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A longitudinal study on the relationship among childhood emotional abuse, gratitude, and suicidal ideation of Chinese adolescents⋆

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Abstract

Background and objective: Suicidal ideation is a significant predictor of suicidal attempt.

Based on the developmental psychopathology perspective and the resilience theory, this study

examines whether trait gratitude mediates the relationship between childhood emotional

abuse and adolescent suicidal ideation.

Participants and setting: A sample of 909 Grade 8 to Grade 9 adolescents aged 12–18 years in

Hong Kong, a Special Administrative Region in China, was recruited from six secondary

schools. Method: A two-wave longitudinal study was conducted. Participants completed the

same measures on Gratitude Quesitonnaire-6, Suicidal Ideation Scale, emotional subscale of

Child Abuse and Trauma Scale at two time points 12 months apart.

Results: Results of cross-lagged analyses showed that adolescents' suicidal ideation was positively associated with childhood emotional abuse and negatively associated with gratitude; further, the association between childhood emotional abuse and suicidal ideation was mediated by gratitude.

Conclusions: Findings of this study implied that while exposure to parental emotional abuse might have an adverse impact on the development of gratitude, adolescents' current level of gratitude still exerts its protective effect by directly reducing their suicidal ideation. Gratitude or other resilience factors that might comprise additional mediating mechanisms from childhood emotional abuse to mental health problems in later life is worthy of further investigation.

1. Introduction

1.1. Adolescent suicidal ideation and childhood emotional abuse

Youth suicide is a global problem affecting many different parts of the world. Suicide is the second leading cause of mortality for 15–19 age group globally (World Health Organization, 2009). In China, suicide is the leading cause of death for the 15–24 age group (Phillips, Li, Zhang, & Eddleston, 2002). Suicidal ideation is a significant predictor of suicidal intent, attempt, and completion (Borges, 2006). A review of cross-national studies found that the lifetime and 12-month prevalence of suicidal ideation was 29.9% (95% CI, 26.1–33.8) and 19.3% (95% CI, 11.7–27.0) respectively (Evans, Hawton, Rodham, & Deeks, 2005). Existing studies have identified a wide array of risk factors related to adolescent suicidal ideation such as socio-economic adversity, childhood maltreatment, poor parent-child attachment, school bullying, substance abuse, and mental health problems (Fergusson, Woodward, & Horwood, 2000; Prinstein, Boergers, Spirito, Little, & Grapentine, 2000).

The current study would pay particular attention to the link between childhood emotional abuse and adolescents' suicidal ideation. Emotional abuse is arguably the most prevalent form of child maltreatment (Barnett, Miller-Perrin, & Perrin, 2005). In the United States, the prevalence of childhood emotional abuse was 23% in men and 34.8% in women, as compared to the prevalence of childhood physical abuse being 16.6% in men and 10.8% in women (Edwards, Holden, Felitti, & Anda, 2003). In a Chinese study with 6593 Grade 7 to Grade 9 students (aged 12–16), 78.3% students reported emotional abuse by their parents within six months (Wong et al., 2009). Emotional abuse may exist together with or independently of other forms of abuse and neglect (Cicchetti & Toth, 2005). A number of studies have demonstrated that childhood emotional abuse is consistently related to emotional distress and

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behavior problems in later developmental stages, when the effects of other co-existing forms of child maltreatment were taken into account (Hughes & Cossar, 2016; Maguire et al., 2015; Norman et al., 2012).

Given the cumulative negative impacts on child growth of childhood emotional abuse, researchers have explored its link to suicidal ideation in adolescents and adults. Locke and Newcomb (2005) found that the strongest risk factor for suicidality was emotional abuse for a community sample of Latino adolescent males. A longitudinal study with a large community sample of adults showed that emotional abuse was significantly associated with new onset of suicidal ideation (Enns et al., 2006). Yet in the Chinese context, existing studies on the relationship between emotional abuse and adolescent suicidal ideation yielded inconsistent results. Some studies did not find significant association between emotional abuse and suicidal ideation in adolescents (Kwok, Chai, & He, 2013; Kwok, Yeung, Low, Lo, & Tam, 2015). Another study, however, demonstrated that emotionally abused adolescents reported higher suicidal ideation (Wong et al., 2009). Hence, the present study would further investigate the link between childhood emotional abuse and adolescents' suicidal ideation in the Chinese context.

1.2. Adolescent gratitude and childhood emotional abuse

Trait gratitude is a generalized tendency to recognize and respond with grateful emotions that derive from perceiving a positive outcome arising from an external source (McCullough, Emmons, & Tsang, 2002). The trait gratitude has received a significant amount of attention due to its association with a variety of factors that contributed to people's well-being (Wood, Froh, & Geraghty, 2010).

