The relation between childhood maltreatment and hedonic and eudaimonic well-being in emerging adults: A daily diary study

Chengcheng Li, Ningzhe Zhu, Linting Zhang, Wenjie Li, Feng Kong [*]

School of Psychology, Shaanxi Normal University, China

ABSTRACT

Background: Prior research has reported that childhood maltreatment is associated with poor well-being, but few studies have examined the association between childhood maltreatment and well-being including hedonic and eudaimonic well-being using a daily diary method.
Objective: The present study investigated the association between childhood maltreatment and hedonic and eudaimonic well-being, and explored the mediating effects of social support and self-esteem.
Participants and setting: Data were collected applying a 14-day daily diary method in two samples. A total of 120 Chinese emerging adults (100 female; M_{age} = 20.48 years, age range = 18–24 years) and 229 Chinese emerging adults (187 female; M_{age} = 20.43 years, age range = 18–27 years) comprised the discovery sample and the replication sample, respectively.
Methods: Multilevel regression analysis and multilevel mediation analysis were conducted, while controlling for sex, age, and socioeconomic status.
Results: In the discovery sample, the multilevel regression analysis showed that childhood maltreatment had an equal effect on predicting the two types of well-being. Additionally, the multilevel mediation analysis demonstrated that social support and self-esteem acted as independent and equally important mediators of the associations between childhood maltreatment and the two types of well-being. Moreover, the total indirect effect on the childhood maltreatment–hedonic well-being link had no significant difference from that on the childhood maltreatment–eudaimonic well-being link. The replication sample reconfirmed the results of the discovery sample, which provides greater credibility to our findings.
Conclusions: Social support and self-esteem might help to improve the well-being of emerging adults who have suffered childhood maltreatment, and might therefore be important intervention targets.

1. Introduction

Childhood maltreatment refers to abuse (physical, emotional, and sexual) and neglect (physical and emotional) inflicted upon a child by an adult in the household or a person older than the child (Bernstein et al., 2003; Felitti et al., 1998). Childhood maltreatment might be one of the most devastating and prevalent adverse childhood experiences (ACEs), and affects the lives of millions of children worldwide (Stoltenborgh, Bakermans-Kranenburg, Alink, & van IJzendoorn, 2015). Notably, a recent meta-analysis reported that

childhood maltreatment is widespread among emerging adults in China (Fu et al., 2018). Compared with other types of ACEs, such as family dysfunction ACEs, childhood maltreatment is more strongly associated with elevated mental health problems (e.g., depression symptoms) in adolescents and adults (Atzl, Narayan, Rivera, & Lieberman, 2019; Ryan, Kilmer, Cauce, Watanabe, & Hoyt, 2000). Indeed, many studies have found that childhood maltreatment has long-term adverse effects on mental health (Kaplow & Widom, 2007; Li, D'Arcy, & Meng, 2016; Wark, Kruczek, & Boley, 2003). It not only has detrimental effects during childhood and adolescence (Kaplow & Widom, 2007), but also leaves psychological scars in emerging adults (Hagan, Roubinov, Mistler, & Luecken, 2014) and even middle-aged and older people (Infurna, Rivers, Reich, & Zautra, 2015; Miller, Chen, & Parker, 2011; Repetti, Taylor, & Seeman, 2002). Childhood maltreatment has been positively associated with serious negative outcomes, including anxiety disorders (Cougle, Timpano, Sachs-Ericsson, Keough, & Riccardi, 2010), depressive symptoms (Tao, He, & Xu, 2021), post-traumatic stress disorder, and associated comorbidities such as substance use disorders (Messman-Moore & Bhuptani, 2017). Recent research has also investigated the possibility that childhood maltreatment is associated with an individual's general well-being (Li et al., 2020; Mosley-Johnson et al., 2019).

1.1. Childhood maltreatment and well-being

Well-being is an indicator of positive mental health, as well as of the overall embodiment of good mental health (Huppert, 2005; Keyes, 2005). Furthermore, well-being is a predictor of the development of psychological disorders (Keyes, Dhingra, & Simoes, 2010). More crucially, a complete state of mental health is not merely the absence of illness, but the presence of well-being (Keyes, 2005).

Well-being has been widely studied from two different perspectives, namely, hedonic well-being (HWB) and eudaimonic well-being (EWB) (Ryan & Deci, 2001). The HWB definition concentrates on happiness or life satisfaction, and defines well-being according to pleasure attainment and pain avoidance. HWB is considered to consist of the three following components: life satisfaction, positive affect, and negative affect. In contrast, the EWB definition emphasizes life goals and self-development, and defines well-being in terms of self-realization and self-development. Although some scholars have combined HWB with EWB to create an indicator of positive mental health (Huppert, 2005; Keyes, 2005), there are some important differences between the two forms of well-being. First, HWB involves transient emotional experience and is largely present-oriented, whereas EWB reflects the long-term pursuit of individuals and involves integrating the past, present, and future (Baumeister, Vohs, Aaker, & Garbinsky, 2013; Lee, Hall, & Wood, 2018). Second, HWB and EWB engage distinct gene regulatory programs (Fredrickson et al., 2013) and have different neural substrates (Kong, Hu, Wang, Song, & Liu, 2015; Lewis, Kanai, Rees, & Bates, 2013; Sato et al., 2015). As a result, HWB and EWB are often viewed as two distinct aspects of well-being (Disabato, Goodman, Kashdan, Short, & Jarden, 2016).

In summary, the differences between HWB and EWB make it meaningful and necessary to explore the impacts of childhood maltreatment on both HWB and EWB, as well as the mechanisms underlying these impacts. According to schema theory (Young, Klosko, & Weishaar, 2003), harmful early experiences such as maltreatment are the primary source of an individual's maladaptive schemas, which involve various memories, emotions, cognitions, and physical sensations about self and interpersonal relationships and are key causes of psychological disorders. Individuals suffering from childhood maltreatment tend to make internal attributions for negative situations due to maladaptive emotional and cognitive schemas. As a result, on one hand, they are prone to fall into negative emotions and are difficult to obtain happiness and satisfaction, which may damage HWB. On the other hand, they tend to deny themselves and think that they are worthless and have difficulty in self-realization, which may damage EWB. Prior work has demonstrated that childhood maltreatment can harm the two types of well-being. First, cross-sectional studies have found that childhood maltreatment is negatively correlated with components of HWB. Specifically, individuals who suffered from childhood maltreatment were more likely to experience lower life satisfaction (Xiang, Yuan, & Zhao, 2021) and lower positive affect (Somers, Ibrahim, & Luecken, 2017). In addition, childhood maltreatment was found to be negatively associated with EWB (Greenfield & Marks, 2010; Li et al., 2020). Second, one longitudinal study reported that childhood maltreatment was associated with lower life satisfaction (one component of HWB) and EWB, both currently and over time (Mosley-Johnson et al., 2019).

In addition to the above evidence from the research using retrospective measures of well-being, one study has used a 30-day diary design to investigate the effect of childhood maltreatment on well-being in the United States (Infurna et al., 2015). The authors found that childhood maltreatment was associated with lower average levels of and greater variability in daily HWB in middle-aged people (aged 40–65 years). However, this study only assessed the hedonic aspect of well-being, which means that the link between childhood maltreatment and EWB remains unclear. Moreover, the study included only middle-aged adults; it is not yet known whether childhood maltreatment impacts HWB and EWB in, for example, emerging adults, who are in a transition stage. Emerging adulthood is a unique developmental stage between adolescence and young adulthood, and is accompanied by unique characteristics, such as identity exploration, self-focusing, instability, and possibility (Arnett, 2000, 2014; Nelson & Chen, 2007). Although HWB and EWB tend to improve during the course of emerging adulthood (Galambos, Barker, & Krahn, 2006; Galambos, Fang, Krahn, Johnson, & Lachman, 2015), ACEs can impair HWB and EWB of emerging adults (Corcoran & McNulty, 2018). Therefore, it is meaningful to focus on how childhood maltreatment is associated with HWB and EWB in emerging adults, so that programs to enhance well-being in emerging adults with a history of childhood maltreatment can be developed. Thus, this study investigated the impacts of childhood maltreatment on HWB and EWB in emerging adults using the daily diary method.

