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The Mediating Role of Ambivalence Over Emotional Expression in Explaining the Effect of Cognitive Emotion Regulation Strategies on the Psychological Well-Being of Mothers of Children with Autism

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A B S T R A C T

Purpose: The present study aimed to examine the mediating role of ambivalence over emotional expression in explaining the effect of cognitive emotion regulation strategies on the psychological well-being of mothers of children with autism.

Methodology: This study employed a descriptive correlational design, and structural equation modeling was used for data analysis. The statistical population included all mothers of children with autism in special education schools and rehabilitation centers in Tehran during the 2021–2022 academic year. A total of 300 mothers were selected through convenience sampling and responded to the Ambivalence Over Emotional Expression Questionnaire (AEEQ; King & Emmons, 1990), the Cognitive Emotion Regulation Questionnaire (CERQ; Garnefski & Kraaij, 2006), and the Psychological Well-Being Scale (PWB; Ryff, 1989). The collected data were analyzed using confirmatory factor analysis with AMOS 24 software.

Findings: Structural equation modeling results indicated that all goodness-of-fit indices supported an acceptable fit of the structural model with the collected data. Maladaptive emotion regulation strategies negatively and significantly predicted psychological well-being, while adaptive emotion regulation strategies positively and significantly predicted psychological well-being in mothers of children with autism. Ambivalence over emotional expression negatively and significantly predicted psychological well-being in these mothers ($p = .001$). Moreover, among mothers of children with autism, ambivalence over emotional expression significantly mediated the relationship between emotion regulation strategies and psychological well-being ($p = .001$).

Conclusion: The findings of this study can be useful for counselors, psychologists, and professionals working in the field of autism.

Keywords: *Cognitive emotion regulation strategies, ambivalence over emotional expression, psychological well-being, mothers, autism*

1. Introduction

Parents of children with developmental disorders are among the most vulnerable caregivers to stress and may experience various psychological problems (Abdelaziz et al., 2024). One type of developmental disorder in children is Autism Spectrum Disorder (ASD), which in this article is primarily referred to as autism. Autism is a developmental condition characterized by specific features (Karna & Stefaniuk, 2024; Ramezani & Zangeneh Motlagh, 2023; Rashmani & Mojtabaie, 2023). Children with autism may have difficulties in social interaction and communication skills, such as social interest and social abilities (Azizi et al., 2024). The manifestations of autism vary depending on the child's developmental level and chronological age and are associated with numerous behavioral symptoms, including hyperactivity, impulsive behaviors, aggression, self-injurious behaviors, irritability, and delayed toilet training (Hirota & King, 2023).

The prevalence of autism continues to rise. Before 2000, the estimated prevalence was between two to five or at most 15 to 20 children with autism per 1,000 births, or approximately 1 to 2 children per 1,000 individuals in the global population. In 2000, the Autism Society of America announced that 60 children with autism were identified per 10,000 births. More recently, the Centers for Disease Control and Prevention (CDC) in the United States reported that the prevalence of autism among children in the U.S. is 1.5%, with a 30% increase over two years (Buchholz et al., 2024; Zekri et al., 2024). In a study by Gorji et al. (2021), the prevalence of autism in Iran was reported as 2.95 per 10,000 children (Gorji et al., 2021).

Parents raising children with autism face unique challenges. Compared to parents of children with other disabilities and parents of typically developing children, parents of children with autism report lower quality of life, experience higher levels of depression, and have a more pessimistic outlook on the future (Kim et al., 2021; Lee et al., 2023; Schnabel et al., 2020; Turnage & Conner, 2022). These symptoms are more common in mothers than fathers, which may be related to the maternal role in creating family environments and managing household dynamics (Desquenne Godfrey et al., 2023). Additionally, mothers, as the primary caregivers, tend to experience guilt, tension, and concerns about their caregiving skills (Sanjaya et al., 2022).

