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The Moderating Role of Emotional Stability in the Relationship between Exposure to
Violence and Anxiety and Depression

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Abstract

This study investigated the associations among exposure to violence, emotional stability, and psychological symptoms. The moderating role of emotional stability in the relationship between exposure to violence and anxiety and depression was examined in a sample of 482 high school students in Hong Kong. Results showed that both witnessing violence and low levels of emotional stability were positively associated with symptoms of anxiety and depression. Low levels of emotional stability exacerbated the relation between witnessing violence and symptoms of anxiety and depression; the opposite pattern was found among adolescents with high levels of emotional stability. This study sheds light on the role of emotional stability in ameliorating the detrimental effects of witnessing violence on symptoms of anxiety and depression among adolescents. Findings of this study also have implications for the development of emotionally healthy personalities.

Key words: Exposure to violence, emotional stability, anxiety and depression

The Moderating Role of Emotional Stability in the Relationship between Exposure to Violence and Anxiety and Depression

1. Introduction

Several decades of research have documented negative consequences of exposure to violence on the psychological adjustment of children and adolescents (Berton & Stabb, 1996; Lynch, 2003; Margolin & Gordis, 2000). Exposure to violence (e.g., victims of assaultive violence) is associated with psychological symptoms among school-aged children (Fowler et al., 2009; Stein et al., 2001). In addition to exposure to violence, personality dispositions can markedly influence levels of emotional health. For example, in a sample of urban adolescents exposed to violence, self-esteem was negatively related to depressive symptoms (Fitzpatrick, Piko, Wright, & LaGory, 2005). These findings suggest the direct effects of both violence exposure and personality on mental health. However, little is known about whether personality moderates the relationship between violence exposure and anxiety and depression. To the best of our knowledge, the protective role of the personality factor emotional stability has not been examined empirically in resilience research with adolescents. Therefore, this study aimed to investigate the potential moderating role of emotional stability in associations among exposure to violence and anxiety and depression in an adolescent sample. This research adds to existing literature by examining contextual

and emotional stability personality factors that contribute to anxiety and depression within a Chinese sample of adolescents.

1.1 Exposure to Violence and Emotional Health

Adolescents directly and indirectly exposed to the interpersonal violence, such as physical assault or witnessed violence, show positive associations with anxiety and depression (Kilpatrick et al., 2003). Specific incidents of violence may be associated with a range of emotional reactions as these experiences are often threatening and overwhelming. Adolescents may perceive they have less control over these kinds of violent situations (e.g., violent crime) as compared to adults, and become extremely anxious about possible harm and danger.

Exposure to violence may disrupt typical developmental trajectories in childhood and adolescence. The extant literature has demonstrated that children and adolescents who are exposed to violence manifest posttraumatic stress disorder, depression, anxiety, helplessness and hopelessness, poor academic achievement, poor peer relationships, negative social cognition, suicidal ideation, aggression, disruptive behavior problems, substance abuse and juvenile delinquency (Christiansen, & Evans, 2005; Finkelhor, Turner, Ormrod, Hamby, & Kracke, 2009; Flowers, Lanclos & Kelley, 2002; Fowler et al., 2009). Anxiety and depression associated with violence exposure can interfere with adolescents' school adaptation and academic achievement (Medina, Margolin, & Gordis, 2008). Hence,

in the present study we focus on the emotional consequences of exposure to violence, specifically symptoms of anxiety and depression.

1.2 Emotional Stability and Emotional Health

Apart from environmental factors, dispositional factors are important predictors of emotional health (Diener et al., 2003). For example, a large number of studies have examined neuroticism and its relation to well-being. Nevertheless, the idea that happiness is related as much to the absence of negative affect (neuroticism) is not easy to comprehend (Hill & Argyle, 2001). Researchers have suggested that the concept of neuroticism should be reversed and coined as “emotional stability”, regarded as a positive aspect of personality (Hill & Argyle, 2001; Vittersø, 2001).

