

Original Article

*These authors contributed equally to this paper.

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Author for correspondence:

Qin Dai,

Email: daiqin101@hotmail.com

Prediction of parental alienation on depression in left-behind children: A 12-month follow-up investigation

Xiaoxiao Sun^{1,*}, Xuemei Qin^{1,*}, Mengjia Zhang¹, Aigang Yang¹, Xiaomei Ren¹ and Qin Dai^{1,2,3} 

¹Department of Nursing Psychology, the Third Military Medical University, Chong qing, China; ²Department of Psychology, the Third Military Medical University, Chong qing, China and ³Institute for Brain and Psychological Sciences, Sichuan Normal University, Chengdu, China

Abstract

Aims. Alienation towards parents often occurs when parents divorce; however, it can also occur when one or both parents leave for work for more than 6 months. Our previous investigation has confirmed a high level of feelings of alienation towards parents among Chinese left-behind children. However, the longitudinal prediction of alienation on children's mental health outcomes remains largely unknown. This study aims to observe the prediction of alienation towards parents on children's depression 12 months later and potential mediators and moderators.

Methods. A total of 1090 Chinese left-behind children took part in this 12-month follow-up investigation, using the Chinese version of the Inventory of Alienation towards Parents (IAP), the Children's Depression Inventory (CDI), the Adolescent Self-Rating Life-events Checklist (ASLEC), and the Adolescent Resilience Scale.

Results. Alienation towards parents was high (16.42 ± 7.27 for mother, 15.63 ± 7.17 for father) in left-behind children, and 21.01% of children reported depression. Alienation towards parents predicted current depression of children directly and later depression indirectly; children's alienation toward their mothers was a stronger predictor of depression than alienation towards fathers. In models, stressful life-events acted as a risk mediator. Previous depression was the strongest risk predictor, resilience was the strongest protective factor, and duration of fathers' absence and parents' marital status moderated the predictive effects.

Conclusions. This study is among the first to longitudinally confirm that alienation towards parents is a predictor of children's later depression. The results provide important suggestions for families and schools; i.e. to prevent depression in left-behind children, parent-child bonds especially alienation towards mothers, should be carefully considered, and individuals with more negative life-events and weaker resilience need further attention.

Introduction

Alienation towards parents often occurs when couples divorce (Darnall, 2011; von Boch-Galhau, 2018), and one parent indoctrinates the child to dislike, fear, and avoid contact with the other parent. Such alienation has been listed in DSM-5 (Bensussan, 2017), the current Diagnostic and Statistical Manual of the American Psychiatric Association (APA), under diagnostic code V 995.51, 'child psychological abuse'. Alienation towards parents can also occur naturally outside the parental divorce context, e.g. if the child was left behind when one or both parents left home to work. In China, more than 61 million children have been left behind when one or both of their parents left home for more than 6 months (Ministry of Civil Affairs, 2010). In a previous study, we designed an Inventory of Alienation towards Parents (IAP) and used it to investigate and confirm the high levels of alienation towards parents in Chinese left-behind children (Dai *et al.*, 2017), which revealed that parents' departure and absence in children's daily life quantitatively damaged the affection of children towards their parents. Despite this, research on alienation status in left-behind children is still lack, especially regarding the potential impact of alienation towards parents on children's health and ways of coping with the problem (Migchels and De Wachter, 2017).

The possible influence of parent alienation has been discussed based on general empirical experience (von Boch-Galhau, 2018); however, such exploration has not previously been supported by reliable evidence from quantitative investigation. Among the variety of potential consequences of alienation towards parents, the most important outcome should be children's mental health (Verrocchio *et al.*, 2019). Specifically, exposure to parent alienation behaviour was associated with three mental health outcomes: depression, state anxiety, and trait anxiety, indicating an increased risk for subsequent poor mental health (Verrocchio *et al.*, 2016).

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A retrospective study found that childhood exposure to alienation towards parents was related to a higher likelihood of depressive symptoms and diminished quality of life in adulthood (Verrocchio *et al.*, 2019). Such an influence has also been confirmed in adolescents: adolescents with a strong sense of alienation towards their parents were more susceptible to depressive symptoms (Kim *et al.*, 2017). These results confirmed the effect of alienation towards parents on children's depression through cross-sectional investigations of alienation in children during parental divorce. However, the causal relationship of alienation towards parents and depression in left-behind children remained unexplored, which necessitated longitudinal follow-up investigation.