One personal ability involved in problem-solving and stress management is psychological well-being. Mothers who experience high levels of stress, depression, and psychological pressure report lower psychological well-being (Alsa et al., 2021). Psychological well-being is a highly complex personal phenomenon that develops through human activity within real-world relational systems. It can be described as a sense of life satisfaction, quality of life, personal self-actualization, and the establishment of objective and subjective values. Psychological well-being consists of several dimensions, including evaluative well-being (life satisfaction), hedonic well-being (feelings of happiness, sadness, etc.), and eudaimonic well-being (a sense of purpose and meaning in life) (Taghizadeh et al., 2024). Research has demonstrated that the psychological well-being of mothers of children with autism is significantly affected by their child's condition, and these mothers generally experience lower psychological well-being (Alghamdi et al., 2022; Hampton et al., 2022). The psychological well-being of mothers of children with autism, which is associated with good quality of life and mental health, influences their ability to adapt to their children's conditions and, consequently, optimizes caregiving (Hsiao, 2016). Therefore, psychological well-being is essential for mothers, as self-appreciation can enable them to provide better care and education for their children (Neff & Faso, 2015). One of the factors that may influence psychological well-being is cognitive emotion regulation strategies (Akfirat, 2020).

Cognitive emotion regulation refers to the process by which individuals respond to, manage, and modify their emotional experiences to achieve personal goals and meet environmental demands (Thompson, 2019). Specifically, cognitive emotion regulation involves conscious and cognitive strategies that individuals employ to regulate emotional and behavioral responses to emotionally stimulating events (Adrian et al., 2011; Gratz & Roemer, 2004). The ability to successfully regulate impulses and emotional behaviors is increasingly important for the quality of life of mothers and can facilitate adaptive psychological and social functioning throughout life (Garnefski & Kraaij, 2006; Megreya et al., 2020). When facing difficulties and challenges, individuals use cognitive emotion regulation strategies to either reduce or intensify the maintenance of emotional experiences. Cognitive emotion regulation consists of both positive and negative strategies (Garnefski & Kraaij, 2006). These strategies represent how individuals cope with stressful situations and adverse events. In essence, cognitive emotion regulation reflects an individual's cognitive processing when encountering stressful situations (Garnefski & Kraaij, 2006). Negative cognitive emotion

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regulation strategies include self-blame, other-blame, rumination, catastrophizing, and minimization, while positive strategies include positive refocusing, positive reappraisal, acceptance, and refocusing on planning (Garnefski & Kraaij, 2006). Overall, an individual's well-being results from a dynamic interaction between using certain positive and negative strategies, as well as an accurate assessment of stressful situations (Garnefski & Kraaij, 2006). Research by Morrish et al. (2018) supports the association between cognitive emotion regulation and dimensions of psychological well-being (Morrish et al., 2018).

A review of previous research indicates that psychological well-being is partially associated with ambivalence over emotional expression (Lee & Seo, 2019; Park, 2018; Shefaley Phebe & Kadaba, 2019). Additionally, findings (Geun et al., 2023; Lee & Chung, 2020) demonstrated a significant relationship between ambivalence over emotional expression and cognitive emotion regulation strategies. These findings suggest the hypothesis that the relationship between psychological well-being and cognitive emotion regulation may be indirect and mediated by variables such as ambivalence over emotional expression.

Ambivalence over emotional expression refers to a mismatch between internal emotions and outward or adaptive behaviors. In other words, it reflects an internal conflict in expressing positive or negative emotions and a fear of negative consequences resulting from such expression (Wang et al., 2022). Previous studies have shown that ambivalence over emotional expression is associated with high levels of psychological distress and symptoms of depression and anxiety (Bryan et al., 2016). Specifically, King and Emmons (1990) stated that individuals with high ambivalence over emotional expression tend to overinterpret others' reactions in social interactions, engage in excessive rumination, and perceive potential negative feedback from others as a psychological stressor. Additionally, due to their difficulty in appropriately expressing emotions, they struggle with self-disclosure as an effective coping strategy during negative life experiences (Lu et al., 2018), making it challenging for them to seek social support as a solution. Moreover, internalizing symptoms such as depression and anxiety, which contribute to emotional difficulties, are strongly correlated with ambivalence over emotional expression (Bryan et al., 2016). Therefore, individuals with high ambivalence over emotional expression are more likely to experience emotional and cognitive difficulties, both of which are essential components of psychological well-being (Dinner, 2012). Furthermore, individuals with ambivalence over emotional expression may exhibit rigidity when facing changes and different situations, which can result in difficulties adapting to life changes and overcoming challenges (King & Emmons, 1990; Wang et al., 2022).

