

## ORIGINAL ARTICLE

# Parental efficacy and well-being among Chinese parents of children with autism spectrum disorder: Mediated by social support and moderated by children's externalizing problem behaviors

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## ABSTRACT

This study examined the association between parental efficacy and well-being among Chinese parents of children with autism spectrum disorder (ASD), exploring the potential mediating and moderating mechanisms underlying this relationship. Participants included 386 parents (72% mothers;  $26.94 \pm 2.30$  years) with ASD in the study. Data were collected using the parenting sense of competence scale, the oxford happiness questionnaire, the perceived social support scale, and the strengths and difficulties questionnaire (parent edition). Analyses revealed significant positive correlations between parental efficacy, social support, and well-being, whereas children's externalizing problem behaviors exhibited a negative association with well-being. Mediation analysis indicated that social support partially explained the positive prediction of parental efficacy on well-being. Children's externalizing problem behaviors moderated the relationship between social support and well-being. This study delineates the psychological mechanisms connecting parental self-efficacy to well-being in ASD caregivers, providing a theoretical foundation for interventions to enhance family adaptation and quality of life.

**Key words:** parents of children with autism spectrum disorder, parental efficacy, well-being, social support, children's externalizing problem behaviors

## INTRODUCTION

Autism spectrum disorder (ASD) is a lifelong neurodevelopmental disorder that includes persistent difficulties in social interaction, communication impairments, and the presence of repetitive patterns of behavior or restricted interests (American Psychiatric Association, 2013). In China, the prevalence rate of ASD has been on a noticeable rise since 2000, with current

prevalence figures exceeding one per thousand children nationwide (Guo *et al.*, 2020). Children with ASD commonly present with comorbid psychiatric and behavioral conditions, notably attention-deficit/hyperactivity disorder (ADHD) and deficits in emotional regulation. These co-occurring disorders exacerbate challenges in cognitive development and social adaptation (Shoaib *et al.*, 2022). As a result, children with ASD frequently encounter discrimination and tremendous

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social pressure, facing challenges in accessing education and medical rehabilitation services (Kim *et al.*, 2023). Moreover, caring for a child with ASD places substantial financial and emotional strain on families, contributing to elevated parental stress levels and adversely affecting caregivers' mental health (Garrido *et al.*, 2021). In this context, parental well-being serves as a key indicator of mental health and a vital reflection of broader social welfare (Abtahi *et al.*, 2023). Therefore, identifying the determinants affecting the well-being of parents raising ASD children remains of significant importance.

Parental efficacy refers to the confidence parents have in effectively performing child-rearing tasks (Peng *et al.*, 2012). A substantial body of research underscores the pivotal role of parental efficacy in promoting adaptive coping among parents (Albanese *et al.*, 2019; Salo *et al.*, 2022; Tognasso *et al.*, 2022). Parental efficacy acts as a protective factor, mitigating the risk of psychological conditions such as postpartum depression, anxiety, and stress. For example, Holley *et al.* (2022) emphasized that enhancing mothers' parental efficacy is crucial for their well-being. Furthermore, a study focusing on mothers of newborns found a strong positive correlation between their sense of parental efficacy and well-being in the days following delivery (Botha *et al.*, 2020). This association is particularly salient in contexts where parents are responsible for children with neurodevelopmental, physical, or psychological impairments (Kan *et al.*, 2021). Empirical studies further suggest that parental efficacy has an amplified impact on parental well-being when addressing the complex and individualized needs of children with disabilities (Salvador *et al.*, 2019; Wang *et al.*, 2020). Building upon prior evidence, the present study proposes the hypothesis H1: Parental efficacy would positively and significantly predict the well-being of parents with ASD children.

