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Personality and Life Events as Predictors of Adolescents' Life Satisfaction: Do Life Events Mediate the Link Between Personality and Life Satisfaction?

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Abstract This study examined the association among personality traits, life events and life satisfaction, and the underlying pathways from personality traits to life satisfaction. A total of 1,961 adolescents were recruited from 21 secondary schools in Hong Kong. The adolescent version of the Chinese Personality Assessment Inventory (CPAI-A), the Chinese Adolescent Life Events Checklist (CALEC) and the Satisfaction With Life Scale (SWLS) were employed to assess their personality, life events and life satisfaction, respectively. Multiple regression analysis showed there was an additional value of the indigenously derived scales of CPAI-A, including the Family Orientation, Harmony and Ren-Qing scales, in predicting life satisfaction beyond the universal personality traits. Results also indicated that there was a partial mediation effect of negative life events on personality traits in the prediction of life satisfaction.

Keywords Personality · CPAI-A · Life events · Adolescents' life satisfaction

1 Introduction

The longing for happiness has been considered a basic and universal human drive. However, the positive facets of mental health have been underscored only in recent decades. The determinants of subjective well-being (SWB) have been given more attention in positive psychology research (Argyle 1987; Diener et al. 1999; Eronen and Nurmi 1999; Gilman and Huebner 2006). According to Diener (1984), SWB is a person's emotional and cognitive evaluations of his or her life. The present study focuses on the cognitive component of SWB among Chinese adolescents, which emphasizes the adolescents' evaluation of their life, in particular, their overall satisfaction with life.

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Compared to abundant research on the SWB of adults, only a few studies have been conducted with adolescents. Life satisfaction among adults cannot be automatically generalized to youth, as individual's salient interest, developmental needs, and concerns in life change with age (Park and Huebner 2005). Therefore, researcher has also been interested in personality and life experience in relation to life satisfaction in adolescents.

1.1 Life Events and Life Satisfaction

Psychological theories of SWB can be distinguished based on whether they emphasize the bottom-up (external/situational) or top-down (internal traits and processes) effects on life satisfaction (Diener 1984). In the bottom-up theory, life satisfaction is an accumulation of pleasurable moments. This approach stresses the important influence of life experiences or events on life satisfaction. In support of this approach, several studies have suggested that the experience of pleasurable events was associated with more positive life satisfaction (Diener et al. 1999; McCullough et al. 2000), and reduced levels of depressive and anxiety symptoms (Cheng 1997; Sharah et al. 2003). On the other hand, the experience of undesirable events was negatively related to life satisfaction (Reich and Zautra 1981; Diener et al. 1999) and positively related to depressive and anxiety symptoms (Cheng 1997; Sharah et al. 2003). Several studies have examined the interaction between positive and negative life events and reported that experience of favorable events possibly buffered the effect of adverse events (Cohen et al. 1987). Reich and Zautra (1981) suggested that engaging in pleasant activities reduced distress for people who were experiencing considerable life adversity. Generally, the bottom-up approach assumes that life satisfaction is largely due to the experience of life events.

1.2 Universal Personality Dimensions and Life Satisfaction

In contrast, in the top-down theory, life satisfaction is largely influenced by a person's predisposition, such as personality traits. This approach stresses a global tendency to experience things in a positive or negative way (Diener 1984). Some researchers have found that individual differences in both personality and life satisfaction have a moderate to strong genetic component (Diener et al. 2003). These findings suggest that some people have a predisposition to be happy and satisfied or unhappy and unsatisfied. In a twin study by Lykken and Tellegen (1996), it was found that genes could explain 40% to 50% of the variance in current SWB, and 80% of long-term SWB was heritable. In support of this approach, several studies have shown that certain personality dimensions were strongly associated with life satisfaction (Costa and McCrae 1992). In general, the top-down approach postulates that life satisfaction is largely due to personality characteristics.

To examine the pattern of association between life satisfaction and personality dimensions, the Five Factor Model (Costa and McCrae 1980) has been widely used. Early studies by Costa and McCrae (1980) showed that life satisfaction was associated with higher scores on Extraversion and lower scores on Neuroticism. A meta-analysis by DeNeve and Cooper (1998) also suggested that Conscientiousness was a strong Big Five predictor of life satisfaction. Neuroticism encompasses vulnerability to negative emotions, poor coping, and difficulty in controlling impulses. It has been shown to relate strongly to anxiety and depression (Bienvenu and Stein 2003; Costa and McCrae 1992). Extraversion focuses primarily on the quantity and intensity of relationships and sensation seeking (DeNeve and

Cooper 1998). Extraverted persons tend to experience more positive emotions, form attachments to others easily, seek out social interaction (Costa and McCrae 1992) and receive more social support (Campbell-Sills et al. 2006). Conscientiousness refers to goal-directed behaviors and socially accepted impulse control (DeNeve and Cooper 1998). Conscientious individuals engage in goal-directed activities and exert control over oneself and one's environment, which links to higher levels of life satisfaction.

