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Longitudinal Impact of Mindful Parenting on Internalizing and Externalizing Symptoms Among Children with Autism Spectrum Disorder

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Abstract

Objectives The present study examined the longitudinal impact of mindful parenting on child internalizing and externalizing symptoms in families of children with autism spectrum disorder (ASD) and explored the potential mechanisms underlying this impact. We hypothesized that mindful parenting would be longitudinally associated with decrements in child internalizing and externalizing symptoms and these associations would be mediated by increased parent–child closeness and reduced parent–child conflict.

Methods Data were collected from 441 parents of children with ASD in three waves (W1, W2, W3) over 2 years. Measures included mindful parenting, parent–child closeness and conflict, and child internalizing and externalizing symptoms.

Results Path analyses showed that, when demographic factors and autoregressive effects were controlled, mindful parenting at W1 had significant direct effects on parent–child closeness and conflict at W2. While parent–child closeness at W2 had non-significant direct effects on child internalizing and externalizing symptoms at W3, parent–child conflict at W2 had significant direct effects on child internalizing and externalizing symptoms at W3. Bootstrap analyses further showed that mindful parenting at W1 had significant indirect effects on child internalizing and externalizing symptoms at W3 through parent–child conflict at W2.

Conclusions Our findings reveal the longitudinal impact of mindful parenting on child psychopathology. In particular, our findings indicate that mindful parenting is associated with lower levels of child internalizing and externalizing symptoms through lower levels of maladaptive parent–child interactions.

Keywords Mindful parenting · Parent–child closeness · Parent–child conflict · Internalizing symptoms · Externalizing symptoms · Autism spectrum disorder

Many parents of children with autism spectrum disorder (ASD) suffer psychological distress due to challenges in caregiving (Chan & Leung, 2020, 2021; Chan et al., 2018). They need to cope with not only the social and behavioral impairments of their children, but also the public and courtesy stigma targeted at their families (Chan & Lam, 2017, 2018; Chan et al., 2022c; Yip & Chan, 2022). Research shows that parenting stress among parents of children with ASD is four times higher than that among parents of typically developing children and twice as high as that among parents of children with other neurodevelopmental disorders (Hayes & Watson, 2013). Also, parents of children with ASD have reported higher levels of affective symptoms, such as depression and anxiety, compared to parents of children without ASD (Yirmiya & Shaked, 2005).

When parents of children with ASD feel distressed, they may experience increased agitation and irritability and instigate more destructive interactions and maladaptive communications with their children (Chan & Lam, 2016; Riina & McHale, 2010). In particular, they may be more authoritarian, harsh, and hostile in their parenting and show higher levels of child neglect, maltreatment, and abuse (Chan et al.,

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2022b). They may also be less patient, caring, and warm to their children and show lower levels of parental support, guidance, and nurturance (Chan et al., 2022b). Importantly, such increments in negative parenting behaviors and decrements in positive parenting behaviors may model poor self-regulation, which can have adverse effects on the children's mental and behavioral health (Chan et al., 2022a).

Emerging evidence suggests that cultivating mindfulness may represent an effective approach to improve psychological adjustments and parenting practices in parents of children with ASD (de Bruin et al., 2015; Ho et al., 2021; Ridderinkhof et al., 2018; Salem-Guirgis et al., 2019). Mindfulness refers to "paying attention in a particular way: on purpose, in the present moment, and nonjudgmentally" (Kabat-Zinn, 1994, p. 4). It is characterized by "non-elaborative, non-judgmental, present-centered awareness in which each thought, feeling, or sensation that arises in the attentional field is acknowledged and accepted as it is" (Bishop et al., 2004, p. 232). Specifically, mindful individuals pay attention to their moment-by-moment experiences in a curious and open manner (Brown & Ryan, 2003). They also adopt non-judgmental and accepting attitudes toward their experiences (Brown & Ryan, 2003).

