Positive youth development and behavioral intention to gamble among Chinese adolescents in Hong Kong

Daniel TL Shek, PhD, FHKPS, BBS, JP

Department of Applied Social Sciences and Public Policy Research Institute, The Hong Kong Polytechnic University, Department of Sociology, East China Normal University, Shanghai, PRC and Kiang Wu Nursing College of Macau, Macau, PRC

Abstract: This paper examines the relationships between positive youth development and behavioral intention to gamble among Chinese adolescents in Hong Kong. Over a period of two years, four waves of data were collected from Chinese secondary school students who responded to validated measures of Chinese positive youth development and adolescent behavioral intention to gamble. Consistent with the general prediction and with the exception of social competence and positive and clear identity, results showed that positive youth development indexed by different indicators was negatively related to adolescent behavioral intention to gamble. Multiple regression analyses showed that positive youth development measures predicted adolescent gambling and their changes over time. The present findings suggest that promoting positive youth development is a possible strategy that can help to prevent adolescent problem gambling.

Correspondence: Professor Daniel TL Shek, PhD, FHKPS, BBS, JP, Chair Professor of Applied Social Sciences, The Hong Kong Polytechnic University, Hunghom, Hong Kong, PRC. E-mail: daniel.shek@polyu.edu.hk

INTRODUCTION

In the literature on adolescent problem gambling, there are studies proposing that there are risk factors associated with adolescent problem gambling. For example, Gupta and Derevensky (1) identified several risk factors for youth with serious gambling problems and several observations were highlighted: a) gambling is more popular among males; b) gambling is greater in risk-takers; c) youth problem gamblers have relatively lower self-esteem but higher rates of depression, suicidal ideation and suicidal attempts; d) loss of quality friendship and relationships as well as more gambling associates are common in youth problem gamblers; and e) youth problem gamblers have poorer general coping skills. In a detailed review of risk and protective factors of youth problem gambling using an ecological model, Shead, Derevensky and Gupta (see this special issue, p. 39-58) concluded that different individual, relationship, community, and societal factors are associated with adolescent gambling problems.

Nevertheless, there are three limitations intrinsic to the existing studies on the risk factors and adolescent problem gambling behavior. First, while most of the studies have examined the relationships between adolescent pathologies (such as mental

health problems and delinquency) and adolescent problem gambling, there are few studies investigating the relationship between positive youth development and adolescent problem gambling. According to Damon (2), in contrast to the "traditional" approach which focuses on youth developmental problems such as substance abuse and mental health problems, the field of positive youth development emphasizes talents, strengths, interests, and future potentials of each child. Pittman, Irby, Tolman, Yohalem and Ferber (3) argued that "prevention alone is not enough" and "problem free is not fully prepared" (p.6). In other words, problem-free youth (via reduction of school dropout, poor work habits, problem health behavior, social/emotional problems and civic apathy) is not enough and fully-prepared youth (having assets such as high academic motivation and aspirations, positive attitudes toward work, healthy life style, supportive relationships and civic awareness) as well as fully engaged youth are important. Lerner et al (4) similarly suggested that the thriving process involves the growth of functionally valued behaviors across development (including competence, character, connection, confidence, and caring and compassion) and their impacts on the attainment of structurally valued behaviors (including contribution to self, family, community and civil society).

Catalano, Berglund, Ryan, Lonczak and Hawkins (5) reviewed 77 programs on positive youth development. The review showed that 25 programs were successful and the following 15 positive youth development constructs were identified in the successful programs. These constructs include: promotion of bonding, cultivation of resilience, promotion of social competence, promotion of emotional competence, promotion of cognitive competence, promotion of behavioral competence, promotion of moral competence, cultivation of self-determination, promotion of spirituality, development of self-efficacy, development of a clear and positive identity, promotion of beliefs in the future, provision of recognition for positive behavior, provision of opportunities for prosocial involvement, and fostering prosocial norms. Obviously, it is interesting to ask whether these positive youth development constructs are related to adolescent gambling.