1.3 Added Value of Indigenous Personality Traits

Cultural context may be an important element that influences an individual's cognitive evaluation of one's life. Cross-cultural studies have recognized the importance of the socio-cultural contexts that affect one's SWB (Diener 1984). For example, Diener et al. (1995) found significant cultural differences in the size of correlation between self-esteem and life satisfaction. In individualistic cultures, individuals typically emphasize feelings about the self, which correlate highly with well-being. On the other hand, in collectivistic cultures, individuals' central goal is not to distinguish themselves from others, but to maintain harmonious relationships (Diener et al. 1999). The effect of relationship harmony on life satisfaction in collectivistic cultures had been shown as important as the effect of self-esteem on life satisfaction in individualistic cultures (Kwan et al. 1997). Researchers have also indicated the importance of family relationships among Chinese adolescents (Leung and Leung 1992; Park and Huebner 2005). Because of the prevalence of Confucian philosophy in Chinese culture, filial piety, conformity, and sacrifice for the good of the family have been emphasized. Bradley and Corwyn (2004) concluded that family circumstances are important in accounting for life satisfaction among Chinese. Relevance of the universal predictors of life satisfaction found in Western studies in collectivistic cultures deserves further exploration. More general reference to psychology or personality variables in collectivistic cultures, such as family orientation and harmony are culturally specific to Chinese culture (Cheung et al. 2001), but have not been covered in the Big Five or other Western personality measures. In the present study, we are particularly interest in indigenous personality traits such as family orientation and harmony, as they have been recognized as distinctive and culturally relevant personality traits in Chinese culture, in which we assumed they were also linked to life satisfaction.

1.4 Integrated Model for Studying Life Satisfaction

Previous literature on life satisfaction primarily focuses on either the personality or the life events as predictors. Relatively less attention has been paid to the underlying processes of life satisfaction. In explaining the relationship between personality and life satisfaction, most theorists have focused on the direct effects of personality on life satisfaction (Costa and McCrae 1980; Diener et al. 2003). Nevertheless, it is also likely that there are indirect effects, such that personality affects life satisfaction through different life circumstances.

On the basis of the situational congruence model (Diener et al. 1984), researchers have proposed that experiencing trait-congruent situations was related to higher levels of SWB. For example, Emmons et al. (1986) found that participants experienced elevated pleasant affect in trait-congruent situations. In particular, extraverts experienced more positive affect in their chosen social situations. Although extraverts are happier than introverts in general, a study by Kette (1991) found that extraverted prisoners were less happy than

introverted prisoners. The explanation alluded to the incongruity between the incarceration situation and the extraverted disposition. Generally speaking, the situational congruence model assumes individuals choose situations on the basis of their personality and these trait-congruent situations would lead to greater SWB.

Others researchers have also examined the influence that personality has on situations that are likely to affect SWB. Headey and Wearing (1989) and Magnus et al. (1993) used longitudinal designs to assess the influence of personality on the experience of life circumstances. They found that certain individuals were more likely to experience pleasant or unpleasant events due to preexisting personality traits. For instance, extraversion predisposed people to experience a greater number of positive life event; whilst neuroticism predisposed the occurrence of negative life events. These life events, in turn, had an influence on SWB that could not be solely explained by personality variables. Thus, personality can create life circumstances that influence individuals' overall SWB (Diener et al. 1999).

There is evidence that people with certain personality traits are more likely to attend to events that reflect their temperament, which in turn is linked to their life satisfaction (Headey and Wearing 1989). It appears that the influence of personality on life satisfaction goes beyond predispositions to include actions that increase or decrease the probability of life situations (Diener et al. 1999). Life circumstances are likely to mediate the relationship between personality and life satisfaction.

1.5 Present Research

Our study was premised on the theoretical assumptions that both life events and personality are important predictors of life satisfaction. Thus, a primary aim of the present study was to test the hypothesis that life events are related to life satisfaction. Specifically, in comparison to positive life events, negative life events are more prominent in predicting adolescents' life satisfaction (Ash and Huebner 2001).

Despite evidence supporting the role of personality variables in predicting life satisfaction, cultural differences were seldom taken into account. A second aim of this study was to examine the relationship between personality variables. In particular, we included both universal and indigenous personality variables and life satisfaction. We expected that that universal personality dimensions (e.g. extraversion, neuroticism and conscientious) to be useful predictors of life satisfaction. With respect to indigenous personality in Chinese culture, we also hypothesized that indigenously derived personality scales would contribute added value in predicting life satisfaction beyond the universal predictors.

In addition, the third aim of this study was to explain the underlying processes of life satisfaction by incorporating both bottom-up and top-down approaches. In particular, the possible mediation role of negative life events on the relationship between personality and life satisfaction was explored. We expected that negative life events would mediate the relationship between personality traits and life satisfaction.

2 Method

2.1 Participants

A total of 1,961 adolescents (45.4% males, 52.9% females) in Hong Kong were included in this study. The participants were students recruited from 21 secondary schools in Hong

Kong. The age of the sample ranged from 12 to 18, with a mean age of 15.17 years ($SD = 1.72$). The data were collected from a stratified sample of 21 secondary schools in Hong Kong based on the characteristics of these schools (e.g. geographic location and schools' scholastic standing), aiming to cover a wide range of school characteristics for a representative sample of Hong Kong adolescents. This sample comprised Form 1 (grade 7) to Form 7 (grade 13) students. All the participants were invited to participate in the study on voluntary basis. Informed consent was obtained from the students before the study began.

2.2 Procedures

The participants completed the battery of questionnaires in the classroom (class size of 30–40 students) on a self-report basis. They were asked to read the instructions carefully before filling the questionnaire and not to discuss their answers with others during the assessment. To encourage truthful responding, the participants were told their responses were anonymous and there were no right or wrong answers to any of the questions. All of them were informed that they could withdraw from the study at any time. The participants took about 45–60 min to complete the questionnaires.

