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Mindful Parenting and Parenting Practices in Chinese Families of Children with Autism Spectrum Disorder

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Abstract

Objectives Parenting children with autism spectrum disorder may be different from parenting typically developing children. The current study systematically compared mindful parenting and parenting practices in families of children with autism spectrum disorder and in families of typically developing children in China.

Methods 167 biological parents ($M_{age} = 37.87$) of Chinese children with autism spectrum disorder and 167 biological parents ($M_{age} = 38.04$) of typical developing children completed questionnaires regarding mindful parenting and parenting practices. A multivariate analysis of variance was conducted to compare between the two types of families with parent/child gender effects on mindful parenting and parenting practices. Then a series of path analyses were also conducted to examine the associations between mindful parenting and parenting practices in the two types of families.

Results Compared to parents of typically developing children, parents of children with autism spectrum disorder showed less listening with full attention, less proactive parenting, less supportiveness, more lax control, and more physical control to their children; in families of children with autism spectrum disorder (but not in families of typically developing children), fathers showed less proactive parenting and supportiveness to their children than mothers. We also found that parents' listening with full attention and awareness of children's emotions were significantly related to both positive and negative parenting practices in families of children with autism spectrum disorder.

Conclusions Chinese parents of children with autism spectrum disorder and parents of typically developing children display different parenting behaviors. These findings can provide us more future directions in studying parenting behaviors in Chinese families of children with autism spectrum disorder.

Keywords Mindful parenting · Parenting practices · Autism spectrum disorder · Typically developing children · China

Autism spectrum disorder (ASD) is a pervasive developmental disorder characterized by difficulties in social communication and interaction and repetitive and restrictive behavior patterns, interests, or activities (American Psychiatric Association 2013). Parents of children with ASD experience more stress, anxiety, and depression than parents with typically developing (TD) children because of their own problems or the impairments and challenging behaviors of children with ASD (Beer and Ward 2013; Boonen et al. 2014; Estes et al. 2009). Because of such high parenting stress and more psychological symptoms, parents of children with ASD are more likely than parents of TD children to display unskilled parenting behavior (e.g., Gau et al. 2010; van Steijn et al. 2013). Thus, it is important to identify specific discrepancies in parenting behaviors between families of children with ASD and families of TD children. Recently, researchers have paid much attention on mindful parenting and several parenting practices in families of children with ASD (e.g., Beer and Ward 2013; Gau et al. 2010; Singh et al. 2006; Ventola et al. 2017).

Mindful parenting is defined as paying attention to one's child and parenting in a particular way, namely, intentionally, in the present moment, and nonjudgmentally (Kabat-

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Zinn and Kabat-Zinn 1997). Mindful parenting includes five main elements: listening with full attention to one's children; nonjudgmental acceptance of the self and children; emotional awareness of the self and children; self-regulation in the parenting relationship; and compassion for the self and children (Duncan et al. 2009). Previous research has demonstrated that mindful parenting promotes parent-child relationships and children's development in different developmental stages and in different culture backgrounds (e.g., studies conducted in the U.S. and in China; Han et al. 2019; Parent et al. 2015).

In children with ASD, researchers found that parental mindful parenting was negatively associated with children's challenging behaviors (Beer and Ward 2013). Parents who received a mindfulness-based intervention also observed decreases in internalizing and externalizing problems in their children with ASD (e.g., Hwang et al. 2015; Sawyer Cohen and Semple 2010; Singh et al. 2006). Although there is plentiful evidence supporting the favorable effects of mindful parenting on reducing the problems of children with ASD, studies examining the differences in mindful parenting between parents of children with ASD and parents of TD children are scarce. Only two studies in Western countries, to our knowledge, compared parental acceptance of children between parents of children with ASD and parents of TD children; one study found that parents of children with ASD displayed lower acceptance (van Steijn et al. 2013), while the other found that there was no difference between two types of families (Ventola et al. 2017).

Parenting practices, such as parental warmth, supportiveness, and hostility, are different from mindful parenting. Some researchers believe that mindful parenting fosters everyday mindfulness in the context of parenting and sets the stage for an improved capacity to use adaptive parenting practices through the psychological processes of awareness, nonjudgmental acceptance, and self-regulation (Duncan et al. 2009; Parent et al. 2015). Although previous research has consistently shown that adaptive parenting practices can promote children's development in both in Western countries and in China (Han et al. 2019; Parent et al. 2015), empirical studies examining the differences in parenting practices between parents of children with ASD and parents of TD children are limited and disputable. In a sample of Dutch family, researchers found that toddlers with ASD obtained less security attachment and lower levels of authoritative parenting (parenting characterized by high warmth and high control) than TD toddlers did (Rutgers et al. 2007); another study conducted in the U.S., however, found that no difference was observed in parental use of firm control between parents of school-age children with ASD and parents of TD children (Ventola et al. 2017). One study conducted in Chinese culture found that Taiwanese school-age children with ASD obtained less affection, more overprotection, and more authoritarian controlling from their parents than TD children (Gau et al. 2010). One reason that may contribute to these discrepant findings due to sample differences underlying these studies. In Rutgers et al. (2007)'s study, the families were mainly from Dutch origin and the children were toddlers, in Gau et al. (2010)'s study, samples consisted solely of Chinese families with school-aged children in Taiwan, and in Ventola et al. (2017) study, most of the participating families are Americans and have children in late childhood and early adolescence. Given parenting behaviors are heavily embedded within the broader cultural context and shaped by children's age (Harkness and Super 2002; Lerner et al. 2002), it is less surprising that the results from various samples reveal different findings. Despite the inconsistency, research on other positive/negative parenting practices (e.g., supportiveness and hostility) has received little attention. In Parent and Forehand's (2017) recent work, seven parenting practices were identified, including four positive practices (i.e., proactive parenting, positive reinforcement, warmth and supportiveness) and three negative practices (i.e., hostility, lax control, and physical control). Thus, exploring whether there are differences between families of children with ASD and families of TD children based on these aspects of parenting practices is necessary.