1.2. Social support and self-esteem as mediators

Given the potential impact of childhood maltreatment on well-being, it is important to explore the possible mechanisms underlying this relation. According to the risky families model, an adverse family environment can deteriorate an individual's later mental health

by destroying social and personal resources such as social support and self-esteem to cope with adversity (Repetti et al., 2002). Furthermore, social and personal psychological resources may actually work as direct and indirect contributors to functional maintenance and adaptation (Schetter & Dolbier, 2011), and they could act as mediators to disrupt the negative cascade associated with childhood maltreatment (Racine, Eirich, & Madigan, 2022). Therefore, this study examined whether social (i.e., social support) and personal (i.e., self-esteem) resources could mediate the relation between childhood maltreatment and both types of well-being.

As a critical social resource, social support refers to the material and psychological resources provided by others (Langford, Bowsher, Maloney, & Lillis, 1997). The social support mediation hypothesis could be explained by the support deterioration model which states that perceived availability and efficacy of social support are worsened by stress. Moreover, the model claims that stressful life experiences are negatively linked with social support, which could in turn ameliorate adverse outcomes (Barrera, 1986; Vranceanu, Hobfoll, & Johnson, 2007). According to the model, childhood maltreatment, as an adverse stress experience, may deteriorate perceived social support and consequently weaken individual well-being. People who have experienced childhood maltreatment reported a significant decrease in social support in adolescence and adulthood (Wang et al., 2020; Zhao, Peng, Chao, & Xiang, 2019). Additionally, social support has been found to be positively associated with HWB (Fu, Wang, He, Chen, & He, 2022; Kong, Yang, Yan, & Li, 2021; Song, Kong, & Jin, 2013) and EWB (Wilson, Weiss, & Shook, 2020). Therefore, we reasoned that social support might play a mediating role in the childhood maltreatment–well-being link for both HWB and EWB.

As a key personal resource, self-esteem is defined as overall judgments of self-worth and self-acceptance (Rosenberg, 1965). The risky families model indicates that cold, unsupportive, neglectful, or conflictual family characteristics can disturb psychosocial functioning and affect the mental representations of self, resulting in mental health problems (Repetti et al., 2002). This model suggests that self-esteem may also be a mediator of the childhood maltreatment–well-being association. Some studies have revealed that individuals with higher levels of childhood maltreatment demonstrate lower levels of self-esteem (Li & Xiang, 2020; Wang, Xu, Zhang, Wan, & Tao, 2020). Furthermore, self-esteem has been found to be associated with HWB (Huo & Kong, 2014; Shang, Xie, & Yang, 2021; Yao, Chen, Yu, & Sang, 2017) and EWB (Rehman, You, Wang, & Kong, 2021) in a positive direction. Therefore, self-esteem might mediate the relation between childhood maltreatment and both types of well-being.

1.3. The present study

Although prior studies have reported that childhood maltreatment is associated with poor well-being, most of them have used retrospective measures of well-being, which require individuals to evaluate their global well-being or to explicitly report well-being over a long-time frame (e.g., the past month; Schneider & Stone, 2016). Given that individuals' remembered feelings depend on the strongest or most recent experiences or peak moments (Kahneman, 2001), these retrospective measures of well-being are prone to recall biases owing to the long time span. The daily diary method has been widely used to reduce recall biases (Chiang et al., 2015; Yan, Zhang, Li, You, & Kong, 2022). Thus, the current study adopted the daily diary method to assess well-being and examine whether childhood maltreatment had a negative impact on HWB and EWB. This method differs from traditional questionnaire measures, and requires participants to report daily events and emotional experiences (Gunthert & Wenze, 2012). Thus, daily diary-keeping could provide data on the natural, spontaneous, and continuous experiences of individuals in daily life, rather than merely recent or peak experiences; as such, the daily diary approach may reduce the biases that come with global well-being estimations (Kahneman, 1999). Furthermore, the diary method could considerably reduce the retrospective biases by minimizing the time interval between an experience and the report of this experience (Bolger, Davis, & Rafaeli, 2003). Thus, the diary method assesses the average levels of well-being over a period of time more objectively and reliably than do questionnaire-based methods. Based on the above literature review, this present study aims to extend previous studies by using a daily diary method to examine the relation of childhood maltreatment with HWB and EWB and explore the mediating effects of social support and self-esteem on the relation in two samples of emerging adults. Specifically, we put forward the following hypotheses: (1) Childhood maltreatment is negatively associated with HWB and EWB in emerging adults; (2) social support mediates the associations of childhood maltreatment with HWB and EWB in emerging adults; and (3) self-esteem mediates the associations of childhood maltreatment with HWB and EWB in emerging adults. In addition, we would exploratively compare the effects of childhood maltreatment on the two types of well-being, the total indirect effects of the two mediators on the two types of well-being, as well as the relative size of the mediating effects of social support and self-esteem. Thus, we did not make any specific hypotheses on these relations.

2. Methods

2.1. Participants and procedure

The sample size was estimated using G*Power 3.1.9.4, which revealed that at least 103 participants were needed to detect a regression analysis of medium-sized effect ($f^2 = 0.15$, $\alpha = 0.05$, $1 - \beta = 0.80$).

2.1.1. Discovery sample

The discovery sample comprised 139 emerging adults who were undergraduate and postgraduate students of non-psychology majors recruited from a local university during the spring semester of 2020. All participants voluntarily took part in this study which is a part of an ongoing research project on health and well-being in emerging adulthood. Among these 139 participants, 13 did not complete a survey on between-person measures including childhood maltreatment, social support, and self-esteem. In addition, 6 did not finish any daily diary surveys on HWB and EWB or only completed the diaries for less than 7 days. As such, 19 participants were

excluded from the study, leaving 120 participants to be included in the subsequent analysis (100 female, $M_{age} = 20.48$ years, $SD_{age} = 1.53$ years, range 18–24 years).

2.1.2. Replication sample

The reproducibility crisis in psychology research has been widely discussed (Patil, Peng, & Leek, 2016). To take this into consideration, a replication sample was used to determine whether our results were replicable. The replication sample comprised a total of 257 emerging adults recruited during the spring semester of 2021 from the same university with the same recruiting criteria as the discovery sample, who voluntarily took part in the study. Of these, 28 participants who did not finish any daily surveys on well-being or only completed the diaries for less than 7 days were excluded from the study. This left a final total of 229 participants whose data were included in the subsequent analysis (187 female, $M_{age} = 20.43$ years, $SD_{age} = 1.94$ years, range 18–27 years).

2.1.3. Procedure

The procedure was the same for both samples. Written informed consent was obtained from all participants prior to data collection. Participants were required to complete a baseline survey that assessed childhood maltreatment, social support, and self-esteem using an online questionnaire platform (www.wjx.cn). Next, the daily diary data were collected online for 14 consecutive nights. We sent a link to participants at about 6 pm every day reminding them to complete the survey. Participants were asked to fill out a questionnaire that measured daily HWB and EWB before 24:00 on that night. If participants failed to complete the diary of that night, we sent a follow-up link at about 10 am the next morning. In this link, we changed the word "today" to "yesterday" to assess yesterday's state. If they completed the unfinished diary of the previous day before the afternoon of the next day, their diaries were included in the analysis. Participants needed to complete diaries for at least 7 days to be included in the study. In the discovery sample, one participant did not complete daily surveys on the 8th and 9th days. Therefore, a total of 1678 daily diary observations were obtained, which were distributed with a mean of 13.98 days per person (ranging from 12 to 14 days). In the replication sample, 15 days' entries from 10 participants were missing due to incomplete responses. Therefore, a total of 3191 daily diary observations were obtained, which were distributed with a mean of 13.93 days per person (ranging from 10 to 14 days). Participants received 30 RMB for taking part in this study. The local university granted ethical approval to conduct the study.

