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Interpersonal stress mediates the relationship between childhood trauma and depressive symptoms: Findings from two culturally different samples

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Abstract

Objective: Childhood trauma is associated with adulthood depressive symptoms, but very few studies explored potential social and interpersonal mediators behind this association. This study made the first attempt to test the potential mediating effects of interpersonal stress in the associations between childhood betrayal and non-betrayal trauma and depressive symptoms.

Methods: We analyzed data in a sample of English-speaking adults from diverse backgrounds (from 19 different countries, mainly from Western countries) (N = 468). We then replicated and compared the results with those in another convenience sample of Chinese-speaking younger adults with different cultural backgrounds and mental health status (N = 205).

Results: The results in both samples indicated that 1) childhood betrayal trauma had a stronger relationship with depressive symptoms than childhood non-betrayal trauma and that 2) interpersonal stress was a significant mediator in the relationship between childhood betrayal trauma and depressive symptoms, even when childhood non-betrayal trauma was included as a covariate. The indirect effect of childhood non-betrayal trauma on depressive symptoms through interpersonal stress was not consistent in two samples.

Conclusions: Our findings point to the importance of taking social and interpersonal contexts into account when investigating, preventing and managing depression in trauma-exposed populations. Early social interventions such as family interventions, interpersonal skills training and building social resources may have the potential the change the trajectory of the development of mental health problems in trauma survivors.

Keywords: Childhood trauma; Depression; Interpersonal stress; Mental health; Public health

Interpersonal stress mediates the relationship between childhood trauma and depressive symptoms: Findings from two culturally different samples

Depression is one of the major leading causes of disability globally (Friedrich, 2017). A predominant increasing global trend in the prevalence of depression indicates the importance of improving the prevention and treatment of depression (Moreno-Agostino et al., 2021). While there are many risk factors for depression (e.g., genetic influences, infection), childhood traumatic events have been recognized as one of the most preventable risk factors (Copeland et al., 2018; The Childhood Adversity Narratives, 2015; Fung et al., 2020). The association between childhood trauma and adulthood depressive symptoms has been reported in many systematic review studies (Gallo et al., 2018; Lindert et al., 2014; Maniglio, 2010; e.g., McKay et al., 2021). Nevertheless, the possible mechanism behind the relationship between childhood trauma and depressive symptoms remains less explored (McLaughlin, 2016). Liu (2017) reviewed the literature and found that very few studies investigated the possible mediators between childhood adversities and depression. A recent systematic review found that maladaptive schema, negative automatic thoughts, resilience and avoidance mediate the relationship between childhood adversities and depression (Zhao et al., 2022). Currently,, most studies focused on psychological mediators (e.g., cognitive processes, post-traumatic symptoms). While psychological mediators are very important, they are not always easily altered without long-term psychological interventions. For example, in routine treatment settings, it may require 4 to 54 treatment sessions for clients to achieve reliable improvements in their mental health conditions (Robinson et al., 2020), let alone many people who could not access psychological treatments. Thus, it is important to identify possible social/interpersonal mediators to inform how social service professionals may work with childhood trauma survivors to prevent and manage depressive symptoms. Understanding the potential role of social/interpersonal factors in the association between childhood trauma and depression may also have significant implications for social policy.

However, current research on potential social/interpersonal mediators is even scarcer than research on psychological mediators. While one study found that social support could mediate the association between childhood adversities and depressive symptoms (Struck et al., 2020), another study reported that social support was not a significant mediator (Skarupski et al., 2016). Besides,

(Banou et al., 2009) revealed the potential mediating effect of interpersonal loss. These studies indicated the need for further research on the potential role of different interpersonal experiences in the relationship between childhood trauma and depression.