The development of trait gratitude is an emergent process (Watkins, 2014), as accumulating experiences of gratitude overtime result in a tendency towards feelings of gratitude (Dinh, 2016). Family as the proximal context for child development may play a pivotal role in the development of gratitude (Hussong et al., 2018; Rothenberg et al., 2017). When parents act as role models, reinforce child's grateful expressions, and discuss with children the fulfilment gained from grateful expression, children are more likely to acquire cognitive and emotional abilities related to gratitude experiences. In addition, preliminary research showed that healthy family functioning might foster the development of gratitude and contributes to high level of gratitude in adolescents (Hussong et al., 2018). The good parent-child relationship, high cohesion, high expressiveness and low conflict were found to be positively related to adolescents' gratitude in the Chinese context (Li, 2013; Wang, 2012).

While it is important to understand how positive family environment and parenting practice may foster and promote gratitude, it is worth investigating how adverse family context thwarts the development of gratitude. Hence, the present study was conducted to examine the relationship between emotional abuse and adolescents' gratitude. It is reasonable to believe that emotional abuse may represent an unfavorable relational environment (Cicchetti & Toth, 2005) that hinders the development of gratitude in children for three reasons. Firstly, emotional abuse encompasses a repeated daily pattern of damaging interactions between the parent and child. As a result, emotionally abused children are less likely to experience gratitude in the primary caregiving context as they are less likely to receive support and care that are responsive to their needs (Dinh, 2016). Secondly, emotionally abusive parents demonstrate marked skill deficits in parenting and child management training (Iwaniec &

Herbert, 1999). Thus, emotionally abusive parents might be less likely to be involved in parental-child interactions that foster and reinforce the cognitive and emotional precursors of gratitude. Finally, the overwhelming majority of parents identified as emotionally abusive show persistent negative attitudes towards the child (Trowell, Hodges, & Leighton‐Laing, 1997). Children might internalize the experience of emotional abuse and believe that they are worthless, unwanted, unloved, or only of value in meeting others' needs (Wright, Crawford, & Del Castillo, 2009). Individuals with low self-worth are less likely to infer the goodness of the giver as a benefit to them because they do not trust that others are genuinely concerned for their well-being (Moore, 2011; Watkins, 2014). Based on the above reasons, this study hypothesized that childhood emotional abuse would result in lower gratitude in adolescence. To the best of our knowledge, this study is the first to investigate the impact of childhood emotional abuse on the development of trait gratitude.

1.3. Adolescent gratitude mediates the pathway from childhood emotional abuse to adolescent suicidal ideation

Given the complexities of childhood experiences and suicidal ideation, there are many factors that might influence the pathway from childhood emotional abuse and adolescent suicidal ideation. Evidence has accumulated with regard to multiple mediators and mechanisms (Miller, Adams, Esposito-Smythers, Thompson, & Proctor, 2014). Noting that one study cannot address all the mediating factors, this study focuses on a rarely studied but important factor, gratitude. The hypothesis was developed based on the developmental psychopathology perspective (Cicchetti & Toth, 2005) and the resilience theory (Masten, 2001).

According to the developmental psychopathology perspective, maltreated children who fail to acquire age-appropriate development encounter more difficulties in negotiating subsequent developmental tasks and thus are at higher risk for depression and suicidal ideation in later years (Ireland, Smith, & Thornberry, 2002). Specifically for the link between childhood emotional abuse and adolescent suicidal ideation, previous research has identified multiple developmental vulnerabilities as mediators, e.g. the irrational belief of self as worthless and helpless (Gibb et al., 2001; Wright et al., 2009) and emotion regulation difficulties (Burns, Jackson, & Harding, 2010; Crow, Cross, Powers, & Bradley, 2014).

While previous studies explore developmental vulnerabilities that explain the pathway from childhood emotional abuse and later maladaptation, they focus mainly on risk factors. This study, however, asserts that the developmental vulnerabilities imply not only an increase of risk factors, but also a decrease of resilience factors. The resilience theory (Masten, 2001) contends that risk and resilience factors are different dimensions. On one hand, resilience factors may be at lower levels among emotionally abused children because of the maltreatment and its co-occurrence with other environmental threats (Cicchetti & Toth, 2005). On the other hand, the resilience factors among maltreated children could still buffer them from significant risk or adversity (Keyes, 2004). Hence, the resilience factors might constitute additional mediating mechanisms from childhood emotional abuse to poor adaptation in later life.

Previous studies have provided initial evidence for this assertion. For instance, Lamis, Wilson, Shahane, and Kaslow (2014) found that existential well-being and positive self-esteem mediated the childhood emotional abuse and hopelessness link for a sample of

African American women. Another study with Turkish adolescents showed that resilience and self-esteem partially mediated the relationship between emotional abuse and behavioral and emotional problems (Arslan, 2016). It would, therefore, be of interest to explore the mediating role of another resilience factor, gratitude, in the link between childhood emotional abuse and adolescent suicidal ideation. However, to the best of our knowledge, this mediating effect has not been studied yet. Empirical studies have demonstrated that gratitude is negatively related to suicidal ideation in adolescents. Using a longitudinal sample of college students in the United States, Kleiman, Adams, Kashdan, and Riskind (2013) found that individuals with high level of trait gratitude experienced lesser suicidal ideations over time. Similarly, a study with a representative sample of Chinese adolescents revealed that adolescents scored higher on gratitude reported lower suicidal ideation (Li, Zhang, Li, Li, & Ye, 2012). Following these observations, the current study hypothesized that gratitude was negatively related to suicidal ideation and that it may serve as a mediator in the link between childhood emotional abuse and adolescents' suicidal ideation.