Parent gender and child gender might shape parenting in both Western and Chinese cultures (e.g., Chang et al. 2003; Leaper 2002; McKee et al. 2007). According to previous studies, fathers and mothers may display different parenting behaviors towards their children, and boys and girls may also be treated differently by their parents. For instance, mothers show a higher level of mindful parenting and positive parenting practices than fathers due to their higher appraisal of others as worthy of help and their higher endorsement of altruistic motives for helping (McKee et al. 2007; Moreira and Canavarro 2015; Reizer and Mikulincer 2007). Some studies have also found that mothers tend to engage in more physical punishment of their children (Mulhern and Passman 1981; Straus and Stewart 1999), whereas others have found that fathers are more likely to use harsh parenting practices (McKee et al. 2007). Regarding child gender, researchers have shown that boys are more likely than girls to receive harsh discipline, especially from their fathers (e.g., Chang et al. 2003; Mahoney et al. 2000). These studies suggest that both parent and child gender are important to consider when studying parenting behaviors.

Moreover, mindful parenting is believed to promote positive parenting practices and reduce negative parenting practices (Bögels et al. 2014; Duncan et al. 2009; Parent et al. 2015). Specifically, parents with higher levels of mindful parenting in parent-child interactions may accept their children's maladaptive behaviors, support children's

autonomy, and be sensitive to children's needs (Duncan et al. 2009; Parent et al. 2015). These mothers thus tend to display higher levels of adaptive parenting practices and lower levels of dysfunctional parenting practices (de Bruin et al. 2014; Parent et al. 2015). A recent study conducted in the U.S. by Parent et al. (2015) examined parents of ordinary children at varying developmental stages and found that higher levels of mindful parenting were directly related to higher levels of proactivity, reinforcement, warmth, and supportiveness parenting practices but lower levels of lax control, physical control, and hostility. Han et al. (2019) also found that higher levels of mindful parenting were directly related to higher levels of positive parenting practices in Chinese ordinary children. However, little research has been conducted to delineate the relationships between mindful parenting and positive/negative parenting practices in families of children with ASD. Whether more mindful parents of children with ASD tend to use more positive parenting practices and fewer negative parenting practices needs further exploration. Moreover, it is necessary to examine the relationships between mindful parenting and positive/negative parenting practices are different between families of children with ASD and families of TD children. Elucidating these differences may enable us to design effective parenting interventions to better treat this population that benefit families of children with ASD.

It has been suggested that parenting is culturally constructed. Therefore, parenting beliefs and behaviors may vary depending on cultural context (Harkness and Super 2002). Theoretically, many observed differences in parenting behaviors have been organized around the broad dimensions of individualism/independence and collectivism/interdependence (Harkness and Super 2002; Keller et al. 2006). Individualistic cultures, such as that of North America, emphasize the importance of the independent self, creativity, assertiveness, and autonomy, whereas collectivistic cultures, such as those of Asian countries, stress interdependence, connectiveness, harmony, and compliance (Harkness and Super 2002). Therefore, parents from individualistic and collectivistic cultures might adopt different parenting behaviors given the varying cultural values. For instance, in China, where the goal is to maintain harmonious relations, Chinese parents are more likely to engage in control strategies and are less likely to encourage the activation of positive affect than North American parents (Harkness and Super 2002). Such culture differences have also been observed in the relationship between mindful parenting and parenting practices. For example, although Parent et al. (2015) found that higher levels of mindful parenting were related to lower levels of lax control, physical control, and hostility, another study conducted in a sample of Chinese school-aged children found that there was no significantly negative association between mindful parenting and negative parenting practices (Han et al. 2019). The results from these two studies may indicate cultural differences in the association between mindful parenting and negative parenting practices.

In addition to general cultural differences between individualistic and collectivistic societies, more attention should be paid to parenting behaviors in Chinese families of children with ASD because Chinese parents of children with ASD constantly face tremendous challenges of high financial burdens and severe psychological distress (Clark et al. 2019; Lu et al. 2018). In China, most parents of children with ASD have to quit their jobs to care for their children (Clark et al. 2019). The average earnings may thus be lower for families whose children have ASD. Despite the low income and high cost of treatment for families of children with ASD, these families receive little government support in most regions in China (Clark et al. 2019; Ou et al. 2015). Additionally, parents of children with ASD in China also often deal with challenges of comorbid physical and psychological symptoms (Lu et al. 2018). Specifically, because of the one-child policy in China, Chinese parents may pay more attentions to and have high expectations of their one child (Settles et al. 2013). They may thus experience more stress if their children with ASD. Taken together, the high financial burden and severe psychological distress may cause Chinese parents of children with ASD to develop feelings of incompetency in parenting, elevated levels of parenting stress, and, eventually, unskilled parenting behaviors. Though children with ASD are at risk for not experiencing appropriate parenting behaviors, the attention on and support for families of children with ASD are still insufficient in China (Clark et al. 2019).

The purposes of the present study were twofold. The first aim was to compare mindful parenting and parenting practices between families of children with ASD and families of TD children. In addition to examining the main effect of the family type (families of children with ASD *vs.* families of TD children), we also examined the interaction effects of family type and gender (parent gender and child gender) on parenting behaviors. The second aim of the present study was to examine the relationships between mindful parenting and parenting practices in families of children with ASD and in families of TD children, as well as the group differences (families of children with ASD *vs.* families of TD children) on these relationships. Overall, four research questions were examined: (1) Are there differences in mindful parenting and parenting practices between families of children with ASD and families of TD children? (2) Are there parent/child gender differences in mindful parenting and parenting practices? (3) Are there interaction effects between the family type and parent/child gender on mindful parenting and parenting practices? (4) Are there significant associations between mindful

parenting and positive/negative parenting practices in both families of children with ASD and families of TD children? Given previous research regarding the above questions is inconsistent and limited, we did not present hypotheses related to these research goals.

