

# Understanding Risky Behavior Engagement Amongst Chinese Adolescents

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**Abstract** The goal of the current study is to examine whether neuroticism, cognitive emotional regulation deficits, and/or their interaction predict increased engagement in risky behaviors following increases in symptoms of depression. At Time 1, 411 Chinese adolescents from Yue Yang, Hunan completed self-report measures assessing cognitive emotion regulation, depressive symptoms, and risky behavior engagement. Follow-up assessments occurred once a month for 6 months, and participants completed measures assessing depressive symptoms and risky behavior engagement. In line with our hypotheses, results of idiographic, multilevel modeling analyses indicated that individuals who exhibited high levels of neuroticism and a tendency to utilize maladaptive cognitive emotional regulation strategies were more likely than individuals possessing only one or neither of these vulnerability factors to report greater engagement in risky behaviors following increases in symptoms of depression.

**Keywords** Depressive symptoms · Neuroticism · Cognitive emotion regulation · Risky behaviors · Chinese adolescents

## Introduction

Recent research in mainland China has begun to examine engagement in risky behaviors amongst Chinese adolescents (e.g., Auerbach et al. 2007b; Chen et al. 1998; Li et al. 1996; Unger et al. 2002). While the vast majority of etiological models examining risky behavior engagement have been developed and applied in Western contexts, given marked cultural differences between China and the West, they cannot automatically be extended to Chinese adolescents. China is a country that dramatically differs from Western countries in its approach to social, political, and economic policies (Jessor et al. 2003), and at present, it is in the midst of rapid modernization and social change (Wong and Mok 1995). Governmental mandate has shifted from preserving China's rich cultural heritage to ensuring economic progress and urbanization, and one widespread consequence has been the emergence of a youth culture that is rejecting long-standing traditions and authoritative cultural values while at the same time emphasizing personal autonomy (Unger et al. 2002). This newfound autonomy coupled with China's rapid growth has been exerting an influence on adolescent behaviors including engagement in risky behaviors. Further, preliminary research suggests that such engagement may be a response to depressive symptoms (Chen et al. 2006).

While many adolescents use adaptive means to respond to depressive symptoms, recent research suggests that a growing number of Chinese adolescents are engaging in risky behaviors in response to such symptomology (e.g., Chen et al. 2006; Greenberger et al. 2000; Jessor et al. 2003). Research examining behavioral patterns amongst Chinese adolescents has shown that such individuals engage in a greater frequency of delinquent-type behavior (Greenberger et al. 2000), cigarette smoking (Hesketh et al. 2001),

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excessive alcohol use (Johnston et al. 2001), and marijuana use (Zhimin et al. 2001) as compared to individuals who are not experiencing elevated levels of depressive symptoms. Such individuals often reported that they engaged in risky behaviors in order to provide temporary relief from depressive symptomology. As Chinese adolescents are engaging in a greater number of risky behaviors in response to negative affective states, researchers have begun to examine factors that may play a role in such engagement (e.g., Auerbach et al. 2007b; Jessor et al. 2003).

### Vulnerability Factors

One factor that may moderate the relationship between depressive symptoms and risky behavior engagement is neuroticism. Costa and McCrae (1987, p. 301) define neuroticism as “the tendency to experience negative, distressing emotions.” Individuals high in neuroticism are more likely than others to experience depressive symptoms, and further given similar levels of depressive symptoms, individuals high in neuroticism experience such symptoms as more distressing as compared to individuals low in neuroticism (Robinson and Clore 2002). As neuroticism is both concurrently (e.g., Hendriks and Bijleveld 2006; Kuntsche et al. 2006) and prospectively associated with risky behavior engagement (Carrasco and Del Barrio 2007; Larkins and Sher 2006), individuals who report higher levels of neuroticism may be more susceptible to engage in risky behaviors in response to depressive symptoms in order to provide temporary relief from painful affective states.