Importantly, the effect of alienation on depression may be mediated by other factors. There is extensive evidence that contextual negative life events are related to occurrence of depression (Kendler *et al.*, 1999; Bifulco *et al.*, 2000), which might be a possible risk mediator between alienation and depression. In our previous investigation, left-behind children who had experienced negative life events had stronger alienation towards parents (Dai *et al.*, 2017), which further suggested a potential mediation of life events. In addition to life events, resilience has been frequently reported to be involved in the psychopathology of depression (Bonanno *et al.*, 2011; Lee and Seo, 2018); this might be a possible protective mediator between alienation and depression. Parent-child alienation mediated the relations between parental warmth and hostility and adolescent resilience in one study (O'Gara *et al.*, 2020), which connected alienation with resilience. Direct investigation confirmed that adolescents with a stronger sense of alienation towards parents or low resilience experienced more burden or less efficacy in translating and were more susceptible to depressive symptoms (Kim *et al.*, 2017). These results suggested a potential interaction between negative life events and resilience; however, these effects were not tested directly, and none of these studies used longitudinal data. Thus, the predictive pathway from alienation to depression remains unelucidated.

As discussed previously, parents' divorce can increase alienation towards parents (Darnall, 2011; von Boch-Galhau, 2018); thus, parents' marital status may potentially influence the incidence of depression in children. Moreover, our previous investigation showed that left-behind variables such as age at the time of parents' departure and duration of parents' absence significantly influenced alienation towards parents (Dai *et al.*, 2017), which might influence the effect of alienation on depression as a moderator. Again, potential interactions of these factors with alienation towards parents and depression have not been tested currently, and their role in the development of depression in left-behind children is largely unknown. Better understanding of these factors can facilitate identification of the population at risk for depression in children.

In sum, the current study aimed to observe the prediction of alienation towards parents on children's depression with a 12-month longitudinal investigation in a sample of left-behind children, as well as mediation by negative life events and resilience and moderation by left-behind variables and parents' marital status. Our hypotheses were as follows: (1) Alienation towards parents may predict depression 12 months later in left-behind children. (2) Negative life events and resilience may mediate the effect between alienation towards parents and children's depression. (3) Left-behind variables and parents' marital status may moderate the effect between alienation towards parents and children's depression.

Methods

Participants

Children were eligible for this study if they were third to sixth grade primary school students in rural China and could read and write Chinese. Originally, 1620 students from primary school (aged between 8 and 15 years old) in the Chongqing area of China were enrolled. Among them, 1388 students completed the questionnaire at baseline (87.61% were left-behind children), and 1090 completed the questionnaire at the 12-month follow-up (85.5% were left-behind children, male/female: 568/522, age: 10.58 ± 1.03).

Instruments

Socio-demographic information was collected with a demographic questionnaire specifically designed for this study, which included gender, age, parents' marital status (undivorced, divorced, father remarried, mother remarried, both remarried), and left-behind variables [parents absent or not, lodging at school or not, type of caregiver at home (parents, grandparents, siblings, relatives, neighbours, none), duration of parents' absence (no absence, 6 months to 2 years, 3–5 years, ≥ 6 years)].

The Chinese version of the Inventory of Alienation towards Parents (IAP) was included to investigate alienation towards mothers and fathers. The IAP was developed in our previous research and is comprised of paternal and maternal forms with Cronbach's alpha coefficients of 0.887 and 0.821, respectively (Dai *et al.*, 2017). Higher scores indicate higher alienation towards parents.

The Chinese version of the Children Depression Inventory (CDI), which was revised by Kovacs (1985), was used to evaluate children's depression levels. This scale comprises 27 items and is applicable to children aged 7–17 years old (Wang *et al.*, 2009), with good validity (Cronbach's alpha coefficient 0.82) and reliability (Samm *et al.*, 2008; Wu *et al.*, 2010). A score of 19 was recommended as the cut-off point for the screening of depression (Kovacs, 1985).

