

# Criminal Recidivism Among Hong Kong Male Juvenile Probationers

Wing Hong Chui · Heng Choon Oliver Chan

Published online: 11 November 2011  
© Springer Science+Business Media, LLC 2011

**Abstract** Hong Kong juvenile probationers are scarcely studied. The purpose of this study was to explore the 6-month short-term recidivism rate of 92 male juvenile probationers (aged 14–20 years), with and without controlling for their index crime. Generally, 30% of the juveniles reoffended within the 6-month follow-up period (82 and 18% were adjudicated of a nonviolent and violent offense respectively). Eight personality and psychosocial properties (self-esteem, life satisfaction, social bond, positive and negative affect, impulsivity, pro-offending attitudes, and self-perceived life problems) were assessed in both Wave 1 and Wave 2 periods. Only three properties (negative affect, self-perceived life problems, and self-esteem) yielded significant changes within the 6-month period. Beyond the exploratory analyses, another aim of this study was to identify significant predictors of recidivism in these rarely sampled juvenile probationers. Results indicated that type of crime, onset age of delinquent behavior, frequency of delinquency involvement in the past year, social bond, negative affect, impulsivity, and pro-offending attitudes were significant risk factors for recidivism. These findings highlight the need for social workers and other youth justice personnel to prioritize the intervention resources for juvenile probationers in light of the high estimated lifetime cost of crime for young offenders. Cognitive-behavioral treatment modalities with emphases

on family functioning and problem-solving strategies were found to be an effective intervention approach for juvenile offenders. Limitations and future research directions are discussed.

**Keywords** Juvenile offenders · Probationers · Recidivism · Risk factors · Hong Kong Chinese

## Introduction

Juvenile offending poses a serious concern to society worldwide, including Hong Kong. Male and females aged 19 and below comprise roughly 12% of the total population in year 2009 (Hong Kong Census and Statistics Department 2010). According to the Hong Kong police figures, juveniles (aged 10–15 years) and young persons (aged 16–20 years) arrested by the police constituted an approximately 21% of the overall arrests made in year 2010 (Hong Kong Police Force 2011). Clearly, juveniles were over-represented in the arrest population given their 12% representation in the Hong Kong population. The terms “juveniles” and “juvenile offenders” were used interchangeably throughout this article to refer to individuals aged 10–20 years in accordance with the Hong Kong official terms for juveniles (aged 10–15 years) and young persons (aged 16–20 years).

However, not all arrested and subsequently adjudicated juveniles were sent to closed detention facilities. A proportion of the juveniles who committed less severe offenses were adjudicated to serve on a probation order. According to Gray (1999), over two-thirds of juveniles adjudicated to probation homes in 1992 were first-timers with no prior convictions, and only 8% had offended more than once previously. A large majority of this population

---

W. H. Chui (✉) · H. C. O. Chan  
Department of Social Work and Social Administration,  
The University of Hong Kong, Pokfulam Road,  
Hong Kong, SAR  
e-mail: ericchui@hku.hk

H. C. O. Chan  
Department of Criminology, University of South Florida,  
Tampa, FL 33620, USA

involved in property offenses, which were not violent in nature.

Within the last decade, Hong Kong probation-related topics are scarcely studied, let alone those that are peer-reviewed published. Most of the published work focuses on the areas of probation outcomes (e.g., Chui 2003, 2004, 2006; Chui and Chan 2011) and probation operational structures and philosophy (e.g., Chui 2002). Admittedly, none has been attempted to examine the recidivism rate and/or risk factors of the juvenile probationers. Hence, the general purpose of this study is to comprehensively explore the reoffending rate and risk factors of this important but yet often overlooked group of juvenile offenders. Prior to further discuss the specific aims of this study, a brief overview of the Hong Kong probation system is described for readers who are unfamiliar with this system and follows by factors associated with adolescent recidivism that are found in the recidivism studies.

### The Probation System in Hong Kong

In Hong Kong, probation has been a community sentencing option for offenders who are above 10 years of age and are adjudicated for committing minor offenses (Chui 2008). Fundamentally, the Hong Kong probation system, under the Social Welfare Department, is basically an import from overseas [during British] colonial times (Chan 1996, p. 101). The probation officer practice paradigm of “advise, assist, and befriend,” under Section 19 of the *Rules of the Probation of Offender Ordinance* (Hong Kong Government 1985), is adopted from the model used in England and Wales in the 1960s, although these two nations are no longer emphasized such functions in their current probation system (Chui and Nellis 2003). The operational key objective of this model is to reduce the offenders’ risk of reoffending and to facilitate offenders to reintegrate in society upon release (Chui 2006).

Juvenile offenders were originally the targeted population for the probation service in Hong Kong since its inception, with the enabling legislation of the *Juvenile Offenders Ordinance of 1933*. Two decades later, this ordinance was superseded by the *Probation of Offenders Ordinance of 1956* to extend this noncustodial sentencing option to adult offenders (Chan 1996). In accordance with the current legislation of the *Probation of Offenders Ordinance (Chapter 298)*, adjudicated juvenile offenders aged 10 and above who committed less serious and non-violent offenses are generally placed under the statutory supervision of an assigned probation officer in a community setting. The length of their probation order is largely between one and 3 years depending on the severity of their index offense. A violation of probation order conditions

imposed by the probation officer (e.g., work and residence, submission of a urine sample for drug tests) can result in caution, fine imposed, or re-sentence of the original index offense.

### Factors Related to the Criminal Recidivism of Juvenile Offenders

Research has demonstrated that criminal recidivism in juveniles is associated with static and dynamic risk factors. Static risk factors are characteristics that are immutable, whereas dynamic risk factors are attributes that are amenable to change (Bonta 1996) through rehabilitative and therapeutic interventions (Van der Put et al. 2011). Although static and dynamic risk factors can be further distinguished into individual- and environmental-level risk factors, existing literature on the individual risk factors will only be discussed here.

Onset age of delinquent behavior and age of first arrest/adjudication, as static individual risk factors, have been consistently found to correlate with juvenile criminal recidivism (e.g., Ang and Huan 2008; Benda et al. 2001; Cottle et al. 2001; Loeber et al. 2008; Moffitt 1993; Mulder et al. 2011). Age of first arrest/adjudication was even claimed to be one of the strongest predictors of juvenile reoffending (Myner et al. 1998). In their meta-analysis, Cottle et al. (2001) found that the predictive strength of the age at first contact with the criminal justice system yielded a weighted mean effect size of  $-0.341$ . Loeber and Farrington (2000) asserted that juveniles aged between seven and 12 years have two to threefold increased risk of violent and chronic recidivism. Besides, several studies have also reported that number of past arrest/adjudication (e.g., Jung and Rawana 1999; Lattimore et al. 1995) and type of offense (e.g., Archwamety and Katsiyannis 1998; Katsiyannis and Archwamety 1997) to be associated with adolescent recidivism. However, not all studies examined these constructs have found significant findings (e.g., Lueger and Cadman 1982; Wierson and Forehand 1995).

