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Strengthening Parental Self-Efficacy in Mothers of Children with Autism: The Mediating Roles of Psychological Resilience and Family Hardiness[1]

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Abstract

Background: Raising a child with Autism Spectrum Disorder (ASD) presents significant physical and emotional challenges that can diminish a mother's quality of life and sense of parental competence. While the direct impact of life quality on parenting is well-documented, the internal mechanisms that sustain parental self-efficacy remain under-explored. This study aims to investigate the mediating roles of psychological resilience and family hardiness in the relationship between quality of life and parental self-efficacy among mothers of children with ASD.

Methods: A correlational research design with a cross-sectional approach was employed. The study included 679 mothers of children with ASD from various regions in Türkiye. Data were collected using the Quality of Life Scale, the Brief Resilience Scale, the Family Hardiness Index, and the Parental Self-Efficacy Scale. The hypothesized mediation model was tested using the PROCESS macro (Model 4) for SPSS, with 5,000 bootstrap samples to determine the significance of indirect effects.

Results: The results indicated that quality of life, psychological resilience, and family hardiness were all significant positive predictors of parental self-efficacy. Mediation analysis revealed that psychological resilience and family hardiness partially mediated the relationship between

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quality of life and parental self-efficacy. Specifically, mothers with higher quality of life reported greater internal and familial resources, which in turn was significantly associated with higher perceived competence in their parenting roles.

Conclusions: The findings suggest that supporting a mother's quality of life is necessary but may not be sufficient on its own to ensure high parental efficacy. Interventions should focus on strengthening psychological resilience and fostering family hardiness as key psychosocial resources. Strengthening these mediators can buffer the stressors associated with ASD and empower mothers in their caregiving journey.

Keywords: Autism spectrum disorder, Parental self-efficacy, Quality of life, Psychological resilience, Family hardiness, Mediation analysis.

Introduction

The family is the fundamental social system that an individual is part of from birth and plays a decisive role in every stage of their development. From the moment a child enters the world, they establish their first interactions with family members and build the foundations of their cognitive, emotional, and social development within this context. In particular, the first years of life are considered a critical period that affects an individual's entire life; during this time, the quality of the family environment directly influences the child's personality development and social adjustment (Yavuzer, 2010; Canatan ve Yıldırım, 2011). Healthy family relationships, consistent parenting attitudes, and meeting the child's needs for love and security serve a protective function in all areas of development (Ereş, 2009; Bayraktar ve diğ., 2016). Therefore, the family is not merely a structure providing care, but is also the primary determinant of a child's psychosocial development.

The importance of the family system increases even further when children with special needs are concerned. These children, who require special education services due to their developmental differences and learning rates, need more intensive support compared to their

peers (Özel Eğitim Hizmetleri Yönetmeliği, 2018; Cavkaytar, 2016). Failure to meet these needs in a timely and adequate manner can negatively affect not only the child's developmental process but also the functioning of the family system (Gürdoğan-Bayır, 2019). For this reason, the active participation of families in the education process plays a critical role in enabling children to lead independent and functional lives (Batu, 2008; Cavkaytar, 2007). However, limitations experienced by families in accessing information, resources, and support mechanisms can occasionally make this process difficult (Keçeli-Kaysılı, 2008).

Autism Spectrum Disorder (ASD) is a neurodevelopmental disorder characterized by limitations in an individual's social communication and interaction skills, along with repetitive behavior patterns (APA, 2013). The caregiving process for children diagnosed with ASD requires a long-term and multi-dimensional adaptation for parents (Mustafaoğlu-Çiçek, 2019; Yıldız ve Önder, 2021). Especially in family structures where the caregiving responsibility is largely undertaken by mothers, their daily life routines change significantly, which creates distinct effects on their quality of life (Tüylüoğlu ve Sezgin, 2024). It is reported that levels of stress, anxiety, uncertainty, social isolation, and burnout increase among mothers in the post-diagnosis period; additionally, the behavioral problems and communication difficulties of children can make the parent-child relationship more difficult (Hartley et al., 2016; Top, 2009; Toklu Başkak ve Aral, 2021).

In this process, quality of life emerges as a significant indicator reflecting the physical, psychological, and social well-being levels of mothers. Kılıç (2022) and Erdoğan (2021) state that the quality of life among mothers of children diagnosed with ASD decreases particularly in parallel with the increasing caregiving burden and behavioral problems. The decrease in quality of life can indirectly affect parenting functions by leading to psychological consequences such as depression, anxiety, and social withdrawal. This situation can diminish mothers' effectiveness in meeting the developmental needs of their children.

Nevertheless, psychological resilience and family hardiness are considered significant protective factors supporting the family system under these challenging conditions. While psychological resilience refers to an individual's capacity to adapt despite stressful life events, family hardiness reflects the family's strength to maintain its integrity and functionality during crisis situations (Patterson, 2002; Henderson ve Milstein, 1996). Güler (2022) and Erdoğan (2021) demonstrated that mothers with high levels of psychological resilience experience lower burnout and manage the caregiving process more functionally. Similarly, Yılmaz (2020) and Kılıç (2022) state that families with high family hardiness are more resilient to the challenges they encounter and provide more consistent support for their children's development processes. Parental self-efficacy, on the other hand, refers to the extent to which parents perceive themselves as competent in the care and education processes of their children. Özdemir (2019) and Erdem (2021) have demonstrated that mothers with a high perception of parental self-efficacy respond more sensitively to their children's developmental needs and participate more effectively in educational processes. This situation indicates that parental self-efficacy is not merely an individual perception but also a significant psychosocial element that affects child development and family functionality.

In the literature, the variables of quality of life, psychological resilience, family hardiness, and parental self-efficacy are mostly addressed individually or within the framework of bilateral relationships. However, it is observed that studies in which these variables are examined together within a holistic model specifically for mothers of children diagnosed with ASD are limited (Nazik Fayız and Palancı, 2023). Yet, theoretical approaches regarding the family system emphasize that individual and familial resources should be evaluated in mutual interaction (Akkök, 2003; Sirgy at al., 2006).