The dispositional tendency toward mindfulness may enable parents of children with ASD to practice mindful parenting (Wang et al., 2022). Mindful parenting refers to providing intentional, present-centered, and non-judgmental attention to parent–child interactions (Bögels et al., 2010; Kabat-Zinn & Kabat-Zinn, 1997). Specifically, mindful parents pay close attention and listen carefully to their children (Duncan et al., 2009). They also bring an open and non-judgmental attitude and show empathy and compassion toward their children (Duncan et al., 2009). Furthermore, they are aware of their children's and their own emotional states and regulate their own affective reactions during their interactions with their children (Duncan et al., 2009).

Mindful parenting may enhance parent–child closeness in families of children with ASD (Lippold et al., 2015). Parent–child closeness refers to the presence of intimacy, positive affection, and self-disclosure in the parent–child relationship (Paulson et al., 1991). As mindful parents attend closely and listen carefully to their children, they can understand their children's thoughts and feelings more accurately and show greater sensitivity and responsiveness to their children's concerns and needs (Lippold et al., 2021). Also, as these parents bring an open and non-judgmental stance to the attributes and behaviors of their children, they can show higher levels of parental acceptance and compassion (Duncan et al., 2015). Furthermore, as they are able to regulate their own emotions in parenting, they can parent calmly and consistently (Benton et al., 2019). In this way, they can create a warm and loving atmosphere for their parent–child interactions (Duncan et al., 2009).

Mindful parenting may not only enhance parent–child closeness but also reduce parent–child conflict in families of children with ASD (Park et al., 2020). Parent–child conflict refers to the presence of disagreements, arguments, and disputes in the parent–child relationship (Aquilino, 1997). With a greater capacity to notice and observe their own emotional experiences, mindful parents may pause, step back, see more objectively, and utilize more adaptive communication strategies in stressful parenting situations (Lippold et al., 2015). Specifically, when their children misbehave, they may display lower emotional reactivity, exercise greater self-regulation, and select more appropriate parenting behaviors, such that they can be freed from the automatic reactions to child misbehavior that may lead them to show hostility and harshness toward their children (Lippold et al., 2021). In this regard, they may have fewer quarrels and fights with their children (Duncan et al., 2009).

According to theories of child development (Caron et al., 2006; Darling & Steinberg, 1993), parents' parenting styles are likely to affect parent–child interactions and relationships and, in turn, children's well-being and functioning. Recent cross-sectional studies, using parent- and child-report data, have echoed these views by showing that mindful parenting is related indirectly to higher levels of child mental and behavioral health and lower levels of child internalizing and externalizing symptoms via higher positivity and lower negativity in the parenting process (Han et al., 2021; Parent et al., 2010, 2016). Although these findings are informative, the cross-sectional data hindered the researchers from testing the temporal orders and mediating mechanisms of the variables. Further studies employing longitudinal designs are thus needed to assess the directionality of effects and elucidate the impact of mindful parenting on child development. Notwithstanding this need, no study has yet examined the longitudinal impact of mindful parenting on children with ASD.

While growing efforts have been made to understand the beneficial effects of mindful parenting in Western communities (Ahemaitijiang et al., 2021; Kil et al., 2021), much fewer studies have been conducted on this topic in Chinese contexts (Cheung et al., 2019; Pan et al., 2019; Ren et al., 2020; Wang et al., 2022). Given that different cultures may derive different concepts and practices of mindful parenting and that the processes and outcomes of this parenting approach may vary across cultural contexts, it is important to study mindful parenting outside of Western culture and to examine its implications in other cultural settings (Ren et al., 2020). Specifically, studying mindful parenting in Chinese culture may facilitate the development of effective mindful parenting training programs for Chinese families.