Delinquency and crime has long been reported to associate with personality dispositions (Caspi et al. 1994), even though some scholars criticized such notion (Tennenbaum 1977). Although not frequently tested, personality and psychosocial factors were also reported to be related to juvenile recidivism (Katsiyannis et al. 2004). To illustrate, a number of studies that examined specific psychological areas of focus used psychological assessment data to test its effects in determining the recidivism rates (e.g., see Anderson and Walsh 1998).

Research demonstrated that adolescents with greater self-esteem are likely to restrain natural impulses to engage in delinquent behavior (Benda 2001), such as smoking and

alcohol and drug use (Abnernathy et al. 1995). Impulsivity, another dynamic risk factor, has been argued to be one of the best predictors of not just adolescent recidivism, but also adult criminality (Nagin and Trembley 1999). Caspi et al. (1994) and Krueger et al. (1994) asserted that high in negative emotionality and low in constraint are associated with delinquent behavior. Besides, weaker social bond is documented to be a vital correlate of delinquency involvement (Ge et al. 2003). Not unexpectedly, pro-offending attitudes have also been consistently found to positively correlate with recidivism, especially among those who sexually offend (Willis and Grace 2009).

### The Present Study

Limited effort has been attempted to study juvenile probationers in Hong Kong, let alone their reoffending rate. Therefore, the overall purpose of this study is to explore the short-term recidivism rate of juvenile probationers. Of important note, the present study is among the first in Asian societies to use psychometric measures in testing the effects of personality and psychosocial attributes in predicting these juveniles' recidivism risk. For the purpose of the present study, *criminal recidivism* was operationally defined as violation of the probation order, which could include reoffending. Comprehensively, this study aims to preliminarily investigate the differential reoffending rate of these juvenile who were adjudicated of committing a violent offense and those who were found guilty of a non-violent crime. According to Hong Kong criminal law, violent delinquent/criminal behavior classified in this study includes crime of robbery, serious assault, indecent assault, police assault, wounding, and blackmail. In contrast, non-violent delinquent/criminal behavior includes property crimes such as burglary, snatching, pickpocket, shop theft, criminal damage, and deception; and other nonproperty crimes such as vice/brothel keeping, sexual procurement/abduction, illegal sexual activity, fighting, illegal possession of weapons, illegal possession of illegal drugs, resistance to police arrest, admission of being a member of a triad society, a member of a triad society, violation of probation order, use of other's identity, and public disorderly conduct. Besides, the change of score of the personality and psychosocial attributes over a 6-month period will also be assessed to test the probation effect has on these juveniles.

Beyond the exploratory analysis on the juvenile probationers' recidivism rate, this study further aspires to examine the effect of different static (i.e., offending history) and dynamic (i.e., personality and psychosocial properties) individual risk factors in predicting the propensity for the juvenile probationers to reoffend. As

supported by past literature, it is hypothesized that early age of delinquent behavior, early age of first adjudication, higher number of past adjudication, and higher frequency of self-reported delinquency involvement predict greater risk of recidivism. Similarly for the dynamic risk factors, it is hypothesized that lower level of self-esteem, life satisfaction, social bond, positive affect; and higher level of negative affect, impulsivity, pro-offending attitudes, and self-perceived life problems predict greater recidivism risk.

### Method

#### Participants and Procedure

The participants described in this study were 92 juvenile male probationers aged 14–20 years ( $M = 17.02$ ,  $SD = 1.47$ ) who were serving their probation order in a juvenile transitional home. The transitional home targeted for this study is the only transitional housing in Hong Kong for juvenile offenders aged 14 and above (Hong Kong Social Welfare Department 2010). The daily population capacity of this probation home is 40 juveniles, with only about 15–20 new intakes per month. The length of stay in this probation home is commonly imposed by an assigned probation officer. In this sample, approximately two-thirds (62%) of the juveniles were adjudicated to serve their probation period between 13 and 24 months. Apart from the differential individualized conditions of their probation orders, juvenile probationers sentenced to a transitional home were generally permitted to carry out their daily routines such as employment and schooling outside of the residential compounds, with a sole mandated condition of returning to the transitional home in the evening.

Essentially, over a 5-month period of data collection upon approval from the university Institutional Review Board (IRB) started in the second quarter of 2010, a total of 104 juvenile probationers were recruited for the Wave 1 study (an approximately 90% response rate) out of a saturation sample. The participants' informed consent was obtained after consultation with their social or youth workers, along with their parents' oral consent for those who were under 18 years of age. During the Wave 2 study, 6 months after the initial wave of study, 92 juvenile probationers (89%) were successfully retained for the follow-up study with complete Wave 1 and Wave 2 data.

A large majority (71%) of the 92 participants reported to have started behaving delinquently at the age between 13 and 18 years (44% at age 13–15 years and 27% at age 16–18 years), with close to one-fourth (24%) of the participants acknowledged their onset age of delinquent behavior at the age 12 and under ( $M = 14.18$ ,  $SD = 2.82$ ). With regards to the age of first adjudication, more than four

**Table 1** Demographic characteristics of Hong Kong male juvenile probationers ( $N = 92$ )

Variable	<i>N</i>	Percentage
<i>Age</i>	( $N = 92$ )	
14	1	1.1
15	10	10.9
16	28	30.4
17	26	28.3
18	8	8.7
19	12	13.0
20	7	7.6
<i>Length of probation order</i>	( $N = 91$ )	
12 months	32	34.1
13–24 months	56	61.6
25 months and above	3	3.3
<i>Self-reported onset age of delinquent behavior</i>	( $N = 92$ )	
Age 12 and below	22	23.9
13–15 years	40	43.5
16–18 years	25	27.2
19–20 years	5	5.4
<i>Age of first adjudication</i>	( $N = 92$ )	
Age 12 and below	3	3.3
13–15 years	39	42.4
16–18 years	40	43.5
19–20 years	10	10.9
<i>Number of previous adjudication</i>	( $N = 92$ )	
None	16	17.4
1 or 2	42	45.7
3 and above	34	37.0
<i>Frequency of self-reported delinquency involvement in the past 12 months</i>	( $N = 87$ )	
1–5 times	68	78.2
6 times or above	19	21.8

out of five juveniles (86%) were first adjudicated between the age of 13 and 18 years (42% at age 13–15 years and 44% at age 16–18 years;  $M = 15.89$ ,  $SD = 1.79$ ). Eighty-three percents ( $N = 76$ ) of the juveniles were repeat offenders, whereby 46% of them had one or two past adjudications while the remaining 37% were adjudicated at least three times in the past ( $M = 2.52$ ,  $SD = 2.47$ ). In terms of the participants' self-reported frequency of delinquent conduct in the past year, 78% of the juveniles admitted to have delinquently acted 5 times or below ( $M = 4.79$ ,  $SD = 5.40$ ) (Table 1).