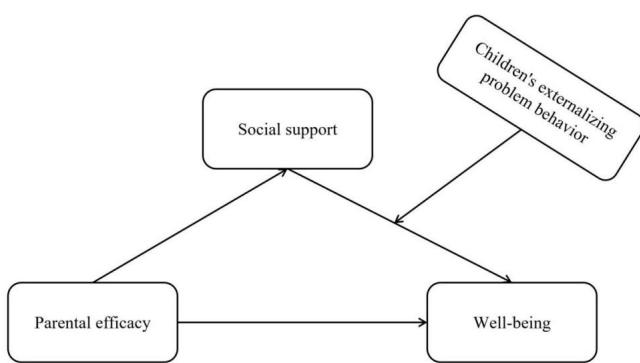
A wealth of empirical research has consistently highlighted the vital role that social support plays in enhancing well-being and reducing the risk of mental health problems (Chang *et al.*, 2023; Cohen, 2004). Grounded in social cognition theory, this relationship can be understood through the bidirectional influence between self-perceptions and social environments—where heightened parental efficacy facilitates the development of a robust and supportive social network, and enabled parents to access essential social and psychological resources, thereby contributed to the overall well-being of both the family and the individual (Cohen, 2004; Feng *et al.*, 2022). Furthermore, a growing body of studies has demonstrated the critical mediating function of social support in the context of well-being and mental health outcomes (Chang *et al.*, 2023; House *et al.*, 1988). For instance, emerging research has explored the interplay between positive psychological constructs—

including emotional intelligence and gratitude—and social support systems, examining their collective impact on subjective well-being (Kong *et al.*, 2012; Zeidner & Matthews, 2016). Of particular relevance, contemporary studies have identified social support as a significant mediator between psychological resources and well-being outcomes, specifically among caregivers of children with neurodevelopmental disorders (Feng *et al.*, 2022; Sarwar *et al.*, 2022). Building upon this empirical foundation, we formulate our second hypothesis (H2): Social support serves as a mediating mechanism in the association between parental efficacy and well-being for parents of children with ASD.

The family ecosystem model posits that the well-being of parents raising children with ASD is influenced by a complex interplay of parental characteristics, child-specific factors, and behavioral patterns (Goodman *et al.*, 2010; Minuchin, 1985). A particularly salient child-related factor in this dynamic is the manifestation of externalizing problem behaviors, which encompass overt disruptive actions including conduct problems, aggressive tendencies, oppositional defiance, and hyperactive behaviors—all of which significantly impair social functioning and interpersonal relationships (McDaniel & Radesky, 2020). Extensive empirical evidence has documented robust correlations between children's externalizing problem behaviors and compromised parental mental health (Olson *et al.*, 2022; Portnoy *et al.*, 2022). This relationship appears particularly acute among ASD caregivers, where the confluence of heightened parenting demands and persistent externalizing problem behaviors frequently results in elevated negative affect, prolonged stress exposure, and reduced quality of life (Olson *et al.*, 2022). Importantly, these externalizing problem behaviors may function as contextual risk factors that interact with protective mechanisms like social support, potentially attenuating their positive effects on psychological adjustment (Reitz *et al.*, 2006). Based on this theoretical and empirical foundation, we advance our third hypothesis (H3): ASD children's externalizing problem behaviors would significantly moderate the association between parental efficacy and the well-being of parents, with particular relevance to the mediating pathway involving social support.

Although existing studies have extensively explored parenting stress, social support, and coping mechanisms among parents of children with ASD, relatively limited emphasis has been placed on their well-being as an outcome of interest. Furthermore, existing research examining the relationship between parental efficacy and well-being within ASD caregiving contexts has often relied on linear or isolated models. Such approaches tend to neglect the multifaceted interactions between parental resources—such as social support—and child-related challenges, notably children's externalizing

problem behaviors. Addressing this gap, the present study introduces a moderated mediation model to comprehensively examine the relationship between parental efficacy and the well-being of parents with ASD children and the potential mediating and moderating mechanisms of social support and children's externalizing problem behaviors (see Figure 1).



**Figure 1.** A hypothesized moderated mediation model.

## METHODS

### Participants

A total of 400 parents of ASD children from four rehabilitation institutions and two maternal and child health hospitals in Guizhou Province and Guangdong Province participated in this study. All the children had hospital-related confirmed diagnosis certificates. Fourteen participants (3.50%) were excluded from the final analysis due to incomplete responses on the self-report instruments. The remaining parent sample ( $26.94 \pm 2.30$  years) consisted of 108 fathers (28%) and 278 mothers (72%). Regarding educational attainment, 48 parents (12.5%) had completed primary school or less, 119 (30.8%) had a junior high school education, 117 (30.3%) had completed senior high school, and 102 (26.4%) had attended higher vocational education or above. The ASD children ranged in age from 6 months to 7 years ( $3.24 \pm 1.52$  years). Regarding gender, there were 204 boys and 182 girls. Each participant took approximately 30 min to complete all measures *via* a questionnaire. This study was approved by the ethics committee of the School of Educational Sciences, Anshun University (ASU-JYXY-202307), and all participants provided informed consent at the beginning of the experiment.