To date, some studies have examined the cross-sectional correlates of mindful parenting in Chinese families of children with ASD, with findings suggesting that mindful

parenting is related to more positive, and fewer negative, parenting practices (Pan et al., 2019; Ren et al., 2020). Indeed, it is important to study and promote mindful parenting among these Chinese families, given that many Chinese parents of children with ASD may engage in negative parenting owing to high parenting stress (Chan et al., 2022a). Specifically, as Chinese culture emphasizes the genetic basis of ASD, many Chinese parents may be blamed for causing their children's disabilities (Chan & Lam, 2018). In the face of constant criticism and disapproval, these parents may suffer elevated negative affect and exhibit increased hostility toward their children (Chan et al., 2022b). Given this cultural context, it is important to enhance mindful parenting in Chinese parents of children with ASD in order to improve their parenting practices (Ho et al., 2021).

The present study developed and evaluated a mediation model of mindful parenting (*predictor*), parent–child closeness and conflict (*mediators*), and child internalizing and externalizing symptoms (*outcomes*) in Chinese families of children with ASD. In order to unravel the temporal dynamics of these variables, we utilized a 2-year, three-wave longitudinal study design to examine if the predictor at wave 1 (W1) would be linked to the mediators at wave 2 (W2) and, in turn, the outcomes at wave 3 (W3), after controlling for autoregressive effects (i.e., mediators' and outcomes' pre-existing levels at W1) and demographic factors (i.e., parents' and children's gender, age, and intellectual disability at W1). We hypothesized that mindful parenting at W1 would be linked to greater parent–child closeness and lower parent–child conflict at W2. We also hypothesized that greater parent–child closeness and lower parent–child conflict at W2 would be linked to fewer child internalizing and externalizing symptoms at W3. Taken together, we expected that mindful parenting at W1 would have negative indirect effects on child internalizing and externalizing symptoms at W3 via an enhancement in parent–child closeness as well as a reduction in parent–child conflict at W2.

Methods

Participants

At W1, 441 parents of children with ASD (82.1% mothers and 17.9% fathers) were recruited to participate in this study. Their average age was 45.64 years ($SD = 6.83$ years). The majority of them were married (86.6%) and had attained secondary education or above (95.9%). Most of them were not in employment (56.9%). Their median monthly household income was HK$20001–HK$25000. On average, they spent 100.25 h ($SD = 57.08$ h) each week to take care of their children with ASD. The children (83.4% boys and 16.6% girls) had an average age of 11.47 years ($SD = 3.97$ years). Most of them had intellectual disabilities (77.6%). The retention rates of the participants were 88.2% ($n = 389$) and 86.4% ($n = 381$) at W2 and W3, respectively. The participants who were retained and those who were not did not differ in any variables at W1 ($ps > 0.05$).

Procedures

The participants were recruited from four ASD support centers and 14 special schools in the Hong Kong Special Administrative Region of China. Inclusion criteria were (1) parenting a child who had been clinically diagnosed with ASD, based on the DSM-5 criteria, and (2) being capable of reading and writing in Chinese. Only one parent from each family was allowed to participate. The participants signed written consent forms prior to participation. They filled in questionnaires three times (W1, W2, W3), with a 1-year lag between time points. At each time point, each participant was given HK$200 as an incentive.

Measures

Mindful Parenting

The Interpersonal Mindfulness in Parenting Scale (Duncan, 2007; Lo et al., 2018) was used to measure mindful parenting at W1. It contained 23 items (e.g., "When I'm upset with my child, I notice how I am feeling before I take action"). The items were rated by the participants on a 5-point scale, with 1 = "*never*" and 5 = "*always*". The mean of the ratings was calculated, and higher scores indicated higher levels of mindful parenting. This scale had good validity and reliability in past studies (Ho et al., 2021). Its McDonald's omega was 0.80 at W1.

Parent–Child Closeness

The Parent–Child Closeness Scale (Paulson et al., 1991) was used to measure parent–child closeness at W1 and W2. This scale was developed based on a widely used definition of parent–child closeness that has been used in ASD research (i.e., having intimacy, positive affection, and self-disclosure in parent–child relationship) (Bussanich et al., 2017; Teague et al., 2018). It contained 4 items (e.g., "My child shows affection toward me"). The items were rated by the participants on a 5-point scale, with 1 = "*not at all*" and 5 = "*quite a bit*". The mean of the ratings was calculated, and higher scores indicated higher levels of parent–child closeness. This scale had good validity and reliability in past studies (Paulson et al., 1991). Its McDonald's omegas were 0.82 and 0.84 at W1 and W2, respectively.