## Measures

Questionnaire was administered face-to-face by three trained research assistants with the participants on the one-on-one basis without any third party interference. Besides

questions propping for the participants' demographic information and offending history, a battery of psychometric measures was used to assess the personality and psychosocial properties of interest: self-esteem, life satisfaction, social bond, positive and negative affect, impulsivity, pro-offending attitudes, and self-perceived life problems.

### *Self-Esteem*

Self-esteem is defined as an individual's attitude or global affective orientation towards himself/herself (Rosenberg, 1965). Simply put, self-esteem can be referred to as one's overall sense of worthiness as a person (Baumeister 1993; Branden 1994; Rosenberg 1979). For the purpose of this study, the Rosenberg's Self-Esteem Scale (RSES; Rosenberg 1965) was used to assess the participants' perception of self-value and self-acceptance. The RSES is one of the most widely used self-esteem measures in behavioral and social sciences. This scale comprises of 10 items in a 4-point Likert scale (1 = *strongly disagree*; 4 = *strongly agree*), with a total score of 40 points. Higher score indicates higher self-esteem. Mean score of the sample in Wave 1 was 27.23 ( $SD = 5.77$ ). Sample items include, "I feel that I'm a person of worth, at least on an equal plane with others" and "I certainly feel useless at times." The internal consistency reliability of the RSES reported in recent studies with Hong Kong Chinese sample was good (ranged from 0.67 to 0.88; Chan 2011a, b; Cheuk et al. 2011; Leung et al. 2011; Tse et al. 2011). The Cronbach's  $\alpha$  in this study was 0.78, which was above the acceptable level (see Cronbach 1951).

### *Life Satisfaction*

Individual's experience of subjective well-being (SWB) is conceptualized as being comparable with what ordinary people refer to as "happiness" (Diener et al. 2003). Cognitive judgment about an individual's life satisfaction is one of the SWB measurement constructs. In this study, the Satisfaction with Life Scale (SWLS; Diener et al. 1985) was utilized to measure the participants' cognitive evaluation of their quality of life. The SWLS contains five items in a 7-point response format ranging from 1 (*strongly disagrees*) to 7 (*strongly agree*), whereby the overall score was determined by summing all item scores (ranged from 5 to 35). Higher life satisfaction score signifies more positive self-evaluation of subjective well-being. Mean score of the sample in Wave 1 was 22.02 ( $SD = 6.09$ ). Sample items include, "In most ways my life is close to my ideal" and "If I could live my life over, I would change almost nothing." In general, the SWLS has been reported to be a valid and reliable scale in studies with Chinese samples

(e.g., Chan 2009; Shek 2004). In recent studies with the Chinese population in Hong Kong (Chan 2010; Shek 2005; Sun and Shek 2010), the internal consistency of SWLS was found to be in the acceptable level (ranged 0.74–0.84). The Cronbach's  $\alpha$  in this study was 0.82, which was high in internal consistency for this scale.

### *Social Bond*

Social bond is simply referred to as the affective attachment; and in the words of Hirschi (1969), "attachment" is an emotional tie that an individual has with various conventional institutions and people. In this study, the Social Bonding Scale (SBC; Chapple et al. 2005), based on Hirschi's (1969) social bonding theory, was used to assess the participants' conventional social bond with and attachment to parents, peers, school, and society as a whole. With the exclusion of six delinquency items, this 18-item scale measures five social bond elements in 4-point (two items) and 5-point (16 items) Likert scale response format. Using confirmatory factor analysis, parental attachment was extracted into two separate latent variables (parental bonding and parental dependence). The scores for the 18 items were then summed (ranged from 18 to 88), with higher value denotes greater social bond. Mean score of the sample in Wave 1 was 51.11 (SD = 8.36). Sample items include, "I would like to be the kind of person my best friend is," "I talk over future plans with my parents," and "I have lots of respect for the police." The SBC was rarely used with the Hong Kong Chinese population. The Cronbach's  $\alpha$  of SBC in this study was 0.60, which was below the acceptable level of 0.70 (Nunnally 1978). However, the Cronbach's  $\alpha$  estimate should be studied cautiously and keeping in mind of the very limited utility of the Cronbach's  $\alpha$ , which primarily measures the "interrelatedness of the items" (Sijtsma 2009). According to Straus and Kantor (2005), low internal consistency may also be due to highly skewed distributions of included items as this reduces "the size of the correlation between items and therefore also the alpha" (p. 25).

### *Affects*

Affects are basically referred to as the individual's subjective experience of emotions, which can either be positive or negative experience. In this study, the positive affect (PA) and negative affect (NA) subscales of the Positive and Negative Affect Scales (PANAS; Watson et al. 1988) were adopted to measure the participants' positive and negative emotions based on common mood descriptors. The PA and NA subscales each contains 10 items that allow the participants to rate their affective feeling level on a 5-point Likert scale format (1 = *very slightly*; 7 = *extremely*),

with the overall score of each subscale was determined by summing the scores of all PA and NA items, independently (ranged from 10 to 50). Higher scores on PA and NA scales indicate higher positive and negative affective feelings, respectively. The sample mean scores of the PA and NA scales in Wave 1 were 30.60 (SD = 8.28) and 27.02 (SD = 8.05), respectively. Sample PA items include, "Excited," "Proud," and "Enthusiastic," while sample NA items include, "Irritable," "Hostile," and "Jittery." The internal consistency of the PANAS has been found to be in the acceptable level (ranged from 0.80 to 0.83 for the PA scale and 0.73 to 0.84 for the NA scale) in recent Chinese sampled studies in Hong Kong and the mainland China (Yeung et al. 2011; Liu et al. 2011; Tse et al. 2011). The alpha coefficients of the PA (Cronbach's  $\alpha$  = 0.71) and NA (Cronbach's  $\alpha$  = 0.79) scales in this study were both above the acceptable level of internal consistency.

### *Impulsivity*

Impulsivity is broadly and widely defined as a "tendency to act spontaneously and without deliberation" (Carver 2005, p. 313). For many researchers, delinquent behavior is regarded as a result of deficits in impulse control (e.g., Eysenck and Eysenck 1977; Robbins and Bryan 2004). For the purpose of this study, the Impulsiveness Scale-Short Form (IS-SF; Li et al. 2002) was utilized to measure the motor impulsiveness of the participants. This 15-item scale, measures on a 4-point response format (1 = *very few*; 4 = *almost always*), was developed for the Chinese population in Taiwan based on the Barratt Impulsivity Scale (BIS-10; Patton et al. 1995). The single impulsivity score was the summed scores of the 15 items (ranged from 15 to 60), with higher score denotes higher impulsivity. Participants in this sample averagely scored 35.58 (SD = 8.13) in Wave 1. Sample IS-SF items include, "I act on the spur of the moment," "I often have extraneous thoughts when thinking," and "I change my mind easily." In two Taiwanese sampled studies, the alpha coefficients were above 0.76 (Li et al. 2002; Fu et al. 2007). Similarly, this study yielded a high internal consistency (Cronbach's  $\alpha$  = 0.79).