2.2. Measures

2.2.1. Within-person level variables

2.2.1.1. Daily HWB.
Daily HWB has often been evaluated using life satisfaction, positive affect, and negative affect (Ryan & Deci, 2001). We used two items of the Satisfaction with Life Scale (SWLS) to assess life satisfaction, namely, "In most ways, my life today is close to my ideal" and "Today, I am satisfied with my life" (Diener, Emmons, Larsen, & Griffin, 1985). Both items were assessed on a 7-point Likert scale ranging from 1 = *strongly disagree* to 7 = *strongly agree*. We chose these two items according to factor loadings of the SWLS (Diener et al., 1985) and their good reliability and validity at the item level (Jiang et al., 2020; Yan et al., 2022). In the discovery sample, the within-person and between-person Cronbach's α coefficients of the two SWLS items were 0.80 and 0.94, respectively. In the replication sample, the within-person and between-person Cronbach's α coefficients of the two SWLS items were 0.81 and 0.97, respectively.

Positive affect and negative affect were measured using the Scale of Positive and Negative Experience (SPANE; Diener et al., 2010). Participants were asked to report their various emotions during that day according to 12 emotional words (e.g., happy and sad) using a 5-point Likert scale ranging from 1 = *never* to 5 = *always*. The daily version of the scale has good reliability and validity (Yan et al., 2022). In the discovery sample, the within-person Cronbach's α coefficients for the daily positive affect and negative affect subscales were 0.91 and 0.83, respectively; the between-person Cronbach's α coefficients for the daily positive affect and negative affect subscales were 0.99 and 0.98, respectively. In the replication sample, the within-person Cronbach's α coefficients for the daily positive affect and negative affect subscales were 0.92 and 0.86, respectively, and the between-person Cronbach's α coefficients for the daily positive affect and negative affect subscales were 0.99 and 0.98, respectively.

To calculate a composite HWB index, we first converted the two SWLS items to a 5-point scale according to the suggestion of Lewis and Sauro (2020, June 17) since the SWLS and the SPANE had different rating scales. Then we subtracted the total negative affect score from the sum of the total SWLS score and the total positive affect score (Gadermann & Zumbo, 2007; Page & Vella-Brodrick, 2013).

2.2.1.2. Daily EWB.
Daily EWB was measured using the 6-item psychological well-being subscale of the Mental Health Continuum-Short Form (Keyes, 2009). Each item was evaluated using a 7-point Likert scale ranging from 1 = *strongly disagree* to 7 = *strongly agree*. The daily version of the scale has good reliability and validity (Yan et al., 2022). In the discovery sample, the within-person and between-person Cronbach's α coefficients for this scale were 0.83 and 0.98, respectively. In the replication sample, the within-person and between-person Cronbach's α coefficients for this scale were 0.85 and 0.98, respectively.

In the discovery sample, compared with the one-factor model of well-being ($\chi^2 = 463.03$, $p < .001$; CFI = 0.961; TLI = 0.948; RMSEA = 0.098; SRMR = 0.027), the two-factor model of well-being ($\chi^2 = 279.44$, $p < .001$; CFI = 0.977; TLI = 0.969; RMSEA = 0.076; SRMR = 0.023) fitted the data better (Hu & Bentler, 1998). Similarly, in the replication sample, the two-factor model of well-being ($\chi^2 = 523.90$, $p < .001$; CFI = 0.975; TLI = 0.965; RMSEA = 0.077; SRMR = 0.024) also fitted the data better than the one-factor model ($\chi^2 = 1192.45$, $p < .001$; CFI = 0.941; TLI = 0.921; RMSEA = 0.116; SRMR = 0.037). This suggests that it is necessary to divide

well-being into HWB and EWB.

2.2.2. Between-person level variables

2.2.2.1. Childhood maltreatment. We measured childhood maltreatment using four subscales from the Childhood Trauma Questionnaire-Short Form (Bernstein et al., 2003). The prevalence of sexual abuse may be underestimated in China; sexual abuse can bring shame in China, and traditional culture and values inhibit its disclosure (Ji, Finkelhor, & Dunne, 2013). Thus, we only measured four types of childhood maltreatment, as follows: emotional abuse, physical abuse, emotional neglect, and physical neglect. Each subscale contains five items which were scored using a 5-point Likert scale ranging from 1 = *never true* to 5 = *very often true*. The Cronbach's α coefficient of the questionnaire was 0.94 in the discovery sample and 0.91 in the replication sample.

2.2.2.2. Social support. The Multi-Dimensional Scale of Perceived Social Support (MSPSS) was applied to assess social support (Zimet, Powell, Farley, Werkman, & Berkoff, 1990). The scale has 12 items that identify an individual's perceived social support from family, friends, and significant others. Participants scored every item on a 7-point Likert scale from 1 = *very strongly disagree* to 7 = *very strongly agree*. The Cronbach's α coefficient of the MSPSS was 0.92 in the discovery sample and 0.92 in the replication sample.

2.2.2.3. Self-esteem. The 10-item Rosenberg Self-Esteem Scale (RSES) was used to evaluate self-esteem (Rosenberg, 1965). Every item was scored on a 4-point Likert scale ranging from 1 = *strongly disagree* to 4 = *strongly agree*. The Cronbach's α coefficient of the RSES was 0.89 in the discovery sample and 0.89 in the replication sample.

2.2.3. Control variables

We controlled for sex, age, and socioeconomic status (SES) in the analyses, because these factors have been found to be associated with well-being (Curhan et al., 2014; Froh, Yurkewicz, & Kashdan, 2009; Präg, Mills, & Wittek, 2016; Yan, Yang, Wang, You, & Kong, 2021). The MacArthur Scale of Subjective Social Status was used to assess current SES (Adler, Epel, Castellazzo, & Ickovics, 2000).

2.3. Data analysis

The data incorporated between-person and within-person level data. In the discovery sample, the daily diary data (level 1, $N_1 = 1678$) was nested in participants (level 2, $N_2 = 120$). In the replication sample, the daily diary data (level 1, $N_1 = 3191$) was nested in participants (level 2, $N_2 = 229$). The percentage of missing data was 0.12% and 0.47%, respectively. Mplus 8 software was used for data analysis in both the discovery and replication samples. First, we conducted a multilevel regression analysis to test whether childhood maltreatment predicts HWB and EWB. Then, we conducted a multilevel multiple 2–2–1 mediation analysis (Preacher, Zyphur, & Zhang, 2010), in which childhood maltreatment was treated as the independent variable, social support and self-esteem were treated as the mediators, and daily HWB and daily EWB were treated as the dependent variables. Additionally, sex, age, and SES were added as the control variables. Among these variables, childhood maltreatment, social support, self-esteem, sex, age, and SES were between-person level (level 2) variables, while HWB and EWB were within-person level (level 1) variables. We grand-mean

Table 1
Descriptive statistics and between-person level correlations of all key variables.