The Adolescent Self-Rating Life-events Checklist (ASLEC) (Liu *et al.*, 1997; Wang *et al.*, 1999), which was developed by Liu in 1997, was adopted to assess the stress level of subjects. This scale assesses the severity and frequency of stress during the past 6 months, which is comprised of 27 items and has five-point scoring: 5, 'severe influence'; to 1, 'no influence'. This scale has good validity and reliability, with a Cronbach's alpha coefficient of 0.85.

The Adolescent Resilience Scale (Hu and Gan, 2008), which was developed by Hu and Gan, was used to evaluate the resilience level of children. This scale has 27 items in total, with a Cronbach's alpha coefficient of 0.839. Higher scores indicate higher resilience.

Procedure

Children who were willing to take part signed written informed consent of the study, which was approved by the Human Research Ethics Committee, Army Medical University. The researchers explained the study to the children in class. After this, children applied for participation independently. Self-report questionnaires were investigated in the classrooms of primary school at two time points [baseline (T1) and 12-month follow-up (T2)]: IAP, CDI, ASLEC, and the Adolescent Resilience Scale. Children were debriefed and received incentives after the follow-up survey.

Statistics

To address our hypotheses, Pearson's correlation analyses were computed to examine the correlations among demographic variables, alienation towards parents, negative life events, resilience, and depression. Multiple stepwise regression analysis (Method: enter) was conducted to examine the impact of demographic variables, alienation towards parents, negative life events, and resilience on depression. A structural equation model was carried out with AMOS 24.0 to test the direct, mediating and moderating effects of alienation on depression (Baron and Kenny, 1986). Bootstrap tests (2000 repeated samples and 95% confidence intervals) were used to test the significance of the mediating effect, with a 95% CI that did not contain 0 indicating a significant mediating effect.

Results

Descriptive data

In children, the alienation scores towards parents were approximately 16 (Table 1). Alienation towards mothers (16.42 ± 7.27 and 15.69 ± 6.96) was relatively higher than alienation towards fathers (15.63 ± 7.17 and 15.06 ± 6.85) at baseline (T1) and at the 12-month follow-up (T2): $F(1, 1088) = 13.718, 11.012, p < 0.001$, partial $\eta^2 = 0.022$. Setting ≥ 19 as the cut-off score (Kovacs, 1985), 21.01% of children ($n = 229$) reported a status of depression.

Correlation analyses between variables

Table 1 shows correlation of variables: children's age, parents' marital status, absence of one or both parents, inadequate caregiver at home, and duration of parents' absence were positively correlated with depression ($r = 0.06-0.16, p < 0.05$); negative life events and alienation towards parents were negatively correlated with resilience ($r = -0.08, p < 0.01$). Moreover, depression, negative life events, and alienation towards parents were positively correlated with each other ($r = 0.19-0.59, p < 0.01$) and negatively correlated with resilience ($r = -0.24$ to $-0.59, p < 0.01$).

Regression analysis for children's depression

To observe the instant predictors of depression, with children's depression at baseline as the dependent variable, and demographic and left-behind variables, baseline alienation towards mother and father, negative life events, and resilience as independent variables, regression analysis was conducted (Table 2). The analysis showed that negative life events and alienation towards parents positively predicted depression, while fathers leaving for 3–5 years and resilience were negative predictors of depression, $F = 37.867$, standard $R^2 = 0.459, p < 0.001$.

To observe the delayed predictors of later depression, with children's depression of 12-months follow-up as the dependant variable, and demographic and left-behind variables – baseline (T1) and 12-months follow-up (T2) alienation towards mother and father, negative life events, and resilience – as independent variables, regression analysis showed that T1 depression and resilience, T2 negative life-events and alienation towards mothers positively predicted depression at 12-months follow-up, while fathers' remarriage and T2 resilience were negative predictors of depression, $F = 33.638$, standard $R^2 = 0.474, p < 0.001$.