### *Pro-Offending Attitudes and Self-Perceived Life Problems*

Widely used in the UK probation services, the CRIME-PICS II (Frude et al. 2008) was adopted in this study to assess the participants' general attitude toward offending. The 35-item CRIME-PICS II comprises of four attitude scales on a 5-point Likert scale (1 = *strongly agree*; 5 = *strongly disagree*): (a) general attitude to offending (scale G), (b) anticipation of re-offending (scale A), (c) victim hurt denial (scale V), and evaluation of crime as



worthwhile (scale E). In addition, the CRIME-PICS II also contains a problem inventory (scale P), measuring on a 4-point Likert scale (1 = *big problem*; 4 = *no problem at all*), to assess the participants' perception of their current life problems. In this study, twenty pro-offending attitude items and 15 problem inventory items were then summed to attain a single pro-offending attitudes score (ranged from 20 to 100) and self-perceived life problems score (ranged from 15 to 60), independently. Higher pro-offending attitudes score indicates higher favorable attitude towards offending, whereas higher self-perceived life problem score signifies that the participants have life problems in many areas. Participants in this study were averagely scored 47.64 (SD = 8.27) in their pro-offending attitude domain and 30.96 (SD = 9.77) in their self-perceived life problems domain in Wave 1. Sample items of pro-offending attitudes include, "In the end, crime does pay," "Committing crime is quite exciting," and "I always seem to give into temptation;" whereas sample items of self-perceived life problems include, "Problems with relationships," "Controlling temper," and "Lots of worries." Generally speaking, the CRIME-PICS II has been reported as a valid and reliable measure in recent studies, with moderate-to-high internal consistency (ranged from 0.55 to 0.83; Frude et al. 2008; Healy 2010; Wood et al. 2009). Similarly, the CRIME-PICS II yielded a high internal consistency (Cronbach's  $\alpha = 0.80$ ) in this study.

## Results

### Six-Month Official Recidivism Rate of Juvenile Probationers

Criminal recidivism in this study is described as the official adjudication of juvenile offenders for committing another offense while serving on their probation order. Out of a sample of 92 juvenile probationers, 28 juveniles (30%) were officially found to be violated the probation order (herewith referred to as reoffending) with the remaining 64 juveniles (70%) were without any official adjudication record during the 6 months follow-up period. Significant Chi-square analysis ( $\chi^2 = 4.52$ ,  $p < .05$ ) as depicted in Table 2 reveals that 82% of those who reoffended were initially on probation order for committing a nonviolent offense ( $N = 61$ ) as compared with only 18% of juveniles who were on probation for a violent crime ( $N = 31$ ) recidivated. Put differently, juvenile probationers who were adjudicated for committing a violent offense were less likely to reoffend (16%), than nonviolent crime adjudicated juvenile probationers (38%), during the 6 months follow-up period.

**Table 2** Chi-square analysis of juvenile probationers' 6-month official recidivism rate by index crime ( $N = 92$ )

Official status	Index crime		Total
	Violent crime	Non-violent crime	
Non-recidivist ( $N$ )	26	38	64
Row (%)	40.6	59.4	100.0
Column (%)	83.9	62.3	69.6
Recidivist ( $N$ )	5	23	28
Row (%)	17.9	82.1	100.0
Column (%)	16.1	37.7	30.4
Total ( $N$ )	31	61	92
Row (%)	33.7	66.3	100.0

$$\chi^2(1) = 4.52, \text{Phi} = 0.22, p < .05$$

**Table 3** Juvenile probationers' mean scores of the personality and psychosocial properties in Wave 1 and Wave 2 ( $N = 92$ )

Personality and psychosocial	Wave 1		Wave 2	
	$M$	SD	$M$	SD
Self-esteem	27.23	5.77	28.04*	3.74
Life satisfaction	22.02	6.09	22.83	6.63
Social bond	51.11	8.36	49.75	8.59
Positive affect	30.60	8.28	30.55	8.10
Negative affect	27.02	8.05	22.87***	7.02
Impulsivity	35.58	8.13	34.42	1.04
Pro-offending attitudes	47.64	8.27	48.85	9.70
Self-perceived life problems	30.96	9.77	28.09**	8.95

\*  $p < .10$ ; \*\*  $p < .05$ ; \*\*\*  $p < .01$

### The Psychological Well-Being of Juvenile Probationers

In order to examine the extent to which the probation order served in a transitional home has an effect on the juveniles' psychological well-being; paired-sample  $t$ -tests were performed. Mean scores of the personality and psychosocial properties in Wave 1 and Wave 2 were compared. Out of the eight different personality and psychosocial properties assessed, only three constructs (negative affect, self-perceived life problems, and self-esteem) yielded significant mean score disparities within the 6-month period. Compare to the initial wave ( $M = 27.02$ ,  $SD = 8.05$ ), the juvenile probationers were reported to have significantly lesser negative affect in Wave 2 ( $M = 22.87$ ,  $SD = 7.02$ ,  $t = 3.23$ ,  $p < .01$ ). Similarly, they also reported to have fewer life problems in the follow-up period ( $M = 28.09$ ,  $SD = 8.95$ ), compared to their Wave 1 findings ( $M = 30.96$ ,  $SD = 9.77$ ,  $t = 1.90$ ,  $p < .05$ ). Finally, the juveniles' self-esteem level was also improved in the follow-up study ( $M = 28.04$ ,  $SD = 3.74$ ), as to compare with the initial wave of data ( $M = 27.23$ ,  $SD = 5.77$ ,  $t = 1.38$ ,  $p < .10$ ) (Table 3).

**Table 4** Logistic regression of juvenile probationers' 6-month official recidivism rate ( $N = 92$ )

Predictor variable	Model I (recidivism)			Lower CI	Upper CI
	<i>B</i>	SE	Odds ratio		
Index crime	1.15	0.56	3.15**	1.06	9.34
Onset age of delinquent behavior	−0.11	0.08	1.10*	0.76	1.05
Self-reported delinquency frequency	0.06	0.04	1.06*	0.98	1.15
Social bond	−0.06	0.03	1.06**	1.00	1.12
Negative affect	0.05	0.03	1.05**	1.00	1.11
Impulsivity	0.04	0.03	1.04*	0.99	1.10
Pro-offending attitudes	0.05	0.03	1.06**	1.00	1.11
−2 log likelihood		76.95			
Model chi-square		23.90**			
Hosmer–Lemeshow test		$\chi^2(8) = 6.96, p = .54$			
Nagelkerke $R^2$		0.36			
<i>N</i>		92			
AUC		0.81			

No significant findings were yielded for age of first adjudication, number of previous adjudication, self-esteem, life satisfaction, positive affect, and self-perceived life problems

AUC area under the curve, CI confidence interval

\*  $p < .10$ ; \*\*  $p < .05$

### Identifying the Recidivism Risk Factors of Juvenile Probationers

Logistic regression was performed to identify the predictors of reoffending risk. Official criminal recidivism served as the binary outcome variable (e.g., 0 = *not reoffended*, 1 = *reoffended*). Static (e.g., type of crime, onset age of delinquent behavior, age of first adjudication, number of previous adjudication, and frequency self-reported delinquency involvement in the past year) and dynamic (e.g., self-esteem, life satisfaction, social bond, positive and negative affect, impulsivity, pro-offending attitudes, and self-perceived life problems) independent variables were included in the multivariate analysis model. Pearson correlations of the tested variables were calculated and findings did not reveal any correlations at or above 0.70, indicating no collinearity.