Emotional stability is a personality trait that encompasses the capacity to regulate emotions, control impulses, and cope with life’s challenges (Costa & McCrae, 1992). Empirical research has shown that emotional stability is positively correlated with positive emotions (Rogosch & Cicchetti, 2004) and self-esteem (McCrae, 1990), and negatively correlated with negative affect and anxiety and depression (Bienvenu & Stein 2003; Costa & McCrae, 1992). In this study, we conceptualized emotional stability as the opposite pole of neuroticism. We used the Adolescent Version of the Cross-Cultural (Chinese) Personality Assessment Inventory (CPAI-A; Cheung et al., 2006) to measure emotional stability, because of its cultural relevance and validity. A joint factor analysis of the CPAI-2 (adult version) and

the NEO-FFI revealed that Neuroticism factor from the NEO-FFI positively loaded on the Emotional Stability factor from the CPAI-2 (Cheung et al., 2008).

1.3 The Possible Moderating Role of Emotional Stability

Research on resilience has focused on understanding protective factors and processes that make it possible for individuals to thrive in the face of adversity. Although researchers have argued that emotional stability is a strong predictor of stress-tolerance and strongly related to the resilience factor ‘personal strength’ (Friborg et al., 2005), the protective function of emotional stability seldom has been tested empirically in the context of environmental adversity (e.g., exposure to violence).

This study extends existing research by examining the moderating role of emotional stability on the negative sequelae of exposure to violence. From a positive psychological perspective, positive characteristics appear to have protective functions that buffer against the harmful effect of stressful situations on emotional health (Campbell-Sills, Cohan, & Stein, 2006). Applying this theoretical assumption to present study, we argue that emotional stability may alleviate the negative impact of exposure to violence among Chinese adolescents, because emotional stability could provide richer personal resources to regulate negative emotions and cope with negative life circumstances (Nelis, Quoidbach, Hansenne, & Mikolajczak, 2011).

Emotion regulation also plays a prominent role in stabilizing one's emotions. For instance, children's emotion regulation skills protect them from internalizing and externalizing adjustment problems after exposure to violence (Kliewer et al., 2004). These data suggest that children who have better emotion regulation skills or who are emotionally stable have better adjustment outcomes in spite of stressful situations.

1.4 The Present Study

To summarize, the present study aimed to examine the main and interaction effects of the environmental factor of exposure to violence and the personality factor of emotional stability on symptoms of anxiety and depression. We distinguished between two types of exposure to violence in real life: witnessing violence and victimization. Witnessing violence is defined as being within visual range of a violent event and seeing it take place (Edleson, 1999). Although adolescents may indirectly witness violence through the media (e.g., video games with violent content), we only focused on events adolescents directly witnessed in real life. Victimization was defined as involuntary, direct personal exposure to acts of violence that significantly heighten feelings of vulnerability and lower feelings of personal safety; events include verbal threats, being hit or assaulted, being robbed, and being attacked with an object (e.g., knife).

Based on the above conceptualizations, we hypothesized that:

H1a. Witnessing violence would be positively associated with symptoms of anxiety and depression.

H1b. Victimization would be positively associated with symptoms of anxiety and depression.

H2. Emotional stability would be negatively associated with symptoms of anxiety and depression.

H3a. Emotional stability would moderate the relationship between witnessing violence and symptoms of anxiety and depression, such that adolescents with high scores on emotional stability would report fewer symptoms of anxiety and depression in spite of high levels of witnessing violence.

H3b. Emotional stability would moderate the relationship between victimization and symptoms of anxiety and depression, such that adolescents with high scores on emotional stability would report fewer symptoms of anxiety and depression in spite of high levels of victimization.