An additional factor that may moderate the relationship between depressive symptoms and engagement in risky behaviors is maladaptive cognitive emotion regulation (e.g., Garnefski and Kraaij 2006; Garnefski et al. 2004). More specifically, Goldstein (2001) found that in comparison to individuals who endorsed lower levels of maladaptive cognitive emotion regulation strategies (e.g., rumination), higher levels were cross-sectionally associated to greater alcohol consumption. Similarly, in a cross-sectional study examining externalizing problems, results indicated that higher levels of catastrophizing and self-blame were associated with a more frequent occurrence of aggressiveness and delinquent behavior (Garnefski et al. 2001; Leung and Wong 1998). Similar to past research examining neuroticism, individuals who utilize maladaptive cognitive emotion regulation strategies may exacerbate their depressive symptoms. Thus, risky behavior engagement may provide a temporary strategy for escaping from depressive symptomology.

### Goals of the Current Study

The primary goal of the current study is to examine neuroticism and cognitive emotion regulation as vulnerability

factors to engagement in risky behavior in response to depressive symptoms. The secondary goal is to examine whether these two vulnerability factors interact synergistically to potentiate the association between depressive symptoms and risky behaviors. It is important to note that the two vulnerabilities have been found to be associated with one another (e.g., Bolland and Capeliez 1997; Hudek-Knezevic et al. 2005; Kuyken et al. 2006; Vollrath et al. 1995), and thus, many people may be vulnerable to their synergistic effect should such an effect exist. Given that the preponderance of past research examining neuroticism, emotion regulation, depressive symptoms, and risky behavior engagement derives from non-Chinese samples, it is important to examine whether such variables and models are applicable to Chinese adolescents.

As neuroticism and maladaptive cognitive emotion regulation strategies are both associated with depressive symptoms and risky behavior engagement as well as each other, individuals who exhibit both characteristics may be subject to a heightened vulnerability. More specifically, while individuals who report higher levels of neuroticism are more likely to experience negative affect, they may also be less equipped to manage such affective states given their greater likelihood of utilizing maladaptive cognitive emotion regulation strategies. As proposed by Auerbach et al. (2007a), individuals experiencing a “double bind,” high levels of neuroticism and greater use of maladaptive emotion regulation strategies, may engage in risky behaviors as a way to provide relief from painful, negative affective states. Although each vulnerability factor may increase the probability of engaging in risky behaviors in response to negative affective states, the interaction of the vulnerabilities may confer the greatest risk. While there is likely overlap between the independent and dependent variables of interest, trait-based personality factors such as neuroticism and cognitive emotion regulation are more stable and enduring. In contrast, depressive symptoms and risky behavior engagement are state-based, and thus, more likely to fluctuate over time. By controlling for the effect of our state-based variables (i.e., depressive symptoms and risky behavior engagement) at our initial assessment in all prospective analyses, we may provide a strong test of our proposed hypotheses.

## Method

### Participants

Participants in the current study were recruited from an urban high school in Yue Yang, Hunan (China). The final sample consisted of 411 high school students (49.8% male and 50.2% females) whose ages ranged from 14 to 19

(Mean = 16.18; SD = 0.95). The sample was 97.1% Han, 1.7% ethnic minority, and 1.2% participants did not report their ethnicity. With regards to family composition, participants' reported the following: 89.3% nuclear families, 6.1% divorced families, 2.2% remarried families, and 1.2% single parent families.

## Measures

The Chinese version of all self-report measures was developed using the back-translation method. First, the original version was translated into Chinese by one bilingual translator from the psychology department at Central South University (Changsha, Hunan). Next, the Chinese version was back-translated into English by another bilingual translator from the psychology department at McGill University. If discrepancies arose in the back-translation, translators worked cooperatively to make corrections to the Chinese version.