1.4. The current study

In view of the inconsistent results on the link between childhood emotional abuse and adolescent suicidal ideation in the Chinese context, the present study was conducted with a longitudinal representative sample of Chinese adolescents. Further, based on the developmental psychopathology perspective (Cicchetti & Toth, 2005) and the resilience theory (Masten, 2001), the current study hypothesized that gratitude mediated the pathway from childhood emotional abuse to adolescents suicidal ideation. Different mediators for the pathway from childhood maltreatment to adolescent suicidal ideation have been identified. Yet to the best of our knowledge, this study is the first to explore the mediation role of

gratitude. Findings of this study may offer an additional but complementary implication for psychosocial intervention with the at-risk adolescents who have childhood emotional abuse experiences.

2. Method

2.1. Sampling and participants

Using stratified random sampling, six secondary schools were randomly selected from three geographical districts in Hong Kong, a Special Administrative Region in China (Hong Kong Island, Kowloon, and the New Territories). All Grade 8 and Grade 9 of the selected students were invited to participate in the study. Of the initial 910 adolescents, one student did not provide Time 2 (T2) data. The final longitudinal sample consisted of 909 adolescents aged 12–18 years old (Mean age at Time 1: 13.87, SD: 0.92). There were more boys than girls (male: 63.4%; female: 36.6%). Around 76% of the participants were from two-parent families while 24% of them lived with single parent or relatives. Approximately 13.3% of the participants reported family income of HKD 10,000 (US1,250) or below, 52.3% of them reported family income of HKD 10,001 to HKD 30,000 (US3,750), 22.2% of them reported family income of HKD 30,001 to HKD 50,000 (US6,250), and 12.2% of them reported family income of HKD 50,001 or above.

2.2. Measures

2.2.1. Gratitude

The Chinese version of the Gratitude Questionnaire–6 (GQ-6) developed by McCullough et al. (2002) was used in this study. An example item is "I have so much in life to be thankful for." Participants were asked to indicate their agreement on the items on a 7-point scale ranging from 1= "Strongly disagree" to 7= "Strongly agree." A higher average score of all item ratings indicates higher level of gratitude. GQ-6 is a unidimensional measure with good psychometric properties in the adolescent sample in both Western and Chinese contexts

(Chen & Kee, 2008; Froh et al., 2011; Hou & Zhang, 2009). Cronbach's alpha of the scale in the present study was 0.81 for T1 and 0.85 for T2.

2.2.2. Suicidal ideation

Suicidal ideation was assessed with the Chinese version of the Suicidal Ideation Scale (C-SIS) developed locally by Tse and colleagues (Tse, Bagley, & Muk-Leung Yau, 2002). C-SIS contains 13 items (e.g., "I really want to put an end to all this so that I don't have to continue to bear the pain", "I think being dead may be better than what I am experiencing now"). For each item, the participants were required to select an answer from a 4-point Likert scale ranging from 1 (strongly disagree) to 4 (strongly agree). Although there was no clinical cutoff score for C-SIS, Tse and colleagues (Tse et al., 2002) suggested that a sum score of 35 or above indicated a relatively high level of suicidal ideation. C-SIS has been found to manifest high internal consistency and criterion validity (Kwok & Shek, 2011; Tse et al., 2002). The Cronbach's alpha of the scale in the present study was 0.88 for T1 and 0.86 for T2.

2.2.3. Perceived childhood emotional abuse

Participants were administered the emotional subscale of Child Abuse and Trauma Scale (CATS; Sanders & Becker-Lausen, 1995). The emotional abuse subscale (Kent & Waller, 1998) consists of seven items, e.g. Did your parents insult you or call you names? Participants are asked to choose responses on a 4-point Likert scale that ranges from never (scored 0) to always (scored 4). Scores of the seven items were averaged to indicate levels of childhood emotional abuse. In adolescent samples, the Chinese version of CATS has demonstrated good test-retest reliability, internal consistency, and discriminant validity (He, Pan, & Meng, 2008). The Cronbach's alpha of the scale in the present study was 0.85 for T1 and 0.87 for T2.

2.2.4. Control variables

As gender, adolescents' depressive symptoms, and their childhood experiences of physical abuse and neglect may introduce significant variation into the variables of interest in the current study, these variables were included in all of the structural models to control for their possible influences. First, previous studies have consistently shown that adolescent girls report higher suicide ideation and attempt than adolescent boys (Nock et al., 2013).