### Measures

Parental efficacy was measured using the 12-item parenting sense of competence scale (PSOC; Gibaud-Wallston & Wandersman, 1978; Peng *et al.*, 2012). Items were rated on a 4-point Likert scale (1 = strongly disagree to 4 = strongly agree), with higher scores indicating greater perceived efficacy. In this study, the scale

demonstrated acceptable internal consistency (Cronbach's  $\alpha = 0.68$ ) and satisfactory structural validity ( $\chi^2/df = 2.70$ , goodness-of-fit index [GFI] = 0.94, adjusted goodness of fit index [AGFI] = 0.91, normed fit index [NFI] = 0.92, root mean squared error of approximation [RMSEA] = 0.07).

Well-being was assessed using the oxford happiness questionnaire (OHQ; Guo *et al.*, 2014; Hills & Argyle, 2002), which consists of 8 items rated on a 6-point scale (1 = strongly disagree to 6 = strongly agree). Higher scores reflect greater well-being. In this study, the OHQ exhibited good internal consistency (Cronbach's  $\alpha = 0.78$ ) and satisfactory structural validity ( $\chi^2/df = 3.71$ , GFI = 0.95, AGFI = 0.91, NFI = 0.90, RMSEA = 0.08).

Social support was measured using the 12-item multidimensional scale of perceived social support (MSPSS; Zimet *et al.*, 1988), which assesses support from family, friends, and significant others. Items are rated on a 7-point Likert scale (1 = strongly disagree to 7 = strongly agree), with higher scores indicating greater perceived support. The Chinese version has demonstrated cultural appropriateness and psychometric validity (Wu *et al.*, 2023). In the current study, internal consistency was good (Cronbach's  $\alpha = 0.81$ ), and model fit indices were satisfactory ( $\chi^2/df = 1.46$ , GFI = 0.97, AGFI = 0.95, NFI = 0.92, RMSEA = 0.04).

Children's externalizing problem behaviors were assessed using the parent-report version of the strengths and difficulties questionnaire (SDQ; Goodman *et al.*, 2010). Two subscales were used for this study: Conduct problems and hyperactivity, consisting of 10 items in total (Goodman *et al.*, 2010). Responses were rated on a three-point scale (0 = not true, 2 = certainly true), with higher scores indicating more severe behavioral difficulties. The instrument demonstrated acceptable reliability (Cronbach's  $\alpha = 0.69$ ), and structural validity was supported ( $\chi^2/df = 4.01$ , GFI = 0.94, AGFI = 0.90, NFI = 0.89, RMSEA = 0.08).

### Data analysis

Statistical analyses were carried out using IBM SPSS Statistics 27.0 (IBM Corp., Armonk, NY, USA) and AMOS 27.0 (IBM Corp., Armonk, NY, USA). This study employed Harman's single-factor test to assess the common method bias (Aguirre-Urreta & Hu, 2019). The results revealed that the first unrotated factor accounted for only 13.89% of the total variance, well below the conventional threshold of 40%, suggesting that common method bias was not a significant concern in this study. Subsequently, this study conducted the Pearson correlation analyses to investigate the relationships among all variables. Following this, a moderated mediation analysis

was conducted using Hayes' (2018) PROCESS macro (Model 14). Prior to analysis, all variables were standardized to z-scores. The children's externalizing problem behaviors were categorized into three distinct levels based on standard deviation units from the mean, following Hayes' (2018) classification criteria: Low ( $< M - 1SD$ ), medium ( $M \pm 1SD$ ), and high ( $> M + 1SD$ ). Two analytical models were specified to examine: (1) The potential mediating effect of social support, and (2) the hypothesized moderating influence of children's externalizing problem behaviors on the association between parental efficacy and well-being among Chinese parents of children with ASD. The models were tested with 5000 bootstrap resamples to generate bias-corrected 95% confidence intervals (CIs). Effects were considered statistically significant when the CIs did not include zero.