Children develop in the context of their family, caregivers, school and community. Prevention of mental/behavioral disorders involves a paradigm shift that goes beyond the traditional disease model, in which one waits for an illness to occur and then provides the evidence-based treatment. Understanding the social/interpersonal mediators could inform early identification and interventions for mental/emotional/behavioral problems. This may change the trajectory of the development of mental illness (National Research Council and Institute of Medicine, 2009)

Therefore, this study aimed to further investigate whether interpersonal stress would mediate the relationship between childhood trauma and depressive symptoms. We used the definition of interpersonal stress suggested by Bancila and Mittelmark (2009) - "perceived troubled relationships with significant others who cause stress even when they do not mean to (e.g., inept social support attempts, criticism, demands that are too high)" (p. 260). Mittelmark et al. (2004) found that interpersonal stress as measured by their Bergen Social Relationships Scale (BSRS) was positively associated with psychological distress and that the effects were independent of social support. According to Hayes (2018), mediators refer to intervening variables through which the independent outcome affects the dependent variable. In this study, we hypothesized that childhood trauma would be associated with depressive symptoms through the effects of interpersonal stress. It is well known that childhood trauma is associated with negative interpersonal experiences (e.g., revictimization, recent exposure to violence) (Desai et al., 2002; Gladstone et al., 2004; Jaffe et al., 2019), which may be owing to many factors. Especially in the context of childhood betrayal trauma (i.e., trauma perpetrated by someone with whom the victim is close to; e.g., physical or sexual abuse by a trusted person) (Freyd et al., 2007; Freyd, 2008), the survivors may develop more dissociative and borderline personality symptoms that could affect their interpersonal relationships (Fung et al., 2022a; Zamir et al., 2018). Moreover, one's exposure to betrayal trauma may particularly imply that there is an ongoing stressful interpersonal environment because the persons he/she relied on were the perpetrators. Many survivors of childhood trauma may not be able to set healthy boundaries and

resolve interpersonal conflicts because of affect dysregulation or a lack of appropriate interpersonal skills. They may also have more maladaptive trauma-related cognitions which could put them at increased risk of experiencing more interpersonal stress (Cloitre et al., 2020; Fisher, 1999). Obviously, these adverse interpersonal experiences could lead to more depressive symptoms as well (Bancila and Mittelmark, 2009; Gariépy et al., 2016). In other words, we hypothesized that childhood trauma would have indirect effects towards depressive symptoms, through interpersonal stress, in the mediation analyses (see Figure 1 and Figure 2).

As noted, the potential mediating effects of interpersonal stress may be different for childhood betrayal and non-betrayal trauma. Therefore, this study tested the mediating effects for both childhood betrayal and non-betrayal trauma. As there could be cultural differences in the understanding of trauma (Chien and Fung, 2022), resilience (Yu et al., 2020), perceived harmfulness of childhood trauma (Ni and Hesketh, 2021) and social processes (Campos and Kim, 2017), we first examined the mediating effects in an English-speaking sample, and then tried to replicate the findings in another convenience Chinese-speaking sample. Although there are methodological limitations in cross-sectional studies, a cross-sectional design is helpful to identify potential mediating effects and encourage further investigation of variables (e.g., Carruthers et al., 2022; Sabet et al., 2021).

Methods

Participants and procedures

Sample 1: English-speaking adults with self-reported depressive emotions. We first analyzed data from a project that examined psychosocial experiences among people with any depressive emotions. This project obtained ethics approval at Chinese University of Hong Kong. From November 2021 to February 2022, we recruited potential participants through social media platforms related to mental health and depression using online advertising. They were invited to complete an online survey. Participants should 1) be aged 18 or above; 2) provide informed consent to participate; and 3) self-report to have experienced any depressive emotions. We did not set an inclusion criterion using the depression cutoff score. Participants were excluded from the online survey if they reported to have: 1) an immediate need for professional help; 2) a currently unstable mental health status; 3) a

reading disorder, dementia or intellectual disabilities; and/or 4) recurrent suicidal ideations, attempts or plans during the previous two weeks. The methodology and sample have been reported elsewhere (Fung et al., 2022b).