AMOS structural equation model test for children's depression: mediation effect

Based on the regression results, a hypothesis-driven structural equation model test was carried out, which showed a saturated model for the instant model; alienation towards mothers (direct effect = 0.128, $p < 0.001$; indirect effect = 0.208, $p = 0.012$) and fathers (direct effect = 0.076, $p < 0.01$; indirect effect = 0.145, $p = 0.019$) predicted depression in children directly and indirectly; the corresponding 95% CI did not include 0, indicating significant mediating effects (Figs 1 and 2, online Supplementary Table S1). Negative life events were the strongest positive predictor of children's depression (direct effect = 0.285, $p < 0.001$; indirect effect = 0.095, $p = 0.008$), while resilience was the strongest negative predictor of children's depression (direct effect = $-0.382, p < 0.001$) (Fig. 1) (indirect effect see online Supplementary Table S1).

The accumulated model showed good model fit, CMIN/DF = 2.796, NFI = 0.988, IFI = 0.992, CFI = 0.992, RMSEA = 0.041. T2 alienation towards mothers (direct effect = 0.13, $p < 0.001$; indirect effect = 0.121, $p = 0.007$) predicted T2 depression directly and indirectly, while T2 alienation towards fathers (indirect effect = 0.066, $p = 0.006$) and T1 alienation towards mothers (indirect effect = 0.234, $p = 0.013$) and fathers (indirect effect = 0.133, $p = 0.009$) predicted T2 depression indirectly. T1 negative life events (indirect effect = 0.25, $p = 0.009$) predicted T2 depression indirectly, while T1 resilience (direct effect = 0.14, $p < 0.001$; indirect effect = $-0.275, p = 0.01$) and T2 negative life events (direct effect = 0.23, $p < 0.001$; indirect effect = 0.089, $p = 0.002$) predicted T2 depression directly and indirectly. T2 resilience was the strongest negative predictor of T2 depression (direct effect = $-0.36, p < 0.001$), while T1 depression was the strongest positive predictor of T2 depression (direct effect = 0.33, $p < 0.001$) (Fig. 2).

AMO model test for children's depression: moderation effect

Based on the regression results, duration of fathers' absence was also included in the model test as a moderator, which showed that duration of fathers' absence moderated the instant model significantly, $p = 0.011$, CMIN/DF = 1.581, NFI = 0.963, IFI = 0.968, CFI = 0.986, RMSEA = 0.023. Online Supplementary Table S2 shows that when fathers were absent for 3–5 years, the correlation between alienation towards mothers and fathers was highest ($p < 0.001$).

Based on the regression results, parents' marital status was also included in the model test as a moderator, which showed that parents' marital status moderated the accumulated model significantly, $p = 0.008$, CMIN/DF = 1.615, NFI = 0.962, IFI = 0.985, CFI = 0.985, RMSEA = 0.024. Online Supplementary Table S2 shows that when the father or both parents remarried, alienation towards fathers led to more depression ($p < 0.001$). When the father remarried, negative life events of children led to more depression ($p < 0.05$), while when mothers remarried, alienation towards mothers resulted in lower resilience ($p < 0.05$).

Discussions

The current investigation is among the first to longitudinally observe the prediction of alienation towards parents on depression 12 months later in left-behind children. The findings confirmed that alienation towards parents predicted depression 12 months later in the left-behind sample, and that negative life events and resilience were mediating factors and that duration