Variables	*M*	*SD*b	*SD*w	ICC	1	2	3	4	5	6	7	8
Discovery sample												
1 Sex	–	–	–	–	1							
2 Age	20.48	1.53	–	–	0.22*	1						
3 SES	4.85	1.30	–	–	0.09	−0.14	1					
4 CM	1.64	0.62	–	–	0.21*	0.10	0.03	1				
5 SS	5.32	0.94	–	–	−0.20*	−0.37***	0.20*	−0.48***	1			
6 SE	2.98	0.44	–	–	−0.03	−0.17*	0.11	−0.47***	0.57***	1		
7 HWB	5.12	1.60	1.25	0.62	−0.21*	−0.39***	0.24**	−0.42***	0.64***	0.65***	1	
8 EWB	5.11	0.85	0.60	0.67	−0.20*	−0.38***	0.26**	−0.40***	0.71***	0.66***	0.91***	1
Replication sample												
1 Sex	–	–	–	–	1							
2 Age	20.43	1.94	–	–	0.23**	1						
3 SES	4.88	1.51	–	–	−0.01	0.01	1					
4 CM	1.52	0.52	–	–	0.12	0.03	−0.08	1				
5 SS	5.39	0.93	–	–	−0.19**	−0.06	0.11	−0.44***	1			
6 SE	2.99	0.46	–	–	−0.07	−0.04	0.19**	−0.36***	0.55***	1		
7 HWB	5.23	1.43	1.39	0.52	−0.08	−0.11	0.18**	−0.29***	0.49***	0.53***	1	
8 EWB	5.18	0.78	0.65	0.59	−0.14*	−0.11	0.21**	−0.25**	0.46***	0.57***	0.85***	1

Note. SES = socioeconomic status, CM = Childhood maltreatment, SS = Social support, SE = Self-esteem, HWB = Hedonic well-being, EWB = Eudaimonic well-being, *SD*b = between-person level standard deviation, *SD*w = within-person level standard deviation, ICC = the intraclass correlation coefficient. *$p < .05$, **$p < .01$, ***$p < .001$.

centered all between-person level variables. All missing values were coded as 999 in the analyses to allow Mplus to identify missing data with full information maximum likelihood (FIML) estimation. We conducted contrast analyses to compare the effects of childhood maltreatment on the two types of well-being and the total indirect effects of the two mediators on the two types of well-being. This contrast analysis method was also used to compare the relative size of the mediating effects of social support and self-esteem. Mplus can output standardized regression coefficients, but it cannot perform contrast analyses based on standardized coefficients and only provides results of contrast analyses of unstandardized coefficients. Due to the use of different measures, unstandardized effect sizes are not comparable, and thus contrast analyses of unstandardized regression coefficients are meaningless. Therefore, we further calculated the standardized coefficients for contrast analyses according to the unstandardized coefficients of Mplus output.

3. Results

3.1. Preliminary analysis

Table 1 shows the descriptive statistics (e.g., means, standard deviations) and between-person level correlations among the primary variables. As predicted, childhood maltreatment was negatively correlated with social support, self-esteem, HWB, and EWB in the discovery sample and the replication sample; social support and self-esteem were significantly positively correlated with HWB and EWB in the discovery sample and the replication sample. In addition, we calculated the intraclass correlation coefficient (ICC), which refers to the proportion of between-group variance to the sum of between-group and within-group variance. The ICCs of life satisfaction, positive affect, negative affect, HWB, and EWB were greater than 0.14 in the discovery and the replication samples, thus allowing us to carry out the multilevel structure model analysis (Sonnentag, Eck, Fritz, & Kühnel, 2020). There were no significant differences between the two samples in any key variables, namely, sex ($\chi^2 = 0.15, p = .698$), age ($t = 0.27, p = .786$), SES ($t = -0.17, p = .865$), childhood maltreatment ($t = 1.92, p = .055$), social support ($t = -0.70, p = .483$), self-esteem ($t = -0.26, p = .795$), HWB ($t = -0.36, p = .720$), and EWB ($t = -0.75, p = .452$).

3.2. The multilevel multiple mediation analysis

3.2.1. Discovery sample

First, we examined whether childhood maltreatment could predict HWB and EWB. This revealed significant effects of childhood maltreatment on HWB ($\beta = -0.38, p < .001$) and EWB ($\beta = -0.36, p < .001$) after controlling for sex, age, and SES. Moreover, the effect contrast test showed that there was no significant difference between the effect of childhood maltreatment on HWB and that on EWB ($\beta = -0.02, p = .630, 95\%$ CI $= [-0.12, 0.08]$). Then, as shown in Fig. 1, the multilevel multiple mediation analysis showed that when social support and self-esteem were included in the model as mediators, the effect of childhood maltreatment on HWB ($\beta = -0.08, p = .420$) and EWB ($\beta = 0.01, p = .979$) was no longer significant.

To verify the potential mediating effects of social support and self-esteem, we examined the specific indirect effects of the multilevel
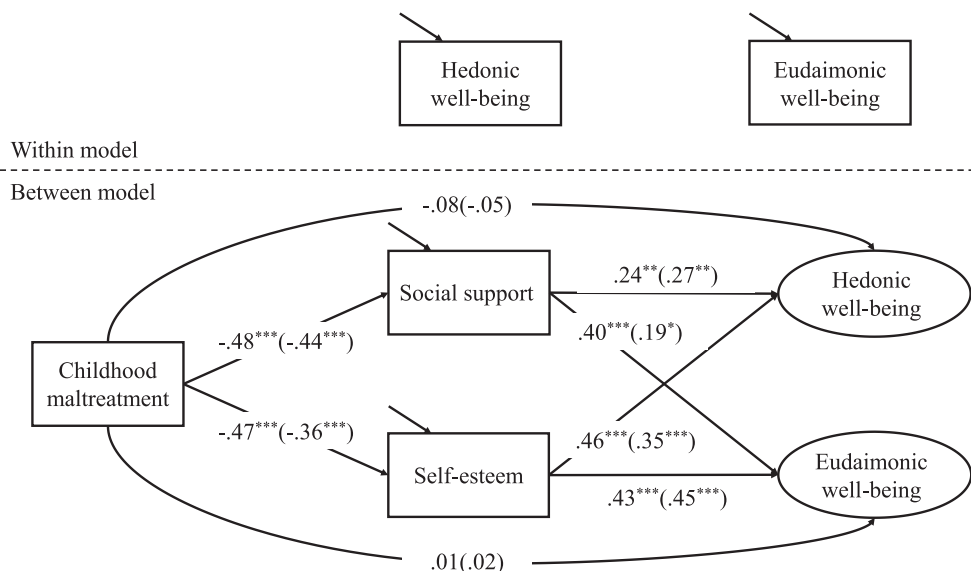

Fig. 1. The multilevel 2−2−1 structural equation model.
Note. The standardized multilevel regression coefficients are displayed: $\beta_{discovery\ sample}$ ($\beta_{replication\ sample}$). For the sake of simplicity and clarity, the standardized regression coefficients of the control variables, and the correlation coefficient residuals for the mediator variables and the dependent variables are not shown. *$p < .05$, **$p < .01$, ***$p < .001$.

mediation analysis. After controlling for sex, age, and SES, social support mediated the relation of childhood maltreatment with both HWB (β = −0.11, p = .012, 95% CI = [−0.20, −0.02]) and EWB (β = −0.19, p < .001, 95% CI = [−0.28, −0.10]). There were also significant mediating effects of self-esteem on HWB (β = −0.21, p < .001, 95% CI = [−0.30, −0.12]) and EWB (β = −0.20, p < .001, 95% CI = [−0.29, −0.11]).