Second, depression is found to be highly correlated with suicidal ideation among adolescents, especially for girls (Lewinsohn, Rohde, & Seeley, 1996). Depression is also found to have a strong inverse association with gratitude (Wood, Maltby, Gillett, Linley, & Joseph, 2008). In this study, depressive symptoms were measured by the depression subscale of the Chinese version of the Hospital Anxiety and Depression Scale (HADS) (Leung, Ho, Kan, Hung, & Chen, 1993). The subscale has seven items. An example item is "I feel as if I am slowed down." Each item is rated on a 4-point scale ranging from 0 (absence of symptoms) to 3 (severe symptoms). The Chinese version of HADS displayed good convergent validity with the Hamilton Rating Scale of Depression (HRSD) (Leung, Wing, Kwong, & Shum, 1999). The Cronbach's alpha of the scale in the present study was 0.83 for T1 and 0.81 for T2.

Finally, childhood physical abuse and neglect often co-exists with childhood emotional abuse (Norman et al., 2012) and is found to be strongly associated with suicidal ideation in later developmental stages (Enns et al., 2006; Joiner et al., 2007). In this study, childhood physical abuse and neglect were measured by the physical abuse and neglect subscales of child abuse of the Chinese version of Child Abuse and Trauma Scale (CATS; Sanders & Becker-Lausen,

1995). Psychometric properties of the scale have been reported above. The Cronbach's alphas of the physical abuse and neglect subscale ranged from 0.80 to 0.85 at the two time points.

2.3. Data collection

As this study involves children under 18 years, parental consents in a written form were obtained. Both parents and students were assured that student's participation was voluntary and would in no way affect students' grades at school. Ethics approval was obtained from the Research Ethics Committee of the affiliated university before the study was implemented. Students filled in the questionnaire in 2016 and 2017. The two time points were referred to as Time 1 (T1) and Time 2(T2). The questionnaire comprised the above scales and demographic questions of the participants. It took the participants about 15–20 min to complete the questionnaire. The participants filled in the questionnaire in the classroom, where the trained research assistants were present and would address any concerns and queries raised by the participants during the questionnaire completion process. Those students with high suicidal ideation were referred to the school social workers for follow up.

3. Data analysis

The analysis proceeded in three steps. First, descriptive statistics for the variables of interest were examined. Second, a confirmatory factor analysis was used to estimate measurement models for each of the latent constructs: childhood emotional abuse at T1 and T2, gratitude at T1 and T2, and suicidal ideation at T1 and T2. Item parceling was used to construct indicators for latent variables (Little, Cunningham, Shahar, & Widaman, 2002). As recommended by Little and colleagues, three indicators for each latent variable were used for each latent construct (Little, Lindenberger, & Nesselroade, 1999). The exploratory factor analysis for the

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emotional abuse, the gratitude and the suicidal ideation scales revealed that they were one-dimensional constructs. Hence, three parcels were constructed for each of the six latent constructs, applying the random assignment method of items to parcels. The same item assignment was used for the parcels at both measurement points.

Third, the mediation hypothesis was tested following the approach suggested by Cole and Maxwell (2003) for two-wave cross-lagged data. This approach implied a pair of cross-lagged tests for structural models, i.e., testing cross-lagged relationships between childhood emotional abuse and gratitude, and testing cross-lagged relationships between gratitude and suicidal ideation. Several competing structural models using full panel designs were tested to investigate the proposed cross-lagged effects: (1) the stability model (with paths to test stabilities over time and synchronous relationships), (2) the causality model (with cross-lagged paths from T1 childhood emotional abuse to T2 gratitude in series 1, and from T1 gratitude to T2 suicidal ideation in series 2), (3) the reversed causation model (with cross-lagged paths from T1 gratitude to T2 childhood emotional abuse, and from T1 suicidal ideation to T2 gratitude), and (4) the reciprocal model (with all cross-lagged paths described in the causality and the reversed causation model). In all of the models, the error terms of the indicators at T1 were allowed to co-vary with the error term of the corresponding indicator at T2. As the final step of the analyses, the indirect effect was calculated by multiplying cross-lagged effects (i.e., childhood emotional abuse- adolescent gratitude in series 1; adolescent gratitude- adolescent suicidal ideation in series 2). The significance of the indirect effect was assessed by Sobel testes as recommended by MacKinnon and colleagues (MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002).

The fit of models was evaluated using the following goodness-of-fit statistics: the Goodness-of-Fit Index (GFI) and the Root Mean Square Error of Approximation (RMSEA) as absolute goodness-of-fit indices. In addition, two relative fit indices the Comparative Fit Index (CFI) and the Normed Fit Index (NFI) were assessed. RMSEA values smaller than .05 are indicative of an excellent fit (Browne & Cudeck, 1993). For the other indices, as a rule of thumb, values greater than .90 (and preferably greater than .95) are considered to indicate a good fit (Hoyle & Panter, 1995). We compared different competing nested models by means of chi-square difference test. All structural equation models were estimated with the AMOS 24.0 software package. The skewness statistics for the study variables were less than 1, indicating that the variables were appropriate for robust models assuming normal distributions (Gravetter & Wallnau, 2014). Therefore, the maximum likelihood method was selected as the estimator. The missing data (< 1%) were handled with mean imputation (Little & Rubin, 2002).