Sample 2: Chinese-speaking young adults. We then analyzed data from a community project that examined the social correlates of mental health symptoms among Chinese young adults. This project was conducted by the Achievements Foundation, which is a registered charitable institution recognized by the Hong Kong Government, and approval was obtained from the executive committee of this organization. In 2021, potential participants were recruited through online platforms to participate in an online anonymous survey. Since this project focused on "youth", participants had to 1) be aged between 18 to 24, 2) be able to read Chinese; and 3) agree to give informed consent. The methodology and sample have been reported elsewhere (Fung et al., 2022c).

Measures

Participants in both samples completed the same set of self-reported measures (in English and Chinese, respectively):

The Brief Betrayal Trauma Survey (BBTS). The BBTS has 24 items and is a self-report measure of 12 different types of childhood and adulthood trauma (Goldberg and Freyd, 2006). The traumatic events can be further divided into betrayal and non-betrayal trauma. The BBTS demonstrated good test-retest reliability over three years (agreement rate was 83% for childhood trauma) (Goldberg and Freyd, 2006). The Chinese version of the BBTS has been used in previous studies (e.g., Chiu et al., 2010) and had acceptable test-retest reliability (agreement rate was 90.7%) (Fung et al., 2022c). This study focused on childhood betrayal trauma (items 3a, 5a, 6a, 8a and 10a) (e.g., deliberately attacked by someone with whom you were very close) and non-betrayal trauma (items 1a, 2a, 4a, 7a and 9a) (e.g., made to have sexual contact by someone with whom you were not close). The items of the BBTS can be found at https://dynamic.uoregon.edu/jjf/bbts/.

The Patient Health Questionnaire-9 (PHQ-9). The PHQ-9 has 9 items and is a self-report measure of depressive symptoms. The PHQ-9 has good internal consistency ($\alpha = .86$), test-retest reliability ($r = .84$), concurrent validity ($r = .77$) and diagnostic validity (cutoff = 10) (sensitivity = 85%, specificity = 89%) (Kroenke et al., 2001; Kung et al., 2013; Manea et al., 2012). The Chinese

version of the PHQ-9 was also found to have excellent reliability (α = .91) and good diagnostic validity (cutoff = 15) (sensitivity = 81%, specificity = 98%) (Yeung et al., 2008) and has been used in many studies (e.g., Fung et al., 2020).

The Bergen Social Relationships Scale (BSRS). The BSRS has 6 items and is a self-report measure of chronic interpersonal stress (e.g., "There is an important person in my life who wants to support me, but who hurts my feelings instead") (1 = does not describe me at all, 4 = describes me very well); it has satisfactory internal consistency (α = .73) and stable factor structure across different cultures tested (Bancila and Mittelmark, 2009). Mittelmark et al. (2004) found that the BSRS was positively associated with psychological distress, independent of the effects of social support. The Chinese version of the BSRS had acceptable internal consistency (α = .73) and test-retest reliability (ICC = .696) and was negatively correlated with self-esteem ($r = -.158$, $p < .05$) in Sample 2 (unpublished data).

Data analysis

We first reported the descriptive statistics of sociodemographic and health backgrounds of each sample. We then conducted a Pearson's correlation analysis to examine the relationships among the major variables separately in both Sample 1 and Sample 2. We also conducted a multiple regression analysis to identify the associations between childhood betrayal and non-betrayal trauma and depressive symptoms for each sample.

To examine whether interpersonal stress would mediate the relationship between childhood trauma and depressive symptoms, the SPSS 22.0 PROCESS macro based on Model 4 with 10,000 bootstrap bias-corrected 95% confidence intervals (CI) was used (Hayes, 2018). If the bootstrapped 95% CI did not cross zero, the mediation effect was regarded as statistically significant. We first examined the mediating effects (Baron and Kenny, 1986) in the relationship between childhood non-betrayal trauma and depressive symptoms. We then examined the mediating effects in the relationship between childhood betrayal trauma and depressive symptoms. The mediation analyses were conducted in Sample 1 first, and then we conducted the same set of analyses in Sample 2 and examined if the results could be replicated in Sample 2.

Results

Sample characteristics

The sample characteristics of each sample are reported in Table 1.