In this context, addressing the relationships between quality of life, psychological resilience, family hardiness, and parental self-efficacy in mothers of children diagnosed with ASD from a

holistic perspective is significant both theoretically and practically. This study aims to reveal the direct and indirect relationships between these variables and, in particular, to examine the roles of psychological resilience and family hardiness in the **relationship between** quality of life and parental self-efficacy. The findings are expected to provide a scientific contribution to the development of family-based intervention programs, the structuring of psychosocial support services, and practices aimed at empowering mothers.

Theoretical Framework and Literature Review: Psychosocial Factors in Families of Children with Autism

Characteristics of Families with Autism Spectrum Disorder

Autism Spectrum Disorder (ASD) is considered a multidimensional condition that affects the entire family system, beyond being a neurodevelopmental difference at the individual level. With the inclusion of a child diagnosed with ASD into the family, daily life routines, roles, responsibilities, and expectations of families are significantly restructured. The uncertainties experienced during the diagnosis process, difficulties encountered in accessing information, and concerns regarding the child's future create distinct effects on the emotional and social lives of families (Altiere & Kluge, 2009; Hayes & Watson, 2013).

Families of children with ASD face intensive care and support requirements due to the difficulties their children experience in communication, social interaction, and behavioral domains. This situation can lead to various limitations for family members in areas such as time management, social participation, professional life, and the use of economic resources. In the literature, it is stated that the family lives of children with ASD are largely shaped according to the child's needs, and this process significantly affects intra-family interaction patterns, decision-making processes, and daily routines (Marcus et al., 2005; Köksal & Erciyes, 2021).

When evaluated in terms of intra-family roles, it is observed that caregiving and educational responsibilities are mostly undertaken by mothers, while fathers are positioned more in the role

of economic providers. This distribution of roles is addressed as a significant element affecting cooperation between parents, communication styles, and intra-family balance (Akkök, 2003; Canatan & Yıldırım, 2011). In addition, siblings of children with ASD are also affected by family dynamics; sibling relationships, emotional sharing processes, and intra-family communication can be influenced by this situation at different levels (Mustafaoğlu Çiçek, 2019).

Nevertheless, families of children with ASD are not evaluated only in the context of the difficulties they experience; they are also addressed through processes of adaptation, restructuring, and coping. Over time, it is observed that many families get to know their children's characteristics better, develop more functional coping strategies as they gain knowledge and experience, and reorganize family functions. This situation reveals that families are dynamic systems capable of adapting to changing conditions rather than static structures (Bayat, 2007; Patterson, 2002).

Within this general framework, it is seen that certain psychological and familial variables play a decisive role in understanding the lives of families with children with ASD. Quality of life is handled as a multidimensional structure encompassing not only the physical and economic conditions of families but also their psychological well-being, social relationships, and daily life functionalities (Sirgy et al., 2006; Canarslan & Ahmetoğlu, 2015). While psychological resilience reflects the capacity of mothers to maintain emotional balance and adapt in the face of ASD-specific stressors, family hardiness expresses the power of the family as a whole to maintain functionality and recover in the face of encountered difficulties (Bayat, 2007; Bekhet et al., 2012; Kaner & Bayraklı, 2010; Demiray, 2019). Parental self-efficacy includes parents' self-evaluations regarding understanding their children's needs, developing appropriate education and care strategies, and effectively fulfilling parenting roles; it is emphasized that

this perception has a significant impact on the quality of the parenting process and the developmental processes of children (Akkök, 2003; Cavkaytar, 2012; Vural, 2021).

Quality of Life

The quality of life of mothers of children with ASD stands out as an area significantly affected both physically and psychologically. Research indicates that the challenges mothers face in caring for children with ASD can negatively impact their quality of life. Specifically, factors such as the social isolation of the caregiver, emotional stress, and physical fatigue can decrease the quality of life. Studies reveal that mothers' quality of life decreases in proportion to their children's behavioral problems (Liptak et al., 2008). For instance, in a study conducted by Liptak et al. (2008), it was determined that the quality of life of mothers of children with ASD decreased as their children's behavioral problems increased. Furthermore, research conducted by Boyd (2002) found that psychological support programs for mothers increased their quality of life and enabled these mothers to care for their children more positively. In a study by Kılıç (2022), it was observed that the quality of life of mothers of children with ASD was negatively affected in parallel with their children's behavioral problems. It was specifically identified that mothers encountered situations such as insufficient sleep, social isolation, and emotional burnout, which decreased their overall quality of life. It has been stated that through such programs, mothers become healthier both emotionally and physically, thereby contributing more effectively to their children's development. In this context, family education programs aimed at increasing the quality of life of mothers can improve the care and education of children (Boyd, 2002).

Psychological Resilience

Psychological resilience refers to the capacity of individuals to cope with stress and adapt to negative life events. Mothers of children with ASD frequently face psychological stress. Studies indicate that the psychological resilience levels of mothers significantly influence their approaches toward their children's development and care. Research has revealed that mothers

with high levels of psychological resilience tend to provide more positive and effective educational support to their children (Hastings & Brown, 2002). In a study conducted by Hastings and Brown (2002), it was found that mothers with high psychological resilience exhibited a more flexible and solution-oriented approach in caring for their children. Erdoğan (2021) stated that mothers with high psychological resilience are more successful in their children's development and experience less burnout. This situation is a crucial factor in managing the stress experienced by mothers and can be supported through psychological resilience programs. Such supports enable mothers to be involved more efficiently in their children's education and care processes. High psychological resilience helps mothers experience less stress and become more emotionally durable.

Family Hardiness

Family hardiness is the ability of the family to maintain its functionality and remain resilient against problems even under challenging conditions. Families with children diagnosed with ASD face various difficulties in their daily lives. The special needs of children can create stress among family members and make family functionality difficult. However, some families can be more resilient despite these challenges. For example, in a study conducted by Smith et al. (2001), it was determined that in families with high family hardiness, mothers participated more consistently in their children's education, and the children were more successful in their educational processes. In a study conducted by Yılmaz (2020), it was found that mothers with high family hardiness were more consistent in the care and education processes for their children and obtained more positive results. On the other hand, it has been stated that in families with low family hardiness, inconsistencies may occur in the care of children, and their development may be negatively affected. This situation reveals the importance of developing training programs that will increase family hardiness. Furthermore, it has been found that support programs aimed at increasing family hardiness enable mothers to cope with stress and

strengthen solidarity within the family. This finding demonstrates that increasing family hardiness can play a significant role in the development of children within these families.