### *Risky Behavior Questionnaire for Adolescents (RBQ-A; Auerbach and Abela 2008)*

The RBQ-A is a 20-item self-report measure that was created to assess frequency of engagement in risky behaviors. Examples of questions include: "Have you bullied or threatened a peer(s)," "Have you destroyed property (other than your own)," and "Have you used illegal drugs." Subscales assessed engagement in the following subgroups of behaviors: (1) unsafe sexual practices; (2) aggressive and/or violent behaviors; (3) rule-breaking; (4) dangerous, destructive, and/or illegal behaviors; (5) self-injurious behaviors; and (6) alcohol and/or drug use. The RBQ-A was administered on a monthly basis, and respondents reported their engagement in such behaviors over the past month using the following scale: never, 1 time per month, 2–4 times per month, 2–3 per week times, 4 times or more per week. Research examining the discriminant validity has indicated that the RBQ-A is strongly associated to impulsiveness and maladaptive coping strategies in Chinese adolescents (Auerbach et al. 2007a, b; Yao et al. 2007). In the current study, the Cronbach's  $\alpha$  ranged from .81 to .85 across administrations indicating strong internal consistency.

### *The Center for Epidemiologic Studies Depression Scale (CES-D; Radloff 1977)*

The CES-D is a 20-item self-report measure that assesses levels of depressive symptoms. Examples of questions include: "I felt sad," "I felt hopeless about the future," and "I felt lonely." Items on the scale range from 0 to 3 and higher scores reflect greater depressive symptomatology. The

CES-D was administered on a monthly basis, however, respondents reported how they felt during the past week using the following scale: rarely (<1 day), some or a little of the time (1–2 days), occasionally or a moderate amount of time (3–4 days), and most or all of the time (5–7 days). The CES-D has been shown across studies to have strong test–retest reliability and validity amongst Chinese adolescents (e.g., Auerbach et al. 2008). Across administrations the Cronbach's  $\alpha$  ranged from .89 to .94 indicating high internal consistency.

### *NEO Five Factor Inventory—Neuroticism Subscale (FFI-N; Costa and McCrae 1992)*

The FFI-N is a 12-item self-report measure that assesses neuroticism by rating each of the items on a scale of 0 to 4. Scores range from 0 to 48, and higher scores reflect greater levels of neuroticism. The FFI-N has proven to be reliable across different cultural samples and item pools (Costa and McCrae 1992). Further, numerous studies have shown high internal consistency and good test–retest reliability (Costa and McCrae 1992). In the current study, the Cronbach's  $\alpha$  was .81 which indicates high internal consistency.

### *The Cognitive Emotion Regulation Questionnaire (CERQ; Garnefski et al. 2001; Zhu et al. 2008)*

The CERQ is a 36-item self-report measure designed to assess specific cognitive emotion regulation strategies. The CERQ includes nine conceptually distinct scales. Scores on the CERQ range from one (almost never) to five (almost always), and each subscale contains four items. Total scores for the subscales are obtained by summing the items, and thus, each subscale has a minimum score of four and a maximum score of 20. Higher scores on subscales indicate a greater propensity to employ that cognitive strategy and/or strategies in response to negative life events. Theoretically, the CERQ contains nine distinct subscales: (1) self-blame, (2) acceptance, (3) rumination, (4) positive refocusing, (5) refocus on planning, (6) positive reappraisal, (7) putting into perspective, (8) catastrophizing, and (9) blaming others. A maladaptive subscale was created by summing the self-blame, rumination, catastrophizing, and blaming others subscales (CERQ Maladaptive). In research examining Chinese adolescents, the CERQ has shown that the subscales have strong reliability and validity (Zhu et al. 2008). The Cronbach's alpha for CERQ subscales ranged from .52 to .89 which indicates moderate to strong internal consistency.