Parent–Child Conflict

The Parent–Child Conflict Scale (Aquilino, 1997) was used to measure parent–child conflict at W1 and W2. This scale was developed based on a widely used definition of parent–child conflict that has been used in ASD research (i.e., having disagreements, arguments, and disputes in parent–child relationship) (Marquis & Baker, 2019; Teague et al., 2018). It contained 3 items (e.g., "I argue, shout, and experience difficult times with my child"). The items were rated by the participants on a 5-point scale, with 1 = "*never*" and 5 = "*always*". The mean of the ratings was calculated, and higher scores indicated higher levels of parent–child conflict. This scale had good validity and reliability in past studies (Aquilino, 1997). Its McDonald's omegas were 0.83 and 0.85 at W1 and W2, respectively.

Child Internalizing Symptoms

The internalizing symptoms scale of the abbreviated Child Behavior Checklist (Achenbach et al., 2011; Piper et al., 2014) was used to measure child internalizing symptoms at W1 and W3. It contained 6 items (e.g., "My child is unhappy, sad, or depressed"). The items were rated by the participants on a 3-point scale, with 0 = "*not true*" and 2 = "*very true or often true*". The mean of the ratings was calculated, and higher scores indicated higher levels of internalizing symptoms. This scale had good validity and reliability in past studies (Chan et al., 2022a). Its McDonald's omegas were 0.86 and 0.86 at W1 and W3, respectively.

Child Externalizing Symptoms

The externalizing symptoms scale of the abbreviated Child Behavior Checklist (Achenbach et al., 2011; Piper et al., 2014) was used to measure child externalizing symptoms at W1 and W3. It contained 7 items (e.g., "My child destroys things belonging to his/her family or others"). The items were rated by the participants on a 3-point scale, with 0 = "*not true*" and 2 = "*very true or often true*". The mean of the ratings was calculated, and higher scores indicated higher levels of externalizing symptoms. This scale had good validity and reliability in past studies (Chan et al., 2022a). Its McDonald's omegas were 0.81 and 0.83 at W1 and W3, respectively.

Data Analyses

First, descriptive and correlation analyses were performed for all the variables. Next, path analyses were conducted to assess the impact of mindful parenting at W1 on child internalizing and externalizing symptoms at W3 through parent–child closeness and conflict at W2, after controlling for autoregressive effects and demographic factors. Missing data were handled by full information maximum likelihood estimation. Model fit was evaluated with root mean square error of approximation (RMSEA), standardized root mean square residual (SRMR), Comparative Fit Index (CFI), and Tucker-Lewis Index (TLI). A good model fit was shown by RMSEA and SRMR lower than 0.08 and CFI and TLI higher than 0.90. Last, bootstrap analyses were executed to estimate the statistical significance of indirect effects. Bias-corrected confidence intervals were engendered based on 1000 bootstrapped samples. A significant indirect effect was shown by the non-existence of zero in the 95% confidence interval. All data analyses were completed using Mplus Version 8.4.

Results

Table 1 summarizes the results of the descriptive and correlation analyses. Mindful parenting at W1 was correlated positively with parent–child closeness at W1 and W2 ($ps < 0.001$) and negatively with parent–child conflict at W1 and W2 ($ps < 0.001$) and child internalizing and externalizing symptoms at W1 and W3 ($ps < 0.001$). While