Table 1. Correlation analyses between variables

	Demographic variables								Baseline				12-months follow					
	Gender (M/F)	Age	Marital status of parents	Parents absent	Home caregiver	Lodging at school	Leaving time of mother	Leaving time of father	Depression	Life-events	Alienation towards mother	Alienation towards father	Resilience	Depression	Life-events	Alienation towards mother	Alienation towards father	Resilience
M	568/522	10.58	1.48	0.86	1.69	1.86	2.29	2.49	20.04	30.26	16.42	15.63	92.37	19.51	27.11	15.69	15.06	94.03
s.d.	/	1.03	1.05	0.35	0.79	0.34	1.31	1.25	8.17	21.57	7.27	7.17	16.61	8.72	22.23	6.96	6.85	16.95
Demographic variables																		
Gender	1																	
Age	-0.03	1																
Marital status of parents	-0.002	-0.06	1															
Parents absent	-0.05	-0.03	0.08*	1														
Home caregiver	-0.004	0.02	0.02	0.12**	1													
Lodging at school	0.05	-0.02	0.02	-0.02	-0.07*	1												
Leaving time of mother	-0.04	-0.07*	0.16**	0.41**	0.23**	-0.02	1											
Leaving time of father	-0.009	-0.08**	0.08**	0.49**	0.15**	0.02	0.60**	1										
Baseline																		
Depression	0.007	-0.005	0.07*	0.06	0.05	-0.05	0.07*	0.07*	1									
Life-events	-0.04	0.02	0.06	0.07*	0.04	-0.05	0.09**	0.06	0.52**	1								
Alienation towards mother	0.03	0.02	0.15**	0.07*	0.06*	0.01	0.09**	0.05	0.45**	0.39**	1							
Alienation towards father	0.01	0.007	0.10**	0.007	0.04	-0.04	0.04	0.04	0.40**	0.31**	0.52**	1						
Resilience	-0.06	0.01	-0.08**	-0.03	-0.04	0.04	-0.06	-0.05	-0.59**	-0.41**	-0.45**	-0.43**	1					
12-months follow																		
Depression	0.008	0.07*	0.03	0.02	0.02	-0.04	0.03	0.01	0.49**	0.34**	0.27**	0.22**	-0.33**	1				
Life-events	-0.05	0.14**	0.04	0.04	0.05	-0.03	0.04	0.02	0.31**	0.53**	0.23**	0.22**	-0.24**	0.48**	1			
Alienation towards mother	-0.02	0.04	0.12**	0.07*	0.03	0.009	0.16**	0.10**	0.25**	0.25**	0.36**	0.23**	-0.26**	0.40**	0.34**	1		
Alienation towards father	-0.02	0.05	0.07*	0.05	0.04	-0.03	0.08**	0.10**	0.19**	0.19**	0.19**	0.34**	-0.26**	0.32**	0.30**	0.59**	1	
Resilience	-0.01	-0.03	-0.03	-0.03	-0.08*	0.04	-0.04	-0.05	-0.38**	-0.28**	-0.29**	-0.25**	0.50**	-0.56**	-0.39**	-0.41**	-0.36**	1

Note: * $p < 0.05$, ** $p < 0.01$.

Table 2. Regression analysis of variables

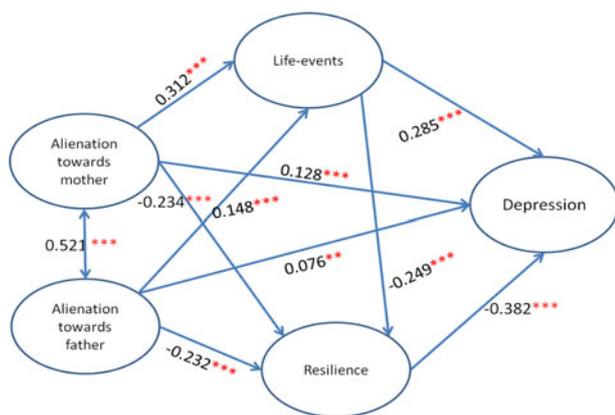
Outcome variable	Instant model Depression at baseline				Accumulated model Depression at 12-months follow			
	<i>t</i>	<i>B</i>	β	<i>p</i>	<i>t</i>	<i>B</i>	β	<i>p</i>
Predictors								
Age	−0.06	−0.01	−0.35	0.73	0.13	0.02	0.68	0.50
Gender								
Female								
Male	0.22	0.01	0.59	0.56	−0.41	−0.02	−1.05	0.29
Marital status of parents								
Undivorced								
Divorced	−0.05	0.00	−0.09	0.93	−0.43	−0.02	−0.71	0.48
Father remarried	−0.88	−0.02	−0.76	0.44	−2.62	−0.05	−2.16	0.03*
Mother remarried	−0.30	−0.01	−0.32	0.75	−0.55	−0.01	−0.55	0.58
Both remarried	0.19	0.00	0.21	0.83	0.70	0.02	0.75	0.45
Lodging at school								
No								
Yes	0.24	0.01	0.44	0.66	0.43	0.02	0.76	0.45
Home caregiver								
Parents								
Grandparents	−0.44	−0.03	−1.01	0.31	−0.27	−0.02	−0.59	0.56
Siblings	2.55	0.04	1.75	0.08	−1.29	−0.02	−0.84	0.40
Relatives or neighbours	0.42	0.01	0.41	0.68	0.00	0.00	0.00	1.00
None	−0.19	0.00	−0.11	0.91	−1.47	−0.02	−0.82	0.41
Parents absent								
No								
Yes	1.47	0.06	0.34	0.74	−2.51	−0.10	−0.54	0.59
Leaving time of mother								
No leaving								
6 months to 2 years	0.09	0.00	0.14	0.89	−0.43	−0.02	−0.60	0.55
3–5 years	−0.10	0.00	−0.10	0.92	0.99	0.03	1.02	0.31
6 years or longer	−0.59	−0.02	−0.78	0.44	0.61	0.02	0.76	0.45
Leaving time of father								
No leaving								
6 months to 2 years	0.76	0.03	1.21	0.23	0.10	0.00	0.15	0.88
3–5 years	−1.81	−0.05	−2.01	0.05*	−0.38	−0.01	−0.40	0.69
6 years or longer	1.18	0.05	1.69	0.09	−1.12	−0.04	−1.53	0.13
Baseline								
Life-events	0.11	0.28	10.94	<0.01**	−0.02	−0.04	−1.49	0.14
Alienation towards mother	0.15	0.14	4.75	<0.01**	−0.02	−0.02	−0.60	0.55
Alienation towards father	0.09	0.08	2.77	0.01**	−0.03	−0.02	−0.79	0.43
Resilience	−0.19	−0.38	−14.00	<0.01**	0.06	0.12	3.90	<0.01**
Depression					0.38	0.36	11.77	<0.01**
12-months follow								
Life-events					0.10	0.24	8.55	<0.01**
Alienation towards mother					0.17	0.13	4.31	<0.01**