To further compare the relative importance of the two mediators, we used the indirect effect contrast analysis, which has been widely conducted in previous studies (Kong, Gong, Sajjad, Yang, & Zhao, 2019; Yan et al., 2021). Social support and self-esteem had equally mediating effects in the associations of childhood maltreatment with HWB (β = 0.10, p = .123, 95% CI = [−0.03, 0.23]) and EWB (β = 0.01, p = .886, 95% CI = [−0.12, 0.14]). This indicates that their roles in the relation between childhood maltreatment and the two types of well-being were equally important. Furthermore, the total indirect effect contrast test found that the total indirect effect on HWB had no significant difference from that on EWB (β = 0.06, p = .071, 95% CI = [−0.01, 0.13]).

3.2.2. Replication sample

After controlling for sex, age, and SES, childhood maltreatment negatively predicted HWB (β = −0.28, p < .001) and EWB (β = −0.22, p = .004). And the effect contrast test showed that there was no significant difference between the effect of childhood maltreatment on HWB and that on EWB (β = −0.07, p = .108, 95% CI = [−0.15, 0.02]). When social support and self-esteem were incorporated into the model as mediators, the effect of childhood maltreatment on HWB (β = −0.05, p = .503) and EWB (β = 0.02, p = .831) was no longer significant (see Fig. 1). Moreover, as shown in Fig. 1, social support mediated the associations of childhood maltreatment with HWB (β = −0.12, p = .004, 95% CI = [−0.20, −0.04]) and EWB (β = −0.09, p = .022, 95% CI = [−0.16, −0.01]). Self-esteem also showed a mediating role in the relation of childhood maltreatment with HWB (β = −0.13, p < .001, 95% CI = [−0.19, −0.06]) and EWB (β = −0.16, p < .001, 95% CI = [−0.24, −0.09]). Moreover, the mediating effects of social support and self-esteem in the associations of childhood maltreatment with HWB (β = 0.01, p = .892, 95% CI = [−0.11, 0.13]) and EWB (β = 0.08, p = .189, 95% CI = [−0.04, 0.20]) were equally important. Additionally, the total indirect effect contrast test found that there was no significant difference between the total indirect effect of the two mediators on HWB and that on EWB (β = 0.01, p = .768, 95% CI = [−0.04, 0.06]). Thus, the replication sample analysis verified the findings of the discovery sample analysis.

4. Discussion

The present study aimed to reveal the influence of childhood maltreatment on well-being in emerging adulthood, and to clarify the mediating roles of social support and self-esteem, using the 14-day diary method. As expected, in the discovery and replication samples, the multilevel regression analysis revealed that childhood maltreatment predicted HWB and EWB, with sex, age, and SES included as covariates. In addition, the multilevel mediation analysis showed that social support and self-esteem played independent mediating roles in these links. These results indicate that both social support and self-esteem act as important mediators in the predictive effect of childhood maltreatment on HWB and EWB in emerging adulthood.

4.1. The relation between childhood maltreatment and well-being

We found that childhood maltreatment could still predict HWB and EWB after controlling for the influences of sex, age, and SES, which indicates that childhood maltreatment is a powerful risk factor for HWB and EWB. This means that individuals who suffered more serious maltreatment in childhood show lower HWB and EWB. Many studies using retrospective measures of well-being have shown that childhood maltreatment can predict components of HWB (Mosley-Johnson et al., 2019; Wang, Xu, Zhang, Wan, & Tao, 2020) and EWB (Greenfield & Marks, 2010; Li et al., 2020; Mosley-Johnson et al., 2019). Furthermore, using daily measures of well-being, Infurna et al. (2015) found that childhood maltreatment can predict HWB. Together with our own findings, these results indicate that childhood maltreatment can predict HWB and EWB, regardless of whether retrospective or daily measures of well-being are used. In addition, we found that the effect of childhood maltreatment on HWB was not significantly different from that on EWB, indicating that childhood maltreatment may impair pleasure and personal realization in adulthood to the same extent.

4.2. Mediating factors in the relation between childhood maltreatment and well-being

The results of both the discovery and replication samples showed that social support and self-esteem had independent mediating effects on the relation between childhood maltreatment and HWB and EWB in emerging adults. That is, individuals who reported more severe childhood maltreatment were less likely to have supportive social networks (i.e., they had low social support) and had more difficulty developing a positive self-evaluation (i.e., they had low self-esteem), which thus deteriorated their HWB and EWB. From a theoretical perspective, these results are consistent with the risky families model. According to the model, the experience of childhood maltreatment in risky families may affect the mental health of adults by destroying the development of social and personal resources (Repetti et al., 2002). Thus, the experience of childhood maltreatment can influence well-being in emerging adulthood through social support and self-esteem. From an empirical perspective, previous research has similarly reported that childhood maltreatment affects social support (Wang, Xu, Zhang, Yang, et al., 2020; Zhao et al., 2019) and self-esteem (Li & Xiang, 2020; Wang, Xu, Zhang, Wan, & Tao, 2020). In addition, the present results support findings that social support (Fu et al., 2022; Wilson et al., 2020) and self-esteem (Rehman et al., 2021; Shang et al., 2021; Yao et al., 2017) have positive impacts on HWB and EWB. Moreover, we found no significant difference between the mediating roles of social support and self-esteem, which indicates that they play equally important mediating roles in the relation of childhood maltreatment with HWB and EWB in emerging adults. In addition, we found the total indirect effect of

the two mediators on the childhood maltreatment–HWB link had no significant difference from that on the childhood maltreatment–EWB link, which means that psychological resources act as equally important mediating mechanisms for the two types of well-being.

4.3. Limitations and future research directions

This study has some limitations that should be noted. First, our findings were based on data from emerging adults in China, and further research should be conducted to verify whether our findings can be extended to other cultures or populations (e.g., older people). Second, the number of male participants in our discovery sample was low, and future research should balance the sex ratio. Third, considering that traditional cultural values may prevent disclosure, this study did not evaluate childhood sexual abuse. Fourth, although recall bias in retrospective reports of childhood maltreatment does not pose a big threat to study validity (Fergusson, Horwood, & Boden, 2011), further studies could test whether the findings of the present study can be obtained using prospective measures of childhood maltreatment. Fifth, this study measured social support and self-esteem at the trait level. Future research could also test if their day-to-day fluctuations are connected to shifts in well-being. Sixth, a high correlation between HWB and EWB seems to suggest that there is considerable overlap between them. However, the better fit of the two-factor model of well-being found in this study indicates the necessity of distinguishing HWB from EWB. In addition, previous studies have found that they also have some crucial differences (Baumeister et al., 2013). For example, thinking about future and past was linked to high EWB but low HWB. Therefore, future studies should try to distinguish them by examining the potential different mechanisms linking childhood maltreatment to HWB and EWB. Finally, we collected data through self-report measures, and more diverse data collection methods, such as interviews, should be used in future work.

4.4. Implications

In summary, to our knowledge, this is the first study to use the daily diary method to investigate the relation between childhood maltreatment and HWB and EWB in emerging adults, as well as the mediating effects of both social support and self-esteem on the relation. Our results have some important implications. First, given that childhood maltreatment is a strong risk factor for poor well-being, the community, schools, and families can cooperate to prevent childhood maltreatment by promoting community education about childhood maltreatment, outlining the guardianship responsibilities of parents/caregivers, and improving childhood maltreatment screening efforts. Second, the finding that social support and self-esteem play equally important mediating roles in the relation between childhood maltreatment and the two types of well-being underlines the significance of enhancing multifaceted psychological resources in interventions for emerging adults who have suffered childhood maltreatment. On the one hand, educators and mental health professionals can help emerging adults identify and evaluate available social support, and initiate group counseling to help them learn to establish effective social networks, thus boosting well-being. On the other hand, schools and communities can design self-esteem intervention programs to improve well-being in emerging adults who have suffered childhood maltreatment. Finally, since HWB and EWB reflect different aspects of well-being, it is suggested that future studies on interventions for individuals suffering from childhood maltreatment should evaluate the effect of interventions on the two types of well-being at the same time.