Table 1 Descriptive statistics of and correlations among variables

	M	*SD*	2	3	4	5	6	7	8	9
1. Mindful parenting (W1)	3.45	0.47	0.47^{***}	0.45^{***}	-0.34^{***}	-0.28^{***}	-0.22^{***}	-0.26^{***}	-0.22^{***}	-0.29^{***}
2. Parent–child closeness (W1)	4.01	0.81		0.65^{***}	-0.21^{***}	-0.13^{**}	-0.26^{***}	-0.21^{***}	-0.23^{***}	-0.25^{***}
3. Parent–child closeness (W2)	3.93	0.72			-0.23^{***}	-0.20^{***}	-0.21^{***}	-0.25^{***}	-0.20^{***}	-0.26^{***}
4. Parent–child conflict (W1)	2.46	0.79				0.54^{***}	0.17^{***}	0.28^{***}	0.37^{***}	0.40^{***}
5. Parent–child conflict (W2)	2.41	0.71					0.22^{***}	0.28^{***}	0.31^{***}	0.35^{***}
6. Child internalizing symptoms (W1)	0.44	0.44						0.59^{***}	0.52^{***}	0.36^{***}
7. Child internalizing symptoms (W3)	0.48	0.46							0.41^{***}	0.58^{***}
8. Child externalizing symptoms (W1)	0.64	0.45								0.64^{***}
9. Child externalizing symptoms (W3)	0.64	0.47								

$^{**}p < 0.01$; $^{***}p < 0.001$

parent–child closeness at W1 and W2 were correlated negatively with child internalizing and externalizing symptoms at W1 and W3 ($ps < 0.001$), parent–child conflict at W1 and W2 were correlated positively with child internalizing and externalizing symptoms at W1 and W3 ($ps < 0.001$).

Table 2 summarizes the results of the path analyses. While all autoregressive controls were significant ($ps < 0.001$), all demographic controls were non-significant ($ps > 0.05$). Mindful parenting at W1 had significant direct effects on parent–child closeness ($p < 0.001$) and conflict ($p = 0.001$) at W2. While parent–child closeness at W2 had non-significant direct effects on child internalizing ($p > 0.05$) and externalizing ($p > 0.05$) symptoms at W3, parent–child conflict at W2 had significant direct effects on child internalizing ($p < 0.001$) and externalizing ($p < 0.001$) symptoms at W3. With the effects of parent–child closeness and conflict at W2 controlled, mindful parenting at W1 had non-significant direct effects on child internalizing symptoms ($p > 0.05$) and significant direct effects on child externalizing symptoms ($p = 0.02$) at W3.

Figure 1 shows the path model. The path model demonstrated a good model fit, with RMSEA = 0.06, SRMR = 0.04, CFI = 0.94, and TLI = 0.93. It explained 47.6%, 38.9%, 38.8%, and 43.3% of the variances in parent–child closeness and conflict at W2 and child internalizing and externalizing symptoms at W3, respectively.