(Continued)

Table 2. (Continued.)

Outcome variable	Instant model Depression at baseline				Accumulated model Depression at 12-months follow			
	<i>t</i>	<i>B</i>	β	<i>p</i>	<i>t</i>	<i>B</i>	β	<i>p</i>
Alienation towards father					0.03	0.02	0.80	0.43
Resilience					-0.18	-0.35	-12.29	<0.01**
<i>R</i> ²	0.471				0.488			
Standard <i>R</i> ²	0.459				0.474			
<i>F</i>	37.867				33.638			
<i>p</i>	<0.001				<0.001			

Note: **p* < 0.05, ***p* < 0.01.

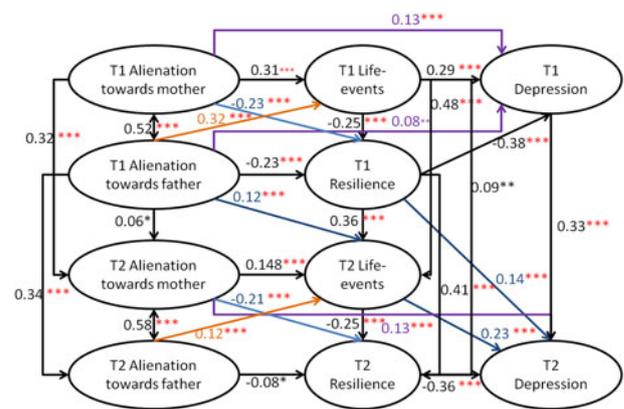
**Fig. 1.** AMOS structural equation model test for children's depression: Instant model.

of fathers' absence and parents' marital status were moderating factors.

Alienation scores towards parents were approximately 16, which was similar to our previous report (16.71 for alienation towards mothers, 16.34 for alienation towards fathers) (Dai *et al.*, 2017), indicating relatively high levels of alienation towards parents in left-behind children. Moreover, alienation towards mothers was relatively higher than alienation towards fathers, which was also consistent with our previous investigation (Dai *et al.*, 2017). Furthermore, we found that 21.01% of left-behind children reported a status of depression, which was close to our previous findings in western China (23.9%) (Wang *et al.*, 2015).

Correlation analysis showed that demographic factors, including age of children, parents' marital status, absence of parents, inadequate caregiver at home, and duration of parents' absence were positively correlated with depression, negative life events, and alienation towards parents, which were positively correlated with each other and negatively correlated with resilience. The results confirmed that demographic factors and psychological variables at baseline and at the 12-month follow-up were correlated with each other. Thus, we carried out regression analysis and model tests to further explore their causal relationship.