Table 4 outlines the findings of the logistic regression with the odds ratios when recidivism is the predicted outcome. Out of the 13 variables in the logistic regression model, only four remained statistically significant at the 0.05 level (i.e., type of crime, social bond, negative affect, and pro-offending attitudes). Adjusted odds ratios were computed,  $\exp(B) - 1 \times 100 =$  adjusted odds ratio, to report the statistically significant effects on the percentage change in the odds. When the index crime was nonviolent in nature, compared with juveniles adjudicated of a violent offense, the odds that these nonviolent juvenile probationers to reoffend within a 6-month period

increased by 215%. In terms of the personality and psychosocial properties, a one unit decrease in social bond has thus increased the recidivism odds by 6%. If the juvenile probationers' pro-offending attitudes were increased by one unit, their odds of recidivism were then increased by 6%. Similarly, a unit change in the negative affect of juvenile probationers was subsequently increased the odds of reoffending by 5%.

Additionally, three risk factors (i.e., onset age of delinquent behavior, frequency of self-reported delinquency involvement, and impulsivity) were found to reach the significance at the 0.10 level. When a unit decreased in the onset age of delinquent behavior, the juveniles' odds of recidivism was then increased by roughly 10%. Besides, if the past year frequency of self-reported delinquency of the juveniles increased by one unit, the odds that these probationers to reoffend were then increased by approximately 6%. Finally, a unit increased in impulsivity has thus led to the increase of the recidivism odds by 4%. In general, the Chi-square analysis indicated a significant model fit ( $\chi^2 = 23.90, p < .05$ ), while the Hosmer–Lemeshow Test (Hosmer and Lemeshow 2000) suggested no difficulties with the fit model ( $\chi^2 = 6.96, n.s.$ ). The variance accounted for by the set of predictors was 36% (Nagelkerke  $R^2 = 0.36$ ). Regression model diagnostic signified an area under the curve (AUC) of the receiver operating characteristic (ROC) value of 0.81, suggesting that this model reached an adequate level of predictability, specificity, and sensitivity (see Kleinbaum and Klein 2010).

## Discussion

One of the key purposes of the current study was to gain insight into the recidivism rate of juvenile offenders who were on probation in Hong Kong. Indeed, this study was among the first to provide evidence of a short-term recidivism rate, with and without controlling for the juveniles' index crime, and the recidivism risk factors of the juvenile probationers. Nearly comparable with the findings of a recent short-term juvenile recidivism study (Vermeiren et al. 2000; 46% of the 104 juvenile offenders committed a new crime within the 8 month follow-up period), the short-term recidivism rate in this study was 30%.

What makes this study unique was that juvenile probationers who were adjudicated of a violent offense, compared with those whose index crime was a nonviolent offense, were found to be significantly less likely to reoffend within the 6-month period. Consistent with past research (e.g., Loeber and Dishion 1983; Moore et al. 1979), offenders who have committed nonviolent or property offenses as their index crime are more likely to reoffend than those who have committed more serious offenses. However, conflicting results were found. Some of a more recent studies reported that offenders who committed serious and violent types of offenses are at greater risk to reoffend than those who committed less serious offenses (e.g., Cottle et al. 2001; Myner et al. 1998). Notwithstanding these differences in finding direction, Ganzer and Sarason (1973) stated that type of offense committed does not differentiate between recidivists and nonrecidivists. However, the current finding should be studied cautiously. Unlike most of the conflicting findings in the past longitudinal studies that typically spanned more than 3 years, the present study aimed to measure only the short-term recidivism outcome. Anyhow, cautious interpretation should be applied as two-thirds of these juveniles' index crime was nonviolent in nature.

Meanwhile, three personality and psychosocial characteristics yielded significant positive changes within the 6 months of assessment. Juvenile probationers were reported to have lesser negative affect, fewer self-perceived life problems, and higher self-esteem during the follow-up period. However, none of the other personality and psychosocial attributes yielded any significant changes. A possible rationale for such condition is that a 6-month period may be too short for any significant changes to emerge. A longer duration between the initial wave and the follow-up period for significant changes of these personality and psychosocial characteristics may seem promising. Of important note, although there were social activities organized by the social workers stationed at the probation home to foster pro-social attributes of the juvenile probationers, these social activities were not on a regular basis.

Furthermore, the mandatory monthly face-to-face report to their assigned probation officer was rather brief. As a whole, with all the inconsistencies in addressing both criminogenic and noncriminogenic needs of the probationers by mean to reduce their recidivism risk, it is unsurprisingly to observe insignificant positive personality and psychosocial changes among these juveniles.

Another intention of this study was to identify risk factors significantly associated with the criminal recidivism in these rarely sampled juvenile probationers. Not unexpectedly and consistent with previous research findings, nonviolent index crime, early onset of delinquency behavior, higher frequency of self-reported delinquency involvement, weaker social bond, higher level of negative affect, more impulsive, and greater favorable of pro-offending attitudes were significant risk factors for criminal recidivism. What was surprising was that age of first adjudication and number of previous adjudication did not emerge as significant predictors of criminal recidivism. These findings were incompatible with previous literature. Nevertheless, the significant level of these two constructs was approaching the 0.10 level. It is plausible that larger sample size may be able to yield significant results. Although several personality and psychosocial characteristics (self-esteem, life satisfaction, positive affect, and self-perceived life problems) failed to emerge as significant criminal recidivism predictors, the direction of their relationship in predicting recidivism seems accurate as hypothesized and supported by past literature.

## Implications of the Findings

Criminal recidivism has a grave effect on the economy. Entorf and Spengler (2002) suggested that the costs of crime in developed nations might be 10% of the GDP or more. High-risk chronic youths are estimated to cost the society as much as \$1.3–\$1.5 million per person (Cohen 1998), whereby the amount is much larger for those who are career criminals who started their offending career when they are young (Ludwig 2010). Hence, resources for intervention with young offenders should be prioritized (O'Brien 2010). Adequate intervention may provide not only monetary benefits beyond reduced crime and victim costs (Welsh and Farrington 2000), but also to reduce, if not prevent, the escalating costs of frequent and chronic offending across the life-course (Cohen et al. 2010). Given the estimated lifetime cost of crime for young offenders is high, it is sensible to develop programs and interventions that could effectively address and remediate issues of juvenile offending, especially issues of reoffending among juvenile probationers in the present study. Although significant static risk factors are not particularly targeted for intervention, these factors should be considered along with



dynamic risk factors when conceptualizing intervention program planning.