Given the increasing prevalence of autism, the mental health challenges faced by parents, and the broad range of interactional, behavioral, and communicative difficulties of these children—which appear to alter parenting patterns, parental behavior, and family routines—addressing psychological well-being and its related variables, as well as developing strategies to facilitate educational and supportive activities for these children and their families, is an urgent necessity. Most previous research on factors influencing maternal well-being for children with special needs has examined associations between two or more variables, while studies on the structural and simultaneous relationships among these variables are limited. Since caregiving for children with special needs can be particularly challenging for mothers, they may experience greater daily stressors, which negatively impact their behaviors, emotions, and psychological health. Additionally, balancing personal needs with those of their children can be a challenging experience, making improvements in psychological well-being more difficult. Therefore, it is crucial to examine these factors and their interrelationships. The primary research question of this study was whether the relationship between psychological well-being and cognitive emotion regulation strategies is significantly mediated by ambivalence over emotional expression in mothers of children with autism.

2. Methods and Materials

2.1. Study Design and Participants

The present study was fundamental in terms of its objective and employed a descriptive correlational design based on structural equation modeling for data collection and analysis. The statistical population comprised all mothers of children with autism enrolled in special education schools and rehabilitation centers in Tehran during the 2021–2022 academic year. A total of 300 mothers were selected through convenience sampling. In structural equation modeling methodology, the sample size is generally determined to range between 5 to 15 observations per measured variable. Based on this principle, a sample size of 300 participants was considered for this study.

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The inclusion criteria for the study were: (1) a minimum educational level of a middle school diploma, (2) a child diagnosed with autism spectrum disorder, and (3) informed and voluntary consent to participate in the research. The exclusion criteria included: (1) incomplete responses to the questionnaires and (2) a history of psychological disorders.

The study was initiated after obtaining the necessary approvals from Islamic Azad University, Karaj Branch. Following coordination with the research department of the Tehran Department of Education and the Special Education Organization, permission was obtained to enter special education schools and rehabilitation centers for children with autism in Tehran.

After securing the participation of the parents, the study's objectives and benefits were explained to them, and the procedure for completing the instruments was clarified. To ensure that participants did not experience mental or physical fatigue, the administration of the instruments was conducted carefully, and participants' understanding was verified before completion. Participants were assured that they would be informed of the study's results. The questionnaires were administered by the researcher and two trained research assistants with experience in the assessment and treatment of children with autism.

2.2. Measures

2.2.1. Ambivalence Over Emotional Expression

Ambivalence Over Emotional Expression Questionnaire (AEQ): The original AEQ was developed by King and Emmons (1990) and consists of 28 items with two subscales: ambivalence over positive emotional expression and ambivalence over negative emotional expression. In Iran, this questionnaire was validated by Alavi et al. (2017). Exploratory factor analysis confirmed the two-factor structure similar to the original version, and after removing five items from the original 28, a 23-item version was validated. The Cronbach's alpha coefficients for the total scale and its subscales ranged from 0.77 to 0.86, and the Spearman-Brown coefficient ranged from 0.77 to 0.88. The test-retest reliability ranged from 0.72 to 0.79. Items 1, 4, 6, 9, 13, 14, 16, 18, 20, and 22 assess ambivalence over positive emotional expression, while items 2, 3, 5, 7, 8, 10, 11, 12, 15, 17, 19, 21, and 23 assess ambivalence over negative emotional expression. The possible scores range from 23 to 115, with higher scores indicating higher ambivalence over emotional expression. Responses are rated on a 5-point Likert scale (1 = never, 2 = rarely, 3 = sometimes, 4 = often, 5 = always), and the questionnaire does not include reverse-scored items. In a study by Alavi et al. (2017), the mean AEQ score in a sample of 521 participants was 70.35, with a standard deviation of 13.71 (Alavi et al., 2017). In the original study by King and Emmons (1990), Cronbach's alpha was 0.89 for the total scale, 0.87 for ambivalence over positive emotional expression, and 0.77 for ambivalence over negative emotional expression (King & Emmons, 1990). In the present study, Cronbach's alpha was 0.78 for ambivalence over positive emotional expression and 0.84 for ambivalence over negative emotional expression.