In Sample 1, 468 participants provided informed consent and responded to the online English survey. Their ages ranged from 18 to 65 years. Most of them were female (91.0%). This is a regionally diverse sample because the participants reported living in 19 different countries/regions. Only 23.1% were currently seeing a psychiatrist, and 39.5% self-reported a prior major depression diagnosis.

In Sample 2, 205 young adults provided informed consent and responded to the online Chinese survey. Their ages ranged from 18 to 24 years. Most of them were female (84.9%). Most participants lived in Taiwan (65.4%) and Hong Kong (29.3%). Some of them had seen psychiatrist for at least one time in the past year (22.0%), and a few of them reported a prior depression diagnosis (17.1%).

The relationship between childhood betrayal and non-betrayal trauma and depressive symptoms

The Pearson's correlations among the major variables in each sample are reported in Table 2. Moreover, multiple regressions were conducted to predict depressive symptoms from childhood betrayal and non-betrayal trauma.

In Sample 1, the model statistically significantly predicted depressive symptoms, $F(2, 465) = 8.451$, $p < .001$, adjusted $R^2 = .031$. Childhood betrayal trauma was a significant predictor ($\beta = .151$, $p = .003$) while childhood non-betrayal trauma was not ($\beta = .065$, $p = .191$).

In Sample 2, the model also statistically significantly predicted depressive symptoms, $F(2, 202) = 9.080$, $p < .001$, adjusted $R^2 = .073$. Similarly, childhood betrayal trauma was a significant predictor ($\beta = .206$, $p = .006$) and childhood non-betrayal trauma was not ($\beta = .131$, $p = .079$).

The mediating effect of interpersonal stress in the relationship between childhood non-betrayal trauma and depressive symptoms

A mediation analysis using the SPSS PROCESS macro was conducted to examine whether interpersonal stress would mediate the relationship between childhood non-betrayal trauma and

depressive symptoms in Sample 1. We included childhood betrayal trauma as a covariate because it also had a significant correlation with depressive symptoms. First, childhood non-betrayal trauma was not significantly associated with depressive symptoms ($\beta = 0.065$, $p = .191$) (path c), $F(2, 465) = 8.45$, $p = .002$, as only the covariate was significantly associated with depressive symptoms ($\beta = 0.151$, $p = .003$). Second, childhood non-betrayal trauma was significantly associated with interpersonal stress ($\beta = 0.102$, $p = .038$) (path a), $F(2, 465) = 20.12$, $p < .001$. Third, when childhood non-betrayal trauma and interpersonal stress were put in the model, this model significantly predicted depressive symptoms, $F(3, 464) = 19.11$, $p < .001$. In this model, interpersonal stress ($\beta = 0.285$, $p < .001$) (path b) but not childhood non-betrayal trauma ($\beta = 0.036$, $p = .451$) (path c') was significantly associated with depressive symptoms. The indirect effect of childhood non-betrayal trauma on depressive symptoms was significant (indirect effect = 0.1673), 95% CI: 0.0106 - 0.3530 (see Figure 1).

The same set of analysis was conducted in Sample 2. First, childhood non-betrayal trauma was not significantly associated with depressive symptoms ($\beta = 0.131$, $p = .079$) (path c), and only the covariate was significantly associated with depressive symptoms ($\beta = 0.206$, $p = .006$), $F(2, 202) = 9.08$, $p < .001$. Second, childhood non-betrayal trauma was not significantly associated with interpersonal stress ($\beta = 0.140$, $p = .061$) (path a), $F(1, 203) = 11.00$, $p = .001$. Third, when childhood non-betrayal trauma and interpersonal stress were inserted into the model, this model significantly predicted depressive symptoms, $F(3, 201) = 10.41$, $p < .001$. In this model, however, interpersonal stress ($\beta = 0.239$, $p < .001$) (path b) but not childhood non-betrayal trauma ($\beta = 0.098$, $p = .183$) (path c') were significantly associated with depressive symptoms. Moreover, the indirect effect of childhood non-betrayal trauma on depressive symptoms was not significant (indirect effect = 0.2279), 95% CI: -0.0218 - 0.5468 (see Figure 1).