2. Method

2.1 Participants

A total of 482 high school students (57.1% male) in grades 7 to 9 in Hong Kong participated in this study. Adolescents ranged in age from 12 to 18 years, with a mean age

of 13.33 years ($SD = 1.23$). To sample sufficient number of students who were at risk of violence exposure, the data were collected from two high schools from environments that were associated with more social problems (e.g. in neighborhoods with high violent crime rates, low socio-economic status, and more new immigrants). The majority of the sample (77.1%) was born in Hong Kong; 21% was born in Mainland China. Approximately one-fifth (20.6%) of the sample received financial support from social security, and 12.6% lived in single-parent households. All students were invited to participate in the study on a voluntary basis and assured that their anonymity was well protected. The response rate was 100%.

2.2 Procedure

Ethical approval of this study was obtained from the Ethics Committee for Faculty of Social Sciences at the Chinese University of Hong Kong. Informed consent was obtained from the participants, their parents, and the schools before the study began (e.g., students' parents signed the consent form and returned it to the school). Students were informed that they would be participating in an anonymous study on a voluntary basis. They could freely choose not to answer any of the questions.

After obtaining the signed consent forms, a packet of self-administered questionnaires was given to all students in their classrooms. Participants were informed that

the researcher was investigating students' environmental stress and adjustment. It took about 20-30 minutes to complete the questionnaires.

2.3 Measures

Exposure to Violence. The Multiple Forms of Violence Scale (MFVS; Ho & Cheung, 2007) was used to assess violence experienced in different forms (witnessing and victimization). The development of MFVS made reference to and adapted items from the Parent-Child Conflict Tactics Scales (CTSPC; Straus, Hamby, Finkelhor, Moore & Runyan, 1998) and the Children's Report of Exposure to Violence (CREV; Cooley, Turner, & Beidel, 1995). New items that were relevant to the Chinese context were added. The MFVS is a 48-item self-report scale, listing violent incidents that an adolescent in Hong Kong might experience in a lifetime at home, in school, and in the community. Participants were asked to rate the items on a 5-point Likert scale that indicated frequency of exposure to a variety of violent situations, with 0 = never; 1 = one time; 2 = a few times; 3 = many times; 4 = daily. The MFVS comprised of two subscales: a "Witnessed" subscale (24 items) and a "Victimized" subscale (24 items). Items on the subscales ranged in severity, from verbal threats to being beaten up or attacked. Sample items include, "Have you ever seen somebody being beaten up?" for the Witnessed subscale, and "Have you ever been beaten up?" for the Victimized subscale. The validity of the MFVS was satisfactory (Ho & Cheung,

2010). The Cronbach's alpha coefficients of the witnessed and victimization subscales were .81 and .85, respectively in the current study.

Emotional stability. The Emotional Stability factor from the CPAI-A (Cheung et al., 2006) was used in this study. According to the previous factor analytic results by Cheung et al. (2008), three subscales loaded highly on the Emotional Stability factor: Emotionality (EMO; 12 items), Optimism-Pessimism (O-P; 12 items) and Inferiority versus Self-Acceptance (I-S; 13 items). A sample item for the EMO scale is, "Others often say I am fickle and impulsive", a sample item for the O-P scale is, "I can always stay positive no matter how difficult the situation is", and a sample item for the I-S scale is, "I always have the feeling of having done something wrong". These three scales also were highly correlated with one another (average $r = .59$), and the items were combined to form the ES scale. The Cronbach's alpha coefficient of the combined ES scale was .88 in the present study. Higher scores reflect more emotional stability.

Symptoms of Anxiety and Depression. The anxious/depressed subscale in Youth Self Report (YSR; Achenbach, 1991), which consisted of 16 items, was used to assess adolescents' symptoms of anxiety and depression. This scale was designed for use with adolescents aged between 12 and 18 years. An adolescent selected his or her response from 0 "not true" to 2 "very true or often true." A sample item for the anxious/depressed subscale is, "I am nervous or tense." The Chinese version of the YSR is reliable and valid in Chinese

samples (Leung et al., 2006). The Cronbach's alpha coefficient of the anxious/depressed subscale was .88 in this study.