The second limitation is that most of the existing studies have been conducted in Western societies and published scientific studies in this area are almost nonexistent in non-Western contexts, including the Chinese context. From a cross-cultural perspective, the lack of related research data in the Chinese context would motivate one to ask whether risk and protective factors related to adolescent gambling differ from those phenomena observed in the Western culture. This question should be addressed as Chinese people generally endorse gambling as a way to get rich and gambling as a recreational activity is not uncommon in different Chinese societies. Against such a cultural background, it would be interesting to ask whether positive youth development characteristics are related to gambling in Chinese adolescents (6).

The third observation is that with a few exceptions, existing findings on the factors related to adolescent gambling are mainly based on cross-sectional data. To understand the causal effect of positive youth development on adolescent gambling, longitudinal study is indispensable. In particular, longitudinal design can enable researchers to examine how positive youth development contributes to change in adolescent gambling over time.

To overcome the above limitations of the literature, this paper reports longitudinal

Table 1. *Number of participants and completed questionnaires collected at Year 1 (Wave 1 and Wave 2) and Year 2 (Wave 3 and Wave 4)*

Cases	Year 1 (Waves 1 & 2)			Year 2 (Waves 3 & 4)		
	Experimental	Control	Total	Experimental	Control	Total
Pretest Questionnaire collected	4121	3854	7975	3290	3861	7151
Pretest Questionnaire available for matching	4050	3795	7845	3276	3845	7121
Posttest Questionnaire collected	3914	3770	7684	3047	3764	6811
Posttest Questionnaire available for matching	3880	3728	7608	3047	3763	6810
Successfully matched	3312 (49.6%)	3363 (50.4%)	6675 (100%)	2784 (45.0%)	3401 (55.0%)	6185 (100%)

Note. The number (percentage) of the successfully matched cases across Waves 1-4 is 5054 (100%) [Experimental group: 2236 (44.2%); Control group: 2818 (55.8%)]

findings to clarify the relationship between positive youth development and adolescent gambling in a large sample of Chinese adolescents over time. The general expectation is that positive youth development is negatively related to adolescent gambling behavior and intention. The findings reported in this paper are based on an evaluation study of the Project P.A.T.H.S. which is a multi-year universal positive youth development program in Hong Kong (7,8). As the primary focus of the present paper is on the relationship between positive youth development and adolescent gambling intention, the evaluation findings are not presented and discussed.

METHODS
Participants
The data of the present study were derived from the first four waves of data of the

P.A.T.H.S. Project. At Wave 1, a total of 48 schools (24 experimental groups, 24 control groups) from different parts of Hong Kong participated in this study. The participants could be considered as heterogeneous as they came from different areas and socio economic classes in Hong Kong. The number of participants generating data at different waves for the present analyses can be seen in table 1.

Procedures
During the data collection process, the purpose of the study was mentioned and confidentiality of the data collected was repeatedly emphasized to all students in attendance on the day of testing. Parental and student consent had been obtained prior to data collection. All participants responded to all scales in the questionnaire in a self-administration format. Adequate time was provided for the subjects to complete the

questionnaire. A trained research assistant was present throughout the administration process.

Instruments

In the context of evaluation, participants responded to the measures of positive youth development and adolescent developmental problems, including behavioral intention to gamble. Positive youth development was measured by the Chinese Positive Youth Development Scale (CPYDS). The CPYDS is an 80-item self-report instrument developed to assess positive youth development. The CPYDS has 15 subscales, including bonding (6 items), resilience (6 items), social competence (7 items), recognition for positive behavior (4 items), emotional competence (6 items), cognitive competence (6 items), behavioral competence (5 items), moral competence (6 items), self-determination (5 items), self-efficacy (2 items), clear and positive identity (7 items), beliefs in the future (3 items), prosocial involvement (5 items), prosocial norms (5 items), and spirituality (7 items). The details of the items can be seen in Shek et al (9). Using multi-group confirmatory factor analyses (MCFA), Shek and Ma (10) showed that there are 15 basic dimensions of the CPYDS could be subsumed under four higher-order factors (i.e., cognitive-behavioral competencies, prosocial attributes, positive identity and general positive youth development qualities). Evidence of factorial invariance in terms of configuration, first-order factor loadings, second-order factor loadings, intercepts of measured variable, and intercepts of first-order latent factor, was found.