## Procedure

Prior to the initial assessment, letters of informed consent were sent home with adolescents detailing the aim of the

present study. After the consent forms were collected, researchers went to each school to meet with participating students. Written consent was obtained from each adolescent at the start of the assessment. No student who received parental consent chose not to give personal consent to participate. During the initial assessment, which occurred during class time on school grounds, students completed a demographics form and the following questionnaires: (1) Risky Behavior Questionnaire for Adolescents (RBQ-A; Auerbach and Abela 2008), (2) The Center for Epidemiologic Studies Depression Scale (CES-D; Radloff 1977), and (3) The Cognitive Emotion Regulation Questionnaire (CERQ; Garnefski et al. 2001; Zhu et al. 2008). Follow-up assessments occurred once a month for 6 months (Times 2–7). At each follow-up, participants completed the following questionnaires: (1) RBQ-A and (2) CES-D.

### Overview of Data Analytic Approach

To test our hypothesis that participants possessing both high levels of neuroticism (FFI-N) and high levels of maladaptive cognitive emotion regulation strategies (CERQ Maladaptive) would report greater engagement in risky behaviors following elevations in depressive symptoms than individuals who possess only one or neither of these vulnerability factors, we utilized idiographic, multilevel modeling. Analyses were carried out using the SAS (version 9.1) MIXED procedure and maximum likelihood estimation. Our dependent variable was within-subject fluctuations in risky behavior scores (WI\_RBQ-A) during the follow-up interval (i.e., Time 2–Time 7). As WI\_RBQ-A scores are a within-subject variable, risky behavior scores were centered at each participant's mean such that scores reflect upwards or downwards fluctuations in an individual's level of engagement in risky behaviors compared to his or her mean level of engagement in risky behaviors. Our primary predictors of the WI\_RBQ-A were FFI-N, CERQ Maladaptive, and fluctuations in depression scores (WI\_CES-D) during the follow-up interval (i.e., Time 2–Time 7). Prior to analyses, FFI-N and CERQ Maladaptive scores were standardized. As WI\_CES-D scores are a within-subject predictor, WI\_CES-D were centered at each participant's mean prior to analyses such that scores reflect upwards or downwards fluctuations in an individual's level of depression as compared to his or her mean level of depression.

## Results

### Descriptive Data

Means, standard deviations, and intercorrelations between all Time 1 measures are included in Table 1, and

information pertaining to follow-up depressive symptom and risky behavior scores are presented in Table 2. Several findings warrant attention. First, higher levels of depressive symptoms were associated with higher levels of risky behavior engagement and neuroticism as well as the tendency to utilize maladaptive cognitive emotion regulation strategies. Second, the tendency to utilize maladaptive cognitive emotion regulation strategies was associated with higher levels of neuroticism. Last, whereas girls reported higher levels of depressive symptoms and neuroticism, boys reported higher levels of risky behavior engagement.

**Table 1** Means, standard deviations, and Pearson correlations for gender, initial risky behaviors, initial depressive symptoms, maladaptive cognitive emotion regulation, and neuroticism

Variables	1	2	3	4	5
1. Gender	–				
2. Initial RBQ-A	.20***	–			
3. Initial CES-D	–.13**	0.29***	–		
4. CERQ Maladaptive	–.07	0.21***	0.51***	–	
5. FFI-N	–.22***	0.27***	0.70***	0.57***	–
Mean	0.50	9.06	32.16	42.92	30.71
Standard deviation	0.50	6.42	8.84	8.08	18.41

*RBQ-A* Risky Behavior Questionnaire for Adolescents (Auerbach and Abela 2008); *CES-D* Center for Epidemiologic Studies Depression Scale (Radloff 1977); *CERQ* Cognitive Emotion Regulation Questionnaire (Garnefski et al. 2001; Zhu et al. 2008); *FFI-N* NEO Five Factor Inventory—Neuroticism Subscale (Costa and McCrae 1992); \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

**Table 2** Means, standard deviations, and range for depressive symptoms and risky behavior engagement during the follow-up period