Method

Participants

The participants were 167 biological parents of children with ASD and 167 biological parents of TD children in China. All children with ASD had been examined by experienced psychiatrists and met the diagnostic criteria for ASD according to the fourth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV). Parents (82% mothers) of children with ASD were aged 27 to 52 years ($M_{age} = 37.87$, $SD = 5.19$), and their children (20% girls) were aged between 6 and 12 years old ($M_{age} = 8.82$, $SD = 1.91$). Approximately 12.6% ($n = 21$) of the parents of children with ASD held a postgraduate degree or higher, 41.9% ($n = 70$) held a college degree, and 45.5% ($n = 76$) had a high school education or lower. Parents (82% mothers) of TD children were selected to match the parents of children with ASD on the parent and children's age and gender. Thus, they were also aged 27 to 52 years ($M_{age} = 38.04$, $SD = 4.78$), and their children (20% girls) were between 6 and 12 years old ($M_{age} = 8.84$, $SD = 1.88$). In terms of parent education, 10.8% ($n = 18$) of the parents of TD children held a postgraduate degree or higher, 32.3% ($n = 54$) held a college degree, and 56.9% ($n = 95$) had a high school education or lower.

Procedure

Parents of TD children were selected from a mindful parenting program conducted in China. It is a cross-sectional design survey (without intervention course) aiming to investigate the association between mindful parenting and children development. This sample consisted of 2237 Chinese parents ($M_{age} = 38.46$, $SD = 4.43$) of children aged 6 to 12 ($M_{age} = 9.40$ years $SD = 1.78$), and 167 of the parents were selected (age- and sex-matched with the parents of children with ASD) for the present study. Parents of children with ASD were recruited from a WeChat (a Chinese social networking software) group composed of families with children with ASD. The entire procedure of the present study was completed through online questionnaire systems (the Sojump system for parents of children with ASD and the Qualtrics system for parents of TD children). The participants were assured strict confidentiality of the collected data and provided consent online before beginning the survey. For those who completed all assessments, feedback reports about parenting and children's psychological outcomes were given as a token of appreciation. All materials and procedures were approved by the Institutional Review Board of the sponsoring university.

Measures

Mindful parenting

Mindful parenting was measured using the 23-item Hong Kong (Chinese) Version of the Interpersonal Mindfulness in Parenting (IM-P; Lo et al. 2018) scale (we made a Mandarin translation in the present study). This scale includes four subscales corresponding to the different dimensions of mindful parenting: *Listening with Full Attention* (LFA; e.g., "I find myself listening to my child with one ear because I am busy doing or thinking about something else at the same time"); *Emotional Awareness in Parenting* (EAP; e.g., "When I'm upset with my child, I notice how I am feeling before I take action"); *Nonjudgmental Acceptance in Parenting* (NJAP; e.g., "I tend to criticize myself for not being the kind of parent I want to be"); and 4) *Compassion for Child* (CC; e.g., "When my child is going through a difficult time, I try to give him/her the nurturing and caring he/she needs"). A 5-point Likert scale ranging from *1 = never true* to *5 = always true* was used. The Hong Kong (Chinese) version of the IM-P has shown good validity and internal consistency in Chinese Hong Kong parents (Lo et al. 2018). For parents of children with ASD in the current study, the Cronbach's alphas were 0.71, 0.70, 0.66, and 0.87 for the LAF, EAP, NJAP, and CC subscales, respectively. For parents of TD children, the Cronbach's alphas were 0.74, 0.68, 0.66, and 0.88 for the LAF, EAP, NJAP, and CC subscales, respectively. Due to the low internal consistency of the NJAP subscale in parents of children with ASD and in parents of TD children, we did not include this subscale in our data analyses. All subscales were scored separately, and a total score was also calculated from the LAF, EAP, and CC subscales to indicate overall mindful parenting in the present study. The Cronbach's alphas of the total IM-P scale were 0.80 and 0.85 for the parents of children with ASD and the parents of TD children, respectively.

Parenting practices

Positive and negative parenting practices were measured via the 34-item Multidimensional Assessment of Parenting Scale (MAPS; Parent and Forehand 2017). The positive parenting practices dimension of the MAPS comprises four subscales, namely, *Proactive Parenting* (PP), *Positive Reinforcement* (PR), *Warmth* (WM) and *Supportiveness* (SP). Sample items in these subscales include "I express

affection by hugging, kissing, and holding my child" and "If my child does his/her chores, I will recognize his/her behavior in some manner". The negative parenting practices dimension of the MAPS comprises three subscales, namely, *Hostility* (HS), *Lax Control* (LC), and *Physical Control* (PC). Sample items in these subscales include "I spank my child with my hand when he/she has done something wrong" and "My child talks me out of punishing him/her after he/she has done something wrong". Parents responded to each item using a 5-point Likert rating scale from *1 = never* to *5 = always*. The MAPS demonstrated good validity and internal consistency in previous studies (Han et al. 2019; Parent and Forehand 2017). Each item was forward- and back-translated by three associate professors or doctoral students who were fluent in both Mandarin Chinese and English. For the parents of children with ASD in the current study, the Cronbach's alphas were 0.80, 0.82, 0.82, 0.76, 0.83, 0.70, and 0.85 for the PP, PR, WM, SP, HS, LC, and PC subscales, respectively. For the parents of TD children, the Cronbach's alphas were 0.72, 0.70, 0.78, 0.79, 0.87, 0.74, and 0.88 for PP, PR, WM, SP, HS, LC, and PC subscales, respectively. All subscales were scored separately, and total scores of the positive/negative parenting practices were also calculated in the present study. The Cronbach's alphas of the total positive parenting practices were 0.92 and 0.90 for the parents of children with ASD and the parents of TD children, respectively; The Cronbach's alphas of the total negative parenting practices were 0.84 and 0.89 for the parents of children with ASD and the parents of TD children, respectively.