Linear regression indicated that in the instant model, alienation towards parents, negative life events, resilience, and fathers leaving for 3–5 years predicted depression of children significantly. The accumulated model confirmed the instant model and further confirmed the prediction of previous resilience and

**Fig. 2.** AMOS structural equation model test for children's depression: Accumulated model.

depression, and the father's remarriage on later depression. Based on regression results, the AMOS model test showed that in the instant model, alienation towards parents predicted depression of children directly and indirectly through negative life events and resilience. In the accumulated model, only T2 alienation towards mothers predicted T2 depression directly, while T2 alienation towards fathers and T1 alienation towards both parents predicted T2 depression indirectly through T1 depression, negative life events, T2 negative life events, and resilience. The results suggested that alienation towards parents was a predictor of depression 12 months later in children, which was partially mediated by negative life events and resilience. The findings were consistent with ecological systems theory (Bronfenbrenner, 1979), which posits that personal, family, and social factors have a synergistic effect on children's development and mental health. Our findings highlighted the role of family variables, especially alienation towards parents, and endogenous resilience and exogenous life events in the development of depression in left-behind children, which can help to identify the population at risk of depression among children. This is first report of its kind, as far as we know.

Alienation towards parents at T1 and alienation towards fathers at T2 predicted T2 depression indirectly, and only T2 alienation towards mothers predicted T2 depression directly. Moreover, alienation towards mothers was a stronger predictor of children's depression than alienation towards fathers. The results confirmed a stronger and more profound predictive effect of alienation towards mothers on children's depression, which

was consistent with previous findings that mothers have a stronger influence on their offspring's lifetime mental health (Malmberg and Flouri, 2011). Compared with previous results mainly from research on children's attachment towards parents (Zeanah *et al.*, 2003; Stansfeld *et al.*, 2008), the current finding confirmed the knowledge from the perspective of alienation towards parents for the first time.

Negative life events positively predicted current depression directly and later depression indirectly. As a well-reported vulnerability to depression (Kendler *et al.*, 1999; Bifulco *et al.*, 2000), the current study confirmed the role of negative life-events in the mediation between alienation towards parents and depression. Resilience, in contrast, predicted current and later depression directly and indirectly, and was also the strongest negative predictor for current depression. The results suggested an important meditative effect of resilience between alienation towards parents and depression. Previous depression had the strongest positive prediction on later depression, which was consistent with previous reports (Gan *et al.*, 2015). Together, the results confirmed the significant indirect prediction of alienation towards parents on later depression of children through negative life events, depression, and resilience. This knowledge help to prevent, and potentially even cure children's depression when high levels of alienation towards parents are present.

Moreover, although the regression model showed that fathers leaving for 3–5 years and fathers remarriage were negative predictors of depression, in the moderation models, both brought some risks. However, online Supplementary Table S2 shows that all pathway coefficients of fathers leaving for 3–5 years and fathers remarrying were larger, which indicated that children's depression was more sensitive to the effects of alienation, negative life events, and resilience compared with other durations of fathers' absence and other parents' marital statuses. Therefore, the negative effect of fathers leaving for 3–5 years and fathers remarrying on children's depression seemed to be a result of moderation compensation. The results suggested that in the prevention of depression in children, families and schools should pay attention to the duration of parents' absence and parents' marital status.

Limitations: Some important factors, such as social support, were not assessed in this study, which may limit the explanatory power of the findings.

In summary, the current investigation is among the first to longitudinally observe the prediction of alienation towards parents on children's depression. The results confirm that alienation towards parents is a predictor of children's depression 12 months later, as well as the mediation effect of negative life events and resilience and the moderation effect of duration of father's absence and parents' marital status. The findings provide important suggestions for families and schools; i.e. to prevent depression in children, parent–child bonds, especially alienation towards mothers, should be carefully considered, and individuals with more negative life events and weaker resilience may need further attention.

Supplementary material. The supplementary material for this article can be found at <https://doi.org/10.1017/S2045796021000329>

Data. Data which is analysed in this study is available upon request.

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