	Mean	Standard deviation	Low	High
Depressive symptoms				
Follow-up #1	12.36	9.22	0	51
Follow-up #2	12.02	9.53	0	51
Follow-up #3	11.35	9.70	0	56
Follow-up #4	10.31	9.99	0	58
Follow-up #5	8.96	9.10	0	51
Follow-up #6	10.00	9.56	0	54
Risky behaviors				
Follow-up #1	6.95	5.86	0	40
Follow-up #2	6.16	5.87	0	54
Follow-up #3	4.41	4.80	0	31
Follow-up #4	3.68	4.39	0	28
Follow-up #5	3.12	4.43	0	34
Follow-up #6	3.10	3.95	0	20

### Risky Behaviors in Response to Depressive Symptoms

In our first set of analyses, we were interested in examining the effects of FFI-N, CERQ Maladaptive, and WI\_CES-D, on individual's WI\_RBQ-A scores during the follow-up interval. Consequently, in line with Diggle et al. (1994) recommendation that one use a 'saturated' model for the mean structure while searching for an appropriate covariance structure, we chose a mean structure that included gender, FFI-N, CERQ Maladaptive, and WI\_CES-D, and all two-, three-, and four-way interactions. Three additional effects were also included in this initial mean structure. First, in order to control for individual differences in baseline levels of RBQ-A and CES-D, participant's initial RBQ-A scores and CES-D scores were included in the model. Second, in order to account for individual variability in the average level of RBQ-A scores at his/her mean level of WI\_CES-D scores a random effect for intercept was included in the model. Last, given that WI\_CES-D scores are a within-subject predictor whose effect is expected to vary from participant to participant, a random effect for slope was included in the model.

The heterogeneous autoregressive covariance parameter ( $r = 0.40$ ,  $p < .001$ ), random slope ( $r = 0.03$ ,  $p < .001$ ), and random intercept ( $r = 7.02$ ,  $p < .001$ ) were significant and were retained in the model. When examining the fixed effects component of the model, we used a process of backwards deletion. More specifically, we first examined the Gender  $\times$  FFI-N  $\times$  CERQ Maladaptive  $\times$  WI\_CES-D (gender coded as 0 = girls and 1 = boys). Given that this four-way interaction was not significant, it was deleted and the model was re-estimated. We next examined the three-way interactions. Non-significant three way interactions were deleted and the model was re-estimated prior to reporting the final estimate for our model.

The final results with respect to the fixed-effects component of the model are presented in Table 3. Of primary importance, a significant three-way, cross-level interaction emerged between FFI-N  $\times$  CERQ Maladaptive  $\times$  WI\_CES-D. Predicted WI\_RBQ scores for individuals with low or high FFI-N and CERQ Maladaptive scores (plus or minus 1.5 between-subject standard deviations) who were experiencing a low or high level of WI\_CES-D (plus or minus 1.5 within-subject standard deviations) were estimated using the fixed effects model (see Fig. 1). As both WI\_RBQ-A and WI\_CES-D scores are within-subject variables centered at each participant's mean, slopes are interpreted as the increase in an individual's RBQ-A score that would be expected given that he or she scored one point higher on the depression measure (i.e., CES-D).