Table 2 Standardized parameter estimates for the path model

			Standardized β
Direct effects			
Mindful parenting (W1)	→	Parent–child closeness (W2)	0.19***
Mindful parenting (W1)	→	Parent–child conflict (W2)	−0.14**
Mindful parenting (W1)	→	Child internalizing symptoms (W3)	−0.05
Mindful parenting (W1)	→	Child externalizing symptoms (W3)	−0.10*
Parent–child closeness (W2)	→	Child internalizing symptoms (W3)	−0.04
Parent–child closeness (W2)	→	Child externalizing symptoms (W3)	−0.07
Parent–child conflict (W2)	→	Child internalizing symptoms (W3)	0.23***
Parent–child conflict (W2)	→	Child externalizing symptoms (W3)	0.21***
Autoregressive controls			
Parent–child closeness (W1)	→	Parent–child closeness (W2)	0.56***
Parent–child conflict (W1)	→	Parent–child conflict (W2)	0.53***
Child internalizing symptoms (W1)	→	Child internalizing symptoms (W3)	0.51***
Child externalizing symptoms (W1)	→	Child externalizing symptoms (W3)	0.48***
Demographic controls			
Parental gender (W1)	→	Parent–child closeness (W2)	−0.03
Parental gender (W1)	→	Parent–child conflict (W2)	0.09
Parental gender (W1)	→	Child internalizing symptoms (W3)	−0.04
Parental gender (W1)	→	Child externalizing symptoms (W3)	0.01
Parental age (W1)	→	Parent–child closeness (W2)	0.02
Parental age (W1)	→	Parent–child conflict (W2)	−0.02
Parental age (W1)	→	Child internalizing symptoms (W3)	−0.04
Parental age (W1)	→	Child externalizing symptoms (W3)	0.04
Child gender (W1)	→	Parent–child closeness (W2)	−0.01
Child gender (W1)	→	Parent–child conflict (W2)	−0.04
Child gender (W1)	→	Child internalizing symptoms (W3)	−0.02
Child gender (W1)	→	Child externalizing symptoms (W3)	−0.06
Child age (W1)	→	Parent–child closeness (W2)	0.01
Child age (W1)	→	Parent–child conflict (W2)	−0.02
Child age (W1)	→	Child internalizing symptoms (W3)	−0.02
Child age (W1)	→	Child externalizing symptoms (W3)	−0.09
Child intellectual disability (W1)	→	Parent–child closeness (W2)	−0.01
Child intellectual disability (W1)	→	Parent–child conflict (W2)	−0.07
Child intellectual disability (W1)	→	Child internalizing symptoms (W3)	0.03
Child intellectual disability (W1)	→	Child externalizing symptoms (W3)	−0.05

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

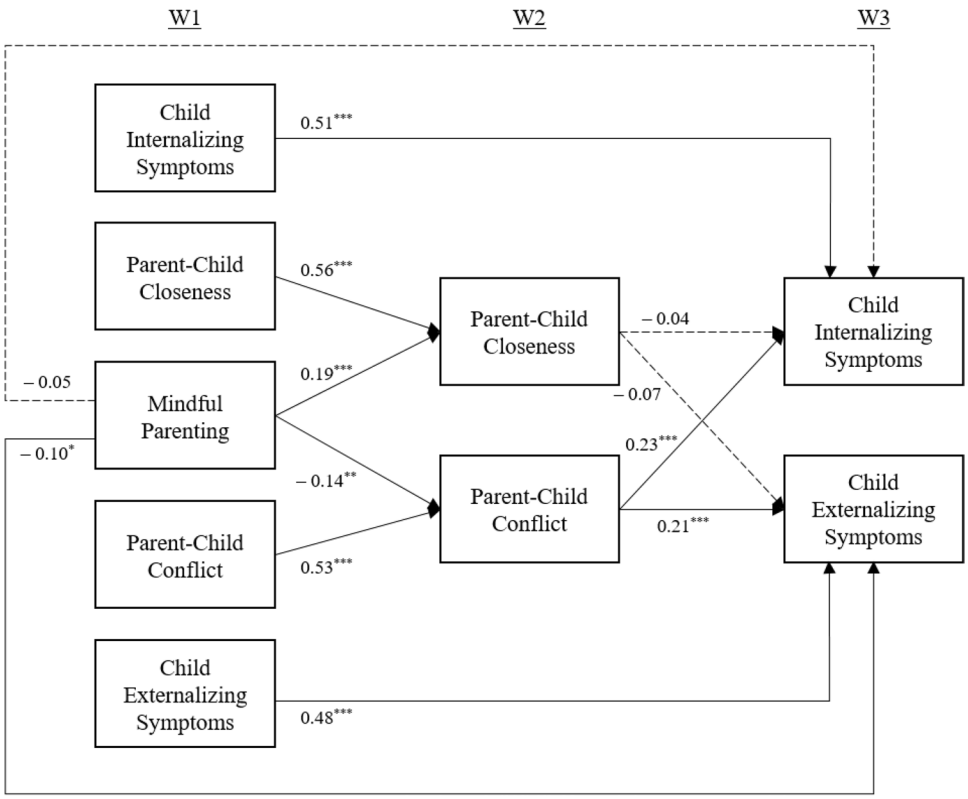

Fig. 1 Mindful parenting model among parents of children with ASD. Standardized beta coefficients are shown. Demographic factors were included as control variables. $^{*}p<0.05$; $^{**}p<0.01$; $^{***}p<0.001$