2.3 Measures

2.3.1 Personality

The adolescent version of the Chinese Personality Assessment Inventory (CPAI-A; Cheung et al. 2006), an indigenously derived personality measure for the Chinese culture, was used in this study. CPAI-A is a self-report measure consisting of 25 personality scales, 13 clinical scales and three validity indices. In the present study, we used all the 25 personality scales and three validity scales, with a total of 308 items to be answered in a yes-no format. CPAI-A was developed based on CPAI-2 (Cheung et al. 2004; Cheung et al. 2008) and modified for an adolescent population. In this study, the average Cronbach's alpha coefficients for the 25 personality scales were .71. A one month test-retest reliability study found that the average Cronbach's alpha coefficients were .72, also the results of both EFA and CFA confirmed the four-factor model of CPAI-A, the goodness of fit indices indicated that the factor structure fit the data well, NNFI = .98, CFI = .98, SRMR = .04 (Cheung et al. 2008, Unpublished manuscript).

Borrowing from studies on the cross-cultural relevance of the CPAI-2 (Cheung et al. 2004; Cheung et al. 2008), we used some of the CPAI-A personality scales to measure the universal traits in this study. The selection of these scales was based on theoretical conceptualization as well as empirical results from the joint factor analysis of the CPAI-2 and NEO-Five Factor Inventory (Cheung et al. 2001). Specifically, we used the Emotionality (EMO), Inferiority versus Self-Acceptance (I-S) and Optimism versus Pessimism (O-P) scales from the CPAI-A as measures of Neuroticism, Extraversion versus Introversion (E-I) scale from the CPAI-A as measure of Extraversion, and Meticulous (MET) and Responsibility (RES) scales from the CPAI-A as measures of Conscientiousness (Cheung et al. 2008). Indigenous scales of CPAI-A including Family Orientation (FAM), Harmony (HAR) and Ren-Qing (REN) were developed distinctively to reflect the traditional values, orientations, and behavioral norms in the Chinese culture. The selection

these scales was based on the their relatedness with well-being, and uniqueness from the universal personality variables.

2.3.2 Life Events

The Chinese Adolescents' Life Events Checklist (CALEC; Cheung and Cheung 2005) was developed to identify the crucial life events encountered by young people in Chinese societies. CALEC, which consists of 79-item such as "parents' divorce", "breaking up with boyfriend or girlfriend", and "commendation for high achievement". Specifically, life events were classified into five categories: (1) school-related events (such as school drop out and suspension from school); (2) health-related events (such as severe injury and hospitalization); (3) family-related events (such as parental divorce and being fostered); (4) friend-related events (such as lose a good friend and ignored by a friend); and (5) boyfriend/girlfriend-related events (such as break up with a boyfriend/girlfriend), representing the most important themes and domains of life among adolescents. Participants were instructed to indicate the occurrence of these events in the past 12 months. The number of both positive and negative events occurred were summed to form two indices separately. For the positive events index, higher scores indicate higher occurrence of positive events. For the negative events index, higher scores indicate higher occurrence of negative events. The item endorsement rates ranged from 0.1% to 60%, which indicated the CALEC includes variety of items in terms of frequency. The validity of the CALEC was examined with a sample of 500 adolescents, the results of correlational analyses showed that negative life events were negatively correlated with global life satisfaction ($r = -.22$, $p < .001$), and were positively correlated with anxiety ($r = .29$, $p < .001$) and depression ($r = .36$, $p < .001$).

The CALEC incorporated life events in the local context for adolescents. For example, Chinese society emphasizes the importance of groups (e.g. family and harmonious relationships). Interpersonal isolation or conflicts tend to intimidate the self-esteem of the Chinese (Cheng 1997). This instrument included the relational dimensions that are important to collectivistic cultures.

2.3.3 Life Satisfaction

The Satisfaction With Life Scale (SWLS; Diener et al. 1985). The five-item SWLS was used to assess adolescents' global life satisfaction. Participants were asked to indicate their agreement with statements such as "I am satisfied with my life" on a 7-point Likert scale (1 = *strongly disagree* and 7 = *strongly agree*). Higher values indicate higher levels of life satisfaction. The Cronbach's alpha coefficient for the SWLS in this study was .73.

3 Results

3.1 Relationship Between Life Events and Life Satisfaction

We used correlational analysis to examine the relationship between life events and global life satisfaction. The results support the hypothesis that negative life events were inversely correlated with life satisfaction, $r(1961) = -.23$, $p < .01$. The correlation between

positive life events and life satisfaction was not significant, $r(1961) = .04$, *ns*. Therefore, only negative life events were included in the subsequent analyses.

3.2 Relationship Between Personality Variables and Life Satisfaction

The means and standard deviations and Pearson correlation coefficients of each personality scale of the CPAI-A, life satisfaction and negative life events are presented in Table 1. For parsimonious reason, we only focused on the scales that are related to universal dimensions, and the indigenously derived scales in the main study.

To examine the relationship between personality and global life satisfaction, correlational analyses were performed. Consistent with the hypotheses, correlation results indicated that scales associated with Neuroticism, Extraversion and Conscientiousness were related to life satisfaction. For the measures of Neuroticism, EMO and I-S scales were negatively associated with life satisfaction, $r(1946) = -.27$, and $r(1946) = -.43$, respectively, $ps < .01$. O-P scale was positively correlated with life satisfaction, $r(1945) = .47$, $p < .01$. I-S and O-P scales had the highest correlation with life satisfaction. For the measure of Extraversion, E-I scale was significantly correlated with life satisfaction, $r(1949) = .31$, $p < .01$. For the measures of Conscientiousness, MET and RES scales were moderately associated with life satisfaction, $r(1947) = .25$, and $r(1949) = .31$, respectively, $ps < .01$.