Data Analysis

First, the mean and standard deviation (*SD*) for each of the study variables, as well as bivariate correlations between all study variables except parent and child gender, were calculated. Then, to compare mindful parenting and specific parenting practices in families of children with ASD and families of TD children, a 2 (families of children with ASD *vs*. families of TD children) × 2 (father *vs*. mother) × 2 (boys *vs*. girls) multivariate analysis of variance (MANOVA) was conducted. Finally, a series of path analyses with multiple group analysis were performed to explore the relationships between different mindful parenting dimensions and parenting practices. Given the sample size was relatively small, we used path analysis with observed variables instead of structural equation modeling with latent factors. Model fit was assessed using a number of indexes (Hu and Bentler 1999), including the chi-square (χ^2) statistic, the comparative fit index (CFI), the normed fit index (NFI), the incremental fit index (IFI) and the root mean square error of approximation (RMSEA). The cut-off criteria for an acceptable model were CFI > 0.90, NFI > 0.90, IFI > 0.90, and RMSEA < 0.10 (Browne and Cudeck 1992). The calculation of the means and standard deviations for the study variables, the bivariate correlations between the study variables, and the MANOVA were performed with the IBM SPSS STATISTIC 19.0 (SPSS 2010). The path analyses were conducted with the AMOS 17.0 (Arbuckle 2008). With regards to missing data, five participants from TD family did not complete the assessment for parenting practices (i.e., MAPS). The result of Little's Missing Completely at Random (MCAR) test was not significant (χ^2 (26) = 26.34, $p = 0.445$), indicating the data were missing completely at random. Given the proportion of the missing data is small and the data were missing completely at random, we replaced missing data with means in SPSS 19.0 before we conducted the path analyses.

Results

Descriptive Analyses

Prior to the analyses, the study measures were examined for normality of their distributions. Results showed that the levels of skewness and kurtosis of all study variables were in the acceptable ranges (skewness < 3 and kurtosis < 10; Kline 2011). We also examined collinearity of our study variables. The collinearity statistics of Tolerance and Variance Inflation Factor (VIF) for our study variables range from 0.60~0.91 and 1.10~1.66. These results showed that the levels of Tolerance and VIF were in the acceptable ranges (Tolerance > 0.1 and VIF < 10; Liu 2019) and indicate that there was no collinearity between these variables. Then, the means and standard deviations for all study variables except for parent and child gender were calculated and were provided in Table 1, as well as the bivariate correlations between these study variables separated by family type. As expected, all dimensions of mindful parenting (listening with full attention, emotional awareness, and compassion for child) and the mindful parenting total score were significantly related to positive/negative parenting practices both in families of children with ASD and in families of TD children.

Comparisons of Mindful Parenting and Parenting Practices between Families of Children with ASD and Families of TD Children

The means and standard deviations of the mindful parenting and parenting practices scores separated by gender for families of children with ASD and families of TD children as well as the results of the MANOVA are presented in Table 2. The results revealed a significant main effect for family type (Wilk's $\lambda = 0.85$, F (10, 304) = 5.20, $p <$

Table 1 Bivariate correlations and descriptive statistics among study variables except for parent and child gender separately by family types

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Mean	*SD*
1.Child age	–	0.36***	−0.30***	−0.09	−0.11	−0.26**	−0.05	−0.12	−0.05	−0.04	−0.14	−0.09	−0.06	0.04	−0.08	−0.05	8.84	1.88
2.Parent age	0.38**	–	0.09	0.07	−0.07	−0.20*	−0.03	−0.11	−0.04	−0.02	−0.05	−0.07	0.16*	−0.02	−0.08	−0.01	38.04	4.78
3.Parent EL	−0.15	0.16*	–	0.12	0.05	0.13	0.15	−0.02	−0.21***	−0.13	0.13	0.04	0.09	0.02	0.08	0.08	1.54	0.68
4.MAPS-PP	−0.14	−0.12	0.19*	–	0.66***	0.53***	0.73***	−0.09	−0.14	−0.14	0.89***	−0.15	0.25**	0.45***	0.60***	0.58***	22.44	3.24
5.MAPS-PR	−0.12	−0.11	0.15	0.70***	–	0.57***	0.71***	−0.13	−0.14	−0.10	0.87***	−0.16*	0.30***	0.49***	0.55***	0.58***	15.14	2.60
6.MAPS-WM	−0.18*	−0.15	0.16*	0.49***	0.66***	–	0.64***	−0.16*	−0.10	−0.19*	0.77***	−0.18*	0.33***	0.30***	0.53***	0.51***	12.27	2.05
7.MAPS-SP	−0.14	−0.05	0.17*	0.68***	0.77***	0.61***	–	−0.35***	−0.22**	−0.28***	0.89***	−0.35***	0.45***	0.48***	0.61***	0.66***	11.64	1.88
8.MAPS-HS	−0.20**	−0.24**	0.02	0.01	−0.05	−0.02	−0.15*	–	0.43***	0.69***	−0.19*	0.89***	−0.55***	−0.25***	−0.33***	−0.45***	18.85	4.64
9. MAPS-LC	0.11	0.02	−0.04	−0.16*	−0.12	−0.03	−0.10	0.22**	–	0.31***	−0.17*	0.73***	−0.43***	−0.20*	−0.34***	−0.40***	16.80	4.11
10.MAPS-PC	−0.17*	−0.12	−0.05	−0.10	−0.12	−0.16*	−0.20**	0.70***	0.14	–	−0.19*	−0.80***	−0.34***	−0.27**	−0.32***	−0.39***	9.38	3.29
11.MAPS-POP	−0.17*	−0.13	0.20*	0.87***	0.91	0.77***	0.88***	−0.05	−0.13	−0.16*	–	−0.23**	0.37***	0.51***	0.67***	0.68***	61.48	8.37
12.MAPS-NEP	−0.11	−0.16*	−0.03	−0.10	−0.12	−0.08	−0.19*	0.86***	0.62***	0.78***	−0.14	–	−0.56***	−0.29***	−0.41***	−0.51***	45.02	9.76
13.IMP-LFA	−0.04	−0.02	−0.02	0.22**	0.26**	0.28***	0.33***	−0.34***	−0.42***	−0.27***	0.31***	−0.46***	–	0.30***	0.40***	0.65***	14.16	2.76
14.IMP-EAP	0.01	0.12	0.07	0.43***	0.37***	0.35***	0.47***	−0.34	−0.09	−0.29***	0.47***	−0.32***	0.12	–	0.53***	0.79***	19.54	3.43
15.IMP-CC	−0.02	−0.02	0.10	0.52***	0.52***	0.53***	0.57***	−0.20**	−0.05	−0.23**	0.62***	−0.21**	0.18*	0.67***	–	0.89***	26.98	4.71
16.IMP-Total	−0.02	0.03	0.07	0.54***	0.52***	0.53***	0.63***	−0.36***	−0.20*	−0.34***	0.64***	−0.40***	0.47***	0.83***	0.90***	–	60.68	8.69
Mean	8.82	37.87	1.67	21.83	15.45	11.86	10.92	20.08	18.23	11.12	60.01	49.43	13.29	19.68	25.70	58.66		
SD	1.91	5.19	0.69	3.57	2.82	2.20	2.18	4.37	3.81	2.98	9.28	8.44	2.79	3.68	4.90	8.77		