Table 3 summarizes the results of the bootstrap analyses. While mindful parenting at W1 had non-significant indirect effects on child internalizing ($p>0.05$) and externalizing ($p>0.05$) symptoms at W3 via parent–child closeness at W2, mindful parenting at W1 had significant indirect effects on child internalizing ($p=0.02$) and externalizing ($p=0.02$) symptoms at W3 via parent–child conflict at W2. Overall, the indirect effects of mindful parenting at W1 on child internalizing and externalizing symptoms at W3 were fully and partially mediated by parent–child conflict at W2, respectively.

Discussion

Our findings showed that mindful parenting at W1 was associated positively with parent–child closeness and negatively with parent–child conflict at W2. In addition, mindful parenting at W1 was associated negatively with child internalizing and externalizing symptoms at W3, and these associations were mediated by lower levels of parent–child conflict at W2. These findings suggest that parents who incorporate mindful awareness into their parenting processes are likely to have better parent–child relationships. With less destructive parent–child interactions, children with ASD may have fewer emotional and behavioral problems.

Table 3 Bootstrap analyses for the path model

					Standardized indirect effect [95% CI]
Indirect effects					
Mindful parenting (W1)	→	Parent–child closeness (W2)	→	Child internalizing symptoms (W3)	−0.01 [−0.03, 0.02]
Mindful parenting (W1)	→	Parent–child closeness (W2)	→	Child externalizing symptoms (W3)	−0.01 [−0.03, 0.01]
Mindful parenting (W1)	→	Parent–child conflict (W2)	→	Child internalizing symptoms (W3)	−0.03* [−0.06, −0.01]
Mindful parenting (W1)	→	Parent–child conflict (W2)	→	Child externalizing symptoms (W3)	−0.03* [−0.05, −0.01]

$^{*}p<0.05$

The negative associations of mindful parenting with child internalizing and externalizing symptoms suggest that a mindful way of parenting may be linked to lower levels of child psychopathology. This finding is consistent with earlier studies showing that higher levels of mindful parenting were associated with lower levels of child emotional and behavioral problems (Aydin, 2022; Cheung et al., 2019). The finding is also in line with prior studies reporting the positive impact of mindful parenting on child well-being and functioning (Cheung et al., 2021; Medeiros et al., 2016). Given the benefits of mindful parenting to child development, practitioners should facilitate parents of children with ASD to cultivate mindfulness and apply it in parenting (Ho et al., 2021).

Building on past research on parent mindfulness and family relationship (Bögels et al., 2014; Coatsworth et al., 2018), the present study showed that mindful parenting was related positively to parent–child closeness and negatively to parent–child conflict. This finding indicates that bringing mindful awareness to the parenting process may enable the development of affective and loving relationships for parent–child dyads and eliminate the destructive patterns of hostility and aggression in parent–child interactions (Lippold et al., 2015; Park et al., 2020). Notably, the finding suggests that mindful parenting may make an important contribution to enhancing adaptive parenting practices and improving parent–child relationships in families of children with ASD (Pan et al., 2019; Ren et al., 2020).

Previous research has found that parents' mindfulness may affect children's mental and behavioral health through parent–child interactions (Parent et al., 2021). Expanding on this finding, our study showed that the impact of mindful parenting on child internalizing and externalizing symptoms was mediated by parent–child conflict. This finding suggests that mindful parenting may shield against child psychopathology through fewer negative parent–child interactions (Han et al., 2021; Parent et al., 2016). Given the mediating influences of parent–child conflict, practitioners should help parents of children with ASD reduce hostility (e.g., shouting, intrusiveness), lax control (e.g., permissiveness, inconsistency), and physical discipline (e.g., shaking, hitting), which are likely to harm the children's psychological development (Chan et al., 2022b).