The mediating effect of interpersonal stress in the relationship between childhood betrayal trauma and depressive symptoms

We then examined the mediating effect in the relationship between childhood betrayal trauma and depressive symptoms. In this analysis, similarly, we included childhood non-betrayal trauma as a covariate because it also had a significant correlation with depressive symptoms.

The analysis was first conducted in Sample 1. First, even when childhood non-betrayal trauma was included as a covariate, childhood betrayal trauma was significantly associated with depressive symptoms ($\beta = 0.151$, $p = .003$) (path c), $F(2, 465) = 8.45$, $p < .001$. Second, childhood betrayal trauma was also significantly associated with interpersonal stress ($\beta = 0.225$, $p < .001$) (path a), $F(2, 465) = 20.12$, $p < .001$. Third, when childhood betrayal trauma and interpersonal stress were put in the model, this model significantly predicted depressive symptoms, $F(3, 464) = 19.11$, $p < .001$. In this model, interpersonal stress ($\beta = 0.285$, $p < .001$) (path b) but not childhood betrayal trauma ($\beta = 0.087$, $p = .078$) (path c') was significantly associated with depressive symptoms. The indirect effect of childhood betrayal trauma on depressive symptoms was significant (indirect effect = 0.2973), 95% CI: 0.1510 - 0.4724 (see Figure 2).

The same set of analysis was conducted in Sample 2. First, even childhood non-betrayal trauma was included as a covariate, childhood betrayal trauma was significantly associated with depressive symptoms ($\beta = 0.206$, $p = .006$) (path c), $F(2, 202) = 9.08$, $p < .001$. Second, childhood betrayal trauma was also significantly associated with interpersonal stress ($\beta = 0.205$, $p = .006$) (path a), $F(2, 465) = 9.50$, $p < .001$. Third, when childhood betrayal trauma and interpersonal stress were put in the model, this model significantly predicted depressive symptoms, $F(3, 201) = 10.41$, $p < .001$. In this model, both interpersonal stress ($\beta = 0.239$, $p < .001$) (path b) and childhood betrayal trauma ($\beta = 0.157$, $p = .034$) (path c') were significantly associated with depressive symptoms. Similarly, the indirect effect of childhood betrayal trauma on depressive symptoms was significant (indirect effect = 0.2444), 95% CI: 0.0636 - 0.5031 (see Figure 2).

Discussion

This study contributes to the research gap regarding the social and interpersonal mediators in the relationship between childhood trauma and depressive symptoms. We made the first attempt to examine whether interpersonal stress would mediate the relationship between childhood betrayal and non-betrayal trauma and depressive symptoms. In two socially and culturally different samples, we found that 1) childhood betrayal trauma had a stronger relationship with depressive symptoms than childhood non-betrayal trauma and that 2) interpersonal stress was a significant mediator in the

relationship between childhood betrayal trauma and depressive symptoms, even when childhood non-betrayal trauma was included as a covariate. The indirect effect of childhood non-betrayal trauma on depressive symptoms through interpersonal stress was not consistent in two samples.

First of all, we found that childhood betrayal trauma was particularly associated with interpersonal stress in our samples, suggesting that trauma survivors may be more vulnerable to experiencing interpersonal stress because of various reasons – some of which have been mentioned above (e.g., affect dysregulation, a lack of appropriate interpersonal skills, did not have a good role model). Our findings are consistent with similar findings in the literature, which suggested that childhood trauma is associated with interpersonal problems, such as interpersonal revictimization (i.e., being revictimized again) (Auslander et al., 2018) and interpersonal difficulties (Cloitre et al., 2005). These interpersonal problems may in turn lead to more mental health problems including depressive symptoms (Cheek et al., 2020; He et al., 2019). In the only study focusing on the mediating role of interpersonal stress in the relationship between early adversities and depressive symptoms, Stroud et al. (2021) found that early adversity may not be directly related to subsequent depressive symptoms, but past-year acute interpersonal stress was a significant mediator. Similarly, we found that childhood trauma was associated with interpersonal stress and that interpersonal stress also mediated the relationship between childhood betrayal trauma and depressive symptoms. We provided first evidence showing that interpersonal stress mediated the relationship between childhood betrayal trauma and depressive symptoms, while the findings for non-betrayal trauma were not clear.