Parent EL Parent education level, *MAPS-PP* MAPS-proactive parenting, *MAPS-PR* MAPS-positive reinforcement, *MAPS-WM* MAPS-warmth, *MAPS-SP* MAPS-supportiveness, *MAPS-HS* MAPS-hostility, *MAPS-LC* MAPS-lax control, *MAPS-PC* MAPS-physical control, *MAPS-POP* MAPS-positive parenting practices total score, *MAPS-NEP* MAPS-negative parenting practices total score, *IMP-LFA* IMP-listening with full attention, *IMP-EAP* IMP-emotional awareness in parenting, *IMP-CC* IMP-compassion for child, *IMP-Total* IMP-total score

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

Table 2 Means and standard deviations for parenting variables separately by genders[a], and the results of MANOVA

Families of children with ASD					Families of TD children				Group differences[b]		
Variables	Fathers Mean (SD) ($n = 30$)	Mothers Mean (SD) ($n = 137$)	Boys Mean (SD) ($n = 133$)	Girls Mean (SD) ($n = 34$)	Fathers Mean (SD) ($n = 30$)	Mothers Mean (SD) ($n = 132$)	Boys Mean (SD) ($n = 128$)	Girls Mean (SD) ($n = 34$)	F_{FY}	F_{PG}	$F_{FY \times PG}$
MAPS-PP	20.20 (3.17)	22.18 (3.57)	21.84 (3.49)	21.76 (3.94)	22.87 (2.89)	22.35 (3.32)	22.58 (3.24)	21.94 (3.25)	**5.20***	1.20	**4.75***
MAPS-PR	14.23 (2.85)	15.72 (2.75)	15.36 (2.69)	15.79 (3.29)	14.53 (2.53)	15.28 (2.61)	15.23 (2.60)	14.82 (2.62)	0.04	**7.87****	2.04
MAPS-WM	10.97 (2.59)	12.05 (2.07)	11.86 (2.08)	11.82 (2.65)	11.27 (1.84)	12.49 (2.03)	12.26 (2.00)	12.29 (2.24)	3.16	**13.40*****	0.55
MAPS-SP	9.80 (2.31)	11.17 (2.08)	10.83 (2.11)	11.29 (2.42)	11.77 (1.79)	11.61 (1.91)	11.70 (1.90)	11.41 (1.84)	**12.31****	3.72	**9.73****
MAPS-HS	19.90 (4.74)	20.12 (4.31)	20.24 (4.45)	19.47 (4.08)	17.73 (3.37)	19.09 (4.86)	18.80 (4.38)	19.00 (5.61)	1.85	3.11	0.05
MAPS-LC	18.87 (3.33)	18.80 (4.16)	18.27 (3.96)	18.06 (3.21)	16.87 (3.48)	16.78 (4.25)	16.46 (4.18)	18.06 (3.60)	**4.81***	0.95	1.88
MAPS-PC	11.07 (2.86)	11.13 (3.01)	11.27 (3.12)	10.53 (2.27)	8.80 (3.35)	9.52 (3.27)	9.51 (3.29)	8.91 (3.27)	**9.90****	0.66	0.02
IMP- LFA	12.33 (2.31)	13.50 (2.85)	13.24 (2.84)	13.47 (2.62)	14.10 (2.67)	14.18 (2.79)	14.13 (2.81)	14.29 (2.60)	**5.96***	2.34	1.47
IMP- EAP	19.80 (4.16)	19.65 (3.58)	19.50 (3.74)	20.38 (3.37)	20.07 (3.30)	19.42 (3.46)	19.74 (3.32)	18.74 (3.77)	1.79	0.79	0.30
IMP-CC	25.20 (5.38)	25.81 (4.80)	25.44 (4.96)	26.74 (4.60)	25.97 (4.54)	27.20 (4.74)	27.16 (4.51)	26.26 (5.46)	0.35	0.33	0.12

MAPS-PP MAPS-proactive parenting, *MAPS-PR* MAPS-positive reinforcement, *MAPS-WM* MAPS-warmth, *MAPS-SP* MAPS-supportiveness, *MAPS-HS* MAPS-hostility, *MAPS-LC* MAPS-lax control, *MAPS-PC* MAPS-physical control, *IMP-LFA* IMP-listening with full attention, *IMP-EAP* IMP-emotional awareness in parenting, *IMP-CC* IMP-compassion for child

[a]The means and standard deviations here for parenting variables are showed separately by parent gender and child gender in both families of children with ASD and families of TD children

[b]Only main or interaction effects which multivariate tests showed significant were presented here. F_{FY} = The main effect of family type; F_{PG} = The main effect of parent gender; $F_{FY \times PG}$ = The interaction effect of family type × parent gender

Significant group differences were indicated in bold

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

0.001), a significant main effect for parent gender (Wilk's $\lambda = 0.91$, F (10, 304) = 2.87, $p = 0.002$), and a non-significant main effect for child gender (Wilk's $\lambda = 0.96$, F (10, 304) = 1.36, $p = 0.196$). With regard to interaction effects, the results revealed a significant interaction effect for family type × parent gender (Wilk's $\lambda = 0.93$, F (10, 304) = 2.21, $p = 0.017$), a nonsignificant interaction effect for family type × child gender (Wilk's $\lambda = 0.97$, F (10, 304) = 1.12, $p = 0.350$), and a nonsignificant interaction effect for family type × parent gender × child gender (Wilk's $\lambda = 0.96$, F (10, 304) = 1.74, $p = 0.071$).