Parental Self-Efficacy

Parental self-efficacy relates to whether parents' education and caregiving skills are effective and appropriate for their children's development. The parental self-efficacy of mothers of children with ASD has a direct impact on their children's success in education. Inadequate parenting skills can increase a child's behavioral problems and developmental delays. Parental self-efficacy can be developed through training programs and family support services. Many studies show that training aimed at increasing parents' competence plays an important role in children's social skills and their success at school (Tonge & Brereton, 2000). In a study conducted by Davis et al. (2011), it was found that as parental self-efficacy increases, children's social skills improve and they become more successful at school. Özdemir (2019) stated that mothers with high parental self-efficacy provide faster development in their children's social skills, while low parental self-efficacy can create difficulties in children's education processes. Parental self-efficacy is directly related to mothers' capacity to use appropriate educational methods for their children.

These four factors—"quality of life, psychological resilience, family hardiness, and parental self-efficacy"—are intertwined and mutually influential. Each factor directly affects the caregiving processes of mothers of children with ASD and their children's development. Quality of life, psychological resilience, family hardiness, and parental self-efficacy are factors that significantly affect the lives of mothers of children with ASD and the developmental processes of their children. While each factor determines the effectiveness of mothers in the care and education of their children, they are also strongly linked to one another. Therefore, supportive programs for mothers can strengthen these four factors and enable mothers to participate in their children's care more healthily and effectively.

Method

This research is a quantitative study based on the correlational survey model, aiming to examine the relationships between quality of life, psychological resilience, family hardiness, and parental self-efficacy among mothers of children diagnosed with autism spectrum disorder (ASD). The correlational survey model is a research design widely used in the field of social sciences, aiming to determine the existence, direction, and degree of relationships between two or more variables (Karasar, 2016). In this context, the relationships between the variables addressed in the study were examined through statistical analyses, and the direct and indirect interactions between the variables were described. While the correlational survey model provides the opportunity to reveal the covariation between variables and analyze the strength of the relationship, it does not allow for causal inferences (Karasar, 2016). Nevertheless, it provides an explanatory framework in terms of revealing relationship patterns by handling multivariate social and psychological structures together (Cohen et al., 2007; Neuman, 2014). Considering structures that interact with each other, such as quality of life, psychological resilience, family hardiness, and parental self-efficacy, examining these variables together offers an approach suitable for the purpose of the research.

Participants

The population of this research consists of mothers of children diagnosed with autism spectrum disorder (ASD) across Türkiye. Taking into account the geographically and sociodemographically heterogeneous structure of Türkiye, the population was defined to include mothers in different regions and with diverse demographic characteristics. Given the geographically and sociodemographically heterogeneous structure of Türkiye, the exact population of mothers of children with ASD is highly extensive. Therefore, utilizing the Cochran formula for large/unknown populations based on a 95% confidence level, the target sample size was initially projected to be approximately 1,200 mothers to ensure robust regional

representation. However, because the data collection process was based on voluntariness and participants were reached through teachers working in public and private special education institutions, a convenience (accessible) sampling method was utilized. At the end of the data collection process, the final sample consisted of 679 mothers who completed the scales in full and were included in the analyses. At the end of the data collection process, the final sample consists of 679 mothers who completed the scales in full and were included in the analyses. Considering the minimum sample size criteria recommended for multivariate statistical methods such as multiple regression and mediation analyses (Tabachnick & Fidell, 2013; Field, 2013), it is observed that a number of participants well above the minimum required for a model containing three predictor variables was reached. Furthermore, when evaluated according to Cohen's (1988) effect size and statistical power criteria, it is understood that the current sample has sufficient power to detect small and medium-level effects. During the sampling process, care was taken to reach participants from different geographical regions of Türkiye, thereby attempting to increase the diversity of the sample. This approach is consistent with practices recommended in the literature to strengthen sample diversity in heterogeneous populations (Creswell, 2014).

Table 1. Descriptive Characteristics of the Participants Distribution of Participants According to Nomenclature of Territorial Units for Statistics (NUTS) Level-1 Regions

Order	NUTS Level-1 Region	n	%
1	TR1 – İstanbul	43	6,3
2	TR2 – Batı Marmara	14	2,1
3	TR3 – Ege	76	11,2
4	TR4 – Doğu Marmara	37	5,4
5	TR5 – Batı Anadolu	98	14,4

6	TR6 – Akdeniz	157	23,1
7	TR7 – Orta Anadolu	153	22,5
8	TR8 – Batı Karadeniz	18	2,7
9	TR9 – Doğu Karadeniz	49	7,2
10	TRA – Kuzeydoğu Anadolu	14	2,1
11	TRB – Ortadoğu Anadolu	31	4,6
12	TRC – Güneydoğu Anadolu	89	13,1
	Total	679	100,0

The geographical distribution of participants was categorized based on the Nomenclature of Territorial Units for Statistics (NUTS) Level-1, as defined by the Turkish Statistical Institute (TurkStat). This classification was utilized to ensure a systematic evaluation of regional diversity across the country.

As presented in Table 1, the highest concentration of participants was identified in the TR7 – Central Anatolia Region (n = 153, 22.5%), followed closely by the TR6 – Mediterranean Region (n = 157, 23.1%) and the TR5 – West Anatolia Region (n = 98, 14.4%). The TRC – Southeast Anatolia Region (13.1%, n = 89) and the TR3 – Aegean Region (11.2%, n = 76) demonstrated moderate levels of representation within the sample.

In contrast, lower participation rates were observed in the TR9 – East Black Sea (7.2%, n = 49) and TR4 – East Marmara (5.4%, n = 37) regions. The lowest representation was recorded in the TR8 – West Black Sea (2.7%, n = 18), TR2 – West Marmara (2.1%, n = 14), and TRA – Northeast Anatolia (2.1%, n = 14) regions.