According to Andrews and Bonta (2010), various review studies indicate that interventions that are adopting the cognitive-behavioral treatment modalities are effective in targeting criminogenic needs and subsequent delinquent behavior. For instance, multisystemic treatment (MST), with an emphasis on family functioning, is found to be an effective intervention in reducing the reoffending behavior of juvenile offenders (see Henggeler et al. 1998), specifically in the positive effects of family functioning has on the development of the juveniles' social bond and correcting their cognitive distorted thoughts on favoring pro-offending behaviors and attitudes. In addition, individual counseling sessions targeting interpersonal cognitive problem-solving strategies have demonstrated its effectiveness in reducing the characteristics of impulsivity, instantaneous anger, and negative emotionality of the juveniles (Benda 2001).

It is noteworthy that the detrimental effect of cumulative risk (Loeber et al. 2008) as a result of the inter-connected risk factors is probable. Put differently, positive changes in one domain might not only have direct impact on delinquency, but also affect the changes on other domains. Hence, all target areas of intervention should be closely monitored concurrently during the intervention process. To relate back to the present study, social workers and other social services personnel should pay extra attention in conceptualizing and planning their intervention programs, in a consistent manner, for the juvenile probationers under their supervision in an effort to address the risk factors of their recidivism.

#### Limitations and Directions for Future Research

The results of the present study should be interpreted carefully given its inherent methodological shortcomings. First, the sample comprised with only juvenile offenders who were adjudicated to serve on probation. Although some have committed offenses classified as violent crimes, the offenses committed by most of these juveniles were less serious and nonviolent in nature. Therefore, the findings in this study cannot be generalized to those moderate- and high-risk juvenile offenders with higher risk of criminal recidivism. Second, the present study only referred to the general recidivism of juvenile probationers, and did not distinguish between different types of recidivism (e.g., violent, nonviolent, and sexual recidivism). Future research should reveal whether the findings found in this study only apply to different type of recidivism.

In addition, the use of official data as the benchmark for the recidivism rate involves the inherent risk of underestimating the actual nature of the juveniles' delinquency involvement, as Van der Put et al. (2011) claimed that

criminal conducts are usually under-registered in the official systems. Nevertheless, self-reported data also have their limitations as well, whereby juvenile offenders are having the tendency to underreport their delinquent behavior, especially on serious offenses (Breuk et al. 2007). Most importantly, the present two-wave study only consisted of a 6-month longitudinal project. Clearly, the follow-up period is too short to detect significant psychological changes among these juvenile probationers. More waves of data collection with consistent interval period may yield a different kind of results and should be examined in future research with this population of juvenile probationers.

Another notable limitation of this study is unavailability of information on the exact time spent on probation for those who were found violated their probation order in Wave 2 data collection period. The absence of this piece of information (i.e., time to fail) has further limit the analysis of recidivism risk for all participants. This relatively sparse data has prompted the need for more in-depth information regarding the participants' probation order if more accurate estimates are to be computed. Future research should clearly document the participants' time spent on probation prior to their violation of probation order as a measure of recidivism. Using probabilistic analytic methods such as survival analysis (Maller and Zhou 1996), this piece of information is useful to offer estimates of recidivism risk that has been found valuable not only in treatment efforts and preventive measures as a mean to reduce the recidivism risk of juvenile offenders, but also the potential implications in penal policy making or refinement (Broadhurst and Loh 2003). Notwithstanding these limitations, the present study has offered a solid contribution the existing literature in better understanding the criminal recidivism rate of and risk factors associated with these rarely sampled Hong Kong juvenile probationers. Undoubtedly, more research is needed.

**Acknowledgments** Our sincere thanks are offered to those young people who have honestly shared their views on their probation sentence and offending behavior. The work described in this paper was fully supported by a grant offered by the Research Grant Council of the Hong Kong Special Administrative Region (Project No. HKU 442208H).

#### References

- Abnernathy, T. J., Massad, L., & Romano-Dwyer, L. (1995). The relationship between smoking and self-esteem. *Adolescence*, *30*, 899–907.
- Anderson, L., & Walsh, J. (1998). *Level of service inventory-revised*. Toronto, Canada: Multi-Health Systems.
- Andrews, D. A., & Bonta, J. (2010). Rehabilitating criminal justice policy and practice. *Psychology, Public Policy, and Law*, *16*, 39–55.