On top of these universal personality scales, indigenous variables including Ren-Qing (REN), Family Orientation (FAM) and Harmony (HAR) from the CPAI-A were positively associated with life satisfaction, $r(1947) = .26$, $r(1897) = .44$, and $r(1897) = .36$, respectively, $ps < .01$. Comparable to O-P, FAM had the highest correlation with life satisfaction among the nine personality scales.

To understand whether indigenously derived personality scales contribute added value in predicting life satisfaction beyond universal personality traits, hierarchical multiple regression analysis was employed to predict life satisfaction from four sets of personality variables. To control the effect of demographic variables, age and gender were entered in the first block. Then we entered CPAI-A scales measuring Neuroticism (EMO, I-S and O-P), Extraversion (E-I) and Conscientiousness (MET and RES) in the second block. Based on the theoretical basis and the results from the correlational analyses, we predicted that these universal personality dimensions would explain the largest amount of variance in life satisfaction. Finally, REN, FAM and HAR were entered into the third block to test if indigenous CPAI-A scales contributed unique significant variance to life satisfaction beyond those of the universal predictors.

Results of regression analysis showed that the overall model comprising demographic variables and the nine personality scales explained 35% of the total variance in life satisfaction, $R^2 = .35$, $F(11,1829) = 88.64$, $p < .001$. The results of regression analysis are summarized in Table 2.

In the first block, demographic variables significantly explained 2% of the variance in life satisfaction, $R^2 = .02$, $F(2,1838) = 22.13$, $p < .001$. Age was significantly correlated with life satisfaction, $t(1, 1838) = -4.30$, $\beta = -.08$, $p < .001$, but gender did not significantly related to life satisfaction, $t(1, 1838) = -1.87$, $\beta = -.04$, *ns*.

After taking account of age and gender, universal traits related to Neuroticism, Extraversion and Conscientiousness significantly explained 26% of the variance in life satisfaction, $\Delta R^2 = .26$, $\Delta F(6,1832) = 110.09$, $p < .001$. Particularly, I-S and O-P scales had the strongest contribution to life satisfaction, $t(1, 1832) = -4.50$, $\beta = -.13$, and

Table 1 Means, standard deviations, correlations of the CPAI-A personality scales with life satisfaction and negative life events

Measure	Mean	*SD*	Correlation with life satisfaction	Correlation with negative life events
Life satisfaction	4.38	1.07		−.23***
Negative life events	3.89	2.96	−.23***	
CPAI-A				
I. Social potency				
Novelty	5.96	2.53	.25***	.04
Diversity	7.49	2.22	.22***	−.02
Divergent thinking	6.25	2.41	.20***	.05*
Leadership	4.98	2.67	.24***	.07**
Extraversion vs Introversion	6.02	2.67	.31***	.03
Enterprise	5.73	2.65	.29***	.00
Sensation seeking	6.32	2.52	−.03	.16***
II. Emotional stability				
Emotionality	4.98	2.80	−.27***	.35***
Inferiority vs Self-acceptance	7.56	4.45	−.43***	.29***
Optimism vs Pessimism	7.29	2.99	.47***	−.23***
Internal vs External locus of control	7.21	2.43	.31***	−.18***
Face	4.96	2.51	−.26***	.24***
III. Dependability				
Meticulousness	4.54	2.55	.25***	−.18***
Responsibility	6.08	2.85	.31***	−.12***
Discipline	4.55	2.18	.19***	−.06*
Meaning in life	6.54	2.86	.36***	−.08***
III. Interpersonal relatedness				
Harmony	10.70	2.62	.36***	−.29***
Family orientation	8.06	3.10	.44***	−.32***
Ren-Qing (Relationship Orientation)	7.56	2.21	.26***	−.06*
Defensiveness (Ah-Q Mentality)	3.30	2.24	−.08**	−.22***
Graciousness vs Meanness	8.56	2.55	.26***	−.28***
Interpersonal tolerance	8.11	2.49	.17***	−.08***
Self vs Social orientation	3.55	2.41	−.14***	.03
Veraciousness vs Slickness	8.03	2.86	.22***	−.21***
Social sensitivity	8.58	2.90	.31***	−.01

CPAI-A = The adolescent version of the Chinese Personality Assessment Inventory

Note: $N = 1961$. * $p < .05$, ** $p < .01$, *** $p < .001$

$t(1, 1832) = 8.47$, $\beta = .24$, respectively, $ps < .001$. The results confirmed the hypothesis that universal personality dimensions were useful predictors of life satisfaction.

In block 3, REN, FAM and HAR accounted for an additional 7% variance in life satisfaction beyond the contribution of all the universal personality scales, $\Delta R^2 = .07$, $\Delta F(3,1829) = 61.17$, $p < .001$. FAM and HAR were significantly associated with life satisfaction, $t(1, 1829) = 10.68$, $\beta = .25$, and $t(1, 1829) = 4.80$, $\beta = .12$, respectively,

Table 2 Hierarchical multiple regression of CPAI-A predictors on life satisfaction

Step	Variable/Scale	β	R^2	ΔR^2	F
1.	Demographic variables		.02***	.02***	22.13***
	Age	−.08***			
	Gender	−.04			
2.	Universal scales		.28***	.26***	90.07***
	Emotionality	.10***			
	Inferiority vs Self-acceptance	−.13***			
	Optimism vs Pessimism	.24***			
	Extraversion vs Introversion	.08**			
	Meticulousness	.04			
	Responsibility	.03			
3.	Indigenous scales		.35***	.07***	88.64***
	Family orientation	.25***			
	Harmony	.12***			
	Ren-Qing	−.02			

CPAI-A = The adolescent version of the Chinese Personality Assessment Inventory Standardized beta weights are presented from the final regression model

Note: $N = 1840$. ** $p < .01$, *** $p < .001$

ps < .001. Consistent with the hypothesis, indigenously derived personality scales contributed unique significant variance to life satisfaction beyond those of the universal personality variables. FAM and HAR had added value in predicting life satisfaction beyond the universal predictors.