## RESULTS

### Descriptive statistics and correlation analyses

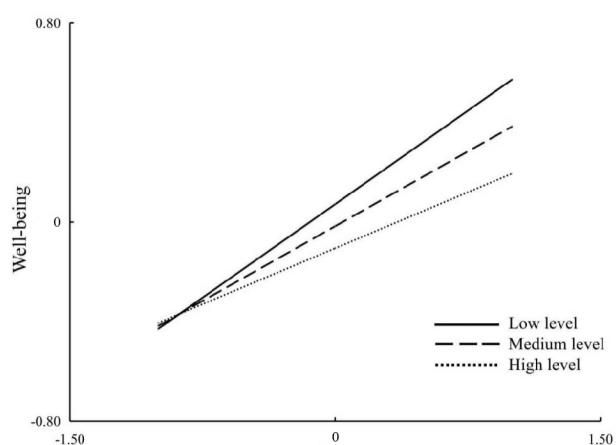
The descriptive statistics and Pearson correlations of all variables are presented in Table 1. The results found that well-being ( $3.58 \pm 0.76$ ) positively correlated with parental efficacy ( $2.40 \pm 0.31$ ,  $r = 0.31$ ,  $P < 0.001$ ) and social support ( $4.09 \pm 1.02$ ,  $r = 0.45$ ,  $P < 0.001$ ). The parental efficacy positively correlated with social support ( $r = 0.15$ ,  $P = 0.003$ ). Children's externalizing problem behaviors ( $9.67 \pm 2.71$ ) negatively correlated with parental efficacy ( $r = -0.25$ ,  $P < 0.001$ ), social support ( $r = -0.17$ ,  $P = 0.001$ ), and well-being ( $r = -0.21$ ,  $P < 0.001$ ).

### The moderated mediation analyses

The bootstrapping analysis revealed a significant association between parental efficacy and social support ( $\beta = 0.15$ ,  $t = 2.99$ , 95% CI = [0.05, 0.25]) in Model 1 (Table 2). In Model 2, the results found that both parental efficacy and social support had significant positive effects on well-being ( $\beta = 0.22$ ,  $t = 4.77$ , 95% CI = [0.13, 0.31];  $\beta = 0.40$ ,  $t = 9.03$ , 95% CI = [0.31, 0.49]). Moreover, children's externalizing problem behaviors had a significant negative effect on well-being ( $\beta = -0.09$ ,  $t = -2.01$ , 95% CI = [-0.18, -0.01]). Notably, the interaction of social support and children's externalizing problem behaviors had significant negative effect on well-being ( $\beta = -0.10$ ,  $t = -2.47$ , 95% CI = [-0.18, -0.02]). All of these results indicated social support as a mediator between parental efficacy and well-being. The mediating effect of social support was a significant ( $\beta = 0.06$ , 95% CI = [0.02, 0.12]), accounting for 21.4% of the total effect. The direct effect of parental efficacy was 0.22 (95% CI = [0.13, 0.31]), accounting for 78.6% of the total effect. In sum, parental efficacy was directly and indirectly related to well-being through social support.

None of the 95% CIs contained zero.

Further, we explored the moderated role of children's externalizing problem behaviors. As shown in Table 3 and Figure 2, social support was a significant positive predictor of well-being regardless of the level of children's externalizing problem behaviors. However, the positive prediction of social support on well-being continued to decrease as parents perceived more externalizing problem behaviors in ASD children. As shown in Figure 2, the slope representing the relationship between social support and well-being was steeper in the group with the low level of children's externalizing problem behaviors ( $\beta = 0.50$ ,  $t = 8.36$ , 95% CI = [0.38, 0.62]) and least steep in the group with the high level of children's externalizing problem behaviors ( $\beta = 0.30$ ,  $t = 4.96$ , 95% CI = [0.18, 0.42]). These results indicated that children's externalizing problem behaviors moderated the relationship between parental efficacy and well-being, specifically regarding social support and well-being.



**Figure 2.** The moderated effect of children's externalizing problem behaviors on the relationship between social support and well-being.

## DISCUSSION

This study empirically examined the association between parental efficacy and well-being among Chinese parents of children with ASD, while accounting for the mediating and moderating roles of social support and Children's externalizing problem behaviors. The results contribute to the existing literature by delineating how these interrelated factors collectively influence parental adjustment in a non-Western cultural context. Additionally, the results have significant practical implications for developing culturally appropriate interventions designed to improve mental health outcomes for parents of ASD children in China.

In line with the hypothesis H1, the present findings revealed a statistically significant positive relationship

**Table 1: Descriptive statistics and Pearson correlation coefficients (N = 386)**

Variables	Mean	Standard deviation	Parental efficacy	Well-being	Social support	Children's externalizing problem behaviors
Parental efficacy	2.40	0.31	-	0.31***	0.15**	-0.25***
Well-being	3.58	0.76	0.31***	-	0.45***	-0.21***
Social support	4.09	1.02	0.15**	0.45***	-	-0.17**
Children's externalizing problem behaviors	9.67	2.71	-0.25***	-0.21***	-0.17**	-

Note: \*\*P < 0.01, \*\*\*P < 0.001.