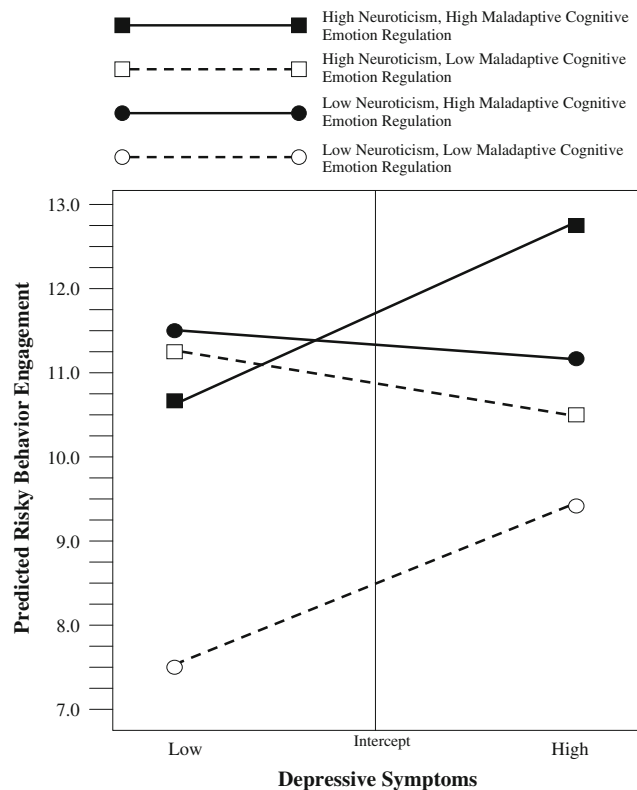
Analyses were conducted for each FFI-N  $\times$  CERQ Maladaptive condition examining whether the slope ( $b$ ) of the relationship between WI\_CES-D and WI\_RBQ-A significantly differed from 0. Analyses indicated that individuals who possessed both high levels of FFI-N and high levels of CERQ Maladaptive reported higher levels of WI\_RBQ-A when experiencing high levels of WI\_CES-D than when experiencing low levels of WI\_CES-D ( $b = 0.15$ ,  $t(1,843) = 3.83$ ,  $p < .001$ ). Unexpectedly, analyses indicated that individuals who possessed both low levels of FFI-N and low levels of CERQ Maladaptive reported greater levels of WI\_RBQ-A when experiencing high levels of WI\_CES-D than when experiencing low levels of WI\_CES-D ( $b = 0.18$ ,  $t(1,843) = 3.24$ ,  $p < .001$ ). At the same time, level of WI\_RBQ-A did not vary as a function of level of WI\_CES-D for (1) individuals with low levels of FFI-N and high levels of CERQ Maladaptive ( $b = 0.06$ ,  $t(1,843) = 0.82$ , NS) and (2) individuals with high levels of FFI-N and low levels of CERQ Maladaptive ( $b = -0.02$ ,  $t(1,843) = -0.31$ , NS).

**Table 3** Fluctuations in follow-up risky behaviors: estimates of the fixed effects component for the contemporaneous model

Predictor	Parameter estimate ( $b$ )	Standard error	$t$ -Value	Degrees of freedom
Initial RBQ-A	1.92	0.18	10.84***	394
Initial CES-D	-0.11	0.24	-0.44	394
WI_CES-D	0.09	0.02	4.28***	1,843
CERQ Maladaptive	0.36	0.21	1.71	394
FFI-N	0.21	0.25	0.84	394
WI_CES-D $\times$ CERQ Maladaptive	0.01	0.02	0.44	1,843
WI_CES-D $\times$ FFI-N	-0.02	0.02	-0.78	1,843
CERQ Maladaptive $\times$ FFI-N	-0.03	0.15	-0.21	394
WI_CES-D $\times$ CERQ Maladaptive $\times$ FFI-N	0.03	0.02	2.20*	1,843

RBQ-A Risky Behavior Questionnaire for Adolescents (Auerbach and Abela 2008); CES-D Center for Epidemiologic Studies Depression Scale (Radloff 1977); CERQ Cognitive Emotion Regulation Questionnaire (Garnefski et al. 2001; Zhu et al. 2008); FFI-N NEO Five Factor Inventory—Neuroticism Subscale (Costa and McCrae 1992); \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$





**Fig. 1** Predicted risky behavior engagement as a function of neuroticism, maladaptive cognitive emotion regulation, and depressive symptoms

#### Depressive Symptoms in Response to Risky Behavior Engagement

As depressive symptoms and risky behavior engagement were assessed contemporaneously, the above analyses cannot ascertain with certainty the direction of the effect. More specifically, they cannot determine whether FFI-N  $\times$  CERQ Maladaptive interacted with the WI\_CES-D to predict WI\_RBQ-A or whether FFI-N  $\times$  CERQ Maladaptive interacted with WI\_RBQ-A to predict WI\_CES-D. Given this interpretational ambiguity, we conducted additional analyses examining the reverse model using the same data analytic approach used in our first set of analyses with the exception (1) our dependent variable being fluctuations in WI\_CES-D rather than WI\_RBQ-A scores (2) and our within-subject predictor variable being fluctuations in WI\_RBQ-A rather than WI\_CES-D scores.