For behavioral intention to gamble, the respondents were asked to assess his/her intention to gamble in the next two years with reference to a question ("from now on, will you engage in gambling activities in the next two years?"). There are four response options ("absolutely will not", "probably will not", "probably will" and "absolutely will").

RESULTS

The number of participants whose data were included in the analyses can be seen in table 1. Reliability analyses showed that all the scales and subscales except the Self-Efficacy subscale were highly reliable, i.e., they had alpha coefficients of .75 or above (see table 2). Generally speaking, the measures based on the primary and second-order factors (10) were found to be internally consistent.

As shown in table 3, analyses based on Pearson correlation showed that all variables were correlated in the expected directions. Generally speaking, a higher level of positive youth development was related to a lower level of behavioral intention to engage in gambling in the next two years. Both cross-sectional and longitudinal correlation coefficients showed this pattern.

In order to examine the relative contribution of different aspects of positive youth development to intention to gamble, multiple regression analyses were performed with positive youth development measures at Time 1 as the predictors and intention to gamble at Time 4 as the criterion variable. The findings based on multiple regression analyses can be seen in table 4. Analyses showed that bonding (BO), resilience (RE), emotional competence (EC), moral competence (MC), prosocial norms (PN) and spirituality (SP) at Wave 1 were negatively related to intention to gamble at Wave 4. It is noteworthy that social competence (SC) and clear and positive identity (ID) predicted intention to gamble in a positive manner.

Table 2. *Cronbach's alphas and mean inter-item correlations for positive youth development measures across waves*

	Wave 1		Wave 2		Wave 3		Wave 4	
	α	Mean [a]	A	Mean [a]	α	Mean [a]	α	Mean [a]
Subscales Based on Primary Factors								
BO	.83	.45	.85	.48	.86	.51	.88	.54
RE	.82	.44	.86	.50	.88	.54	.88	.55
SC	.83	.42	.86	.47	.87	.51	.87	.50
RB	.76	.44	.80	.51	.83	.55	.83	.56
EC	.83	.44	.85	.48	.86	.51	.86	.51
CC	.84	.47	.86	.52	.87	.54	.88	.54
BC	.76	.38	.80	.44	.82	.47	.82	.48
MC	.78	.37	.79	.39	.81	.42	.80	.41
SD	.76	.40	.80	.44	.82	.48	.81	.47
SE	.50	.34	.56	.39	.58	.41	.59	.42
ID	.84	.43	.85	.45	.87	.48	.86	.47
BF	.82	.61	.83	.62	.84	.64	.84	.65
PI	.83	.49	.83	.50	.86	.55	.85	.52
PN	.77	.40	.80	.45	.81	.46	.81	.46
SP	.88	.51	.89	.56	.91	.60	.91	.60
Subscales Based on Second-order Factors								
CBC	.85	.66	.87	.69	.88	.71	.88	.71
PA	.79	.65	.77	.62	.79	.66	.78	.64
PID	.83	.72	.84	.73	.85	.75	.85	.74
GPYDQ	.89	.52	.89	.53	.90	.55	.90	.54
TOTAL	.97	.32	.98	.34	.98	.37	.98	.36

[a] Inter-item correlations

Note. BO: bonding; RE: resilience; SC: social competence; RB: recognition for positive behavior; EC: emotional competence; CC: cognitive competence; BC: behavioral competence; MC: moral competence; SD: self-determination; SE: self-efficacy; ID: clear and positive identity; BF: beliefs in the future; PI: prosocial involvement; PN: prosocial norms; SP: Spirituality; CBC: cognitive-behavioral competencies second-order factor; PA: prosocial attributes second-order factor; PID: positive identity second-order factor; GPYDQ: general positive youth development qualities second-order factor; TOTAL: total scale.