Declaration of competing interest

The authors declare that there are no potential conflicts of interest or financial conflicts related to the research, authorship, and/or publication of this article.

Data availability

Data will be made available on request.

Informed consent

Written informed consents were gained in advance from all participants included in the study.

References

Adler, N. E., Epel, E. S., Castellazzo, G., & Ickovics, J. R. (2000). Relationship of subjective and objective social status with psychological and physiological functioning: Preliminary data in healthy, White women. *Health Psychology, 19*(6), 586–592. https://doi.org/10.1037/0278-6133.19.6.586

Arnett, J. J. (2000). Emerging adulthood: A theory of development from the late teens through the twenties. *American Psychologist, 55*(5), 469–480. https://doi.org/10.1037/0003-066X.55.5.469

Arnett, J. J. (2014). *Emerging adulthood: The winding road from the late teens through the twenties.* Oxford University Press.

Atzl, V. M., Narayan, A. J., Rivera, L. M., & Lieberman, A. F. (2019). Adverse childhood experiences and prenatal mental health: Type of ACEs and age of maltreatment onset. *Journal of Family Psychology, 33*(3), 304–314. https://doi.org/10.1037/fam0000510

Barrera, M. (1986). Distinctions between social support concepts, measures, and models. *American Journal of Community Psychology, 14*(4), 413–445. https://doi.org/10.1007/BF00922627

Baumeister, R. F., Vohs, K. D., Aaker, J. L., & Garbinsky, E. N. (2013). Some key differences between a happy life and a meaningful life. *The Journal of Positive Psychology, 8*(6), 505–516. https://doi.org/10.1080/17439760.2013.830764

Bernstein, D. P., Stein, J. A., Newcomb, M. D., Walker, E., Pogge, D., Ahluvalia, T., Stokes, J., Handelsman, L., Medrano, M., Desmond, D., & Zule, W. (2003). Development and validation of a brief screening version of the childhood trauma questionnaire. *Child Abuse & Neglect, 27*(2), 169–190. https://doi.org/10.1016/s0145-2134(02)00541-0

Bolger, N., Davis, A., & Rafaeli, E. (2003). Diary methods: Capturing life as it is lived. *Annual Review of Psychology, 54*(1), 579–616. https://doi.org/10.1146/annurev.psych.54.101601.145030

Chiang, J. J., Bower, J. E., Almeida, D. M., Irwin, M. R., Seeman, T. E., & Fuligni, A. J. (2015). Socioeconomic status, daily affective and social experiences, and inflammation during adolescence. *Psychosomatic Medicine, 77*(3), 256–266. https://doi.org/10.1097/psy.0000000000000160

Corcoran, M., & McNulty, M. (2018). Examining the role of attachment in the relationship between childhood adversity, psychological distress and subjective well-being. *Child Abuse & Neglect, 76*, 297–309. https://doi.org/10.1016/j.chiabu.2017.11.012

Cougle, J. R., Timpano, K. R., Sachs-Ericsson, N., Keough, M. E., & Riccardi, C. J. (2010). Examining the unique relationships between anxiety disorders and childhood physical and sexual abuse in the National Comorbidity Survey-Replication. *Psychiatry Research, 177*(1), 150–155. https://doi.org/10.1016/j.psychres.2009.03.008

Curhan, K. B., Levine, C. S., Markus, H. R., Kitayama, S., Park, J., Karasawa, M., Kawakami, N., Love, G. D., Coe, C. L., Miyamoto, Y., & Ryff, C. D. (2014). Subjective and objective hierarchies and their relations to psychological well-being: A U.S./Japan comparison. *Social Psychological and Personality Science, 5*(8), 855–864. https://doi.org/10.1177/1948550614538461

Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The satisfaction with life scale. *Journal of Personality Assessment, 49*(1), 71–75. https://doi.org/10.1207/s15327752jpa4901_13

Diener, E., Wirtz, D., Tov, W., Kim-Prieto, C., Choi, D.-W., Oishi, S., & Biswas-Diener, R. (2010). New well-being measures: Short scales to assess flourishing and positive and negative feelings. *Social Indicators Research, 97*(2), 143–156. https://doi.org/10.1007/s11205-009-9493-y

Disabato, D. J., Goodman, F. R., Kashdan, T. B., Short, J. L., & Jarden, A. (2016). Different types of well-being? A cross-cultural examination of hedonic and eudaimonic well-being. *Psychological Assessment, 28*(5), 471–482. https://doi.org/10.1037/pas0000209

Felitti, V. J., Anda, R. F., Nordenberg, D., Williamson, D. F., Spitz, A. M., Edwards, V., Koss, M. P., & Marks, J. S. (1998). Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults: The adverse childhood experiences (ACE) study. *American Journal of Preventive Medicine, 14*(4), 245–258. https://doi.org/10.1016/S0749-3797(98)00017-8

Fergusson, D. M., Horwood, L. J., & Boden, J. M. (2011). Structural equation modeling of repeated retrospective reports of childhood maltreatment. *International Journal of Methods in Psychiatric Research, 20*(2), 93–104. https://doi.org/10.1002/mpr.337

Fredrickson, B. L., Grewen, K. M., Coffey, K. A., Algoe, S. B., Firestine, A. M., Arevalo, J. M. G., Ma, J., & Cole, S. W. (2013). A functional genomic perspective on human well-being. *Proceedings of the National Academy of Sciences, 110*(33), 13684–13689. https://doi.org/10.1073/pnas.1305419110

Froh, J. J., Yurkewicz, C., & Kashdan, T. B. (2009). Gratitude and subjective well-being in early adolescence: Examining gender differences. *Journal of Adolescence, 32*(3), 633–650. https://doi.org/10.1016/j.adolescence.2008.06.006

Fu, H., Feng, T., Qin, J., Wang, T., Wu, X., Cai, Y., Lan, L., & Yang, T. (2018). Reported prevalence of childhood maltreatment among chinese college students: A systematic review and meta-analysis. *PLoS One, 13*(10), Article e0205808. https://doi.org/10.1371/journal.pone.0205808

Fu, W. Q., Wang, L. H., He, X. H., Chen, H. X., & He, J. P. (2022). Subjective well-being of special education teachers in China: The relation of social support and self-efficacy. *Frontiers in Psychology, 13*, Article 802811. https://doi.org/10.3389/fpsyg.2022.802811

Gadermann, A. M., & Zumbo, B. D. (2007). Investigating the intra-individual variability and trajectories of subjective well-being. *Social Indicators Research, 81*(1), 1–33. https://doi.org/10.1007/s11205-006-0015-x

Galambos, N. L., Barker, E. T., & Krahn, H. J. (2006). Depression, self-esteem, and anger in emerging adulthood: Seven-year trajectories. *Developmental Psychology, 42*(2), 350–365. https://doi.org/10.1037/0012-1649.42.2.350

Galambos, N. L., Fang, S., Krahn, H. J., Johnson, M. D., & Lachman, M. E. (2015). Up, not down: The age curve in happiness from early adulthood to midlife in two longitudinal studies. *Developmental Psychology, 51*(11), 1664–1671. https://doi.org/10.1037/dev0000052

Greenfield, E. A., & Marks, N. F. (2010). Identifying experiences of physical and psychological violence in childhood that jeopardize mental health in adulthood. *Child Abuse & Neglect, 34*(3), 161–171. https://doi.org/10.1016/j.chiabu.2009.08.012

Gunthert, K. C., & Wenze, S. J. (2012). Daily diary methods. In M. R. Mehl, & T. S. Conner (Eds.), *Handbook of research methods for studying daily life* (pp. 144–159). The Guilford Press.