Again, when examining the fixed effects component of the model, we used a process of backwards deletion. When examining the effects of FFI-N  $\times$  CERQ Maladaptive  $\times$  WI\_RBQ-A, on an individual's WI\_CES-D, the autoregressive parameter ( $r = .35$ ,  $p < .001$ ), random slope ( $r = .25$ ,  $p < .001$ ), and random intercept ( $r = 28.68$ ,  $p < .001$ ) were significant and thus, were retained in the model. When examining the fixed effects

component of the reverse model, the three-way, cross-level interaction was not significant ( $b = 0.07$ ,  $t(1,843) = 1.76$ , NS) and was deleted prior to re-estimation. Additionally, all two-way, cross-level interactions were not significant and thus were deleted from the model prior to re-estimation. When examining the main effects, the results indicated that FFI-N ( $b = 1.81$ ,  $t(395) = 4.02$ ,  $p < .001$ ), CERQ Maladaptive ( $b = 0.82$ ,  $t(395) = 2.17$ ,  $p < .05$ ), and WI\_RBQ-A ( $b = 0.33$ ,  $t(1,846) = 6.59$ ,  $p < .001$ ) significantly predicted increased levels of WI\_CES-D.

#### Discussion

The current study provides support for our hypothesis that individuals who report higher levels of neuroticism and a greater tendency to utilize maladaptive cognitive emotion regulation strategies engaged in a greater number of risky behaviors in response to higher levels of depressive symptoms. Additionally, while depressive symptoms interacted with neuroticism and maladaptive cognitive emotion regulation to predict changes in risky behavior engagement, such engagement did not interact with neuroticism and cognitive emotion regulation to predict changes in symptomology suggesting that the model is unidirectional. These results are in line with the double bind model proposed by Auerbach (2007a) indicating that the proposed model is applicable to Chinese adolescents. Several findings warrant additional attention.

#### Examining the Double Bind Model

Individuals who exhibited the double bind described above engaged in a greater number of risky behaviors as compared to individuals who reported only one or neither of these vulnerabilities. Such findings are interesting to consider given that individuals who report higher levels of neuroticism are more likely to experience painful negative affect (Robinson and Clore 2002). At the same time, these individuals also have a greater tendency to utilize maladaptive emotion regulation strategies in response to their depressive symptoms placing them at a greater risk to engage in risky behaviors. While each of the independent variables is associated with risky behaviors, the present study examines an integrative model. Given that vulnerability factors often cluster, such a model underscores the importance of examining the synergistic impact of these vulnerabilities, especially, as it may have significant clinical implications.

In the present study we examined broad-based engagement of risky behaviors as opposed to singular, individual engagement given that adolescents who engage in a specific type of risky behavior have a tendency to utilize

additional, non-specific risky behaviors over time (Jessor et al. 2003). One reason for adolescents' inconsistent pattern of risky behavior engagement may be that such engagement may vary as a function of environmental factors including age and financial means which likely shape the types of risky behaviors that are available to adolescents. Further, adolescent risky behavior engagement may be socially reinforced by one's peer groups. More specifically, past research suggests that peer risky behavior engagement may have "causal" implications as affiliation with peers who utilize risky behaviors is prospectively associated with an individual's increased engagement over time (Prinstein et al. 2001, p. 288). Regardless, individuals who utilize risky behaviors as a coping style have the potential of falling into an avoidance trap. In the short term, risky behaviors are negatively reinforced because of the temporary relief they provide, and thus, individuals may be apt to use such behaviors again in the future as a coping technique instead of addressing the issues that triggered the depressive symptoms. Nevertheless, risky behaviors have the potential to result in negative consequences. Many may initially escape negative consequences and only experience such consequences with prolonged engagement in such behaviors. Prolonged engagement in risky behaviors, however, is likely to be associated with a disproportionately increased probability of adverse consequences. Negative consequences, once they occur, are apt to exacerbate depressive symptoms leading to the establishment of a transactional relationship between such symptoms and risky behaviors.