2.2.2. Cognitive Emotion Regulation

Cognitive Emotion Regulation Questionnaire (CERQ): The CERQ was developed by Garnefski and Kraaij (2006) and consists of 18 items rated on a 5-point Likert scale ranging from 1 (never) to 5 (always). The total score ranges from 18 to 90, with higher scores indicating greater cognitive emotion regulation. The questionnaire includes nine subscales: self-blame (items 1, 2), other-blame (items 17, 18), rumination (items 5, 6), catastrophizing (items 15, 16), minimization (items 13, 14), positive refocusing (items 7, 8), positive reappraisal (items 11, 12), acceptance (items 3, 4), and refocusing on planning (items 9, 10). Garnefski and Kraaij (2006) reported a Cronbach's alpha of 0.80 for the total scale (Garnefski & Kraaij, 2006). In Iran, Besharat and Bazazian (2012) examined the psychometric properties of the CERQ in a sample of 487 participants (226 men, 252 women), reporting Cronbach's alpha values of 0.73 for self-blame, 0.87 for other-blame, 0.75 for rumination, 0.90 for catastrophizing, 0.80 for minimization, 0.86 for positive refocusing, 0.83 for positive reappraisal, 0.87 for acceptance, and 0.87 for refocusing on planning. The validity of the instrument in Iran was confirmed through correlations between total scores and subscale scores, ranging from 0.40 to 0.68 (Besharat & Bazazian, 2012). In the present study, Cronbach's alpha coefficients were 0.67 for acceptance, 0.61 for positive refocusing, 0.55 for refocusing on planning, 0.52 for positive reappraisal, 0.64 for minimization, 0.71 for self-blame, 0.66 for other-blame, 0.59 for catastrophizing, and 0.68 for rumination.

2.2.3. Psychological Well-Being

This scale was developed by Ryff (1989) and comprises six dimensions: self-acceptance, autonomy, positive relations with others, purpose in life, personal growth, and environmental mastery. Ryff designed a 120-item version of

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the scale, with 20 items per dimension. Additionally, shorter versions with 84, 42, and 18 items are available; the present study utilized the 84-item version. Responses are rated on a 6-point Likert scale ranging from 1 (strongly disagree) to 6 (strongly agree). The scale's dimensions include self-acceptance (items 6, 12, 18, 24, 30, 36, 42, 48, 54, 60, 66, 72, 78, 84), positive relations with others (items 1, 7, 13, 19, 25, 31, 37, 43, 49, 55, 61, 67, 73, 79), autonomy (items 2, 8, 14, 20, 26, 32, 38, 44, 50, 56, 62, 68, 74, 80), environmental mastery (items 3, 9, 15, 21, 27, 33, 39, 45, 51, 57, 63, 69, 75, 81), purpose in life (items 5, 11, 17, 23, 29, 35, 41, 47, 53, 59, 65, 71, 77, 83), and personal growth (items 4, 10, 16, 22, 28, 34, 40, 46, 52, 58, 64, 70, 76, 82). Cronbach's alpha for the scale has been reported to range between 0.72 and 0.89 (Ryff, 1989). Additionally, factor analysis supports the six-factor structure. Bayani et al. (2008) examined the reliability of the scale in Iran, reporting Cronbach's alpha values of 0.77 for environmental mastery, 0.77 for positive relations, 0.78 for personal growth, 0.71 for self-acceptance, 0.70 for purpose in life, and 0.82 for autonomy (Bayani et al., 2008). In the present study, Cronbach's alpha values were 0.84 for environmental mastery, 0.83 for positive relations, 0.82 for personal growth, 0.79 for self-acceptance, 0.89 for purpose in life, and 0.78 for autonomy.

2.3. Data Analysis

The collected data were analyzed using descriptive and inferential statistical methods. Descriptive statistics, including means, standard deviations, and frequency distribution tables, were used to analyze demographic and research variables. For hypothesis testing, inferential analyses, including Pearson correlation and multiple regression, were conducted after verifying statistical assumptions such as normality (Kolmogorov-Smirnov test), linearity, and multicollinearity (tolerance and variance inflation factor). Structural equation modeling was used to examine the mediating role of ambivalence over emotional expression in the relationship between cognitive emotion regulation strategies and psychological well-being. Data were analyzed using SPSS v.24 and AMOS v.23, with a significance level of 0.05.

