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Parenting stress and childbearing motivations in mothers of children with autism spectrum disorder: An analytical cross-sectional study

Otizm spektrum bozukluğu tanılı çocuğa sahip annelerin ebeveynlik stresi ve çocuk sahibi olma motivasyonları: Analitik-kesitsel bir çalışma

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ABSTRACT

***Aim*:** The study aimed to identify the predictors of parenting stress and childbearing motivations among mothers of children with autism spectrum disorder (ASD).

Methods: An analytical cross-sectional study was conducted with 165 mothers of children diagnosed with ASD in Türkiye from November 2021 to January 2022. Data were collected using a Questionnaire-Form, the Parenting-Stress Index-Short Form, and the Childbearing Motivations Scale. The data were analyzed using independent samples t-tests, one-way analysis of variance (ANOVA), correlation analysis, and regression analysis.

Results*:* The participants' parental stress levels are moderately high, and their motivation for having children is low. The mother's age, education level, birth order of the child with ASD, and the impact of ASD on the decision to have another child were statistically significant predictors of parental stress level, explaining 20.1% of the variance ($p<0.05$). The mother's education level, income status, birth order of the child with ASD, and the desire to have another child were statistically significant predictors of positive motivation for having children, explaining 18.7% of the variance ($p<0.05$). Additionally, there was a statistically significant, moderately positive relationship between parental stress and negative motivation for having children ($r= 0.345$; $p<0.001$).

Conclusion: Mothers of children with ASD tend to exhibit negative motivations regarding the decision to have another child. Improving socioeconomic status and reducing parenting-stress may help these mothers develop more positive motivations for childbearing and prevent negative motivations.

Keywords*:* autism spectrum disorder; motivation; psychological; reproduction; stress

ÖZ

Amaç: Bu çalışmanın amacı, otizm spektrum bozukluğu (OSB) olan çocukların annelerinde ebeveynlik stresi ve çocuk sahibi olma motivasyonlarınının incelenmesidir.

Yöntem: Analitik-kesitsel çalışma, Kasım 2021 ve Ocak 2022 arasında OSB'li 165 çocuğun annesiyle gerçekleştirilmiştir. Veriler Anket Formu, Ebeveynlik Stresi İndeksi-Kısa Formu ve Çocuk Sahibi Olma Motivasyonları Ölçeği kullanılarak toplanmıştır. Verilerin analizinde tek yönlü varyans analizi, bağımsız örneklem t-testi, korelasyon ve regresyon analizleri kullanılmıştır.

Bulgular: Katılımcıların ebeveynlik stresi orta düzeyde yüksek iken çocuk sahibi olma motivasyonları düşük düzeyde olumludur. Anne yaşı, eğitimi, OSB'li çocuğun doğum sırası ve OSB'nin başka çocuk sahibi olma kararını etkileme durumu, ebeveynlik stres düzeyinin istatistiksel olarak anlamlı yordayıcısı olup varyansın %20.1'ini açıklamaktadır ($p<0.05$). Anne eğitimi, gelir düzeyi, OSB'li çocuğun doğum sırası ve başka çocuk sahibi olma isteği, çocuk sahibi olmaya yönelik olumlu motivasyonun istatistiksel olarak anlamlı yordayıcısı olup varyansın %18.7'sini açıklamaktadır. Ebeveynlik stresi ve olumsuz çocuk sahibi olma motivasyonları arasında pozitif yönlü orta düzeyde istatistiksel olarak anlamlı ilişki bulunmaktadır ($r=0.345$; $p<0.001$).

Sonuçlar: OSB'li çocukları olan anneler, başka bir çocuk sahibi olma kararına yönelik olumsuz motivasyonlar sergilemektedirler. Sosyoekonomik durumun iyileştirilmesi ve ebeveynlik stresinin azaltılması, bu annelerin çocuk sahibi olma konusunda daha olumlu motivasyonlar geliştirmelerine yardımcı olabilir ve olumsuz motivasyonların önüne geçebilir.

Anahtar kelimeler*:* motivasyon; otizm spektrum bozukluğu; psikolojik; stres; üreme

Introduction

Autism Spectrum Disorder (ASD) presents as a multifaceted neurodevelopmental disorder marked by challenges in social communication and interaction, alongside repetitive behaviors and restricted interests (American Psychiatric Association [APA], 2013). A rise in the prevalence of ASD has been observed globally in recent years (Centers for Disease Control and Prevention [CDC], 2016). According to the American CDC report, it is stated that 1 in 68 children in the US and 1-2% of the world population are diagnosed with ASD (CDC, 2016). In 2019, the Ministry of Health reported a total of 38,661 individuals with ASD in Türkiye. Additionally, the prevalence rates of ASD were 1 in 150 in 2006, 1 in 88 in 2008, 1 in 68 in 2012, and 1 in 45 in 2014 (Report of Parliamentary Research Commission, 2020). Although there are no precise current data on the prevalence of ASD in Türkiye, according to estimates from the Autism Platform, there are approximately 550,000 individuals with autism in the country, of which about 150,000 are aged 0-14 (Federation of Autism Associations, 2024).