While the use of convenience sampling—necessitated by the practical challenges of reaching this clinical population during the data collection period—resulted in uneven regional distribution, the inclusion of participants from all 12 NUTS Level-1 regions enhances the diversity of the data. This wide geographical scope provides a more comprehensive

psychosocial profile of mothers of children with ASD in Türkiye compared to single-center studies, thereby mitigating potential localized biases and strengthening the external validity of the findings within the national context.

Data Collection Tools

The data collection process was conducted using a multi-instrument approach designed to determine the sociodemographic characteristics of the participants and the levels of the primary research variables. The instrumentation suite included a Demographic Information Form, the Quality of Life in Autism Questionnaire – Parent Version (QoLA-P), the Brief Resilience Scale (BRS), the Family Hardiness Index (FHI), and the Parental Self-Efficacy Scale for Parents of Children with Autism Spectrum Disorder (PSES-ASD).

Demographic Information Form

This form was utilized to describe the sociodemographic profile of the sample and to examine potential variations in research variables based on demographic traits. It captured personal data such as mothers' age, marital status, education level, and occupation, as well as family-related information including marriage duration, number of children, and specific details regarding the child diagnosed with ASD (age, gender, duration since diagnosis, severity of disability, duration of special education support, and current school level).

Quality of Life in Autism Questionnaire – Parent Version (QoLA-P)

The questionnaire originally developed to assess the quality of life (QoL) of parents of children with ASD, the scale was adapted into Turkish by Özgür et al. (2017). The instrument consists of two sections: Part A evaluates the parents' overall QoL across dimensions of psychological health, social relationships, physical health, and financial status; Part B assesses the impact of

the child's autism-related behavioral characteristics on the parent. The Turkish version has demonstrated high internal consistency (Part A: α = .928; Part B: α = .944), with validity studies supporting its structural integrity (Çetin, 2017; Yıldız & Kuru, 2021).

Brief Resilience Scale (BRS)

The scale developed by Smith et al. (2008) and adapted into Turkish by Doğan (2015), the BRS measures an individual's ability to bounce back or recover from stress. This six-item, 5-point Likert-type scale possesses a unidimensional structure. Internal consistency coefficients for the Turkish form range from .80 to .91, establishing it as a valid and reliable tool for the Turkish population.

Family Hardiness Index (FHI)

Family Hardiness Index (FHI) developed by Kaner and Bayraklı (2010), this 37-item scale measures family resilience across four sub-dimensions: Challenge, Self-Efficacy, Commitment to Life, and Self-Control. Developmental studies reported a valid factor structure and high internal consistency coefficients.

Parental Self-Efficacy Scale (PSES-ASD)

Parental Self-Efficacy Scale (PSES-ASD) developed by Mohammadi et al. (2020) and adapted into Turkish by Vural (2021), this scale evaluates parents' perceptions of their competence in adapting to their current situation and managing the caregiving process. The Turkish version reported a Cronbach's alpha coefficient of .94, with exploratory and confirmatory factor analyses supporting its construct validity.

Reliability Analysis for the Current Study: The internal consistency coefficients obtained in this research were α = .942 for the Quality of Life scale, α = .744 for the Brief Resilience Scale, α = .972 for the Family Hardiness Index, and α = .93 for the Parental Self-Efficacy Scale. All values exceeded the .70 threshold, indicating high levels of reliability for the instruments within the current sample.

Data Collection Procedure

The recruitment process was facilitated through a collaborative network of educators and administrators working in public and private special education institutions across Türkiye. These professionals served as intermediaries to identify and contact mothers of children diagnosed with ASD, ensuring that the target population was reached accurately and ethically. The data were collected electronically over a one-month period during the 2022–2023 academic year. All measurement instruments were digitized and hosted on a secure online survey platform to ensure nationwide accessibility. This approach allowed participants to complete the survey at their convenience via personal computers, tablets, or mobile devices. On average, the survey battery took approximately 10 to 15 minutes to complete. To maintain the robustness of the study, the digital platform was monitored for response consistency, and the final dataset was screened for incomplete entries or outliers before being finalized for analysis.

Data Analysis

Statistical analyses were performed using IBM SPSS Statistics (Version 26.0). Descriptive statistics, including frequencies, percentages, means, and standard deviations, were initially computed to delineate the sociodemographic profile of the sample.

To ensure the appropriateness of parametric procedures, normality assumptions were rigorously evaluated. The skewness and kurtosis values were confirmed to fall within the ±1 range,

satisfying the criteria for a normal distribution (Tabachnick & Fidell, 2013). Pearson product-moment correlation analysis was then employed to assess the bidirectional relationships between quality of life, psychological resilience, family hardiness, and parental self-efficacy. Correlation coefficients were interpreted in accordance with internationally recognized benchmarks (Schober et al., 2018).

The primary analysis concerning the direct and indirect effects within the conceptual model was conducted using Hayes' (2018) PROCESS Macro (Model 4). To determine the significance of the indirect effects, a non-parametric bootstrapping procedure with 5,000 resamples was utilized to generate 95% confidence intervals. This method was preferred for its robustness and higher statistical power in detecting mediation effects compared to traditional tests (Preacher & Hayes, 2008).

Furthermore, comparative analyses based on demographic variables were performed using independent samples t-tests and one-way analysis of variance (ANOVA). In instances of statistically significant differences, the LSD post-hoc test was applied for pairwise comparisons (Büyüköztürk, 2018; Field, 2013). All statistical tests were two-tailed, with the significance level set at $p < .05$.

Findings

Relationships Between Variables

Table 2. Pearson Correlation Coefficients Between Study Variables

Variables	1	2	3	4
1. Quality of Life	1			
2. Psychological Resilience	.391**	1		
3. Family Hardiness	.533**	.463**	1	

4. Parental Self-Efficacy	.412**	.361**	.491**	1

* N = 679. p < .01

As presented in Table 2, significant positive correlations were identified between quality of life and psychological resilience (r = .391), family hardiness (r = .533), and parental self-efficacy (r = .412). Furthermore, family hardiness demonstrated significant positive relationships with psychological resilience (r = .463) and parental self-efficacy (r = .491). The correlation between psychological resilience and parental self-efficacy was also significant (r = .361). These findings indicate that all variables exhibit moderate-level, positive associations with one another.