Demographic data, including age, gender, socio-economic status (SES) and family structure were also obtained. These demographic variables were entered into all regression equations as control variables in the statistical analysis.

3. Results

3.1 Descriptive Statistics

The mean, standard deviation, and reliability of the measures of Exposure to Violence, Emotional Stability, and Symptoms of Anxiety and Depression, are presented in Table 1. The majority of the sample had been exposed to some form of violence either as witness (90.2%) or as victim (73.9%) in their lifetime.

3.2 Exposure to Violence, Emotional Stability and Symptoms of Anxiety and Depression

Hierarchical regression analysis was conducted to test the moderating role of emotional stability on the relationship between violence exposure and symptoms of anxiety and depression. To reduce multicollinearity and make interpretation of coefficients in multiple regressions more meaningful, all interaction terms were calculated using mean-centered scores, as recommended by Aiken and West (1991). In the analysis, age, gender, SES and family structure were entered in step 1, to control for the influence of demographic variables on the outcomes; exposure to violence (i.e., witnessed and

victimized) and emotional stability were entered in step 2; after the main effects were controlled, two-way interactions (witnessed x ES and victimized x ES) were entered in step 3. The interaction terms allowed us to determine whether the associations between violence exposure and symptoms of anxiety and depression differed across levels of emotional stability.

Results of the hierarchical regression are presented in Table 2. There were significant main effects of gender (girls had more symptoms), witnessed violence, and ES on symptoms of anxiety and depression. After taking demographic variables into account, witnessed violence and ES explained an additional 41% of the variance in symptoms of anxiety and depression, $\Delta R^2 = .41$, $\Delta F(3, 436) = 48.18$, $p < .01$. Hypothesis 1a, which stated that witnessing violence directly would be positively associated with symptoms of anxiety and depression was supported. Hypothesis 1b, which stated that victimization would be positively associated with symptoms of anxiety and depression was not supported. Hypothesis 2, which stated that ES would be negatively associated with symptoms of anxiety and depression was supported. In terms of the moderating effects of ES, only the interaction between witnessing violence and ES was significant (see Figure1), thus supporting Hypothesis 3a. The overall model explained 48% of the variance in symptoms of anxiety and depression, $R^2 = .48$, $F(2, 434) = 39.96$, $p < .05$, $f^2 = .83$, which indicated a large effect size (Cohen, 1988).

In order to present the above results in a graph, mean split (1 *SD* above and 1 *SD* below) was used to turn the continuous variables (i.e., witnessed violence, victimization and emotional stability) into categorical variables (high vs. low). As seen in Figure 1, emotional stability serves as a protective factor that alleviates the effect of witnessing violence on symptoms of anxiety and depression. The relation between witnessing violence and symptoms of anxiety and depression was exacerbated when emotional stability was low, and was attenuated when emotional stability was high. However, hypothesis 3b, which stated that emotional stability would moderate the relationship between victimization and symptoms of anxiety and depression was not supported.

4. Discussion

The objectives of this study were to assess the role of emotional stability, exposure to violence, and their interaction on symptoms of anxiety and depression in adolescents. The strengths of this study include the examination of contextual and personality factors that contribute to symptoms of anxiety and depression in a sample of Chinese adolescents. The joint influence of environmental and dispositional factors relating to psychopathology in adolescents is an important area of resilience research, especially the focus on protective, versus vulnerability, factors in the context of violence exposure. Specifically, we found that witnessing violence was associated with heightened symptoms of anxiety and depression among adolescents, and this relation was moderated by emotional stability.

4.1 Exposure to Violence and Symptoms of Anxiety and Depression

Witnessing violence is stressful and overwhelming for adolescents, and we found that witnessing violence was positively associated with symptoms of anxiety and depression.