3.3 Mediating Effect of Life Events

Hierarchical multiple regression analyses were conducted to test the mediating effect of negative life events. Only negative life events were included in the model for the present analysis, as positive life events failed to correlate significantly with life satisfaction.

To examine for a mediating effect of negative life events on the relationship between personality traits and life satisfaction, we used procedures recommended by Baron and Kenny (1986). To conclude that there is evidence of mediated relations, the following requirements must be met: (1) the total effect of the independent variable on the dependent variable must be significant, (2) the path from the independent variable to the mediator must be significant, and (3) the path from the mediator to the dependent variable must be significant, and these relations must reduce the direct effects of the independent variable on the dependent variable (MacKinnon et al. 2002).

As suggested by Baron and Kenny (1986), a series of regression equation was developed for each path in the model. First, to test for direct effects (Condition 1), life satisfaction was regressed on personality variables and statistical control (age). Only the significant personality predictors (EMO, I-S, O-P, E-I, FAM and HAR) shown in the previous multiple regression analysis were included in this analysis. Neuroticism-related scales including EMO, I-S and O-P were combined into one composite score (by adding the scores of each scale and taking the average), and we labeled it as Emotional Stability (ES). Once the direct links between personality variables and life satisfaction were

established, negative life events were regressed on personality variables (Condition 2). In order to fulfill Condition 3, the final analyses involved regressions that included both personality variables (predictors) and negative events (mediator) on life satisfaction. When these conditions of mediation were fulfilled, indirect effects, their standard errors, and their level of significance were calculated (Baron and Kenny 1986; Sobel 1982).

A first equation regressed personality variables on life satisfaction. ES, E-I, FAM and HAR contributed a significant amount of variance to the life satisfaction (31.6%) after the effect of age was controlled. ES, E-I, FAM and HAR were positively associated with life satisfaction, $\beta = .29$, $\beta = .11$, $\beta = .25$, $\beta = .09$, respectively, $ps < .001$.

The second set of equation regressed personality variables on negative life events. ES, E-I, FAM and HAR accounted for a significant amount of variance (18%). E-I was significantly and positively related to negative events, $\beta = .20$, $ps < .001$. ES, FAM and HAR were significantly and negatively related to negative events, $\beta = -.26$, $\beta = -.19$ and $\beta = -.12$, respectively, $ps < .001$, see Table 3.

Finally, equations were created which regressed personality variables and negative life events on life satisfaction. The model including personality variables and negative events was significant and accounted for 31.8% of the variance in life satisfaction after the effect of age were controlled, $\Delta R^2 = .002$, $\Delta F(1,1846) = 4.79$, $p < .05$, with large effect size, $f^2 = .49$. Comparisons between beta weights in the second and third equations were undertaken to contrast the beta weights for the personality variables alone and with the beta weights when negative events were included. With the exception of E-I, the resulting beta weights for ES, FAM and HAR were reduced when negative events were included. The beta weights when ES, FAM and HAR were regressed alone on life satisfaction were .29, .25 and .094, $ps < .001$, respectively. When negative events were included in the equation, the resulting beta weights were .28, .24 and .088, $ps < .001$, respectively. In testing for significant meditating effect, we followed MacKinnon et al. (1995)'s guidelines. The critical meditation evidence was provided by a significant indirect effect (through negative life events) of ES, FAM and HAR on life satisfaction, $zs = -8.1$, -6.2 and -3.3, $ps < .001$, respectively. Negative life events partially mediated the effect of ES, FAM and HAR on life satisfaction. When negative events were included in the model, the independent effect of ES, FAM and HAR on life satisfaction decreased. Nevertheless, the small change between beta weights for each equation suggests that personality variables (ES, FAM and HAR) are only partially mediated by negative life events and operates mainly through their direct effects on life satisfaction. Table 4 presents the regression results.

Consistent with the hypothesis, negative life events served as a partial mediator on the relationship between personality traits and life satisfaction. All four personality variables had direct effects on life satisfaction. ES, FAM and HAR had indirect effects on life

Table 3 Regression of CPAI-A predictors on negative life events

Scale	β	R^2	F
Emotional stability	−.26***	.18***	104.98***
Extraversion vs Introversion	.20***		
Family orientation	−.19***		
Harmony	−.12***		

CPAI-A = The adolescent version of the Chinese Personality Assessment Inventory

Note: $N = 1893$. *** $p < .001$

satisfaction mediated by negative life events. A summary of direct and indirect effects of each personality variables on life satisfaction is presented in Fig. 1.

4 Discussion

The present study illustrated the importance of including both intrapersonal and environmental factors in understanding adolescents' life satisfaction. Our results confirmed that both personality traits and negative life events are important correlates or predictors of life satisfaction. In support of the bottom-up theory, life satisfaction is due to the experience of life events. Confirming the suggestions of Reich and Zautra (1981), negative life events were negatively related to global life satisfaction. Adolescents who experienced more negative events were more likely to have lower life satisfaction, whereas those who experienced less negative events were more likely to have higher life satisfaction.