**Table 2: The moderated mediation model of social support and children's externalizing problem behaviors in the relationship between parental efficacy and well-being (N = 386)**

Predictor variable	Outcome variable	R <sup>2</sup> /ΔR <sup>2</sup>	F	β	SE	t	LLCI	ULCI
Model 1								
Parental efficacy	Social support	0.03	8.97**	0.15	0.05	2.99**	0.05	0.25
Model 2								
Parental efficacy	Well-being	0.28	37.16***	0.22	0.05	4.77***	0.13	0.31
Social support	-	-	-	0.40	0.04	9.03***	0.31	0.49
Children's externalizing problem behaviors	-	-	-	-0.09	0.05	-2.01*	-0.18	-0.01
Social support × Children's externalizing problem behaviors	-	0.01	6.10*	-0.10	0.04	-2.47*	-0.18	-0.02

Note: \*P < 0.05, \*\*P < 0.01, \*\*\*P < 0.001. LLCI, lower level confidence interval; ULCI, upper level confidence interval.

**Table 3: The moderating role of children's externalizing problem behaviors in the relationship between social support and well-being (N = 386)**

Children's externalizing problem behaviors	β	SE	t	LLCI	ULCI
Low level	0.50	0.06	8.36***	0.38	0.62
Medium level	0.40	0.04	9.03***	0.31	0.49
High level	0.30	0.06	4.96***	0.18	0.42

Note: \*\*\*P < 0.001. LLCI, lower level confidence interval; ULCI, upper level confidence interval.

between parental efficacy and the well-being of parents raising children with ASD. This result is consistent with prior empirical research, which has consistently highlighted the link between higher levels of parental efficacy and better mental health outcomes (Feng *et al.*, 2022; Wang *et al.*, 2020). Based on Bandura's self-efficacy theory (Bandura *et al.*, 2003), confidence in one's ability is critical in fostering positive emotions and enhancing overall well-being. Given the distinct challenges associated with the neurodevelopmental characteristics of children with ASD, parents often experience heightened stress. In this context, a strong sense of parental efficacy enhances parents' confidence to support and nurture their children effectively. This increased confidence strengthens the parent-child relationship and contributes positively to parental well-being (Y. Lu *et al.*, 2023; Salo *et al.*, 2022). Additionally, higher self-efficacy is associated with deploying adaptive coping strategies, such as effective emotional regulation, which further supports mental health (Caprara *et al.*, 2017). Overall, these findings highlight the central role

of parental efficacy as a personal resource in promoting well-being, particularly in the face of intensive caregiving demands.

To align with previous research (Feng *et al.*, 2022), the findings of this study support hypothesis H2, which indicates that social support partially mediates the relationship between parental efficacy and the well-being of parents of children with ASD. First, parental efficacy emerged as a significant positive factor influencing both social support and well-being. Parents who possess higher levels of parental efficacy are more likely to actively seek external resources and support, devote greater time and effort to understanding rehabilitation information, and engage in communication with other parents, ultimately leading to a greater sense of achievement in their children's rehabilitation. As a positive belief, parental efficacy facilitates the interaction of various beneficial resources from both internal and external sources, which, in turn, can influence well-being

(Cattelino *et al.*, 2021). Second, in accordance with the main effects model, social support is associated with a generalized positive impact, wherein increased social support contributes to improved well-being (Cohen & Wills, 1985). Specifically, social support has been shown to positively influence individual well-being and alleviate emotional challenges such as distress (Higgins *et al.*, 2023). Given the challenges of raising a child with ASD, parents may require additional external support, such as that provided by hospitals and rehabilitation centers. The function of social support in this study may be uniquely influenced by the collectivist cultural context of China. Unlike in individualistic cultures where peer empathy and emotional sharing are prioritized, Chinese parents of children with ASD may rely more heavily on support rooted in familial duty and interdependence. Thus, the social support parents receive becomes a key determinant of their overall well-being.