The effect of witnessing violence on symptoms of anxiety and depression may be activated through psychophysiological processes. Clinical research literature has documented the neurological and physiological effects of trauma (e.g. witnessing violence) on individual arousal and stress reactions (Lynch, 2003). So adolescents who witness violence are more likely to have anxious and depressive symptoms (Evans, Davies, & DiLillo, 2008; Rogosch & Cicchetti, 2004).

Surprisingly, in contrast to previous research (Fowler et al., 2009; Stein et al., 2001), results of this study did not support the supposition that victimization has a deleterious effect on symptoms of anxiety and depression (H1b and 3b). One possible explanation for this result is that victimization might be strongly associated with externalizing problems and social problems than internalizing problems. For example, victimization was related to aggression in boys (Brendgen et al., 2008) and antisocial outcomes in girls (Losel & Bender, 2011). It also might be the case that the shared variance between witnessing violence and direct victimization (witnessing violence and victimization have a correlation coefficient of .60) explained the lack of association between victimization and symptoms of anxiety and depression in the regression models.

4.2 The Moderating Role of Emotional Stability

Findings of the present study converge with previous findings on emotional stability, which was negatively associated with symptoms of anxiety and depression (Bienvenu & Stein 2003). Emotionally stable adolescents have better emotional regulation skills, enabling them to modulate and cope with powerful affective states. More importantly, we found that emotional stability moderated the association between witnessing violence and symptoms of anxiety and depression. Emotional stability is protective for adolescents' emotional health – perhaps through coping or regulating their emotions in spite of stressful situations (i.e., witnessing violence). Although psychological symptoms were linked to experiences of witnessing violence, emotionally stable adolescents may have the capacity to adjust their emotional responses in spite of stressful situation; therefore, they showed better emotional functioning (fewer symptoms of anxiety and depression).

4.3 Implications

Results of this study confirmed the importance of personality attributes, like emotional stability, that buffer against the negative impact of exposure to violence and strengthen emotional resilience. The study findings suggest important implications for future research as well as practical applications. More research on personality as a buffer has been conducted with adults than with adolescents; one of the novel features of the study is that it used a sample of Chinese adolescents.

Future research should include examining other individual differences in resilience and conducting cross-cultural comparisons of the role of emotional stability in moderating the impact of violence exposure on adolescents' psychological outcomes. Future research should also examine other personality variables (e.g., extraversion, agreeableness, conscientiousness and openness to experience) and outcome variables that are common in adolescence (e.g., behavioral problems, academic performance and social relationships).

Practical implications include mental health education that fosters the emotional development of adolescents and positive living. Given the importance of adolescents' personality characteristics to mental health, parents and teachers may pay greater attention to their adaptive personality development. Training workshops on emotional regulation and coping strategies at schools may help students better manage their negative emotions in adverse circumstances, and may help to develop healthy personality traits.

4.4 Limitations and Directions for Future Research

Several limitations of the present study should be mentioned. First, the use of correlational data does not allow for definitive causal conclusions regarding the moderating role of emotional stability. The cross-sectional study design precluded an assessment of the temporal ordering of constructs. Future longitudinal studies are needed to examine the causal role of emotional stability in adolescents' emotional health. Another limitation includes our reliance on the self-report measure in assessing violence exposure. Self-report

measures are subject to the adolescents' selective recall. For example, aggressive adolescents may be more likely to report violence exposure because they tend to access schemas involving violent behaviors (Schwartz & Proctor, 2000). Further research that adopts multiple methodologies for assessing violence exposure is needed.

Despite these limitations, results of the present study provide additional insights into understanding the processes of emotional adjustment in the context of exposure to violence. Exposure to violence in general affects emotional functioning in adolescents. This study adds to the growing investigation of violence by incorporating different forms of exposure (victimization and witnessing), and highlighting the protective role of emotional stability on symptoms of anxiety and depression in spite of environmental adversity (i.e., witnessing violence).

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Table 1.