The Mediating Roles of Psychological Resilience and Family Hardiness

In this study, Hayes' (2018) PROCESS Macro (Model 4) was employed to test the mediating roles of psychological resilience and family hardiness in the relationship between quality of life and parental self-efficacy levels. This model utilizes a regression-based path analysis approach, enabling the simultaneous evaluation of both direct and indirect effects within a single framework. The mediation analysis is structured across three distinct regression models to establish the pathways between the variables.

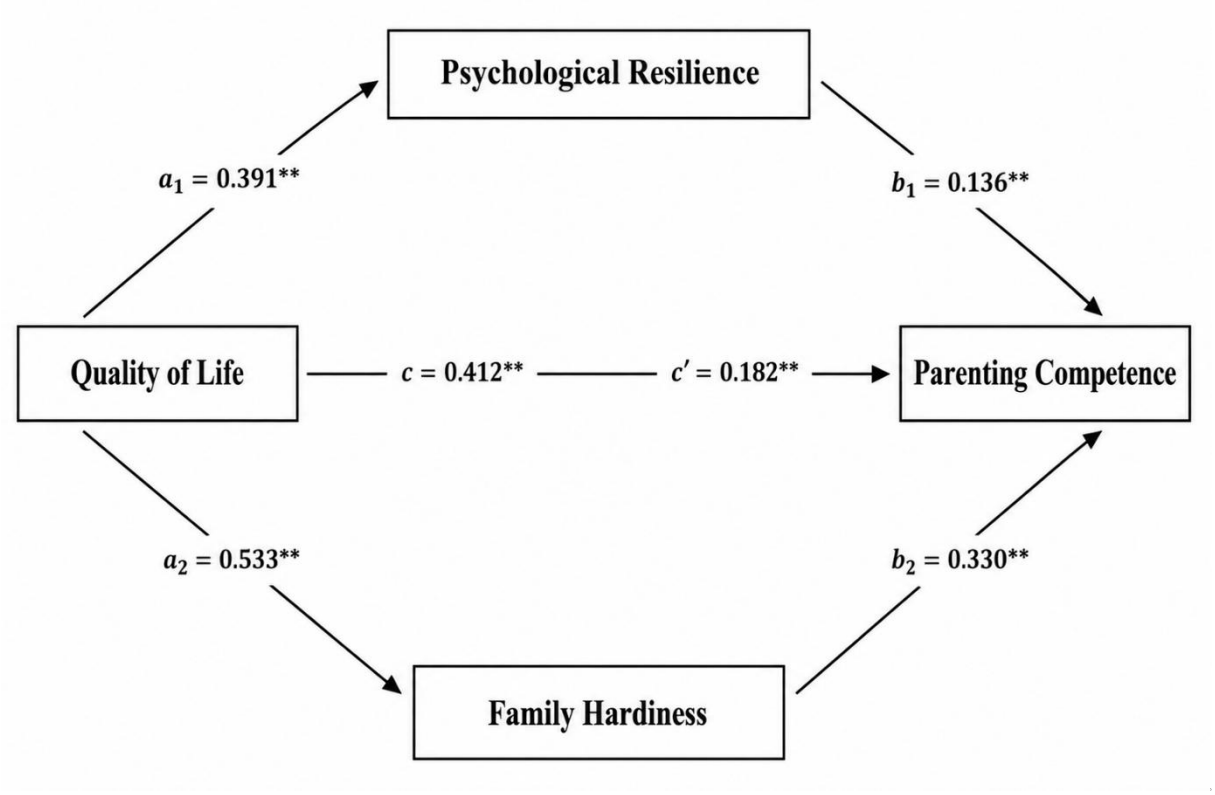


Figure 1. Mediation Model Statistics

Model 1 examines the effect of the independent variable on the dependent variable without the presence of any mediators. For a mediation analysis to proceed, the regression coefficient obtained in this initial model is expected to be statistically significant. Model 2 tests the effect of the independent variable on the mediator; this effect must also be significant to establish a mediating relationship. Model 3 involves the simultaneous inclusion of the mediator and the independent variable into the model, where the significance of the overall regression model is evaluated. If the effect of the mediator on the dependent variable is not statistically significant, mediation cannot be established (Baron & Kenny, 1986).

In the present study, the total effect (c) of quality of life on parental self-efficacy, the direct effect (c'), and the indirect effects (a*b) occurring through the psychological resilience and family hardiness variables were examined collectively. Full mediation occurs if the direct effect (c') loses its statistical significance when mediators are introduced. Conversely, partial

mediation is evidenced if the direct effect remains significant but its magnitude is reduced compared to the total effect (c).

The statistical significance of the mediating effects was tested using bootstrapping-based confidence intervals. According to Hayes (2018), if the lower and upper bounds of the 95% confidence intervals for the indirect effect coefficients do not include zero, the mediating effect of the respective variables is considered statistically significant.

Table 3. Regression Results for the Mediation Model

Model	Dependent Variable	Predictor	*β*	*t*	*p*	Model Statistics
Model 1	PSE	QoL	.412	11.762	< .001	$F = 138.345$*, $R^2 = .168$
Model 2	PR	QoL	.391	11.037	< .001	$F = 121.817$*, $R^2 = .151$
	FH	QoL	.533	16.398	< .001	$F = 268.880$*, $R^2 = .284$
Model 3	PSE	QoL	.182	4.660	< .001	
		PR	.136	3.652	< .001	$F = 90.374$*, $R^2 = .283$
		FH	.330	8.127	< .001	$\Delta R^2 = .117$, $p < .001$

Note. QoL = Quality of Life; PR = Psychological Resilience; FH = Family Hardiness; PSE = Parental Self-Efficacy. β = Standardized regression coefficient. *$p < .001$.