4. Results

4.1. Descriptive statistics

Although there was no clinical cutoff for C-SIS, about 10.4% of the sample at T1 and 13.6% of the sample at T2 had a raw score of 35 or above, which was a relatively high score as defined by Tse and colleagues (Tse et al., 2002).

The measure of emotional abuse (CATS, 1995) does not provide cutoff scores that separate individuals into categories of "abused," or "non-abused." Instead, it allows for continuous analyses of childhood maltreatment that reflect the considerable research demonstrating that childhood abuse occurs along a continuum. The CATS score was obtained by averaging the items' scores, with a range of 0–4. In this study, the mean scores of emotional abuse were 1.12 (SD = 0.90) at T1 and 1.16 (SD = 0.94) at T2. Means and standard deviations of the study variables were reported in Table 1.

Table 1
Means, standard deviations, and reliabilities (N = 909).

	Range	Mean	SD	Cronbach's alpha
1. Emotional abuse T1	0–4	1.12	.90	.85
2. Emotional abuse T2	0–4	1.16	.94	.87
3.Gratitude T1	1–7	5.12	.83	.81
4.Gratitude T2	1–7	5.13	.82	.85
5. Suicidal ideation T1	13–52	24.82	7.30	.88
6. Suicidal ideation T2	13–52	25.23	8.05	.86
7. Physical abuse T1	0–4	1.48	.61	.80
8. Physical abuse T2	0–4	1.57	.64	.84
Neglect T1	0–4	1.00	.78	.84
Neglect T2	0–4	1.06	.82	.85
11. Depression T1	0–3	.95	.49	.83
12. Depression T2	0–3	.96	.53	.81

Note. Scales' internal consistency are indicated by Cronbach's alphas in parentheses.

4.2.   Goodness-fit of the measurement model

The measurement model indicated a close fit between the data and the specified model (GFI = .95, CFI = .95, NFI = .95, RMSEA = .07). All items were loaded significantly and in the expected direction on their corresponding latent factors. The covariances among the latent

factors ranged from 0.40 for the relationship between childhood emotional abuse at T1 and

gratitude at T2 to 0.75 for childhood emotional abuse at T1 and at T2.

4.3. Testing of the mediation hypothesis

Next, we investigated the cross-lagged relationships between childhood emotional abuse and

adolescent gratitude. As shown in Table 2, the causality model with the association between

T1 childhood emotional abuse and T2 gratitude fitted the data better than the stability model,

Δ^2 (1) = 4.515, p < .01. The reversed causation model did not show a better fit when

compared to the stability model, Δ^2 (1) = 2.622, ns. Furthermore, the reciprocal model did not

improve the model fit when compared to the causality model, $\Delta^2(1)$ = 2.637, ns. Hence, the

causality model was selected as the final model, GFI = .95, CFI = .95, NFI = .95, RMSEA

= .06. As expected, the relationship between T1 perceived childhood emotional abuse and T2

gratitude was negative, β= −.14, p < .01 (see Fig. 1). Notably, we did not find evidence of a

relationship between T1 gratitude and T2 perceived childhood emotional abuse, after

controlling for stability. With regard to control variables, the path from T1 depression to T2

gratitude was significant (β=−.16, p < .05).

Table 2
Results of the test of the structural models: Gratitude as the mediator (N = 909).

Model	Model description Δdf	χ^2	df	GFI	CFI	NFI	RMSEA	Model comparisons	$\Delta \chi^2$	
Cross-lagged relationships between childhood emotional abuse and gratitude										
$M1_{stabil}$	Stability model	327.204	35	.95	.94	.94	.06			
$M1_{causal}$	Causality model (M_{stabil}+emotional abuse → gratitude)	322.509	34	.95	.95	.95	.06	$M1_{stabi}$ vs $M1_{causal}$	4.515**	1
$M1_{revers}$	Reversed causation model (M_{stabil}+gratitude→ emotional abuse)	324.402	34	.95	.94	.94	.08	$M1_{stabi}$ vs $M1_{revers}$	2.622	1
$M1_{recipr}$	Reciprocal model (M_{causal}+M_{revers})	319.872	33	.95	.94	.94	.06	$M1_{stabi}$ vs $M1_{recipr}$	7.152***	2
								$M1_{causa}$ vs $M1_{recipr}$	2.637	1
								$M1_{revers}$ vs $M1_{recipr}$	4.530**	1
Cross-lagged relationships between gratitude and suicidal ideation										
$M2_{stabil}$	Stability model	445.123	35	.95	.94	.94	.06			
$M2_{causal}$	Causality model (M_{stabil}+gratitude →suicidal ideation)	439.881	34	.95	.95	.95	.05	$M2_{stabi}$ vs $M2_{causal}$	5.242*	1
$M2_{revers}$	Reversed causation model (M_{stabil}+suicidal ideation →gratitude)	434.886	34	.95	.94	.94	.06	$M2_{stabi}$ vs $M2_{revers}$	10.237**	1
$M2_{recipr}$	Reciprocal model (M_{causal}+M_{revers})	428.554	33	.95	.96	.94	.05	$M2_{stabi}$ vs $M2_{recipr}$	16.569***	2
								$M2_{causa}$ vs $M2_{recipr}$	11.327**	1
								$M2_{revers}$ vs $M2_{recipr}$	6.332*	1