Means, Standard Deviations, and Reliability of the MFVS, Emotional Stability Personality Traits and Symptoms of Anxiety and Depression

Scale	Score range	<i>M</i>	<i>SD</i>
Exposure to Violence			
Victimized	0 – 96	5.19	6.00
Witnessed	0 – 96	11.32	9.18
Emotional Stability			
Emotionality	0 – 12	4.60	2.80
Inferiority vs Self-Acceptance	0 – 13	4.26	3.20
Optimism vs Pessimism	0 – 12	7.49	2.78
Symptoms of Anxiety and Depression	0 – 25	6.15	5.40

MFVS = The Multiple Forms of Violence Scale.

Note. *N* = 482.

Table 2.

Hierarchical Regression of Exposure to Violence and Personality Variable on Symptoms of Anxiety and Depression

Step / Variable		Symptoms of Anxiety and Depression	
		β	ΔR^2
			.06 ^{***}
1.	Gender	.06	
	Age	.03	
	CSSA	-.01	
	Family Structure	.03	
	New Immigrant	-.01	
			.41 ^{***}
2.	Witnessed	.16 ^{***}	
	Victimized	.06	
	Emotional Stability	-.61 ^{***}	
			.01 ^{**}
3.	Witnessed x Emotional Stability	.10 [*]	
	Victimized x Emotional Stability	-.01	
			.48 [*]
			39.96 [*]

CSSA = Comprehensive social security.

Standardized beta weights are presented from the final regression model.

Note. $N = 482$. * $p < .05$, ** $p < .01$, *** $p < .001$.

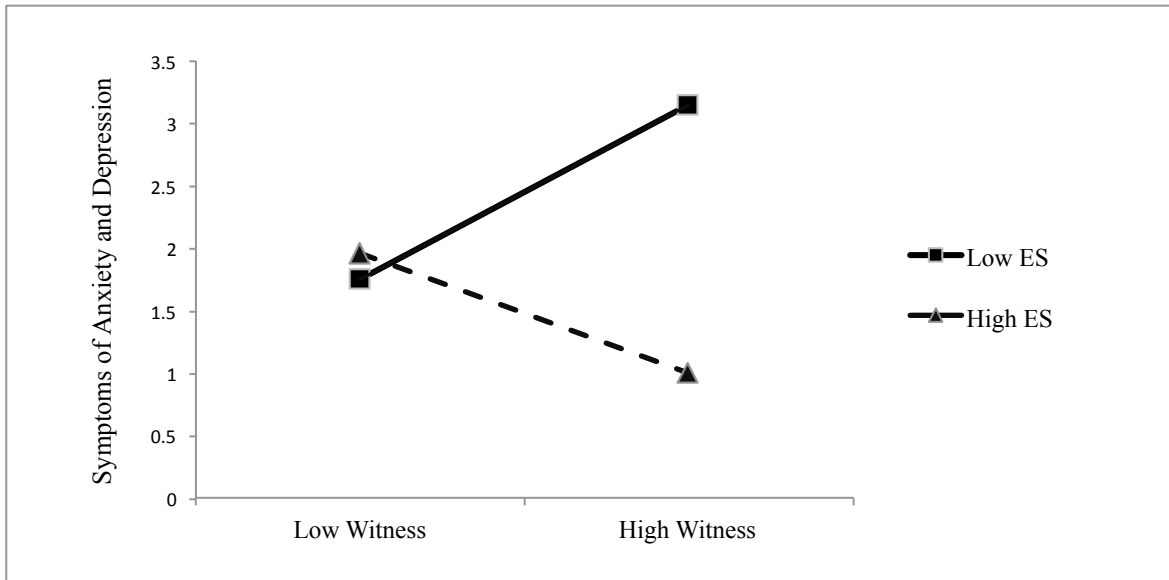


Figure 1. Moderating effect of Emotional Stability (ES) on the relation between witnessed Violence and Symptoms of Anxiety and Depression.