3. Findings and Results

The present study included 300 mothers of children with autism. Among them, 6 participants (2%) were younger than 25 years old, 72 participants (24%) were between 26 and 30 years old, 164 participants (54.7%) were between 31 and 35 years old, 39 participants (13%) were between 36 and 40 years old, and 19 participants (6.3%) were older than 40 years. In terms of educational background, 107 participants (35.7%) had below high school education, 124 participants (41.3%) had completed high school, 54 participants (18%) held a bachelor's degree, and 15 participants (5%) held a master's degree. Regarding employment status, 81 participants (27%) were employed, while 219 participants (73%) were homemakers. The gender distribution of their children included 214 boys (71.3%) and 86 girls (28.7%). The children's age distribution was as follows: 59 children (19.7%) were between 4 and 6 years old, 108 children (36%) were between 7 and 10 years old, 91 children (30.3%) were between 11 and 15 years old, and 42 children (14%) were older than 15 years. Table 1 presents the descriptive statistics of the study variables.

Table 1

Means, Standard Deviations, Skewness, Kurtosis, Tolerance, and Variance Inflation Factor for the Study Variables

No.	Variable	Mean	SD	Skewness	Kurtosis	Tolerance	VIF
1	Adaptive Strategies – Acceptance	5.97	1.63	–0.45	–0.58	0.64	1.56
2	Adaptive Strategies – Positive Refocusing	5.86	1.78	–0.03	0.77	0.58	1.72
3	Adaptive Strategies – Refocusing on Planning	5.34	1.69	–0.35	–0.80	0.47	2.12
4	Adaptive Strategies – Positive Reappraisal	5.66	1.72	–0.13	–0.59	0.63	1.59
5	Adaptive Strategies – Minimization	5.02	2.03	–0.08	–0.43	0.70	1.43
6	Maladaptive Strategies – Self-Blame	6.13	2.12	0.19	–0.67	0.71	1.41
7	Maladaptive Strategies – Other-Blame	6.11	1.98	–0.24	0.46	0.59	1.69
8	Maladaptive Strategies – Catastrophizing	5.69	1.86	–0.20	–0.94	0.64	1.57
9	Maladaptive Strategies – Rumination	6.16	2.23	0.22	–0.46	0.62	1.62
10	Ambivalence – Positive Emotional Expression	28.62	6.24	–0.52	–0.32	0.53	1.88
11	Ambivalence – Negative Emotional Expression	37.54	7.82	–0.45	–0.09	0.52	1.91
12	Psychological Well-Being – Self-Acceptance	43.83	9.50	–0.16	0.48	–	–
13	Psychological Well-Being – Positive Relations	45.25	9.68	–0.14	0.03	–	–
14	Psychological Well-Being – Autonomy	51.49	10.28	–0.21	–0.19	–	–
15	Psychological Well-Being – Environmental Mastery	46.62	9.07	–0.17	–0.53	–	–
16	Psychological Well-Being – Purpose in Life	53.40	10.73	–0.12	–0.06	–	–
17	Psychological Well-Being – Personal Growth	44.78	9.12	–0.28	–0.19	–	–

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Moreover, the correlation coefficients between the variables were in the expected direction and aligned with the theoretical foundations of the study (the results where not included in this paper due to its high size). To assess the normality of the univariate data distribution, skewness and kurtosis of each variable were examined. The results indicated that the skewness and kurtosis indices for all components fell within the ±2 range, confirming that the assumption of univariate normality was met. The assumption of multicollinearity was evaluated using the Variance Inflation Factor (VIF) and tolerance values. As shown in Table 1, this assumption was also met, as the tolerance values for predictor variables were greater than 0.1, and the VIF values were below 10. Finally, to assess the assumption of multivariate normality, Mahalanobis distance was analyzed. The skewness and kurtosis values for Mahalanobis distance were found to be 0.54 and 0.43, respectively, indicating that the assumption of multivariate normality was satisfied.

After evaluating these assumptions, the structural model's goodness-of-fit with the data was examined using structural equation modeling in AMOS 24.0 with Maximum Likelihood (ML) estimation. The hypothesized structural model posited that cognitive emotion regulation strategies would influence the psychological well-being of mothers of children with autism both directly and indirectly through the mediation of ambivalence over emotional expression. Table 2 presents the goodness-of-fit indices for the structural model.