Hagan, M. J., Roubinov, D. S., Mistler, A. K., & Luecken, L. J. (2014). Mental health outcomes in emerging adults exposed to childhood maltreatment: The moderating role of stress reactivity. *Child Maltreatment, 19*(3–4), 156–167. https://doi.org/10.1177/1077559514539753

Hu, L.-T., & Bentler, P. M. (1998). Fit indices in covariance structure modeling: Sensitivity to underparameterized model misspecification. *Psychological Methods, 3*(4), 424–453. https://doi.org/10.1037/1082-989X.3.4.424

Huo, Y., & Kong, F. (2014). Moderating effects of gender and loneliness on the relationship between self-esteem and life satisfaction in chinese university students. *Social Indicators Research, 118*(1), 305–314. https://doi.org/10.1007/s11205-013-0404-x

Huppert, F. A. (2005). Positive mental health in individuals and populations. In F. A. Huppert, N. Baylis, & B. Keverne (Eds.), *The science of well-being* (pp. 307–340). Oxford University Press. https://doi.org/10.1093/acprof:oso/9780198567523.003.0012.

Infurna, F. J., Rivers, C. T., Reich, J., & Zautra, A. J. (2015). Childhood trauma and personal mastery: Their influence on emotional reactivity to everyday events in a community sample of middle-aged adults. *PLoS One, 10*(4), Article e0121840. https://doi.org/10.1371/journal.pone.0121840

Ji, K., Finkelhor, D., & Dunne, M. (2013). Child sexual abuse in China: A meta-analysis of 27 studies. *Child Abuse & Neglect, 37*(9), 613–622. https://doi.org/10.1016/j.chiabu.2013.03.008

Jiang, W., Jiang, J., Du, X., Gu, D., Sun, Y., & Zhang, Y. (2020). Striving and happiness: Between- and within-person-level associations among grit, needs satisfaction and subjective well-being. *The Journal of Positive Psychology, 15*(4), 543–555. https://doi.org/10.1080/17439760.2019.1639796

Kahneman, D. (1999). Objective happiness. In D. Kahneman, E. Diener, & N. Schwarz (Eds.), *Well-being: The foundations of hedonic psychology* (pp. 3–25). Russell Sage Foundation.

Kahneman, D. (2001). Experienced utility and objective happiness: A moment-based approach. In I. Brocas, & J. D. Carrillo (Eds.), *The psychology of economic decisions* (pp. 187–208). Oxford University Press.

Kaplow, J. B., & Widom, C. S. (2007). Age of onset of child maltreatment predicts long-term mental health outcomes. *Journal of Abnormal Psychology, 116*(1), 176–187. https://doi.org/10.1037/0021-843X.116.1.176

Keyes, C. L. M. (2005). Mental illness and/or mental health? Investigating axioms of the complete state model of health. *Journal of Consulting and Clinical Psychology, 73*(3), 539–548. https://doi.org/10.1037/0022-006X.73.3.539

Keyes, C. L. M. (2009). *Atlanta: Brief description of the Mental Health Continuum-Shortform (MHC-SF)*.

Keyes, C. L. M., Dhingra, S. S., & Simoes, E. J. (2010). Change in level of positive mental health as a predictor of future risk of mental illness. *American Journal of Public Health, 100*(12), 2366–2371. https://doi.org/10.2105/AJPH.2010.192245

Kong, F., Gong, X., Sajjad, S., Yang, K., & Zhao, J. (2019). How is emotional intelligence linked to life satisfaction? The mediating role of social support, positive affect and negative affect. *Journal of Happiness Studies, 20*(8), 2733–2745. https://doi.org/10.1007/s10902-018-00069-4

Kong, F., Hu, S., Wang, X., Song, Y., & Liu, J. (2015). Neural correlates of the happy life: The amplitude of spontaneous low frequency fluctuations predicts subjective well-being. *NeuroImage, 107*, 136–145. https://doi.org/10.1016/j.neuroimage.2014.11.033

Kong, F., Yang, K., Yan, W., & Li, X. (2021). How does trait gratitude relate to subjective well-being in chinese Adolescents? The mediating role of resilience and social support. *Journal of Happiness Studies, 22*(4), 1611–1622. https://doi.org/10.1007/s10902-020-00286-w

Langford, C. P. H., Bowsher, J., Maloney, J. P., & Lillis, P. P. (1997). Social support: A conceptual analysis. *Journal of Advanced Nursing, 25*(1), 95–100. https://doi.org/10.1046/j.1365-2648.1997.1997025095.x

Lee, J. C., Hall, D. L., & Wood, W. (2018). Experiential or material purchases? Social class determines purchase happiness. *Psychological Science, 29*(7), 1031–1039. https://doi.org/10.1177/0956797617736386

Lewis, G. J., Kanai, R., Rees, G., & Bates, T. C. (2013). Neural correlates of the 'good life': Eudaimonic well-being is associated with insular cortex volume. *Social Cognitive and Affective Neuroscience, 9*(5), 615–618. https://doi.org/10.1093/scan/nst032

Lewis, J., & Sauro, J. (2020, June 17). How to convert between five- and seven-point scales. https://measuringu.com/convert-point-scales.

Li, B., Pan, Y., Liu, G., Chen, W., Lu, J., & Li, X. (2020). Perceived social support and self-esteem mediate the relationship between childhood maltreatment and psychosocial flourishing in Chinese undergraduate students. *Children and Youth Services Review, 117*, Article 105303. https://doi.org/10.1016/j.childyouth.2020.105303

Li, M., D'Arcy, C., & Meng, X. (2016). Maltreatment in childhood substantially increases the risk of adult depression and anxiety in prospective cohort studies: Systematic review, meta-analysis, and proportional attributable fractions. *Psychological Medicine, 46*(4), 717–730. https://doi.org/10.1017/s0033291715002743

Li, Q., & Xiang, Y. (2020). How is childhood maltreatment linked to benign envy/malicious envy? The mediating role of self-esteem, authentic pride and hubristic pride. *Personality and Mental Health, 14*(4), 376–387. https://doi.org/10.1002/pmh.1492

Messman-Moore, T. L., & Bhuptani, P. H. (2017). A review of the long-term impact of child maltreatment on posttraumatic stress disorder and its comorbidities: An emotion dysregulation perspective: Science and practice. *Clinical Psychology, 24*(2), 154–169. https://doi.org/10.1111/cpsp.12193

Miller, G. E., Chen, E., & Parker, K. J. (2011). Psychological stress in childhood and susceptibility to the chronic diseases of aging: Moving toward a model of behavioral and biological mechanisms. *Psychological Bulletin, 137*(6), 959–997. https://doi.org/10.1037/a0024768

Mosley-Johnson, E., Garacci, E., Wagner, N., Mendez, C., Williams, J. S., & Egede, L. E. (2019). Assessing the relationship between adverse childhood experiences and life satisfaction, psychological well-being, and social well-being: United States longitudinal cohort 1995–2014. *Quality of Life Research, 28*(4), 907–914. https://doi.org/10.1007/s11136-018-2054-6

Nelson, L. J., & Chen, X. (2007). Emerging adulthood in China: The role of social and cultural factors. *Child Development Perspectives, 1*(2), 86–91. https://doi.org/10.1111/j.1750-8606.2007.00020.x

Page, K. M., & Vella-Brodrick, D. A. (2013). The working for wellness program: RCT of an employee well-being intervention. *Journal of Happiness Studies, 14*(3), 1007–1031. https://doi.org/10.1007/s10902-012-9366-y

Patil, P., Peng, R. D., & Leek, J. T. (2016). What should researchers expect when they replicate studies? A statistical view of replicability in psychological science. *Perspectives on Psychological Science, 11*(4), 539–544. https://doi.org/10.1177/1745691616646366