Our findings highlight the importance of social interventions in addition to psychological interventions (e.g., cognitive and behavioral interventions) for depression in people exposed to childhood trauma. Universal prevention and selective interventions during the childhood developmental phase may reduce elevated depressive symptom levels that precede a disorder diagnosis. Such preventive interventions have the potential to change the trajectory of further developing more severe mental health problems. For example, interventions targeting or involving family members may be helpful (Liebman et al., 2020; Meis et al., 2013). In the trauma literature, it has been well documented that social support is associated with better treatment outcomes (Dewar et al., 2020; Fredette et al., 2016). Interventions that promote interpersonal skills are also beneficial to

childhood trauma survivors (MacIntosh et al., 2018); the well-established STAIR is a good example (Cloitre and Schmidt, 2022). Therefore, apart from psychological interventions that address cognitive processes and trauma-related symptoms (Fung et al., 2022c; Zhao et al., 2022), social interventions and interpersonal skills training should be considered. Multidisciplinary professionals may play an important role by protecting betrayal trauma survivors from toxic stress and ongoing trauma, teaching them interpersonal and communication skills (e.g., assertiveness training, social skills training), supporting them to resolve unavoidable conflicts (e.g., conflict resolution training), and mobilizing community resources (e.g. counselling services and mutual support programs) for them to regain social support and social resources.

Successful prevention and intervention require interdisciplinary approaches. In addition to medical and psychological care, social interventions are important. As poor social relationships are closely related to mental health problems, policymakers should promote public awareness on childhood trauma and interpersonal stress. It is important to recognize the signs of trauma and support trauma survivors by eliminating environment that is re-traumatizing. Trauma-informed care should be implemented in both medical and other social and human service settings.

Because of the diversity of trauma responses and cultures, findings from one sample could have limited generalizability. While Sample 1 was a regionally diverse sample, all of them were English speakers as they completed the English survey, and their levels of depression were relatively high due to the original project goal (i.e., recruiting participants with depressive emotions). Therefore, we replicated the findings in another sample consisting of younger adults with lower levels of depression from the Chinese context. This is a strength that we found the mediating effects of interpersonal stress in the relationship between childhood betrayal trauma and depressive symptoms across two samples, of which respondents answered the questionnaires in two different languages respectively, as well as they were affiliated with cultural contexts and with different levels of mental health conditions. It implies that the potential role of interpersonal stress should receive more attention in different socio-cultural contexts. Yet, the differences between the two groups in the strengths of indirect effects as well as the discrepancies regarding non-betrayal trauma may be due to the sample differences or other unknown sociocultural or psychological factors (e.g., culturally-

specific values or coping styles). This requires further investigations in the future. More importantly, the two samples were not matched in any way. Possible influences of other sociocultural and psychological factors should be taken into account when interpreting the findings.

In addition to the above-mentioned limitation regarding the use of two unmatched convenience samples, there were some other limitations to this study. First, we only employed self-report measures and no structured interviews were conducted to confirm the mental health status of the participants. Second, most participants were female in both samples, which may be due to the use of online recruitment (Whitaker et al., 2017). As gender is related to interpersonal stress and competence (Smith-Adcock and Kerpelman, 2022), our findings may not be generalizable to males, and further studies using gender-diverse samples are needed. Third, similar to previous cross-sectional mediation studies (e.g., Geng et al., 2021; Carruthers et al., 2022), this cross-sectional study treated "mediators as clues that point to possible mechanisms of change" (p. 2) based on conceptual analysis and rationales, and we could not draw any firm causal conclusions (David and Sava, 2015). Fourth, the association between childhood trauma and depressive symptoms were not very strong (adjusted R^2 = .031 and .073) in both samples, suggesting that there are other moderating variables (e.g., financial conditions, education levels, peer support) that require further research in future studies. Finally, we relied on retrospective report of childhood traumatic experiences, and there may be memory bias. Therefore, future studies should use a prospective design and collect data from multiple sources to further examine the relationships among childhood trauma, interpersonal stress, and depressive symptoms. .