- Ang, R. B., & Huan, V. S. (2008). Predictors of recidivism for adolescent offenders in a Singapore sample. *Criminal Justice and Behavior*, 35, 895–905.
- Archwamety, T., & Katsiyannis, A. (1998). Factors related to recidivism among delinquent females at a state correctional facility. *Journal of Child and Family Studies*, 7, 59–67.
- Baumeister, R. F. (1993). *Self-esteem: The puzzle of low self-regard*. New York: Plenum Press.
- Benda, B. B. (2001). Factors that discriminate between recidivists, parole violators, and nonrecidivists in a 3-year follow-up of boot camp graduates. *International Journal of Offender Therapy and Comparative Criminology*, 45, 711–729.
- Benda, B. B., Corwyn, R. F., & Toombs, N. J. (2001). Recidivism among adolescent serious offenders: Prediction of entry into the correctional system for adults. *Criminal Justice and Behavior*, 28, 588–613.
- Bonta, J. (1996). Risk-needs assessment and treatment. In A. T. Harland (Ed.), *Choosing correctional options that work: Defining the demand and evaluating the supply* (pp. 18–32). Thousand Oaks, CA: Sage.
- Branden, N. (1994). *The six pillars of self-esteem*. New York: Bantam Books.
- Breuk, R. E., Clauser, C. A. C., Stams, G., Slot, N. W., & Doreleijers, T. A. H. (2007). The validity of questionnaire self-report psychopathology and parent-child relationship quality in juvenile delinquents with psychiatric disorders. *Journal of Adolescence*, 30, 761–771.
- Broadhurst, R., & Loh, N. (2003). The probabilities of sex offender re-arrest. *Criminal Behavior and Mental Health*, 13, 121–139.
- Carver, C. S. (2005). Impulse and constraint: Perspectives from personality psychology, convergence with theory in other areas, and potential for integration. *Personality and Social Psychology Review*, 9, 312–333.
- Caspi, A., Moffitt, P. A., Stouthamer-Loeber, M., Krueger, R. F., & Schmutte, P. S. (1994). Are some people crime-prone? Replications of the personality-crime relationship across countries, genders, races, and methods. *Criminology*, 32, 163–195.
- Chan, W. T. (1996). Social work and services for offenders. In I. Chi & S. K. Cheung (Eds.), *Social work in Hong Kong* (pp. 98–111). Hong Kong: Hong Kong Social Workers Association.
- Chan, D. W. (2009). Orientations to happiness and subjective well-being among Chinese prospective and in-service teachers in Hong Kong. *Educational Psychology*, 29, 139–151.
- Chan, D. W. (2010). Gratitude, gratitude intervention and subjective well-being among Chinese school teachers in Hong Kong. *Educational Psychology*, 30, 139–153.
- Chan, K. L. (2011a). Association between childhood sexual abuse and adult sexual victimization in a representative sample in Hong Kong Chinese. *Child Abuse and Neglect*, 35, 220–229.
- Chan, K. L. (2011b). Co-occurrence of intimate partner violence and child abuse in Hong Kong Chinese families. *Journal of Interpersonal Violence*, 26, 1322–1342.
- Chapple, C. L., McQuillan, J. A., & Berdahl, T. A. (2005). Gender, social bonds, and delinquency: A comparison of boys' and girls' models. *Social Science Research*, 34, 357–383.
- Cheuk, W. H., Wong, K. S., & Rosen, S. (2011). The effects of being spurned and self-esteem on depersonalization and coping preferences in kindergarten teachers: The case of Hong Kong. *Social Psychology of Education*, 14, 57–73.
- Chui, W. H. (2002). The social work model of probation supervision for offenders in Hong Kong. *Probation Journal*, 49, 297–304.
- Chui, W. H. (2003). Experiences of probation supervision in Hong Kong: Listening to the young adult probationers. *Journal of Criminal Justice*, 31, 567–577.
- Chui, W. H. (2004). Adult offenders on probation in Hong Kong: An exploratory study. *British Journal of Social Work*, 34, 443–454.
- Chui, W. H. (2006). Factors associated with the one-year probation outcome: A self-report study in Hong Kong. *Asian Journal of Criminology*, 1, 155–171.
- Chui, W. H. (2008). Community sentences. In W. H. Chui & T. W. Lo (Eds.), *Understanding criminal justice in Hong Kong* (pp. 201–223). Cullompton, Devon: Willan Publishing.
- Chui, W. H., & Chan, H. C. (2011). Social bonds and male juvenile delinquency while on probation: An exploratory test in Hong Kong. *Children and Youth Services Review*, 33, 2329–2334.
- Chui, W. H., & Nellis, M. (Eds.). (2003). *Moving probation forward: Evidence, arguments, and practice*. Harlow, Essex: Pearson Education.
- Cohen, M. A. (1998). The monetary value of saving a high risk youth. *Journal of Quantitative Criminology*, 14, 5–33.
- Cohen, M. A., Piquero, A. R., & Jennings, W. G. (2010). Studying the costs of crime across offender trajectories. *Criminology and Public Policy*, 9, 279–305.
- Cottle, C. C., Lee, R. J., & Heilbrun, K. (2001). The prediction of criminal recidivism in juveniles: A meta-analysis. *Criminal Justice and Behavior*, 28, 367–394.
- Cronbach, L. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika*, 16, 297–334.
- Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The satisfaction with life scale. *Journal of Personality Assessment*, 49, 71–75.
- Diener, E., Oishi, S., & Lucas, R. E. (2003). Personality culture, and subjective well-being: Emotional and cognitive evaluations of life. *Annual Review of Psychology*, 54, 403–425.
- Entorf, H., & Spengler, H. (2002). *Crime in Europe: Causes and consequences*. New York: Springer.
- Eysenck, S. B. G., & Eysenck, H. J. (1977). The place of impulsiveness in a dimensional system of personality description. *British Journal of Social and Clinical Psychology*, 16, 57–68.
- Frude, N., Honess, T., & Maguire, M. (2008). *CRIME-PICS II manual* (3rd ed.). Cardiff: Michael and Associates.
- Fu, A., Ko, H., Wu, J. Y., Cherng, B., & Cheng, C. (2007). Impulsivity and expectancy in risk for alcohol use: Comparing male and female college students in Taiwan. *Addictive Behavior*, 32, 1887–1896.
- Ganzer, V. J., & Sarason, I. G. (1973). Variables associated with recidivism among juvenile delinquents. *Journal of Consulting and Clinical Psychology*, 40, 1–5.
- Ge, X., Donnellan, M. B., & Wenk, E. (2003). Differences in personality and patterns of recidivism between early starters and other serious male offenders. *The Journal of the American Academy and the Law*, 31, 68–77.
- Government, Hong Kong. (1985). *Probation of offender ordinance (chapter 298)*. Hong Kong: Government Printer.
- Gray, P. (1999). Community corrections and the experiences of young male offenders in the Hong Kong youth justice system. *Journal of Social Policy*, 28, 577–594.
- Healy, D. (2010). Betwixt and between: The role of psychosocial factors in the early stages of desistance. *Journal of Research in Crime and Delinquency*, 47, 419–438.
- Henggeler, S. W., Schoenwald, S. K., Borduin, C. M., Rowland, M. D., & Cunningham, P. B. (1998). *Multisystemic treatment of antisocial behavior in youth*. New York: Guilford.
- Hirschi, T. (1969). *Causes of delinquency*. Berkeley, CA: University of California Press.
- Hong Kong Census and Statistics Department. (2010). *Hong Kong annual digest of statistics*. Hong Kong: Census and Statistics Department.
- Hong Kong Police Force (2011). *Hong Kong crime statistics*. Available online: <http://www.police.gov.hk/>.
- Hong Kong Social Welfare Department. (2010). *Social welfare services in figures*. Hong Kong: Social Welfare Department.