The results of the regression-based path analysis are detailed in Table 3 and illustrated in the mediation model (Figure 1). According to Model 1, the total effect of quality of life on parental self-efficacy was statistically significant ($F = 138.345$, $p < .001$), with the model accounting for 16.8% of the total variance ($R^2 = .168$). Specifically, quality of life served as a robust positive predictor of parental self-efficacy ($\beta = 0.412$, $t = 11.762$, $p < .001$).

In Model 2, the relationships between the independent variable and the parallel mediators were assessed. Quality of life was a significant positive predictor of both psychological resilience (F

= 121.817, R2 = .151, β = 0.391, t = 11.037, p < .001) and family hardiness (F = 268.880, R2 = .284, β = 0.533, t = 16.398, p < .001), satisfying the secondary condition for mediation.

The final comprehensive model (Model 3) was statistically significant (F = 90.374, p < .001), explaining 28.3% of the overall variance (R^2 = .283). Upon introducing the mediators into the equation, the direct effect of quality of life on parental self-efficacy remained statistically significant but showed a marked decrease in magnitude (β = 0.182, t = 4.660, p < .001). Both psychological resilience (β = 0.136, t = 3.652, p < .001) and family hardiness (β = 0.330, t = 8.127, p < .001) emerged as significant positive predictors in this final stage.

The inclusion of these psychosocial mediators yielded a significant 11.7% incremental increase in the explained variance (ΔR2 = .117, p < .001). These findings confirm that psychological resilience and family hardiness serve as significant partial mediators in the relationship between quality of life and parental self-efficacy among mothers of children with ASD.

Quality of Life Scores According to Sociodemographic Variables

Table 4. Quality of Life Scores According to Demographic Characteristics

Variable	Group	n	M	SD	Test Statistic	p	Significant Difference
Marital Status	Married	623	58.92	9.94	t = 1.874	.061	—
	Single	56	51.05	1.86			
Child's Gender	Male	484	57.07	9.65	t = -1.643	.101	—
	Female	195	61.27	1.27			
Disability Severity	Mild[1]	232	67.66	8.09	F = 28.831	< .001	1 > 2 > 3
	Moderate[2]	303	57.71	0.23			
	Severe[3]	144	44.35	7.72			
School Type	Inclusive Education[1]	52	64.42	2.34	F = 2.453	.045	1, 3, 4 > 2, 5
	Special Ed. Kindergarten[2]	79	56.28	6.87			
	Special Ed. Vocational School[3]	50	64.80	3.16			
	Special Education Class[4]	177	61.09	9.54			
	Special Ed. Practice School[5]	321	55.20	1.55			

M = Mean; SD = Standard Deviation. Statistically significant at the p < .05 and p < .001 levels.

An analysis of quality of life (QoL) scores across various demographic groups revealed distinct patterns. Regarding marital status, no significant difference was observed between married (M = 58.92, SD = 9.94) and single participants (M = 51.05, SD = 1.86; t = 1.874, p = .061). Similarly, QoL scores did not differ significantly based on the child's gender (t = -1.643, p = .101), with scores for mothers of boys (M = 57.07, SD = 9.65) and girls (M = 61.27, SD = 1.27) remaining statistically comparable.

In contrast, the severity of the child's disability was significantly associated with maternal QoL (F = 28.831, p < .001). Post-hoc LSD comparisons demonstrated a clear hierarchical trend, where mothers of children with mild disabilities reported significantly higher QoL scores than those in the moderate and severe disability groups (Mild > Moderate > Severe).

Furthermore, school type emerged as a significant factor (F = 2.453, p = .045). Specifically, mothers whose children attended inclusive education, special education vocational schools, or special education classes reported higher QoL scores compared to those whose children were enrolled in special education kindergartens or practice schools.

Table 5. Comparison of Psychological Resilience Scores According to Demographic Variables

Variable	Group	*n*	*M*	*SD*	Test Statistic	*p*	Significant Difference
Marital Status	Married	623	19.69	0.83	*t* = -0.201	.841	—
	Single	56	19.80	0.92			
Child's Gender	Male	484	19.64	0.83	*t* = -0.670	.503	—
	Female	195	19.86	0.16			
Disability Severity	Mild[1]	232	20.28	0.20	*F* = 4.025	.018	1 > 2, 3
	Moderate[2]	303	19.48	0.71			
	Severe[3]	144	19.24	0.83			
School Type	Inclusive Education	52	20.00	0.60	*F* = 0.987	.414	—
	Special Ed. Kindergarten	79	19.43	0.58			
	Special Ed. Vocational School	50	20.64	4.00			
	Special Education Class	177	19.51	0.90			
	Special Ed. Practice School	321	19.68	0.02			

M = Mean; SD = Standard Deviation. p < .05.

The psychological resilience scores of participants were analyzed in relation to sociodemographic variables. No statistically significant differences were found based on marital status (p = .841), child's gender (p = .503), or school type (p = .414). These results suggest that psychological resilience levels remain relatively consistent across these demographic categories.

However, a significant difference was observed according to the severity of the child's disability (F = 4.025, p = .018). Post-hoc LSD comparisons revealed that mothers of children with mild disabilities (M = 20.28, SD = 0.20) reported significantly higher psychological resilience scores compared to those in the moderate (M = 19.48, SD = 0.71) and severe disability groups (M = 19.24, SD = 0.83). No significant difference was found between the moderate and severe disability groups.

Table 6. Comparison of Family Hardiness Scores According to Demographic Characteristics

Variable	Group	n	M	SD	Test Statistic	p	Significant Difference
Marital Status	Married	623	131.15	9.69	*t* = -0.168	.867	—
	Single	56	131.86	4.14			
Child's Gender	Male	484	130.44	9.84	*t* = -1.058	.290	—
	Female	195	133.13	0.56			
Disability Severity	Mild[1]	232	135.83	0.27	*F* = 4.370	.013	1 > 2, 3
	Moderate[2]	303	129.38	9.15			
	Severe[3]	144	127.62	0.88			
School Type	Inclusive Education	52	132.96	6.70	*F* = 0.287	.886	—
	Special Ed. Kindergarten	79	129.52	5.55			
	Special Ed. Vocational School	50	132.50	0.82			
	Special Education Class	177	132.61	9.81			
	Special Ed. Practice School	321	130.37	1.68			

M = Mean; SD = Standard Deviation. p < .05.