Concluding remarks

This study found that interpersonal stress mediated the relationship between childhood betrayal trauma and adulthood depressive symptoms in two separate samples from different language and cultural contexts. Our findings highlight the importance of social interventions that address interpersonal stress and promote interpersonal skills when preventing and treating depressive symptoms in childhood betrayal trauma survivors, and this has the potential to change the trajectory of developing more severe mental health problems. Despite the strengths of replicating the findings in two distinct samples, further studies with a longitudinal design and representative samples are needed.

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Table 1. Sample characteristics

	Sample 1 (N = 468)	Sample 2 (N = 205)
Descriptions	English-speaking adults with high levels of depressive symptoms	Chinese-speaking young adults
Age	M = 25.6; SD = 8.56	M = 21.16; SD = 1.92
Gender (Female)	91.0%	84.9%
Education level (Bachelor's degree or above)	42.5%	68.8%
Employment status	41.0% employed	18.0% full-time employed
Locations	23.1% from the United Kingdom, 22.0% from Canada, 17.3% from Singapore, 13.7% from the United States, 7.1% from New Zealand, and <5% from each of the remaining 14 countries/regions	65.4%, Taiwan, 29.3% Hong Kong (29.3%), and 5.4% "others"
Use of psychiatric services	23.1% were currently seeing a psychiatrist	22.0% had seen psychiatrist for at least one time in the past year
Prior depression diagnosis	39.5% self-reported a prior major depression diagnosis.	17.1% self-reported a prior depression diagnosis
Childhood betrayal trauma (BBTS)	M = 1.61; SD = 1.35	M = 1.11; SD = 1.28
Childhood non-betrayal trauma (BBTS)	M = 0.95; SD = 1.08	M = 0.68; SD = 0.94
Depressive symptoms (PHQ-9)	M = 17.68; SD = 6.25	M = 8.01; SD = 6.39
Interpersonal stress (BSRS)	M = 15.49; SD = 3.94	M = 14.27; SD = 4.11

Remarks: The survey questions about sociodemographic and health backgrounds were slightly different in each sample.

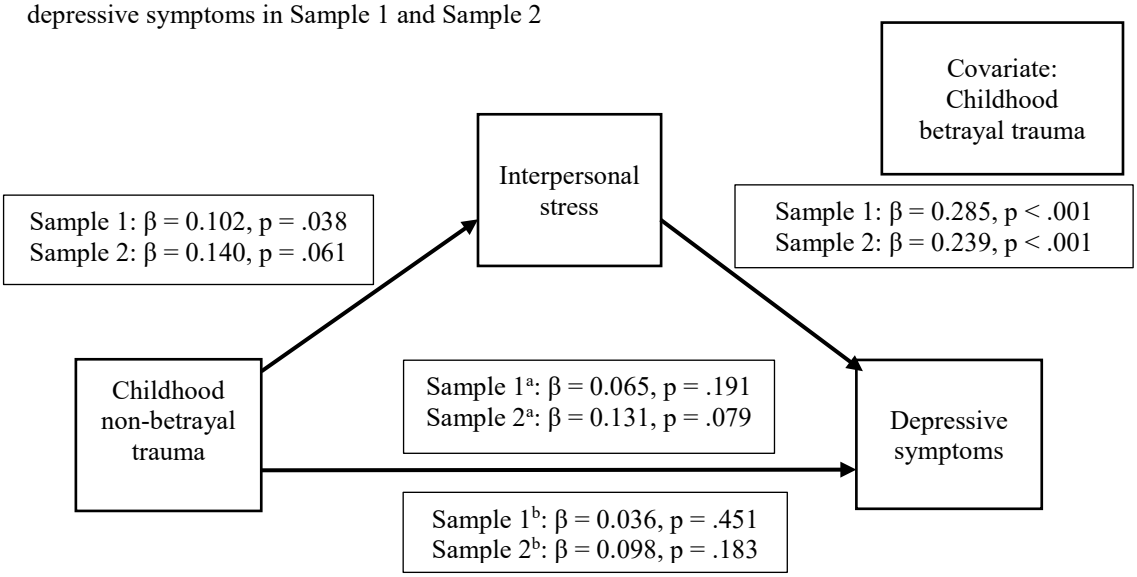
Table 2. Pearson's correlation among the major variables in each sample