- Hosmer, D. W., & Lemeshow, S. (2000). *Applied logistic regression* (2nd ed.). New York: Wiley.
- Jung, S., & Rawana, E. P. (1999). Risk and need assessment of juvenile offenders. *Criminal Justice and Behavior*, 26, 69–90.
- Katsiyannis, A., & Archwamety, T. (1997). Factors related to recidivism among delinquent youths in a state correctional facility. *Journal of Child and Family Studies*, 6, 43–55.
- Katsiyannis, A., Zhang, D., Barrett, D. E., & Flaska, T. (2004). Background and psychosocial variables associated with recidivism among adolescent males: A 3-year investigation. *Journal of Emotional and Behavioral Disorders*, 12, 23–29.
- Kleinbaum, D. G., & Klein, M. (2010). *Logistic regression: A self-learning text* (3rd ed.). New York: Springer.
- Krueger, R. F., Schmutte, P. S., Caspi, A., Moffitt, T. E., Campbell, K., & Silva, P. A. (1994). Personality traits are linked to crime among men and women: Evidence from a birth cohort. *Journal of Abnormal Psychology*, 103, 328–338.
- Lattimore, P. K., Visher, C. A., & Linster, R. L. (1995). Predicting rearrest for violence among serious youthful offenders. *Journal of Research in Crime and Delinquency*, 32, 54–83.
- Leung, A. S. M., Cheung, Y. H., & Liu, X. (2011). The relations between life domain satisfaction and subjective well-being. *Journal of Managerial Psychology*, 26, 155–169.
- Li, C., Ko, H., Weng, L., Liau, L., & Lu, R. (2002). The development of an impulsiveness scale: Psychometric properties and relation to antisocial personality disorders. *Chinese Journal of Psychology*, 44, 109–119.
- Liu, W., Chan, R. C. K., Wang, L., Huang, J., Cheung, E. F. C., Gong, Q., et al. (2011). Deficits in sustaining reward responses in subsyndromal and syndromal major depression. *Progress in Neuro-Psychopharmacology and Biological Psychiatry*, 35, 1045–1052.
- Loeber, R., & Dishion, T. (1983). Early predictors of male delinquency: A review. *Psychological Bulletin*, 94, 68–99.
- Loeber, R., & Farrington, D. P. (2000). Young children who commit crime: Epidemiology, developmental origins, risk factors, early interventions, and policy implications. *Development and Psychopathology*, 12, 737–762.
- Loeber, R., Farrington, D. P., Stouthamer-Loeber, M., & Raskin-White, H. (2008). *Violence serious theft: Development and prediction from childhood to adulthood*. New York: Taylor and Francis.
- Ludwig, J. (2010). The costs of crime. *Criminology and Public Policy*, 9, 307–311.
- Lueger, R. J., & Cadman, W. (1982). Variables associated with recidivism and program termination of delinquent adolescents. *Journal of Clinical Psychology*, 38, 861–863.
- Maller, R. A., & Zhou, X. (1996). *Survival analysis with long-term survivors*. Chichester, West Sussex: Wiley.
- Moffitt, T. E. (1993). Adolescence-limited and life-course-persistent antisocial behavior: A developmental taxonomy. *Psychological Review*, 100, 674–701.
- Moore, D. R., Chamberlain, P., & Mukai, L. (1979). Children at risk for delinquency: A follow-up comparison of stealing and aggression. *Journal of Abnormal Child Psychology*, 1, 345–355.
- Mulder, E., Brand, E., Bullens, R., & van Marle, H. (2011). Risk factors for overall recidivism and severity recidivism in serious juvenile offenders. *International Journal of Offender Therapy and Comparative Criminology*, 55, 118–135.
- Myner, J., Santman, J., Cappelletty, G., & Perlmutter, B. (1998). Variables related to recidivism among juvenile offenders. *International Journal of Offender Therapy and Comparative Criminology*, 42, 65–80.
- Nagin, D., & Trembley, R. E. (1999). Trajectories of boys' physical aggression, opposition, and hyperactivity on the path to physically violent and nonviolent juvenile delinquency. *Child Development*, 70, 1181–1196.
- Nunnally, J. (1978). *Psychometric theory*. New York: McGraw-Hill.
- O'Brien, R. (2010). Offender trajectories, crime trends, and costs: An invited policy essay on studying the costs of crime across offender trajectories. *Criminology and Public Policy*, 9, 313–319.
- Patton, J. H., Stanford, M. S., & Barratt, E. S. (1995). Factor structure of the Barratt impulsiveness scale. *Journal of Clinical Psychology*, 51, 768–774.
- Robbins, R. N., & Bryan, A. (2004). Relationships between future orientation, impulsive sensation seeking, and risk behavior among adjudicated adolescents. *Journal of Adolescent Research*, 19, 428–445.
- Rosenberg, M. (1965). *Society and the adolescent self-image*. Princeton, NJ: Princeton University Press.
- Rosenberg, M. (1979). *Conceiving the self*. New York: Basic Books.
- Shek, D. T. L. (2004). Chinese cultural beliefs about adversity: Its relationship to psychological well-being, school adjustment and problem behavior in Chinese adolescents with the without economic disadvantages. *Childhood*, 11, 63–80.
- Shek, D. T. L. (2005). Paternal and maternal influences on the psychological well-being, substance abuse, and delinquency of Chinese adolescents experiencing economic disadvantage. *Journal of Clinical Psychology*, 61, 219–234.
- Sijtsma, K. (2009). On the use, the misuse, and the very limited usefulness of Cronbach's alpha. *Psychometrika*, 74, 107–120.
- Straus, M. A., & Kantor, G. K. (2005). Definition and measurement of neglectful behavior: Some principles and guidelines. *Child Abuse and Neglect*, 29, 19–29.
- Sun, R. C. F., & Shek, D. T. L. (2010). Life satisfaction, positive youth development, and problem behavior among Chinese adolescents in Hong Kong. *Social Indicators Research*, 95, 455–474.
- Tennenbaum, D. J. (1977). Personality and criminality: A summary and implications of the literature. *Journal of Criminal Justice*, 5, 225–235.
- Tse, W. S., Wu, J., & Poon, K. (2011). Motivation for achievement as perceived resource value in social rank theory of depression: A structural equation modeling analysis. *Personality and Individual Differences*, 50, 1034–1038.
- Van der Put, C. E., Deković, M., Stams, G. J. J. M., van der Laan, P. H., Hoeve, M., & Van Amelsfort, L. (2011a). Changes in risk factors during adolescence: Implications for risk assessment. *Criminal Justice and Behavior*, 38, 248–262.
- Van der Put, C. E., Stams, G. J. J. M., Hoeve, M., Deković, M., Spanjaard, H. J. M., van der Laan, P. H., et al. (2011). Changes in the relative importance of dynamic risk factors for recidivism during adolescence. *International Journal of Offender Therapy and Comparative Criminology*. Available online. doi:10.1177/0306624X11398462.
- Vermeiren, R., de Clippele, A., & Deboutte, D. (2000). Eight month follow-up of delinquent adolescents: Predictors of short-term outcome. *European Archives of Psychiatry and Clinical Neuroscience*, 250, 133–138.
- Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology*, 54, 1063–1070.
- Welsh, B. C., & Farrington, D. P. (2000). Monetary costs and benefits of crime prevention programs. In M. H. Tonry (Ed.), *Crime and justice: A review of research*, vol. 27. Chicago, IL: University of Chicago Press.
- Wierson, M., & Forehand, R. (1995). Predicting recidivism in juvenile delinquents: The role of mental health diagnoses and the

- qualification of conclusions by race. *Behavior Research and Therapy*, 33, 63–67.
- Willis, G. M., & Grace, R. C. (2009). Assessment of community reintegration planning for sex offenders: Poor planning predicts recidivism. *Criminal Justice and Behavior*, 36, 494–512.
- Wood, J., Kade, C., & Sidhu, M. (2009). What works for offenders and staff: Comparing two multi-agency approaches to offender resettlement. *Psychology, Crime, and Law*, 15, 661–678.
- Yeung, D. Y., Wong, C. K. M., & Lok, D. P. P. (2011). Emotion regulation mediates age differences in emotions. *Aging and Mental Health*, 15, 414–418.