Table 2

Goodness-of-Fit Indices for the Structural Model

Fit Index	Model Value	Cutoff Point
Chi-square (χ^2)	240.48	-
Degrees of Freedom (df)	113	-
χ^2/df	2.13	< 3
Goodness-of-Fit Index (GFI)	0.911	> 0.90
Adjusted Goodness-of-Fit Index (AGFI)	0.883	> 0.85
Comparative Fit Index (CFI)	0.926	> 0.90
Root Mean Square Error of Approximation (RMSEA)	0.061	< 0.08

Table 2 shows that the goodness-of-fit indices support an acceptable fit of the structural model with the collected data (χ^2/df = 2.13, CFI = 0.926, GFI = 0.911, AGFI = 0.883, RMSEA = 0.061). The highest factor loading belonged to the indicator of positive emotional expression (β = 0.812), while the lowest factor loading was for the indicator of autonomy (β = 0.462). Since all factor loadings exceeded the 0.32 threshold, it can be concluded that all indicators were adequately capable of measuring their respective latent variables. Table 3 presents the path coefficients in the structural model.

Table 3

Total and Direct Path Coefficients Between Study Variables in the Structural Model

Effect Type	Path	b	S.E.	β	p
Direct	Maladaptive Strategies → Ambivalence	1.219	0.330	0.356	0.001
Direct	Adaptive Strategies → Ambivalence	-1.240	0.283	-0.386	0.001
Direct	Ambivalence → Psychological Well-Being	-0.076	0.019	-0.548	0.001
Direct	Maladaptive Strategies → Psychological Well-Being	-0.124	0.157	-0.069	0.416
Direct	Adaptive Strategies → Psychological Well-Being	0.615	0.227	0.366	0.001
Indirect	Maladaptive Strategies → Psychological Well-Being	-0.372	0.131	-0.208	0.001
Indirect	Adaptive Strategies → Psychological Well-Being	0.381	0.122	0.225	0.001
Total	Maladaptive Strategies → Psychological Well-Being	-0.496	0.172	-0.277	0.001
Total	Adaptive Strategies → Psychological Well-Being	0.994	0.208	0.591	0.001

Table 3 shows that the total path coefficient between maladaptive strategies and psychological well-being was negative and significant (β = -0.277, p = 0.001), while the total path coefficient between adaptive strategies and

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psychological well-being was positive and significant (β = 0.591, p = 0.001). The path coefficient between ambivalence over emotional expression and psychological well-being was also negative and significant (β = -0.548, p = 0.001). The indirect path coefficient between maladaptive strategies and psychological well-being was negative and significant (β = -0.208, p = 0.001), whereas the indirect path coefficient between adaptive strategies and psychological well-being was positive and significant (β = 0.225, p = 0.001).

Based on these findings, it can be concluded that, among mothers of children with autism, ambivalence over emotional expression mediates the relationship between cognitive emotion regulation strategies and psychological well-being. Specifically, ambivalence mediates the positive effect of adaptive emotion regulation strategies on psychological well-being and the negative effect of maladaptive strategies on psychological well-being.