Family hardiness scores were evaluated across various demographic groups. The results indicated that marital status (p = .867), child's gender (p = .290), and school type (p = .886) did not significantly differentiate maternal family hardiness levels.

In contrast, a highly significant difference was found based on the severity of the child's disability (F = 4.370, p = .013). Post-hoc LSD comparisons revealed that mothers of children with mild disabilities reported significantly higher family hardiness scores compared to those in the moderate and severe disability groups. These findings suggest that an increase in the severity of the child's disability is associated with a decrease in the perceived hardiness of the family unit.

Table 7. Comparison of Parental Self-Efficacy Scores According to Demographic Characteristics

Variable	Group	n	M	SD	Test Statistic	p
Marital Status	Married	623	97.82	16.44	*t* = 0.615	.539
	Single	56	96.41	16.87		
Child's Gender	Male	484	97.70	16.45	*t* = -0.021	.983
	Female	195	97.73	16.55		
Disability Severity	Mild	232	99.54	16.61	*F* = 2.385	.093
	Moderate	303	97.09	16.23		
	Severe	144	96.05	16.59		
School Type	Inclusive Education	52	96.94	17.26	*F* = 1.441	.219
	Special Ed. Kindergarten	79	94.28	17.61		
	Special Ed. Vocational School	50	96.22	15.36		
	Special Education Class	177	99.32	17.45		
	Special Ed. Practice School	321	98.02	15.59		

M = Mean; SD = Standard Deviation. All comparisons were statistically non-significant (p > .05).

The final analysis examined parental self-efficacy (PSE) scores in relation to sociodemographic variables (Table 7). In contrast to other psychological variables in this study, PSE scores remained statistically consistent across all analyzed categories. No significant differences were observed based on marital status (t = 0.615, p = .539), child's gender (t = -0.021, p = .983), disability severity (F = 2.385, p = .093), or school type (F = 1.441, p = .219). These results indicate that maternal perceptions of parental self-efficacy are not significantly associated with these specific sociodemographic factors within the current sample

Conclusion and Discussion

This study concludes that there is a robust positive relationship between QoL, psychological resilience, family hardiness, and PSE among mothers of children with ASD. Higher maternal QoL **is significantly associated with** greater resilience and parenting efficacy.. Specifically, the relationship between QoL and PSE is partially explained through the mechanisms of psychological resilience and family hardiness.

The findings emphasize that maternal self-efficacy is not solely an individual trait but is deeply rooted in the mother's perception of the family system's resilience. While marital status and child gender do not significantly impact these levels, the severity of the disability and the type of educational setting are critical determinants. Consequently, psychosocial support programs should prioritize family-based resilience-building strategies and promote inclusive educational placements to mitigate the adverse effects of caregiving stress and enhance the overall quality of life for families affected by ASD.

The present study investigated the complex interplay between quality of life (QoL), psychological resilience, family hardiness, and parental self-efficacy (PSE) among mothers of children with Autism Spectrum Disorder (ASD). Our findings revealed positive and statistically significant correlations between all study variables. The associations between QoL and psychological resilience ($r = .391$), family hardiness ($r = .533$), and PSE ($r = .412$) highlight a holistic structure where individual well-being is deeply intertwined with parental functionality. This pattern aligns with previous research suggesting that enhanced QoL bolsters coping capacities and parental competence in the context of ASD (Banach et al., 2010; Nealy et al., 2012). When interpreted through Patterson's (2002) Family Stress Model, these results indicate that individual and familial resources act as vital regulatory mechanisms that translate into improved parenting performance.

Regression analyses demonstrated that QoL significantly predicts family hardiness ($\beta = .533$) and psychological resilience ($\beta = .391$). This suggests that QoL is not merely a

measure of subjective satisfaction but a structural variable **closely linked to** the resilience capacity of the entire family system.. Consistent with Demiray (2019) and Günaydın and Akaroğlu (2022), higher levels of QoL appear to be positively related to stronger intra-familial resilience and stress-management mechanisms. Furthermore, the significant predictive power of family hardiness (β = .330) and psychological resilience (β = .136) on PSE indicates that parenting functionality is nourished by both collective and individual resilience resources. As noted by Bayat (2007) and Yavuz and Gümüşkaya (2021), higher resilience levels allow parents to maintain stability despite the chronic caregiving burden associated with ASD.

A key contribution of this study is the mediation analysis, which confirmed that psychological resilience and family hardiness partially mediate the relationship between QoL and PSE.The reduction of the total effect (β = .412) to a direct effect (β = .182) upon the inclusion of mediators—supported by bootstrap confidence intervals that do not contain zero—validates this partial mediation model. Notably, the stronger mediating effect of family hardiness suggests that, rather than being an exclusively cultural dynamic specific to the Turkish context, collective family resilience may be a broader phenomenon inherent to the demanding nature of ASD caregiving, serving as a more critical determinant of parental competence than individual resilience alone. This finding underscores the importance of family-centered interventions over purely individual-focused psychological support.

Regarding demographic variables, the lack of significant differences based on marital status and the child's gender initially suggests a universal challenge for mothers. However, a striking discrepancy emerges concerning disability severity: while increased severity significantly diminishes maternal QoL, resilience, and family hardiness, Parental Self-Efficacy (PSE) scores remain statistically unaffected across all groups. Rather than indicating an unwavering sense of competence, it is highly probable that this statistical consistency in PSE is an artifact of social desirability bias. Mothers facing intense caregiving burdens and severe psychological distress

may be unwilling to self-report feelings of parental incompetence, thereby masking the true negative impact of the child's disability on their actual caregiving efficacy. This underlying distress is evident in the significant decline in QoL, resilience, and hardiness, which highlights the debilitating nature of high caregiving burdens even when mothers are reluctant to admit a loss of parenting capability. As disability severity increases, maternal psychosocial adaptation markers significantly decline, a finding corroborated by Gau et al. (2012) and Köksal and Erciyes (2021). The variation in QoL based on school type further suggests that inclusive educational environments may provide mothers with better perceived well-being, possibly through increased social integration and professional support.