Follow-up tests revealed the following findings: (1) compared to parents from families of TD children, parents from families of children with ASD tended to show less proactive parenting ($F = 5.20$, $p = 0.023$), supportiveness ($F = 12.31$, $p = 0.001$), and listening with full attention ($F = 5.96$, $p = 0.015$) but more lax control ($F = 4.81$, $p = 0.029$) and physical control ($F = 9.90$, $p = 0.002$) of their children; (2) compared to fathers, mothers showed more positive reinforcement ($F = 7.87$, $p = 0.005$) and warmth ($F = 13.40$, $p < 0.001$) to their children in both families of children with ASD and in families of TD children; (3) there were significant parent gender differences in proactive parenting and supportiveness in families of children with ASD, with fathers showing less proactive parenting ($t = -2.81$, $p = 0.006$) and supportiveness ($t = -3.20$, $p = 0.002$) to their children than mothers; however, in families of TD children, parent gender differences on these two parenting variables were not significant (fathers showed more proactive parenting and supportiveness than mothers; $t = 0.79$, $p = 0.430$ for proactive parenting and $t = 0.42$, $p = 0.680$ for supportiveness).

Relationships between Mindful Parenting and Parenting Practices

We examined the relationships between different mindful parenting dimensions and positive/negative parenting practices in the whole sample ($N = 334$). Given parent age, parent education, and child age were observed to be significantly related to parenting variables and there were gender differences in parenting behaviors, we controlled these demographic variables in the path analyses. The results showed that the model fit the data well ($\chi^2/df = 4.65$, $p = 0.03$, CFI = 0.99, NFI = 0.99, IFI = 0.99, RMSEA = 0.10). For the individual paths, the path from all mindful parenting dimensions to both positive parenting and negative parenting were significant in the expected directions ($\beta = 0.15$, $p < 0.001$; $\beta = 0.17$, $p < 0.001$; and $\beta = 0.48$, $p < 0.001$ for the paths from listening with full attention, emotional awareness, and compassion for child to positive parenting, respectively; $\beta = -0.47$, $p < 0.001$; $\beta = -0.11$, $p = 0.048$; and $\beta = -0.13$, $p = 0.027$ for the paths from

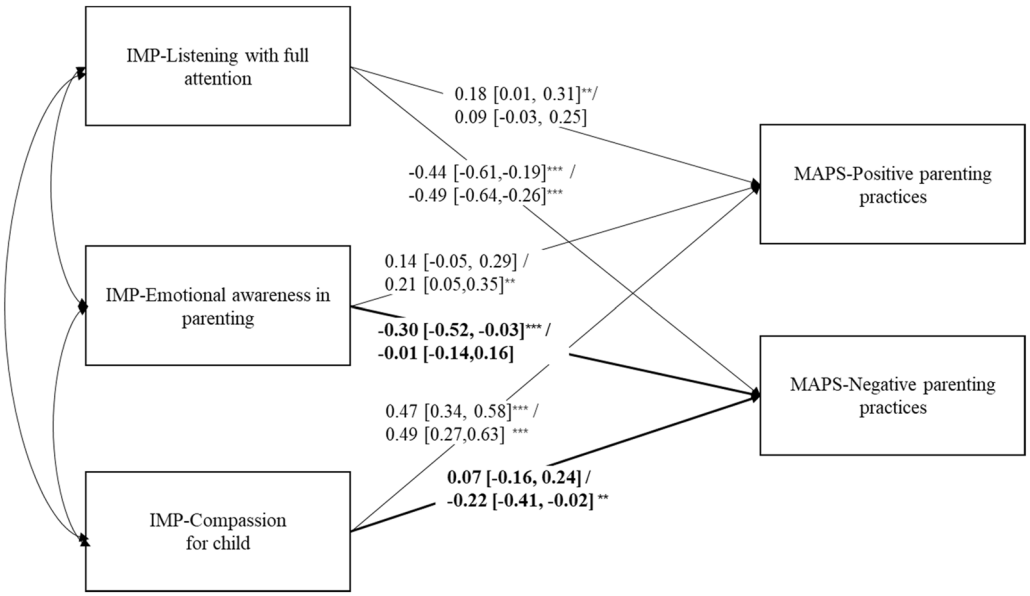

Fig. 1 Standardized regression coefficients and its 95% bias-corrected CIs for the paths from mindful parenting to positive/negative parenting practices separately for families of children with ASD and families of TD children. $N = 334$. Only the main paths were displayed. The paths between controlled variables (i.e., parent gender, parent age, parent education, child gender, and child age) and the main variables in the models were not displayed. Path coefficients for families of children with ASD are presented at the above, and path coefficients for families of TD children are present at the below. Values and lines in bold indicate significant differences in the path coefficients between two types of families. $^{*}p < 0.05$; $^{***}p < 0.001$

listening with full attention, emotional awareness, and compassion for child to negative parenting, respectively). The whole model accounted for 48.9 and 33.9% of the total variance in positive and negative parenting, respectively.

Multiple group analysis was then used to test whether the relationships between mindful parenting and positive/negative parenting practices were invariant in the two types of families. We first tested the model fit separately in the two types of families. The results showed that the model fit the data well both in families of children with ASD ($\chi^2/df = 2.08$, $p = 0.15$, CFI = 1.00, NFI = 0.99, IFI = 1.00, RMSEA = 0.08) and in families of TD children ($\chi^2/df = 2.91$, $p = 0.09$, CFI = 0.99, NFI = 0.99, IFI = 1.00, RMSEA = 0.08). We then combined the samples from both families and tested the model fit in the combined sample, with all paths freely estimated in each sample. The χ^2 statistic and its corresponding degrees of freedom (*df*) yielded from the model at this step served as the basis for the following model comparisons. The results showed that the model with all paths freely estimated in the two types of families also demonstrated a good fit to the data ($\chi^2/df = 2.50$, $p = 0.08$, CFI = 0.99, NFI = 0.99, IFI = 1.00, RMSEA = 0.07). Finally, we constrained each of the model paths to be equal across the family types one by one and compared each of the resulting χ^2 values and their *df* with those yielded at last step. A significant chi-square difference statistic ($\Delta\chi^2$) indicated a significant difference in a particular path across the family types. The results showed that the path from emotional awareness in parenting to negative parenting was significantly different across different family types ($\Delta\chi^2 = 4.93$, $\Delta df = 1$, $p = 0.03$), being significant in families of children with ASD while nonsignificant in families of TD children. The results indicated that the path from compassion for child to negative parenting was also significantly different across different families ($\Delta\chi^2 = 6.39$, $\Delta df = 1$, $p = 0.01$), being significant in families of TD children but nonsignificant in families of children with ASD. Standardized path coefficients and its 95% bias-corrected confidence intervals (CIs) are presented separately by family type in Fig. 1.