Table 3. *Correlation coefficients on the relationship between positive youth development measures and behavioral intention to gamble*

	Wave 1	Wave 2	Wave 3	Wave 4	Wave 1 & Wave 4
Subscales Based on Primary Factors					
BO	-.19	-.16	-.17	-.17	-.14
RE	-.17	-.15	-.16	-.17	-.14
SC	-.12	-.09	-.09	-.11	-.07
RB	-.17	-.15	-.16	-.17	-.12
EC	-.15	-.13	-.14	-.16	-.14
CC	-.16	-.12	-.13	-.15	-.13
BC	-.16	-.12	-.14	-.16	-.11
MC	-.20	-.16	-.17	-.19	-.16
SD	-.13	-.10	-.11	-.13	-.09
SE	-.07	-.06	-.07	-.07	-..06
ID	-.12	-.10	-.11	-.12	-.09
BF	-.14	-.13	-.13	-.15	-.12
PI	-.16	-.16	-.15	-.15	-.12
PN	-.21	-.20	-.19	-.22	-.14
SP	-.20	-.16	-.18	-.16	-.13
Subscales based on Second-Order Factors					
CBC	-.17	-.13	-.14	-.16	-.13
PA	-.20	-.18	-.19	-.20	-.15
GPYDQ	-.21	-.18	-.19	-.20	-.16
PID	-.14	-.13	-.13	-.14	-.11

Note: Wave 1, Wave 2, Wave 3, Wave 4 = cross-sectional correlation coefficients at each wave. Wave 1 and Wave 4 = longitudinal correlation coefficients on the relationship between positive youth development measures at Time 1 and behavioral intention to gamble at Wave 4.

Note. BO: bonding; RE: resilience; SC: social competence; RB: recognition for positive behavior; EC: emotional competence; CC: cognitive competence; BC: behavioral competence; MC: moral competence; SD: self-determination; SE: self-efficacy; ID: clear and positive identity; BF: beliefs in the future; PI: prosocial involvement; PN: prosocial norms; SP: Spirituality; CBC: cognitive-behavioral competencies second-order factor; PA: prosocial attributes second-order factor; GPYDQ: general positive youth development qualities second-order factor; PID: positive identity second-order factor.

All correlation coefficients were significant (p<.01).

Table 4. *Multiple regression analyses predicting behavioral intention to gamble (using Enter method)*

Predictor	Without controlling BIG			Controlling initial BIG		
	R	R^2	β^a	R	R^2	β^a
Subscales Based on Primary Factors						
BO			-.05*			-.03
RE			-.06**			-.06**
SC			.12**			.10**
RB			-.02			.00
EC			-.07**			-.07**
CC			-.01			-.01
BC			.02			-.01
MC			-.11**			-.09**
SD			.03			-.03
SE			.02			-.00
ID			.07**			.06*
BF			-.05*			-.04
PI			.00			-.01
PN			-.05**			-.02
SP			-.04*			-.01
BIG at Wave 1			-			.26**
Model	.21	.05		.33	.11	
Subscales Based on Second-order Factors						
CBC			.04			.02
PA			-.07**			-.04*
GPYDQ			-.16**			-.11**
PID			.02			.01
BIG at Wave 1						.27**
Model	.17	.03		.32	.10	

Note. BO: bonding; RE: resilience; SC: social competence; RB: recognition for positive behavior; EC: emotional competence; CC: cognitive competence; BC: behavioral competence; MC: moral competence; SD: self-determination; SE: self-efficacy; ID: clear and positive identity; BF: beliefs in the future; PI: prosocial involvement; PN: prosocial norms; SP: Spirituality; CBC: cognitive-behavioral competencies second-order factor; PA: prosocial attributes second-order factor; GPYDQ: general positive youth development qualities second-order factor; PID: positive identity second-order factor; BIG: Behavioral intention to gamble.

[a] Standardized coefficients
p<.05*, p<.01**

Additional analyses were carried out to examine the relative influence of different positive youth development constructs on the changes in behavioral intention to gamble over time. For each equation, intention to gamble at Wave 4 was treated as the dependent variable and the corresponding Time 1 scores were entered in Step 1. In Step 2, different positive youth development measures were entered. Results showed that higher levels of resilience (RE), emotional competence (EC) and moral competence (MC) at Wave 1 were associated with a drop in behavioral intention to gamble at Wave 4. However, the findings also showed that higher levels of social competence (SC) and clear and positive identity (ID) at Wave 1 were associated with a rise in behavioral intention to gamble at Wave 4.