Figure 1

Standardized Path Coefficients in the Structural Model

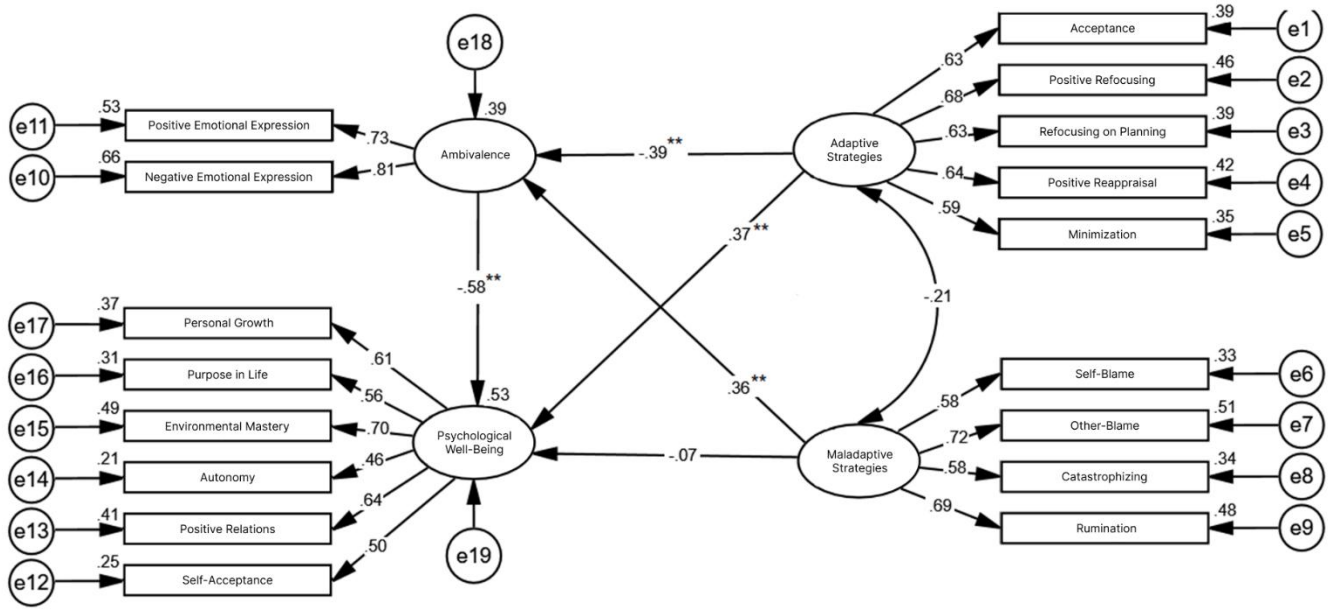

Figure 1 presents the standardized parameters of the structural model based on the collected data. The results indicate that the total multiple squared correlation (R^2) for psychological well-being was 0.53, meaning that cognitive emotion regulation strategies and ambivalence over emotional expression together explained 53% of the variance in the psychological well-being of mothers of children with autism.

4. Discussion and Conclusion

The aim of this study was to examine the mediating role of ambivalence over emotional expression in explaining the effect of cognitive emotion regulation strategies on the psychological well-being of mothers of children with autism. The results obtained from structural equation modeling, after achieving a satisfactory model fit, indicated that the indirect path coefficient between maladaptive strategies and psychological well-being was negative, whereas the indirect path coefficient between adaptive strategies and psychological well-being was positive and significant. Based on these findings, it was concluded that among mothers of children with autism, ambivalence over emotional expression mediates the relationship between adaptive emotion regulation strategies and psychological well-being positively, while mediating the relationship between maladaptive emotion regulation strategies and psychological well-being negatively and significantly.

Similarly, Moradi Kia et al. (2016) examined the effectiveness of emotion regulation training on the psychological well-being of mothers of students with intellectual disabilities and found that such training significantly enhanced their well-being (Moradi Kia et al., 2016). Soleimani and Habibi (2014) demonstrated that emotion regulation and resilience are positively and

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significantly related to psychological well-being (Soleimani & Habibi, 2014). Moreover, the findings of Nuske et al. (2018) indicated that children's emotional outbursts and reduced use of adaptive emotion regulation strategies are associated with lower quality of life and psychological well-being in families (Nuske et al., 2018). Laslo-Roth et al. (2023) further showed that healthy interpersonal emotion regulation for positive emotions and perceived social support can help reduce loneliness and enhance the psychological well-being of mothers of children with autism (Laslo-Roth et al., 2023). Megreya et al. (2020) reported that mothers of children with autism experience higher levels of anxiety and depression and are less likely to use positive reappraisal, positive refocusing, and refocusing on planning compared to mothers of typically developing children. Additionally, mothers of children with autism exhibited higher levels of anxiety (but not depression) and used positive reappraisal less frequently than mothers of neurotypical children. Other cognitive emotion regulation strategies (self-blame, rumination, perspective-taking, catastrophizing, and other-blame) were used similarly by all mothers. Furthermore, the correlation patterns between cognitive emotion regulation strategies and anxiety and depression were generally consistent across the three groups of mothers; however, anxiety and depression were positively correlated with other-blame only in mothers of children with autism (Megreya et al., 2020).

The findings of prior studies (Geun et al., 2023; Laslo-Roth et al., 2023; Lee et al., 2023; Lee & Seo, 2019; Morrish et al., 2018; Park, 2018; Shefaley Phebe & Kadaba, 2019; Thompson, 2019) were also implicitly consistent with the present study. However, Kraiss et al. (2020) found that only rumination, reappraisal, and acceptance were significantly related to psychological well-being (Kraiss et al., 2020), while no significant relationships were observed with other components. These findings were inconsistent with the present study.