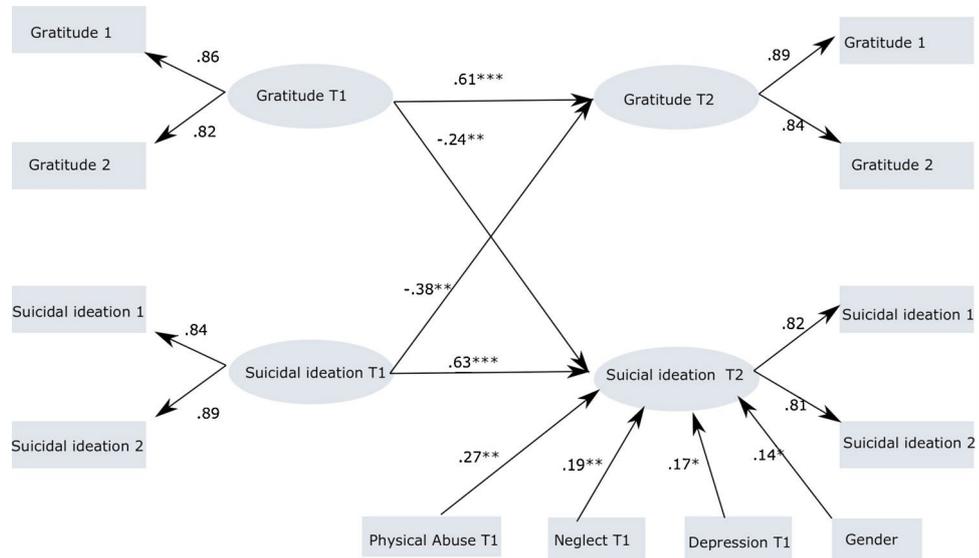*Note.* ***p < .001, **p < .01, *p < .05.
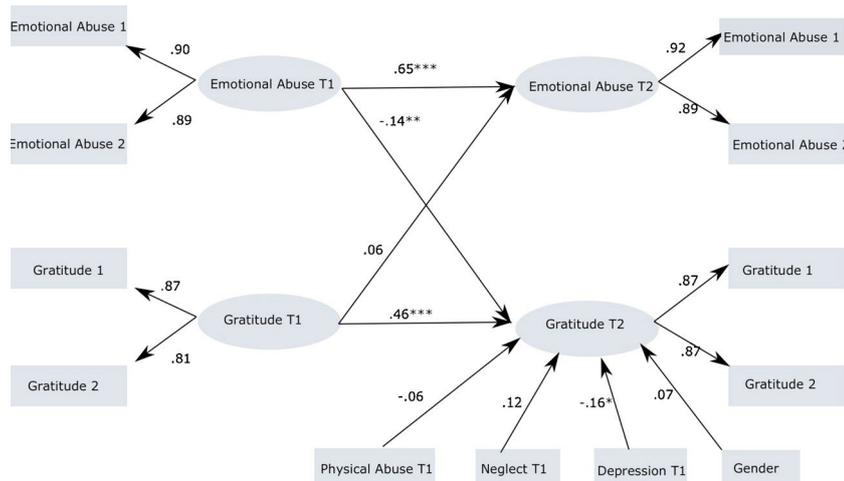
Fig. 1. Final structural model with the cross-lagged relationships between childhood emotional abuse and adolescent gratitude.
Note. For each latent factor, the first indicator factor loading was set to 1.0 and was not shown in the table.
Standardized coefficients were reported.
*$p < .05$, **$p < .01$, ***$p < .001$.

In the second sets of analyses, we examined cross-lagged relationships between adolescent gratitude and adolescent suicidal ideation. As shown in Table 2, both the causality model, with associations between T1 gratitude and T2 suicidal ideation, and the reversed causation model, with relationships between T1 suicidal ideation and T2 gratitude, fitted the data better than the stability model, $\Delta^2 (1) = 5.242$, $p < .05$ and $\Delta^2 (1) = 10.237$, $p < .01$, respectively. Furthermore, the reciprocal model improved the model fit compared to the causality model and the reversed causation model, $\Delta^2 (1) = 11.327$, $p < .01$ and $\Delta^2 (1) = 6.332$, $p < .05$, respectively. Therefore, the reciprocal model was selected as the final model, GFI=.95, CFI= .96, NFI=.94, RMSEA=.05. The relationship between T1 gratitude and T2 suicidal ideation was negative as expected, $\beta= -.24$, $p < .01$. Additionally, we found a significant relationship between T2 gratitude for T1 suicidal ideation, $\beta= -.38$, $p < .01$. With regard to control variables, the path from T1 depression, gender, childhood physical abuse and childhood neglect are associated prospectively with T2 suicidal ideation ($\beta = .17$, $p < .05$, $\beta = .14$, $p < .05$, $\beta = .27$, $p < .01$, and $\beta = .19$, $p < .01$ respectively) (see Fig. 2).

