24 items)	5.01 (0.76)	0.97 (0.61)	4.99 (0.70)	0.97 (0.55)	5.04 (0.70)	0.98 (0.62)	5.01 (0.74)	0.97 (0.60)

^aMean inter-item correlations.

Table 5: Correlation coefficients on the relationship between program components and program effectiveness by grade.

Variable	S1		S2		S3		Overall	
	1	2	1	2	1	2	1	2
1. Program content (eight items)	–		–		–		–	
2. Program implementers (eight items)	0.77 ^a	–	0.73 ^a	–	0.82 ^a	–	0.77 ^a	–
3. Program effectiveness (eight items)	0.69 ^a	0.68 ^a	0.53 ^a	0.50 ^a	0.65 ^a	0.71 ^a	0.65 ^a	0.65 ^a

^ap < 0.001.

Table 6: Multiple regression analyses predicting program effectiveness by grade.

	Predictors		Model	
	Program content	Program implementers	R	R ²
	β^a	β^a		
S1	0.41 ^b	0.36 ^b	0.73	0.53
S2	0.35 ^b	0.25 ^b	0.56	0.31
S3	0.21 ^b	0.53 ^b	0.72	0.51
Overall	0.38 ^b	0.35 ^b	0.69	0.47

^aStandardized coefficients. ^bp < 0.001.

the present study was aimed to explore the effectiveness of the Tier 2 Program in the community-based phase of the P.A.T.H.S. Project in Hong Kong. As previous research suggested that PYD programs led to better outcomes for at-risk youth [37], it was expected that students joining the program would experience program benefits of the Tier 2 Program. There are several special features of the present study. First, this study used data collected from the community-based P.A.T.H.S. Project. The findings showed that the P.A.T.H.S. Tier 2 Program was equally effective in both school-based and community-based contexts. Second, the

current study utilized the Form C that was found to have good psychometric properties [35]. Third, a large sample ($n=4245$) participated in this study. Fourth, in view of the lack of empirical research in the field of community-based PYD programs in the Chinese context, this study can be regarded as a pioneering attempt, which makes an important contribution to the Chinese literature on PYD programs.

With regard to the descriptive statistical analyses, several observations deserve attention. The current findings suggest that positive attitudes toward the Tier 2 program could be found in the majority of students. Hence, Hypothesis 1 was supported. Specifically, more than 90% of the participants said that “they were satisfied with the service” and they highly recognized the program to be well-designed and implemented. Besides, positive attitudes could be found on the students’ perceptions of program implementers and program effectiveness. In particular, an overwhelming majority of the students viewed that through joining the program, their problem-solving skills as well as self-help skills improved. These benefits are of paramount importance for healthy youth development. For instance, previous research suggested that problem-solving abilities were negatively associated with the development of anxiety and depression [38]. Problem-solving skills also prevented youth violence [39].

Consistent with previous studies, findings based on internal consistency and Pearson correlation analyses revealed that Form C is valid and reliable. In particular, Pearson correlation analyses suggest that there were significant inter-correlations among the three dimensions (i.e. “program quality”, “implementer qualities” and “program effectiveness”) across the three grade levels. The present findings are in line with the findings in previous studies [25, 31] and they provide support for Hypotheses 2a, 2b and 2c.

Considering the predictors of perceived program effectiveness, findings are consistent with our expectation. As both program content and program implementer quality were significant predictors of program effectiveness, findings are in line with the previous findings [36]. Hence, Hypotheses 3a and 3b were supported. With respect to the program content in the community-based Tier 2 program, a different program content based on the experiential learning approach was used to design different topic-related activities to help students strengthen their competence, cultivate their social responsibility and promote prosocial behaviors. Besides, consistent with previous studies, quality of program implementers was also a significant predictor of participants’ rating of program effectiveness. Thus, the current findings suggest that systematic training

of program implementers, which would eventually shape program quality, should be stepped up in PYD programs.

Several limitations of this research should be noted. First, as only quantitative subjective outcome evaluation findings were presented in this study, qualitative subjective outcome evaluation findings should be presented in future. Second, only findings based on the perceptions of the student participants were discussed. Hence, it would be interesting to include data based on the perspective of the program implementers as well. Third, in line with previous studies [25, 31], only perceptions of program content and implementer quality were considered as predictors in this study. This design may not be adequate and comprehensive enough. As such, other predictors such as parental involvement should be examined to explore their effect on program effectiveness in future research. Despite these limitations, the current findings provide further evidence suggesting that the community-based Tier 2 programs of the P.A.T.H.S. Project are effective in promoting holistic development of adolescents with greater psychosocial needs.

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