Surprisingly, inconsistent with previous research (Diener et al. 1999; McCullough et al. 2000), positive life events were not significantly related to life satisfaction in the present study. We speculated that negative bias and self-criticism might explain why negative events relate to life satisfaction but positive events do not.

There is evidence that people have tendency towards negative bias—greater sensitivity to negative information. Several researchers have proposed that negative information tends to influence evaluations more strongly than positive information (Ito et al. 1998). Empirical evidence demonstrates greater responsivity to negative stimuli than positive stimuli (Taylor 1991). Therefore negative events may weigh more heavily than positive events on one's life. In addition, there are cultural differences in the prediction of positive events on life satisfaction across cultures. Oishi and his colleagues (Oishi et al. 2007) found that Asians pay less attention to positive aspects of life than do Americans. Suh and his colleagues also suggested that the frequency of positive emotion is less strongly link to life satisfaction for people in collectivistic cultures (Suh et al. 1998). This phenomenon may possible due to self-criticism. In collectivistic cultures, individuals prioritize

Table 4 Hierarchical multiple regression of negative events and CPAI-A predictors on life satisfaction

Step	Variable/scale	β	R^2	ΔR^2	F
1.	Age	−.134***	.02***	.018***	33.63***
2.	Age	−.084***	.33***	.316***	184.99***
	Emotional stability	.289***			
	Extraversion vs Introversion	.111***			
	Family orientation	.248***			
	Harmony	.094***			
3.	Age	−.084***	.34*	.002*	155.27*
	Emotional stability	.277***			
	Extraversion vs Introversion	.120***			
	Family orientation	.239***			
	Harmony	.088***			
	Negative life events	−.046*			

CPAI-A = The adolescent version of the Chinese Personality Assessment Inventory

Standardized beta weights are presented from the step of the regression model at which they were entered

Note: $N = 1852$. * $p < .05$, ***$p < .001$

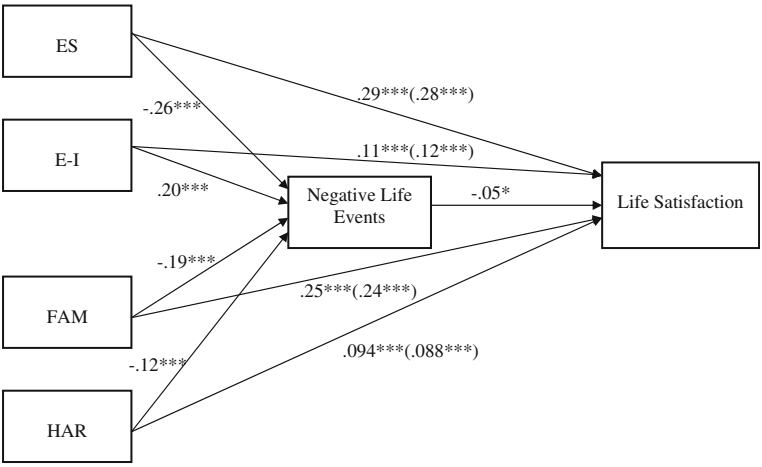

Fig. 1 Mediation Model of Negative Life Events in the relation between CPAI-A predictors and life satisfaction. ES = Emotional Stability; FAM = Family Orientation; HAR = Harmony. *Note*: $N = 1846$. $^{*}p < .05$, $^{***}p < .001$

interdependence (e.g. interpersonal harmony) over independence (e.g. express the self), and they exercise self-criticism more than self-enhancement (Sedikides and Gregg 2003). For instance, Easterners use more negative terms than Westerners do (Kanagawa et al. 2001). It seems that people from collectivistic cultures focus on negative stimuli more than positive ones. Because of modesty and self-criticism, Chinese adolescents may have greater sensitivity to negative events. Hence, the predictive power of negative events is stronger than positive events on life satisfaction.

In support of the top-down theory, life satisfaction is influenced by personality traits. Personality dimensions such as Neuroticism, Extraversion, and Conscientiousness were found to be associated with life satisfaction. These results support previous findings of Costa and McCrae (1992), and DeNeve and Cooper (1998).

Personality characteristics such as family orientation and harmony are culturally relevant to the Chinese people (Cheung et al. 2001), but have not been covered in the Big Five. In collectivistic cultures, interdependence is often considered more important than independence. There is an emphasis on harmonious relationship and the belief that personal desires should be subordinated to those of the group (Diener et al. 1999). Previous literature has illustrated that interpersonal relationship is a distinctive dimension of personality in collectivistic cultures (Cheung et al. 2001; Kwan et al. 1997). To examine the relationship between personality dimensions and life satisfaction in collectivistic cultures, culturally relevant personality characteristics were included in the present study. On top of the universal personality scales, indigenously derived CPAI-A scales (FAM, HAR and REN) contributed unique variance to life satisfaction beyond those of the universal personality variables. Specifically, the FAM and HAR scales had added value in predicting life satisfaction beyond the universal predictors. These results support the findings of Cheung et al. (2001), indigenously derived scales have been recognized as distinctive and culturally relevant personality traits in collectivistic culture. Family Orientation scale of CPAI-A taps individuals' sense of family solidarity. Adolescents who have the tendency toward family orientation are more likely to elicit support from family members, which are linked with life satisfaction. Harmony scale of CPAI-A measures one's inner peace of

mind, contentment and interpersonal harmony, adolescents who have the tendency toward harmony are more likely to avoid conflict and maintain harmonious relationship with others. Maintaining strong family ties and harmonious social relationship contribute to the adolescents' sense of well-being.