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Finally, a Sobel test demonstrated that the cross-lagged relationship between T1 childhood emotional abuse and T2 suicidal ideation was partially mediated by gratitude, $z = 1.83$, $p < .01$.

Fig. 2. Final structural model with the cross-lagged relationships between adolescent gratitude and suicidal ideation.
Note. For each latent factor, the first indicator factor loading was set to 1.0.
Standardized coefficients were reported.
*$p < .05$, **$p < .01$, ***$p < .001$.

5. Discussion

Suicidal ideation rate in this sample was comparable with previous studies (Kwok, 2011; Kwok & Shek, 2011), and suicidal ideation was found to be positively associated with childhood emotional abuse and negatively associated with gratitude. Further, gratitude mediated the association between childhood emotional abuse and suicidal ideation.

5.1. The prevalence of suicidal ideation

Adopting the cut-off of C-SIS suggested by Tse et al. (2002), this study found that the 12-month prevalence of suicidal ideation was 10.4% at T1 and 13.6% at T2, which is similar to another Chinese research using the same measure (9.3%, Kwok & Shek, 2011). Another thing to note is that the prevalence of suicidal ideation increases from 10.4% at T1 to 13.5% at T2, and the increase was statistically significant ($\chi^2 = 84.118$, $p < .001$). Similarly, Law and Shek's study of adolescents in Grade 8 reported more suicidal symptoms than when they did in Grade 7 (Law and Shek, 2013). These results implicated that age is positively related to suicidal risk (Waldrop et al., 2007). The age-related increase in suicidal ideation could be explained by puberty. Besides the striving for autonomy and independence, adolescents need to deal with the biological, psychological and social changes associated with puberty, which may lead to an increase in stress levels (Kandel, Raveis, & Davies, 1991). Moreover, for Chinese adolescents, the stress of puberty is exacerbated by academic pressure as they are promoted to higher grade levels and face greater difficulties in higher level courses and examinations. Chinese parents have high expectations for their children's academic performance as they believe that education is the best way to success (Ho & Chiu, 1994). Chinese adolescents also internalized the belief that academic achievements will lead to a future career prospect that brings honor to the family and represents their fame and status in

society (Chao, 2000). The mounting stress of puberty and academic pressure, if not dealt with properly, might put Chinese adolescents at high risk of suicidal ideation.

5.2. Gratitude and suicidal ideation

In accordance with prior research (Li et al., 2012), Chinese adolescents in this study reported a high level of gratitude at T1 and T2 (T1 $M = 5.12$, $SD = 0.83$; T2 $M = 5.13$, $SD = 0.82$). Gratitude assumes a central position in the Chinese framework of moral virtues (Chen & Kee, 2008). The Chinese culture emphasizes that the person being helped is morally required to bear in mind the kindness from others, no matter how trivial it is. An old Chinese saying goes like "a drop of water should be returned with a burst of spring (di shui zhi en dang yong quan xiang bao)", which means even receiving a little help, one should be grateful and return as much as possible to the people who offer assistance (Eckersley, 2006). Through giving and returning the favor, the interpersonal bond is established and enhanced. In contrast to the individualist cultures' emphasis on the independent self, the collectivist Chinese culture emphasizes the interdependent self that is defined by relationships with important others or belonging into certain social in-groups (Markus & Kitayama, 1991). Hence, being grateful is important for Chinese adolescents to build and maintain social support networks that protect them from risk of suicide.

Further, this study found that gratitude and suicidal ideation are reciprocally related. In accordance with previous studies (Kleiman et al., 2013; Li et al., 2012), gratitude negatively predicted suicidal ideation in adolescents. The predictive effect of gratitude on suicidal ideation might be explained by three possible reasons. First, gratitude can produce positive emotions as grateful people are more likely to encode and retrieve positive experiences,

notice and savor positive elements of life and have satisfying interpersonal relationships (Wood et al., 2010). Positive emotions of gratitude could thus loosen people's cling to suicidal ideation (Fredrickson, 1998). Second, grateful individuals are engaged in the pursuit of personal growth and meaning in life (Kashdan, Uswatte, & Julian, 2006; Kleiman et al., 2013), which prevent them from pathological responses to negative situations (Dogra, Basu, & Das, 2011; Yu et al., 2010). Finally, gratitude may confer resilience toward suicide by increasing a sense of interpersonal belonging. Thwarted belongingness (Baumeister, 1991) has been found to predict suicide ideations in many studies on adolescents (Cero, Zuromski, Witte, Ribeiro, & Joiner, 2015; Venta, Mellick, Schatte, & Sharp, 2014). In contrast, grateful individuals endorse a great sense of belongingness, as gratitude is robustly linked to the factors needed for the development and maintenance of positive relationships such as relationship intimacy (Murray & Hazelwood, 2011) and increased reciprocity (Tsang, 2006).