To explain these findings, it can be argued that mothers of children with autism face unique challenges and stressors in raising and caring for their children. In this context, ambivalence over emotional expression may serve as a mediator between cognitive emotion regulation strategies and psychological well-being. This suggests that ambivalence over emotional expression may not directly impact psychological well-being but may influence it through its effect on cognitive emotion regulation strategies (e.g., by organizing thoughts and emotions).

Adaptive cognitive emotion regulation strategies, such as acceptance, refocusing on planning, positive refocusing, minimization, and positive reappraisal, are generally considered beneficial for managing and regulating emotions. However, these strategies may also negatively impact ambivalence in emotional expression. For instance, acceptance involves acknowledging and embracing emotions without judgment. When individuals practice acceptance, they are less likely to suppress or hide their emotions, which can reduce ambivalence (Geun et al., 2023). In these individuals, emotions are fully recognized and experienced, leaving less room for inner conflicts between different emotions.

Similarly, the strategy of refocusing on planning involves directing attention toward problem-solving and planning when facing emotional challenges. By focusing on practical solutions, individuals may be less likely to feel conflicted between opposing emotions, thereby reducing ambivalence (Laslo-Roth et al., 2023; Lee et al., 2023). Additionally, positive refocusing involves shifting attention toward positive aspects or experiences in life, which can help minimize negative emotions and internal conflicts, leading to reduced ambivalence in emotional expression (Lee & Chung, 2020).

Minimization involves looking at situations from different perspectives with empathy and understanding, thereby reducing the perceived burden of problems (Kinnunen et al., 2015). When individuals practice this strategy, they may gain new insights into the underlying causes of their emotions and experiences, helping to resolve internal conflicts and ambivalence. Finally, positive reappraisal is a cognitive strategy that involves reinterpreting events with a more positive outlook (Akfirat, 2020; Alghamdi et al., 2022). By reframing situations in a more positive manner, mothers may experience fewer conflicting emotions, leading to a reduction in ambivalence.

In summary, adaptive cognitive emotion regulation strategies can help mothers of children with autism effectively manage their emotions and reduce ambivalence over emotional expression (Kinnunen et al., 2015). These strategies encourage mothers to approach their emotions with acceptance, awareness, and understanding, leading to more harmonious emotional experiences and fewer internal conflicts contributing to ambivalence (Valiquette-Tessier et al., 2019). As a result, high levels of psychological well-being can be achieved. Mothers who accept their emotions in response to the challenges of raising a child with autism are likely to experience reduced emotional distress and

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increased emotional flexibility (Nomaguchi & Milkie, 2020), as well as greater control over their circumstances.

Having a sense of agency and the ability to cope with challenges can enhance self-confidence and a sense of accomplishment, both of which contribute to improved mental well-being. These factors encourage active engagement and a focus on positive experiences, even amidst challenges, which can improve overall mood and well-being (Rutherford et al., 2015). Emphasizing the development of positive thinking toward one's child can create a more balanced emotional experience for mothers, aligning with higher psychological well-being.

One limitation of this study was the use of convenience sampling due to the large sample size. Given this limitation and the lack of control over moderating, mediating, and facilitating variables, future research should examine the impact of these factors. Additionally, qualitative studies and interviews should be conducted to provide a deeper understanding and to enhance the validity of the measurements. Future research could also compare mothers of children with autism to those raising children with other developmental disorders (e.g., ADHD, cerebral palsy, intellectual disabilities).

Based on the findings of this study, practical recommendations can be made to improve the psychological well-being of mothers of children with autism. These recommendations may be particularly beneficial for special education program developers, counselors, and autism therapists. For example, the development of appropriate educational programs could help mothers learn effective strategies for managing ambivalence over emotional expression, achieving alignment between their emotions and expressions without doubt, hesitation, or suppression.

Programs focused on empowerment in coping with change can equip mothers with the necessary skills to face challenges with balance and adaptability. Additionally, training packages on emotion regulation skills could help mothers develop effective techniques for regulating and expressing emotions. These skills include accurately identifying emotions, engaging in positive thinking, reducing rumination, and utilizing adaptive cognitive emotion regulation strategies, which can better prepare mothers to handle changes and challenges.

Authors' Contributions

All authors significantly contributed to this study.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

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Declaration of Interest

The authors report no conflict of interest.

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Ethical Considerations

In this study, to observe ethical considerations, participants were informed about the goals and importance of the research before the start of the interview and participated in the research with informed consent.

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