DISCUSSION

The main goal of the present study was to examine the relationships between positive youth development and gambling in Chinese early adolescents. There were several unique features of this study. First, the present study is a positive response to the observation that there are few related studies in this area, particularly in the Chinese context (11). Second, because of the paucity of studies on Chinese gambling behavior, Chinese adolescents were recruited in the present study. Third, a large sample was employed in this study. Fourth, validated assessment tool of positive youth development was employed. Finally, longitudinal data with four waves were collected. This is the first published scientific study on positive youth development and adolescent gambling in the Chinese culture.

Consistent with our expectation, the findings showed that positive youth development predicted adolescent intention to gamble and its change over time. Theoretically speaking, there are models proposing that a higher level of positive youth development should be related to a lower level of problem gambling. For example, Victor Frankl's logotherapy would predict that a higher level of life meaning would be related to a lower level of adolescent problem behavior. In the self theories (e.g., theory proposed by Carl Rogers), it is also commonly hypothesized that more positive self-concept is related to less adolescent developmental problems. Finally, positive youth development constructs can be regarded as protective factors inhibiting the development of problem behavior, as proposed in the resilience literature on risk and protective factors (12).

The present findings are also consistent with the observation that positive youth development was negatively associated with problem behavior, such as substance abuse and delinquency. For example, according to the review by Catalano et al (5) on 25 well-evaluated positive youth development programs, about three-quarter of the programs increased adolescents' positive behavior and almost all programs reduced adolescent delinquency. Based on the present and previous findings, the possibility of launching positive youth development programs to tackle adolescent problem behavior should be considered. The basic argument is that by strengthening the competencies of adolescents, the development of adolescent problem behavior will be inhibited.

To our surprise, the present findings showed that both social competence (SC) and clear and positive identity (ID) were positively related to intention to gamble over time. There are several explanations for this observation. First, higher social competence does not necessarily mean that

young people understand the problems of gambling. In fact, with good social competence, they may get the support from their friends to gamble. Second, better self-concept may mean more self-confidence which will motivate young people to gamble. Finally, higher scores in these two constructs may simply mean psychosocial maturity which may motivate young people to try what adults are doing (i.e. intention to gamble is not problem gambling). Nevertheless, as the effect size of the beta values of these two constructs is not high, further studies should be conducted to replicate the findings.

A survey of the literature shows that many intervention programs have utilized positive youth development constructs. For example, Guerra and Williams (13) described a multi-year project in which an integrated health promotion and prevention program was developed, implemented and evaluated. In the project, five core competencies for healthy young develop-ment were emphasized, including positive identity (positive self-concept, hopefulness, future goals), personal agency (self-efficacy, effective coping, locus of control, attributional style), self-regulation (affective, behavioral, and cognitive self-regulation, impulse control), social relationship skills (social problem solving skills, empathy, conflict resolution, capacity for intimacy), and prosocial system of beliefs (attitudes, norms, values, moral engagement). As pointed out by Dickson, Derevensky and Gupta (14), "despite increased awareness of the need to begin educating young children about the potential dangers of gambling, empirical knowledge of the prevention of adolescent gambling and its translation into science-based prevention initiatives is scarce" (p.97). Therefore, it is worthwhile to examine how positive youth development constructs can help to prevent gambling problem in adolescents.

There are several limitations of the present study. First, although the present study was based on a large sample collected in the Hong Kong Chinese context, the generalizability and replicability of the findings should be further examined. Second, it is noteworthy that as the amount of variance explained in the various models was not high, there is a need to take into account the influence of other factors as well. Third, as the data were collected by students' self-reporting, the possibility that the statistically significant findings were due to social desirability and self-serving biases exists. Despite these limitations, the present study demonstrates that positive youth development plays a role in intention to gamble in Chinese adolescents. The present findings represent an important advance in the literature on positive youth development, particularly in the Chinese context. In particular, the findings related to social competence and clear and positive identity demand replication and further exploration.

ACKNOWLEDGMENTS

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