Discussion

The purpose of the current study was to compare mindful parenting and parenting practices in families of children with ASD and families of TD children among a sample of the Chinese population. Our findings demonstrated that compared to parents of TD children, parents of children with ASD showed less positive but more negative parenting behaviors, including less listening with full attention, less proactive parenting, less supportiveness, more lax control, and more physical control to their children. The findings also showed that in families of children with ASD, fathers showed less proactive parenting and supportiveness to their children than mothers. Moreover, we found that parents'

listening with full attention and awareness of children's emotions were significantly related to both positive and negative parenting practices in families of children with ASD. However, we did not find any child gender differences or any significant interaction effects between the family type and child gender on parenting behaviors.

Specifically, we found that Chinese parents of children with ASD tended to show less listening with full attention to their children than did parents of TD children. Because of high stress and psychological symptoms associated with raising children with ASD (Beer and Ward 2013; Boonen et al. 2014; Ting and Weiss 2017), it is unsurprising that parents of children with ASD lack of energy to fully engage in parent-child conversations and interactions. However, we did not find any differences between families of children with ASD and families of TD children in the emotional awareness and compassion for child aspects of mindful parenting. Considering the inconsistent results of examining differences in parental acceptance between parents of children with ASD and parents of TD children in previous studies (van Steijn et al. 2013; Ventola et al. 2017), it is important to note that different dimensions of mindful parenting may serve different roles in family dynamics. It may be that emotional awareness and compassion for child are common attitudes and behaviors for Chinese parents. Given the facts that most contemporary Chinese family have only one child, parents may pay more attentions and have high expectation to their only child (Settles et al. 2013). These more attentions and high expectation may make Chinese parents whose children with ASD lack of energy to listen with full attention to their children, and sensitivity to children's emotions and difficulties. Future research is encouraged to further explore the mechanisms underlying different aspects of mindful parenting by using complex research methods, such as experimental or interview design.

We found that Chinese parents of children with ASD tended to show less proactive parenting and less supportiveness to their children than parents of TD children. As mentioned above, parents of children with ASD may experience more parenting stress from child care and routine activities. Therefore, these parents may be unable to respond to the interests or needs of children with ASD or encourage them to express their ideas. Conversely, we found that parents of children with ASD tended to show more physical control of their children. This finding is consistent with previous studies that have shown that parents of children with ASD tend to display high levels of control and overprotectiveness (Gau et al. 2010; Rutgers et al. 2007). We also found that parents of children with ASD tended to show more lax control of their children. One possible reason for the more negative parenting practices might be that the challenging behaviors of children with ASD are visible and difficult to manage (Birtwell et al. 2016). When their patience is lacking, some parents of children with ASD may prefer to use high control practices to make their children obey their orders or ensure the safety of their children, while others may feel they do not have much energy to discipline their children and thus will tend to display more lax control in daily parenting practices. However, we did not find any differences between families of children with ASD and families of TD children in positive reinforcement, warmth, and hostility aspects of parenting practices. It may be that due to the one-child policy in China and the trend of globalization, it is a norm for contemporary Chinese parents to show more positive reinforcement, warmth, and compassion instead of hostility and punishment to their children (Settles et al. 2013; Xu et al. 2014). However, as mentioned above, these mixed results are need to further exploration by using complex research methods.

Regarding parent gender differences, we found that mothers showed more positive reinforcement and warmth to their children than fathers in both families of children with ASD and families of TD children. Our findings added to the knowledge on this line of research and were generally consistent with previous research showing that mothers display higher levels of mindful parenting and positive parenting practices than fathers (McKee et al. 2007; Moreira and Canavarro 2015; Reizer and Mikulincer 2007). Indeed, in the Chinese cultural context, mothers and fathers have a clear-cut distribution of responsibilities (Wu et al. 2012). Specifically, Chinese mothers pay closer attention to daily family routine tasks, shoulder the primary duties of child care, and foster children's development, while fathers may focus more on relations with the outside world and be responsible for providing and protecting the family by paying for family expenses or costs of intervention services for children with ASD (China Association of Persons with Psychiatric Disability and their Relatives 2014).

Furthermore, in contrast with those findings derived from Western culture (McKee et al. 2007; Mulhern and Passman 1981; Straus and Stewart 1999), we did not find any differences between fathers and mothers in negative parenting practices. We also did not find any differences between fathers and mothers in mindful parenting behavior, which was not consistent with most previous studies that have found that mothers exhibit higher levels of mindful parenting than fathers in Western countries (e.g., Moreira and Canavarro 2015; Pan et al. 2019; Parent et al. 2015). However, preliminary research on mindful parenting behaviors of Chinese parents demonstrated that no gender discrepancy existed (e.g., Han et al. 2019; Lo et al. 2018). These results might be explained by the core values in Chinese culture that emphasize the integral parenting roles of both mothers and fathers in child development despite

each role having different responsibilities. Another possible reason is the changing role of Chinese fathers from that of the traditional financial provider to a multifaceted executor of the whole family functioning; therefore, the increasing involvement of fathers in parenting with children with ASD has been an acceptable and visible trend. Further research is needed to thoroughly understand the gender effect on negative parenting practices and mindful parenting behaviors considering culture differences.