Variables	1	2	3	4	5
1. Age	-	-.007	-.062	-.063	.053
2. Childhood betrayal trauma	.012	-	.422***	.261***	.264***
3. Childhood non-betrayal trauma	-.059	.409***	-	.218**	.227**
4. Depressive symptoms	-.091*	.178***	.127**	-	.302***
5. Interpersonal stress	-.061	.267***	.194***	.315***	-

* $p < .05$ ** $p < .01$ *** $p < .001$

Notes. Sample 1 = Numbers below the diagonal; Sample 2 = Numbers above the diagonal.

Figure 1. Interpersonal stress as a mediator in the relationship between childhood non-betrayal trauma and depressive symptoms in Sample 1 and Sample 2

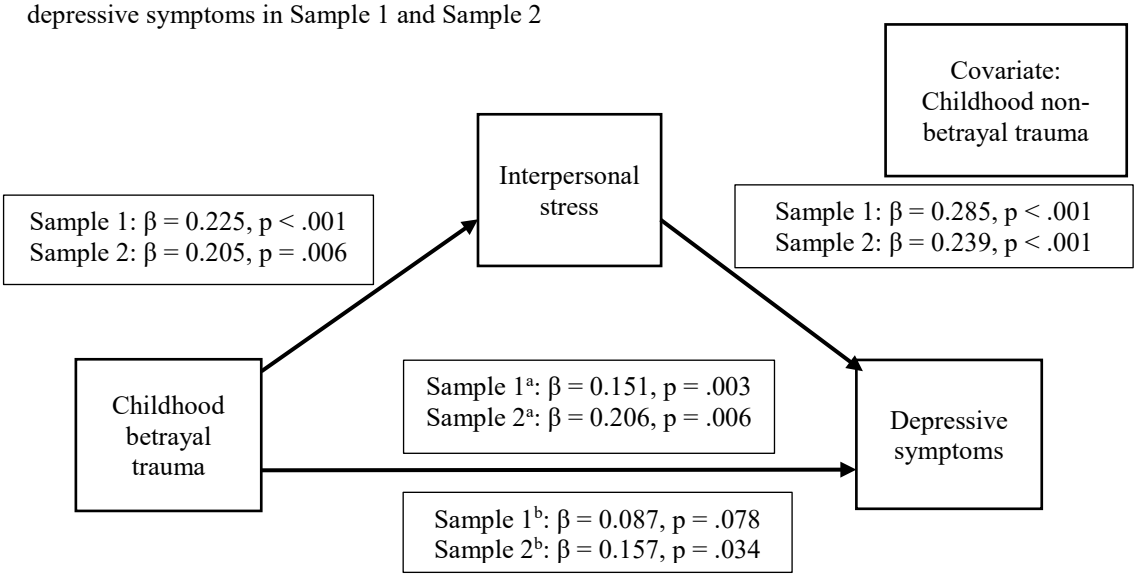


Notes:

[a] path c, without the mediator

[b] path c', with the mediator

Figure 2. Interpersonal stress as a mediator in the relationship between childhood betrayal trauma and depressive symptoms in Sample 1 and Sample 2



Notes:

[a] path c, without the mediator

[b] path c', with the mediator