The study further revealed a significant moderating effect of children's externalizing problem behaviors on the parental efficacy-well-being relationship, particularly in the context of social support mediation, thereby confirming hypothesis H3. Drawing upon the conservation of resources theory (Hobfoll, 1989), we observe that while social support typically functions as a critical buffer against stress, its effectiveness becomes contingent upon the severity of children's externalizing problem behaviors. Families raising children with ASD encounter unique multidimensional stressors encompassing emotional, financial, and caregiving domains, where social support theoretically serves as a protective mechanism. However, our findings demonstrate a paradoxical relationship when examining children's externalizing problem behaviors. In cases of pronounced children's externalizing problem behaviors, the protective capacity of social support appears diminished, as parents must allocate substantial psychological resources to manage these challenges (M. Lu *et al.*, 2023; Siu *et al.*, 2019). This resource depletion creates a threshold effect where additional support fails to yield proportional well-being improvements, consistent with previous findings regarding parental distress (Yorke *et al.*, 2018). Specifically, in this depleted state, even when social support is available, parents may lack the residual energy or mental capacity required to effectively utilize this support. The cyclical nature of this dynamic warrants attention, as heightened parental stress may inadvertently exacerbate children's behavioral issues (Sun & Ruan, 2022). Conversely, when children's externalizing problem behaviors remain moderate, social support mechanisms operate more effectively, enabling parents to maintain emotional equilibrium and derive greater benefit from available resources. This differential impact underscores the complex interplay between parental psychological resources, environmental supports, and child characteristics in determining

caregiver outcomes. The current findings advance our understanding of these transactional processes, offering important theoretical implications for models of family adaptation and practical considerations for targeted intervention development.

This study yields several noteworthy theoretical and practical contributions to the existing literature. Primarily, it addresses a critical gap in research by elucidating the mediating and moderating pathways through which parental efficacy influences well-being in the context of ASD parenting. Our multidimensional analytical approach, which simultaneously considers caregiver characteristics (e.g., social support) and child-specific factors (e.g., children's externalizing problem behaviors), represents a novel contribution to this understudied area. This integrative framework provides a more nuanced understanding of the complex determinants affecting parental adjustment in ASD families. From an applied perspective, the findings have direct implications for family-centered intervention design. Given the pivotal role of family dynamics in the long-term rehabilitation of children with ASD, our results suggest that comprehensive support programs should adopt a dual focus: Strengthening parental psychological resources while simultaneously addressing children's externalizing problem behaviors. Consequently, interventions targeting self-efficacy enhancement, social network development, and behavioral management strategies may create synergistic benefits for both parents and children within the ASD population.

Several methodological and conceptual limitations should be acknowledged in interpreting the current findings. First, the cross-sectional design inherently limits our capacity to examine temporal dynamics, preventing causal inferences regarding how parental efficacy, social support, and children's externalizing problem behaviors may influence parental well-being across different developmental stages. For instance, it is also plausible that reduced parental well-being could lead to lower perceived self-efficacy or diminished social support. Longitudinal approaches would be necessary to capture these evolving relationships more accurately. Second, while this study focused on three key predictors of parental well-being, our conceptual framework did not incorporate other potentially influential variables. Subsequent research would benefit from investigating additional psychosocial and contextual factors, including but not limited to family socioeconomic circumstances (Schlebusch *et al.*, 2017) and experiences of stigma or discrimination (Ban *et al.*, 2021), which may interact with or moderate the observed relationships. Such expansion would provide a more comprehensive understanding of the multifaceted determinants of well-being in parents of children with ASD. Third, the children in this study were relatively young, and the parents were also younger in

age. Therefore, further research is needed to explore parental efficacy and well-being among families with older children with ASD.

## CONCLUSION

The present study identifies a significant link between parental efficacy and the well-being of Chinese parents with ASD children. Additionally, it underscores the mediating effect of social support and the moderating influence of children's externalizing problem behaviors within this relationship. By elucidating the predictors and underlying mechanisms that affect parental well-being, these findings offer important guidance for future research and the development of targeted interventions.

## DECLARATION

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### Author Contributions

Ji Sun: Study design, Data collection, Data analysis, Writing—Original draft; Yongfei Ban: Data collection, Data analysis, Writing—Review and Editing.

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### Ethical approval

This study was approved by the ethics committee of the School of Educational Sciences, Anshun University (ASU-JYXY-202307).

### Informed consent

All participants provided informed consent at the beginning of the experiment.

### Conflict of Interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

### Use of large language models, AI and machine learning tools

No AI tools were used.

### Data availability statement

Not applicable.

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