In our study, there was no support for the mediating effects of parent–child closeness on either internalizing or externalizing symptoms in children. This finding indicates that parent–child closeness is less predictive of child psychopathology than is parent–child conflict and that parent–child closeness does not account for variance in child psychopathology after controlling for parent–child conflict. Indeed, such a finding is unexpected, since prior cross-sectional studies have reported positive parenting to be a core mechanism linking parent mindful attention to child mental and behavioral health (Han et al., 2021; Parent et al., 2010, 2016). Future studies should utilize different indicators of parent–child closeness (e.g., attachment, involvement) to examine further the potential mediating influences of parent–child closeness on child psychopathology.

The present study represented an attempt to formulate and validate a conceptual model explicating the impact of mindful parenting on child psychopathology in families of children with ASD. In support of theories linking parenting to child well-being and functioning (Caron et al., 2006; Darling & Steinberg, 1993), our model highlights the longitudinal influences of parents' parenting practices on children's internalizing and externalizing symptoms. Specifically, our model indicates that mindful parenting may be associated with lower levels of child emotional and behavioral problems through lower levels of maladaptive parent–child interactions. Importantly, our model points to the utility of a family process perspective in conceptualizing and understanding the evolvement of psychological problems in children with ASD (Chan et al., 2022a).

Our model advances the literature by elucidating the links of mindful parenting to child psychopathology via parent–child relationships and interactions. In order to further delineate and understand the impact of mindful parenting on child psychopathology, additional studies are needed to test more comprehensive models showing how mindful parenting may affect children with ASD through different ways. Specifically, future studies may investigate whether mindful parenting can affect child internalizing and externalizing symptoms through other mechanisms (e.g., improvements in parental well-being and inter-parental cooperation and alleviations of parental depression and inter-parental conflict) (Bögels et al., 2010; Duncan et al., 2009).

In validating our model, we moved beyond the usual focus on Western families to study the impact of mindful parenting on Chinese families. As there are still very few studies on mindful parenting conducted in Chinese families (Cheung et al., 2019; Pan et al., 2019; Ren et al., 2020; Wang et al., 2022), further research is needed to study the outcomes of this parenting approach in Chinese contexts. Specifically, studying mindful parenting in Chinese families may facilitate the development of mindfulness-based interventions for Chinese parents (Ho et al., 2021). Building on our findings about the pros of naturally occurring mindful parenting, future studies may examine the effectiveness of mindful parenting training programs in improving parent–child interactions and child mental and behavioral health. The development of such mindful parenting programs will help address the caregiving needs of parents and improve the well-being and functioning of children in Chinese families (Chan & Lam, 2017; Yip & Chan, 2022).

Limitations and Future Research

Several limitations should be considered when interpreting our results. First, as our convenience sample comprised mainly mothers and sons, it could not demonstrate the gender diversity of parents and children. Future research should recruit representative samples of families of children with ASD, with parents and children being sampled in a gender-balanced manner, to further examine our hypotheses. Second, since our measures were based on participant self-reports, they might be subject to single reporter and common method biases (Podsakoff et al., 2012). Given prior research showing that parents and children may have differential perceptions of parent–child relationships (Bevans et al., 2017), future research should collect multi-informant data from both parents and children to extend our findings. Third, although our longitudinal study design permitted us to examine the temporal dynamics of the variables, conclusions about their causal relationships could not be drawn from correlational data. Future research should conduct experiments or interventions to delineate the causal pathways of the variables.

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Author Contribution KKSC designed and executed the study, analyzed and interpreted the data, and wrote and revised the paper. ZW and HL collaborated in writing and revising the paper.

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Data Availability Data used in this study are available at the Open Science Framework (https://osf.io/zn326/).

Declarations

Ethics Approval This study was approved by the Human Research Ethics Committee of The Education University of Hong Kong.

Consent to Participate Written informed consent was obtained from all participants involved in this study.

Conflict of Interest The authors declare no competing interests.

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