Though few studies specifically addressed whether suicidal ideation predicted gratitude, the adverse impact of suicidality on gratitude development is self-evident. Suicidal adolescents are characterized with low self-worth (Wichstrøm, 2000) and have low confidence in the good will of others. They do not believe that they are genuinely cared by others and are less likely to appreciate and reciprocate in benefit-giving situations (McCullough, Kilpatrick, Emmons, & Larson, 2001).

5.3. Gratitude as the mediator

In the past decades, research on the relationship between child maltreatment and adolescent mental health problems has burgeoned (Enns et al., 2006; Hussey, Chang, & Kotch, 2006). Recent studies have explored how adverse childhood experiences impede age-appropriate

development, which predisposes children and adolescents at high risk of impaired functioning (Crow et al., 2014; Wright et al., 2009). Most of the existing studies on the mediating role of developmental psychopathology investigated risk factors; few examined resilience factors. To address this gap, this study examined whether gratitude, a well-studied resilience factor, mediated the relationship between childhood emotional abuse and adolescent suicidal ideation. The mediation hypothesis was supported by the result of the study. Exposure to parental emotional abuse might have an adverse impact on the development of gratitude, while gratitude still exerts its protective effect by directly reducing the level of suicidal ideation.

Findings of this study implied that studying resilience factors as the mediators might provide new insight into the pathway from childhood maltreatment to adjustment problems in later life. While existing investigations of mediating variables focus on risk factors, they implicate that adverse childhood experiences initiate a chain of risk whereby a cascade of poor adaptation may follow. Though this is true, this is not the whole picture. The mediating effect of resilience factors, as is found by this study and another two pioneer studies (Arslan, 2016; Lamis et al., 2014), suggest that some maltreated children may maintain or recover certain aspects of positive functioning, which help them effectively cope with life stresses. This kind of mediating effect of resilience factors could be considered as limited successful coping (Bolger & Patterson, 2003) and is worthy of further investigation.

Our finding suggests that gratitude is a potentially effective element that could be incorporated to suicide prevention and intervention, especially for adolescents with maltreatment histories. For instance, Rudd and colleagues' suicide intervention program

includes eight one-hour psychoeducation classes, of which gratitude was one of the modules (Rudd et al., 1996). Positive psychology exercises were administered to a group of suicidal inpatients in a psychiatric unit in Massachusetts and it was found that those patients who completed gratitude exercises have significantly higher efficacy scores (including greater hope and optimism) than those completed other positive psychology exercises such as forgiveness (Huffman et al., 2014). Counting blessings or writing gratitude journals has been used to promote gratitude among adolescents (Emmons & McCullough, 2003; Froh, Sefick, & Emmons, 2008).

6. Limitations

Several limitations of the current study should be noted. First, the two-wave prospective data tends to underestimate or bias the indirect associations when compared with three-wave data (Little, 2013). Nevertheless, the longitudinal data of this study facilitated us to establish the temporal precedence between the mediator and the outcome, which is a sufficient criterion for establishing the causal mechanism. Second, the assessment of childhood maltreatment experiences relied on retrospective self-report. Reliance on self-report data might have introduced the possibility of method variance. A suicidal participant may have reported more adverse childhood experiences, thus inflating the degree of relationship across these measures. Meanwhile, although retrospective review of childhood events can provide useful and fairly accurate data, there is a tendency to under-report instances of maltreatment (Hardt & Rutter, 2004). Future research would benefit greatly from a prospective, multi-method approach. Third, although critical confounding variables (physical abuse, neglect, depression, and gender) have been controlled in this study, a few unexamined factors may confound the findings. Sexual abuse was not controlled for in the study, yet sexual abuse has been found to

significantly associate with suicide risk and may co-exist with emotional abuse (Fuller-Thomson, Baird, Dhrodia, & Brennenstuhl, 2016). Other relevant factors that were not controlled for in this study include history of family dysfunction (Kwok, 2011; Kwok & Shek, 2011) and parental mental health problems (Walsh, MacMillan, & Jamieson, 2002) as well as neighborhood characteristics (Coulton, Crampton, Irwin, Spilsbury, & Korbin, 2007). Fourth, the relationship between childhood abuse and subsequent poor adaptation is complex. Cultural factors like the pressures to honor the family, the respect for elders, different nature of adolescent autonomy may affect the impact of childhood emotional abuse on the Chinese adolescents. There might also be other risk or resilience factors that act together with gratitude in influencing adolescents' risk of suicide. For instance, it is possible that emotionally abusive child rearing impacts a child's sense of gratitude which may then impact self-esteem and resiliency in the face of suicidal ideation. Future research should extend the current model and an integrative model that acknowledge the complexity of the issue is warranted.

7. Conclusion

Despite the limitations, this study is novel by providing empirical evidence on the mediating role of gratitude for the relationship between childhood emotional abuse and adolescent suicidal ideation. Adverse childhood experience might impact the development of resilience factors such as gratitude, yet some maltreated children could maintain a certain level of gratitude which protects them against mental health problems. The mediating effect of resilience factors for the link between childhood maltreatment histories and later adjustment deserves further study.

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