Finally, in explaining the relationship between personality and life satisfaction, we considered both the direct and indirect effects of personality on life satisfaction. In particular, negative life events could function as a partial mediator in the relationship between personality and life satisfaction. The underlying pathways from personality to life satisfaction partly through negative life events had been shown in the present study. Consistent with previous studies (Diener et al. 1984), individuals sought out situations that were reflective of their personality traits, and these trait-congruent situations affected their life satisfaction. For example, due to the avoidance of interpersonal conflicts and mild temperament, people with higher tendency toward family orientation and harmony are less likely to encounter negative events (e.g. interpersonal conflict, family discord and exposure to violence), which in turn influence their life satisfaction.

Similar to results reported by Headey and Wearing (1989) and Magnus et al. (1993), people with certain personality traits were more likely to attend to events that reflect their temperament. Results of this study revealed that personality characteristics such as emotional stability, family orientation and harmony predict the occurrence of negative events. In particular, emotional stability, family orientation and harmony predisposed people to experience a lesser amount of negative encounters, which in turn is linked to individual's life satisfaction. On the other hand, as extraverts tend to form attachments to others easily and seek out social interaction, they may experience more both positive and negative events; hence no mediation effect of negative events had been found in the prediction of life satisfaction. Overall, this study provides support that people with certain personality are predisposed to unfavorable environment; these life situations, in turn would have an influence on life satisfaction that could not be explained by personality variables alone.

Researchers who have taken the bottom-up approach emphasized the important influence of life experiences on well-being. However, it is possible that the effect of life events on life satisfaction may diminish after including personality variables. Even though negative events could function as a partial mediator in the relation between personality and well-being, the results of the present study support for the interactive approach (the joint effect of personality and life events) to life satisfaction. In particular, personality variables operate mainly through their direct effects on life satisfaction.

4.1 Conclusion and Future Directions

The present study demonstrated the interaction between personality, negative life events and life satisfaction among Chinese adolescents. This research sheds light on the contribution of indigenous dimensions that highlight the strong relational aspects of personality in predicting life satisfaction among adolescents in the collectivistic Chinese culture. An integrated model of studying life satisfaction is also proposed in this study, in which both bottom-up and top-down approaches can be incorporated to explain the underlying processes of life satisfaction. There is evidence that personality affects life satisfaction through negative life circumstances. However, given the cross-sectional nature of this study, we cannot draw a strong conclusion regarding the direction of influence between personality, experienced life events and life satisfaction. In this respect, further research using longitudinal studies are needed to delineate the underlying mechanism of life

satisfaction. In future research, we should further examine how personality predisposes individuals to appraise adverse life events, which in turn influence their perception of satisfaction. In this study, we did not differentiate between different types of negative life events. Another critical question is whether personality traits predict both controllable and uncontrollable negative events equally, and whether controllable and uncontrollable events differ in the prediction of life satisfaction. Therefore, individuals' perceived stressfulness and controllability of particular adverse events can be included in further studies.

References

Argyle, M. (1987). *The psychology of happiness*. London: Methuen.

Ash, C., & Huebner, E. S. (2001). Environmental events and life satisfaction reports of adolescents: A test of cognitive mediation. *School Psychology International, 22*, 320–336.

Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychology research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*, 1173–1182.

Bienvenu, O. J., & Stein, M. B. (2003). Personality and anxiety disorders: A review. *Journal of Personality Disorders, 17*, 139–151.

Bradley, R. H., & Corwyn, R. F. (2004). Life satisfaction among European American, African American, Chinese American, Mexican American, and Dominican American adolescents. *International Journal of Behavioral Development, 28*, 385–400.

Campbell-Sills, L., Cohen S. A., & Stein, M. B. (2006). Relationship of resilience to personality, coping and psychiatric symptoms in youth adults. *Behaviour Research and Therapy, 44*, 585–599.

Cheng, C. (1997). Assessment of major life events for Hong Kong adolescents: The Chinese adolescent life event scale. *American Journal of Community Psychology, 35*, 17–33.

Cheung, F. M., & Cheung, S. F. (2005). The Chinese Adolescents' Life Checklist (CALEC). (Available from F. M. Cheung, Department of Psychology, The Chinese University of Hong Kong, Hong Kong SAR).

Cheung, F. M., Cheung, S. F., & Zhang, J. X. (2004). What is "Chinese personality?": Subgroup differences in the Chinese Personality Assessment Inventory (CPAI-2). *Acta Psychologica Sinica, 36*, 491–499.

Cheung, F. M., Cheung, S. F., Zhang, J. X., Leung, K., Leong, F., & Kuang, H. Y. (2008). Relevance of openness as personality dimension in Chinese culture. *Journal of Cross-Cultural Psychology, 39*, 81–108.

Cheung, F. M., Leung, K., & Cheung, S. F. (2006). The Cross-Cultural (Chinese) Personality Assessment Inventory-A (CPAI-A). (Available from F. M. Cheung, Department of Psychology, The Chinese University of Hong Kong, Hong Kong SAR).

Cheung, F. M., Leung, K., Zhang, J. X., Sun, H. F., Gan, Y. Q., Song, W. Z., & Xie, D. (2001). Indigenous Chinese personality constructs: Is the Five-Factor model complete? *Journal of Cross-Cultural Psychology, 32*, 407–433.

Cohen, L. H., Burt, C. E., & Bjorck, J. P. (1987). Life stress and adjustment: Effects of life events experienced by young adolescents and their parents. *Developmental Psychology, 23*, 583–592.