Recommendations

RecommendationsBased on the findings of the current study, the following recommendations are proposed for practitioners, researchers, and policymakers:

Recommendations for Practitioners

Targeted Psychosocial Support: Given that mothers of children with severe disabilities reported significantly lower quality of life, family hardiness, and resilience, psychosocial support programs should prioritize this high-risk group.

Skill-Building Services: Guidance and counseling services focusing on enhancing psychological resilience and parental self-efficacy skills should be expanded for mothers of children with ASD.

Family-Based Interventions: Since higher family hardiness is associated with increased parental self-efficacy, intervention programs should focus on strengthening intra-familial communication, cooperation, and solidarity.

School-Based Support Systems: As families whose children attend special education kindergartens or practice schools reported lower well-being, family support services within these institutions should be systematically integrated and formalized.

Coping Strategy Workshops: Considering the significant link between resilience and well-being, seminars and workshops aimed at providing families with stress management, emotional endurance, and proactive coping strategies should be organized.

Recommendations for Future Research

Mixed-Method Approaches: Future studies should utilize mixed-method designs (qualitative + quantitative) to provide a deeper explanatory understanding of how variables like disability severity and school type differentiate resilience and quality of life.

Inclusive Sampling: Since family hardiness is a fundamentally systemic construct, it is imperative that future studies adopt an inclusive sampling approach by directly incorporating data from fathers and siblings. Capturing the diverse perspectives of all family members is essential to genuinely measure the collective resilience of the entire family system, moving beyond solely the maternal perception.

Socio-Economic Comparisons: Comparative studies should be conducted across diverse socio-economic profiles to examine how economic resources interact with family hardiness, well-being, and parental competence

Longitudinal Designs: The current study utilized a cross-sectional approach, which inherently limits causal inferences. To empirically validate the directional pathways proposed in this mediation model, future research must strongly prioritize longitudinal studies. Tracking how quality of life, intra-familial psychosocial resources, and parental self-efficacy interact and evolve over time as the child with ASD matures is crucial for establishing definitive causality.

Probability-Based Sampling: Due to the practical challenges of reaching this specific clinical population, the current study utilized a convenience sampling method facilitated by special education teachers. Since this approach means the assumptions of strict probability sampling were not fully met, the definitive generalizability of the findings is inherently limited. To maximize external validity, future studies should endeavor to employ probability-based random sampling techniques, ensuring a more proportionally representative distribution of the ASD population.

Recommendations for Policymakers

Standardized Monitoring Frameworks: A standardized framework should be established within Counseling and Research Centers (RAM) to ensure regular monitoring and follow-up interviews with families of children with ASD.

Early Intervention and Awareness: To strengthen early diagnosis in ASD, early awareness and referral protocols should be disseminated through primary healthcare services and preschool education institutions.

Limitations

Despite its significant findings, the present study is subject to several limitations that should be considered when interpreting the results.

First, the study’s sample consisted exclusively of mothers. While mothers are often the primary caregivers for children with ASD, the perspectives and resilience levels of fathers and other family members (e.g., siblings) were not explored. Since family hardiness is a systemic construct, this study inherently reflects only the maternal perception of family resilience. Consequently, the absence of paternal and sibling data limits a truly holistic and objective understanding of the family unit's collective resilience.

Second, the data were collected using self-report measures. While the scales utilized are well-validated, self-reported data are susceptible to social desirability bias, where participants may overestimate their parental self-efficacy or downplay their stress levels. Furthermore, the cross-sectional design of the study precludes making definitive causal inferences. Although the mediation model was theoretically grounded, longitudinal studies are required to determine how the relationships between quality of life, resilience, and parental efficacy evolve over time as the child matures.

Finally, the present study did not control for the socio-economic status (SES) of the families or the presence of specific comorbid medical and psychiatric conditions in children with ASD. Both factors are critical confounding variables. Financial strain and inadequate economic resources can severely compound the caregiving burden by limiting a family's access to specialized educational and therapeutic support, thereby directly diminishing both individual resilience and collective family hardiness. Similarly, the presence of comorbidities often introduces unique, intensive caregiving demands that independently exacerbate maternal stress and reduce quality of life. Consequently, the current mediation model may not fully capture how these profound external and systemic pressures shape the overall coping capacity of the family.

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Conflict of Interest

The authors declare that there is no conflict of interest regarding the publication of this article.

Authors' contributions

Mustafa KARADUMAN was responsible for the conceptualization of the research study, the design of the quantitative methodology, and the execution of data collection across 81 provinces of Türkiye. He performed the formal statistical analyses using SPSS and the PROCESS macro,

interpreted the mediation models, and prepared the original draft of the manuscript. **Fatih KOÇAK** served as the research supervisor, contributing to the conceptual framework and methodological design. He provided continuous academic oversight, performed the formal validation of the results, and participated in the critical review and editing of the final manuscript. Both authors have read and approved the final version of the manuscript for publication.

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Data availability

The data are not publicly available due to privacy restrictions. The raw de-identified data may be made available upon reasonable request from the corresponding authors.

Declarations

Ethics approval and consent to participate

The study was conducted in accordance with the ethical standards of the Declaration of Helsinki. Ethical approval for this research was obtained from the Necmettin Erbakan University Social and Human Sciences Scientific Research and Publication Ethics Committee (Decision Date: December 27, 2024; Decision No: 2024/953). Subsequent approval was also granted for a title modification (Decision Date: January 13, 2026; Decision No: 2026/58).

Informed consent was obtained from all individual participants included in the study. All participants were provided with an Informed Consent Form detailing the research purpose, scope, and confidentiality protocols prior to their voluntary participation. Participants were notified of their right to withdraw from the study at any time without prejudice.

Consent for publication

Not applicable. This manuscript does not contain any individual person's data in the form of individual details, images, or videos. Informed consent was obtained from all participants for the publication of aggregated, anonymized research findings as part of the overall study results.

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