#### Examining the Double Bind Model With Chinese Adolescents

Research conducted in mainland China over the past few decades strongly suggests that mental illness is more common than previously believed (Liu et al. 1999). While there are likely a number of factors that have contributed to the prevalence of depressive disorders, recent research suggests that such increases may stem from the large scale modernization and urbanization throughout mainland China which has resulted in a reduced stigma toward mental illness and the westernization of younger populations (Parker et al. 2001). In general, Chinese youth have typically relied on collectivistic coping strategies which are consistent with the importance of the interconnectedness within the Chinese culture and the central role the extended family plays in an individual's life. Given that this type of sociocultural environment nurtures the development of an interdependent sense of self, Chinese adolescents have a historically utilized social support-seeking behaviors a primary means of coping (Auerbach et al. 2007b; Yeh and Inose 2002). However, in recent years China's rapid social changes have

downplayed the role of the extended family (Jessor et al. 2003), and consequently younger generations have begun to embrace more individualistic values as well as utilize more individualistic coping strategies (Wang 2006). Thus, etiological models developed within Western cultural contexts are becoming increasingly more relevant to Chinese youth.

The results from the present study suggest that Chinese adolescents have begun to utilize risky behaviors as a way to escape painful, negative affect. Such a view is in line with Conger's (1956) tension reduction theory of alcohol use which states that individuals utilize alcohol to attenuate negative emotional states, and Cooper et al. (1998) have found similar findings when examining the motivation behind using risky sexual behaviors in response to depressive symptoms. Cooper et al. (2003, p. 392) posit that these behaviors may provide a "quick-fix" for individuals who are experiencing depressive symptoms, and while risky behavior engagement may only provide temporary relief, Baumeister and Scher (1988) suggest that negative affect, especially depressive symptoms, may prompt the desire to escape such emotions as quickly as possible. Consequently, individuals who are prone to experience depressive symptoms have a tendency to disproportionately weigh the benefits of the short-term relief that risky behavior engagement provides over the potential negative consequences.

#### General Comments

Several limitations of the current study should be noted. First, the current study utilized self-report measures to assess neuroticism, cognitive emotion regulation strategies, depressive symptoms, and risky behavior engagement. Given that self-report measures may be prone to participant response bias, future research would benefit from utilizing more sophisticated assessment techniques such as life event interviews, peer or parent ratings, and direct behavioral assessments. Second, although there are a number of advantages to utilizing an idiographic data analytic approach, such an approach does not allow us to extract clinically significant levels of depressive symptoms or risky behavior engagement as within-person fluctuations may be within non-clinical ranges. Last, the self-report measures utilized in our assessment of Chinese adolescents were translated from existing measures developed primarily for Western samples. Future research examining samples from mainland China would benefit from using and developing indigenous measures to assess both symptoms and personality characteristics.

In conclusion, the current study provides support for the cross-cultural applicability of Auerbach et al. (2007a) double bind model and highlights the prospective relationship between neuroticism, cognitive emotion regulation,

depressive symptoms, and risky behavior engagement amongst Chinese adolescents. By developing a more thorough understanding of factors that underlie risky behavior engagement, researchers and clinicians can develop more effective intervention and treatment programs. More specifically, China is in the infancy stages of developing clinical tools to identify at-risk adolescents. The present study provides a metric with which to more clearly delineate vulnerability, and in turn, the proposed model may also be utilized to examine clinical growth or improvement for depressed adolescents. Such services may prove to be invaluable as Chinese adolescents rapidly approach a new frontier of social and cultural change.

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