Furthermore, in families of children with ASD (but not in families of TD children), fathers showed less proactive parenting and supportiveness of their children than mothers. Indeed, women are more likely to be excellent caregivers and thus display more positive parenting practices compared to fathers (Christov-Moore et al. 2014; McKee et al. 2007; Moreira and Canavarro 2015). These differences may be more evident in the face of severe family pressures and children's problems. A previous study suggested that women experience more family events, while men experience more work and financial events (Matud 2004). Thus, fathers may be inexperienced in the face of severe family stress, such as children's problems, in daily life. Alternatively, it may be that too many work and financial stressors make fathers inpatient in their interactions with their developmentally handicapped children.

Consistent with previous studies (Bögels et al. 2014; Duncan et al. 2009; Parent et al. 2015), we found that listening with full attention was associated with more positive parenting practices and fewer negative parenting practices in both families of children with ASD and families of TD children. Parents who have higher levels of ability to listen with full attention to their children may be sensitive to children's needs and thus tend to display higher levels of adaptive parenting practices and lower levels of dysfunctional parenting practices than parents who have lower levels of this ability (de Bruin et al. 2014; Duncan et al. 2009; Parent et al. 2015). However, although we found that emotional awareness and compassion for children were positively associated with positive parenting practices, we found that parents' emotional awareness was negatively related to negative parenting in families of children with ASD (but not in families of TD children) and that compassion for children was negatively related to negative parenting in families of TD children (but not in families of children with ASD). Parents of children with ASD may be more likely to regard their children's emotional problems as abnormal and be more willing to reduce these symptoms than parents of TD children (Bögels et al. 2010). Once parents realize that their children's emotional problems, especially their negative emotions, have become severe, they deliberately avoid negative parenting practices to reduce their children's negative emotions and protect their children. Parents with TD children, however, are less likely to regard their children's emotional problems as psychological symptoms. These parents may even consider some negative parenting practices to be useful strategies to manage their children's emotional problems. Thus, although they recognize their children's emotions, parents with TD children may still tend to advocate some negative parenting practices and be unwilling to abandon them.

Conversely, compassion for children was found to be negatively related to negative parenting in families of TD children (but not in families of children with ASD). TD children are less likely to encounter difficulties than children with ASD. Parents of TD children may thus have energy to change their negative responses and behaviors to their children when they feel compassion for their children. However, children with ASD face difficulties every day, and even very small stimuli can cause strong reactions (Birtwell et al. 2016). In addition to the high stress from their children, parents of children with ASD also experience higher levels of marital conflict and have to engage in negotiations or battles with schools and therapists (Birtwell et al. 2016; Marks et al. 2016). Thus, although parents of children with ASD are sympathetic to their children, concerned for their children, and are willing to be with their children (Clark et al. 2019; Mark et al. 2016), their tremendous pressure and limited energy may make it impossible for them to always provide adequate parenting practices for their children.

Limitations and Future Research Directions

The present study examines the differences in parenting behaviors between families of children with ASD and families of TD children in non-Western countries with the consideration of gender differences. The findings of the present study provide us with a comprehensive understanding of parenting behaviors in families of children with ASD. However, some limitations and future directions should be highlighted. First, we used a convenience sample. It is unclear to what extent our results could be applied to other Chinese populations. Specifically, we did not obtain any ethnicity information of the participating families (e.g., Han, Zhuang), we thus failed to examine any ethnic differences within Chinese culture. The cognitive abilities, severity, and the functioning level of the children with ASD are not included in the study. More research needs to take these factors into careful consideration because the cognitive and language skills of children with ASD impact the parenting practices of their parents. In addition, the sample size was relatively small; thus, the findings of the present study should be interpreted with caution. We intend to conduct more studies using systematic sampling with larger Chinese samples in future research. We did not collect the data about children's developmental status in the sample of

TD children. The results of our study might be explained with concern. However, the TD sample in the present study is from regular general schools, in which children with server developmental disabilities were not enrolled. The sample issues may thus be less concern. Additionally, we did not ask participants whether they received any mindfulness or parenting interventions or course in the past. We thus failed to know if any differences were due to their previous exposure to mindfulness or parenting interventions.

Second, the data for this study is from cross-sectional self-report questionnaires, which only permit an examination of associations between validated measures without inferring directionality, and such methods are subject to the common method bias. The common method bias often occurs in behavioral research when participants are asked to report on their perceived experiences for multiple constructs in the same survey, which may lead to results confounded by report biases (e.g., response style and/or social desirability) rather than true associations (Podsakoff et al. 2003). Future studies are thus encouraged to employ a multimethod measurement strategy, such as observations of parenting behaviors. Longitudinal designs are also encouraged to examine the causal relationships between these relationships.

Third, we only examined mindful parenting and seven parenting practices in our study. Though the results showed that compared to parents of TD children, parents of children with ASD displayed lower levels of some aspects of mindful parenting and positive parenting practices, as well as higher levels of some aspects of negative parenting practices, we cannot conclude that parents of children with ASD displayed poor parenting behaviors at all levels. Parents of children with ASD may not be doing certain practices the same as parents of TD children, they may be doing other things instead which have the same outcome or meet the same need. Thus, it is significant to explore the overall and real-time interactions between parents and their children with ASD by using more methods, such as interview and daily diary.

Finally, fathers were found to show lower levels of positive parenting behaviors, especially in families of children with ASD in the present study. Indeed, mothers and fathers may affect child development in different manners, and fathers' involvement may play an important role in the family system (Cox and Paley 2003; Leaper 2002). For instance, fathers' involvement affects the quality of not only father-child relationships but also mother-child relationships and child outcomes (e.g., behavioral problems and psychological distress; Flouri and Buchanan 2003; Leaper 2002). Thus, future research is encouraged to explore the parenting abilities of fathers in different cultures.

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Compliance with Ethical Standards

Conflict of Interest The authors declare that they have no conflict of interest.

Ethical Approval All materials and procedures in the present study were approved by the Institutional Review Board of the Beijing Normal University.

Informed Consent Informed consent was obtained from all individual participants included in the study.

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