Präg, P., Mills, M. C., & Wittek, R. (2016). Subjective socioeconomic status and health in cross-national comparison. *Social Science & Medicine, 149*, 84–92. https://doi.org/10.1016/j.socscimed.2015.11.044

Preacher, K. J., Zyphur, M. J., & Zhang, Z. (2010). A general multilevel SEM framework for assessing multilevel mediation. *Psychological Methods, 15*(3), 209–233. https://doi.org/10.1037/a0020141

Racine, N., Eirich, R., & Madigan, S. (2022). Fostering resilience in children who have been maltreated: A review and call for translational research. *Canadian Psychology/Psychologie Canadienne, 63*(2), 203–213. https://doi.org/10.1037/cap0000312

Rehman, A. U., You, X., Wang, Z., & Kong, F. (2021). The link between mindfulness and psychological well-being among university students: The mediating role of social connectedness and self-esteem. *Current Psychology*. https://doi.org/10.1007/s12144-021-02428-6

Repetti, R. L., Taylor, S. E., & Seeman, T. E. (2002). Risky families: Family social environments and the mental and physical health of offspring. *Psychological Bulletin, 128*(2), 330–366. https://doi.org/10.1037/0033-2909.128.2.330

Rosenberg, M. (1965). *Society andtheadolescent self-image.* Princeton University Press.

Ryan, K. D., Kilmer, R. P., Cauce, A. M., Watanabe, H., & Hoyt, D. R. (2000). Psychological consequences of child maltreatment in homeless adolescents: Untangling the unique effects of maltreatment and family environment. *Child Abuse & Neglect, 24*(3), 333–352. https://doi.org/10.1016/S0145-2134(99)00156-8

Ryan, R. M., & Deci, E. L. (2001). On happiness and human potentials: A review of research on hedonic and eudaimonic well-being. *Annual Review of Psychology, 52*(1), 141–166. https://doi.org/10.1146/annurev.psych.52.1.141

Sato, W., Kochiyama, T., Uono, S., Kubota, Y., Sawada, R., Yoshimura, S., & Toichi, M. (2015). The structural neural substrate of subjective happiness. *Scientific Reports, 5*(1), 16891. https://doi.org/10.1038/srep16891

Schetter, C. D., & Dolbier, C. (2011). Resilience in the context of chronic stress and health in adults. *Social and Personality Psychology Compass, 5*(9), 634–652. https://doi.org/10.1111/j.1751-9004.2011.00379.x

Schneider, S., & Stone, A. A. (2016). Ambulatory and diary methods can facilitate the measurement of patient-reported outcomes. *Quality of Life Research, 25*(3), 497–506. https://doi.org/10.1007/s11136-015-1054-z

Shang, Y., Xie, H. D., & Yang, S. Y. (2021). The relationship between physical exercise and subjective well-being in college students: The mediating effect of body image and self-esteem. *Frontiers in Psychology, 12*, Article 658935. https://doi.org/10.3389/fpsyg.2021.658935

Somers, J. A., Ibrahim, M. H., & Luecken, L. J. (2017). Biological sensitivity to the effects of childhood family adversity on psychological well-being in young adulthood. *Child Maltreatment, 22*(3), 236–244. https://doi.org/10.1177/1077559517711041

Song, G., Kong, F., & Jin, W. (2013). Mediating effects of Core self-evaluations on the relationship between social support and life satisfaction. *Social Indicators Research, 114*(3), 1161–1169. https://doi.org/10.1007/s11205-012-0195-5

Sonnentag, S., Eck, K., Fritz, C., & Kühnel, J. (2020). Morning reattachment to work and work engagement during the day: A look at day-level mediators. *Journal of Management, 46*(8), 1408–1435. https://doi.org/10.1177/0149206319829823

Stoltenborgh, M., Bakermans-Kranenburg, M. J., Alink, L. R. A., & van IJzendoorn, M. H. (2015). The prevalence of child maltreatment across the globe: Review of a series of meta-analyses. *Child Abuse Review, 24*(1), 37–50. https://doi.org/10.1002/car.2353

Tao, J., He, K., & Xu, J. (2021). The mediating effect of self-compassion on the relationship between childhood maltreatment and depression. *Journal of Affective Disorders, 291*, 288–293. https://doi.org/10.1016/j.jad.2021.05.019

Vranceanu, A.-M., Hobfoll, S. E., & Johnson, R. J. (2007). Child multi-type maltreatment and associated depression and PTSD symptoms: The role of social support and stress. *Child Abuse & Neglect, 31*(1), 71–84. https://doi.org/10.1016/j.chiabu.2006.04.010

Wang, S., Xu, H., Zhang, S., Wan, Y., & Tao, F. (2020). Mediating effects of self-esteem in the relationship between childhood maltreatment and non-suicidal self-injury among adolescents: The roles of sex and only-child status. *Social Science & Medicine, 249*, Article 112847. https://doi.org/10.1016/j.socscimed.2020.112847

Wang, S., Xu, H., Zhang, S., Yang, R., Li, D., Sun, Y., Wan, Y., & Tao, F. (2020). Linking childhood maltreatment and psychological symptoms: The role of social support, coping styles, and self-esteem in adolescents. *Journal of Interpersonal Violence, 37*(1–2), https://doi.org/10.1177/0886260520918571. NP620-NP650.

Wark, M. J., Kruczek, T., & Boley, A. (2003). Emotional neglect and family structure: Impact on student functioning. *Child Abuse & Neglect, 27*(9), 1033–1043. https://doi.org/10.1016/S0145-2134(03)00162-5

Wilson, J. M., Weiss, A., & Shook, N. J. (2020). Mindfulness, self-compassion, and savoring: Factors that explain the relation between perceived social support and well-being. *Personality and Individual Differences, 152*, Article 109568. https://doi.org/10.1016/j.paid.2019.109568

Xiang, Y., Yuan, R., & Zhao, J. (2021). Childhood maltreatment and life satisfaction in adulthood: The mediating effect of emotional intelligence, positive affect and negative affect. *Journal of Health Psychology, 26*(13), 2460–2469. https://doi.org/10.1177/1359105320914381

Yan, W., Yang, K., Wang, Q., You, X., & Kong, F. (2021). Subjective family socioeconomic status and life satisfaction in chinese adolescents: The mediating role of self-esteem and social support. *Youth & Society, 53*(7), 1047–1065. https://doi.org/10.1177/0044118X20941344

Yan, W., Zhang, L., Li, W., You, X., & Kong, F. (2022). Associations of family subjective socioeconomic status with hedonic and eudaimonic well-being in emerging adulthood: A daily diary study. *Social Science & Medicine, 298*, Article 114867. https://doi.org/10.1016/j.socscimed.2022.114867

Yao, S., Chen, J., Yu, X., & Sang, J. (2017). Mediator roles of interpersonal forgiveness and self-forgiveness between self-esteem and subjective well-being. *Current Psychology, 36*(3), 585–592. https://doi.org/10.1007/s12144-016-9447-x

Young, J. E., Klosko, J. S., & Weishaar, M. E. (2003). *Schema therapy: A practitioner's guide*. Guilford Press.

Zhao, J. X., Peng, X., Chao, X. M., & Xiang, Y. H. (2019). Childhood maltreatment influences mental symptoms: The mediating roles of emotional intelligence and social support. *Frontiers in Psychology, 10*, Article 415. https://doi.org/10.3389/fpsyt.2019.00415

Zimet, G. D., Powell, S. S., Farley, G. K., Werkman, S., & Berkoff, K. (1990). Psychometric characteristics of the multidimensional scale of perceived social support. *Journal of Personality Assessment, 55*(3–4), 610–617. https://doi.org/10.1080/00223891.1990.9674095