Costa, P. T., & McCrae, R. R. (1980). Influence of extraversion and neuroticism on subjective well-being. *Journal of Personality and Social Psychology, 38*, 668–678.

Costa, P. T., & McCrae, R. R. (1992). *Revised NEO Personality Inventory (NEO PI-R) and NEO Five-Factor Inventory professional manual*. Odessa, FL: Psychological Assessment Resources.

DeNeve, K. M., & Cooper, H. (1998). The happy personality: A meta-analysis of 137 personality traits and subjective well-being. *Psychological Bulletin, 124*, 197–229.

Diener, E. (1984). Subjective well-being. *Psychological Bulletin, 95*, 542–575.

Diener, E., Diener, M., & Diener, C. (1995). Factors predicting the subjective well-being of nations. *Journal of Personality and Social Psychology, 69*, 851–864.

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, Larsen, R. J., & Emmons, R. A. (1984). Person x situation interactions: Choice of situations and congruence response models. *Journal of Personality and Social Psychology, 47*, 580–592.

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.

Diener, E., Suh, E. M., Lucas, R. E., & Smith, H. L. (1999). Subjective well being: Three decades of progress. *Psychological Bulletin, 125*, 276–302.

Emmons, R. A., Diener, E., & Larsen, R. J. (1986). Choice and avoidance of everyday situations and affect congruence: Two models of reciprocal interactionism. *Journal of Personality and Social Psychology, 51*, 815–826.

Eronen, S., & Nurmi, J. E. (1999). Life events, predisposing cognitive strategies and well-being. *European Journal of Personality, 13*, 129–148.

Gilman, R, & Huebner, E. S. (2006). Characteristics of adolescents who report very high life satisfaction. *Journal of Youth and Adolescence, 35*, 311–319.

Headey, B., & Wearing, A. (1989). Personality, life events, and subjective well-being: Toward a dynamic equilibrium model. *Journal of Personality and Social Psychology, 57*, 731–739.

Ito, T. A., Larsen, J. T., Smith, N. K., & Cacioppo, J. T. (1998). Negative information weighs more heavily on the brain: The negativity bias in evaluative categorizations. *Journal of Personality and Social Psychology, 75*, 887–900.

Kanagawa, C., Cross, S. E, & Markus, H. R. (2001). Who am I? The cultural psychology of the conceptual self. *Personality-and-Social-Psychology-Bulletin, 27*, 90–103.

Kette, G. (1991). *Prison: A social psychological analysis*. Gottingen, Ger.: Hogrefe.

Kwan, V. S. Y., Bond, M. H., & Singelis, T. M. (1997). Pancultural explanations for life satisfaction: Adding relationship harmony to self-esteem. *Journal of Personality and Social Psychology, 73*, 1038–1051.

Leung, J., & Leung, K. (1992). Life satisfaction, self-concept, and relationship with parents in adolescence. *Journal of Youth and Adolescence, 21*, 653–665.

Lykken, D., & Tellegen, A. (1996). Happiness is a stochastic phenomenon. *Psychological Sciences, 7*, 186–189.

MacKinnon, D. P., Lockwood, C. M., Hoffman, J. M., West, S. G., & Sheets, V. (2002). A comparison of methods to test the significance of the mediated effect. *Psychological Methods, 7*, 83–104.

MacKinnon, D. P., Warsi, G., & Dwyer, J. H. (1995). A simulation study of mediated effect measures. *Multivariate Behavioral Research, 30*, 41–62.

Magnus, K., Diener, E., Fujita, F., & Pavot, W. (1993). Extraversion and neuroticism as predictors of objective life events: A longitudinal analysis. *Journal of Personality and Social Psychology, 65*, 1046–1053.

McCulloguh, G., Huebner, E. S., & Laughlin, J. E. (2000). Life events, self-concept, and adolescents' positive subjective well-being. *Psychology in the Schools, 37*, 290.

Oishi, S., Diener, E., Choi, D. W., Kim-Prieto, C., & Choi, I. (2007). The dynamics of daily events and well-being across culture: When less is more. *Journal of Personality and Social Psychology, 93*, 685–698.

Park, N., & Huebner, E. S. (2005). A cross-cultural study of the levels and correlates of life satisfaction among adolescents. *Journal of Cross-Cultural Psychology, 36*, 444–456.

Reich, J. W., & Zautra, A. (1981). Life events and personal causation: Some relationships with satisfaction and distress. *Journal of Personality and Social Psychology, 41*, 1002–1012.

Sedikides, C., & Gregg, A. P. (2003). Portraits of the self. In M. A. Hogg & J. Cooper (Eds.), *The SAGE handbook of social psychology*. London: Sage.

Shahar, G., Henrich, C. C., Reiner, I. C., & Little, T. D. (2003). Development and initial validation of the brief adolescent life event scale. *Anxiety, Stress and Coping, 2003, 16*, 119–128.

Sobel, M. E. (1982). Asymptotic intervals for indirect effects in structural equations models. In S. Leinhart (Ed), *Sociological methodology* (pp. 290–312). San Francisco: Jossey-Bass.

Suh, E., Diener, E., Oishi, S., & Triandis, H. C. (1998). The shifting basis of life satisfaction judgments across cultures: Emotions versus norms. *Journal of Personality and Social Psychology, 74*, 482–493.

Taylor, S.E. (1991). Asymmetrical effects of positive and negative events: The mobilization-minimization hypothesis. *Psychological Bulletin, 110*, 67–85.