The prevalence of ASD has been steadily rising over the past few decades, posing a substantial public health concern

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that impacts families. Parenting a child with developmental disabilities, including ASD, presents unique financial and psychological challenges that can significantly impact maternal well-being, leading to the emergence of parenting stress (Barroso et al., 2018; Bekhet & Garnier-Villarreal, 2018; Hayes et al., 2013; Walter & Smith, 2016). Parenting stress refers to the emotional, psychological, and physiological responses that parents experience when they perceive the demands of parenting to outweigh their coping resources (Abidin, 1995). They often face challenges when adapting to their evolving roles and responsibilities within the family dynamic. This situation leads to stress for the entire family, particularly for mothers, who play a crucial role in the upbringing and care of children with ASD (Ayhan et al., 2022; Barroso et al., 2018; Karaca & Konuk Sener, 2021; Liu et al., 2023; Walter & Smith, 2016). Previous studies have consistently shown that due to societal gender inequality and the roles assigned to women by society, mothers typically assume primary responsibility for caring for children with ASD. Consequently, they encounter higher levels of stress compared to other family members (Falk et al., 2014).

High levels of parenting stress can have adverse effects on couples' relationships and disrupt the parent-child dynamic (Dardas & Ahmad, 2014; Navot et al., 2016). Understanding the factors contributing to parenting stress in mothers of children with ASD is essential for developing targeted interventions that can alleviate its negative consequences (Liu et al., 2023; Rayan & Ahmad, 2017). Furthermore, investigating the childbearing motivations of mothers of children with ASD is crucial to comprehensively comprehend the family dynamics and maternal experiences in this context (Cetinbakis et al., 2020; Navot et al., 2016). The decision to have children is influenced by a complex interplay of individual, cultural, and social factors (Guedes et al., 2015; Hüseyinzade Şimşek, 2017). In the literature, it is observed that having a child with developmental disabilities can influence the decision-making regarding future childbearing (Navot et al., 2016; Selkirk et al., 2009; Şimşek Tarsuslu et al., 2015). In this regard, the presence of a child with ASD within the family can impact maternal perceptions of childbearing motivations, potentially influencing reproductive choices. Exploring these motivations is essential for uncovering the relationships between maternal experiences, parenting stress, and reproductive decision-making.

Health professionals are increasingly encountering individuals with ASD and their families while providing healthcare services. Moreover, these professionals are responsible for assessing the stressful situations experienced by parents and for providing the necessary education and counseling when required. Evaluating the childbearing motivations of mothers of children with ASD is also crucial. By investigating both the parenting stress and childbearing motivations, we can gain deeper insights into the challenges these mothers face and shed light on the evolving dynamics within their families. To the best of our knowledge, there are limited studies on the stress levels in mothers of children with ASD (Tsermentseli & Kouklari, 2021; Valicenti McDermott et al., 2015), and no studies have been conducted on the childbearing motivations of mothers of children with ASD using a validated childbearing motivations scale. The primary aims of the study were to investigate parenting stress and childbearing motivations in mothers of children with ASD, and to further examine the predictors of parenting stress and childbearing motivations.

Methods

Design and setting

An analytical cross-sectional study was conducted at Special Education and Rehabilitation Centers and Special Education Practice School, which are affiliated with the Provincial Directorate of National Education and located in the northwestern part of Türkiye.

Sample

The study population comprised 292 mothers with a child diagnosed with ASD, who were enrolled in the 2021-2022 academic year at Special Education and Rehabilitation Centers (n = 192) and Special Education Practice School (n = 100). The research was conducted on the entire population meeting the inclusion criteria. The inclusion criteria for the mothers were: (1) being a mother of a child diagnosed with ASD by a certified clinician according to DSM-V within the past six months, (2) living with the child, (3) being aged between 18 and 49, and (4) voluntary participation. The exclusion criterion was having a medical diagnosis that adversely affects fertility. The initial sample included 169 participants. Four participants who did not meet the inclusion criteria were excluded from the study, resulting in a total of 165 participants for the final analyses. A post hoc power analysis was conducted at the end of the study to assess the adequacy of the sample size. The effect size for the study was calculated at 0.23, and the power was determined to be 91% using G*Power software (version 3.1.9.2). Based on these results, the sample size was deemed sufficient.

Data collection tools

Data were collected using a Questionnaire Form (QF), the Parenting Stress Index Short Form (PSI/SF), and the Childbearing Motivations Scale (CMS).

Questionnaire form

A self-constructed Questionnaire Form (QF) was developed based on relevant literature (Pepperell et al., 2018; Selkirk et al., 2009; Şimşek Tarsuslu et al., 2015; Valicenti McDermott et al., 2015). The form comprised 25 questions divided into four sections: mother's socio-demographic, obstetric history, having a child with ASD, and characteristics related to considering having another child.

Parenting Stress Index Short Form

The Parenting Stress Index Short Form (PSI/SF) was developed by Abidin (1995) to assess the parenting stress experienced by parents. The scale's validity and reliability for the Turkish population were tested by Mert et al. (2008). This 5-point Likert-type scale consists of 36 items, grouped into three subscales: parental distress, parent-child dysfunctional interaction, and difficult child. Each subscale has scores ranging from 12 to 36, while total PSI/SF scores range from 36 to 180. Higher scores indicate elevated levels of parenting stress. The Cronbach's alpha coefficient for the scale was reported as 0.71 by Mert et al. (2008); in the present study, it was found to be 0.92.

Childbearing Motivations Scale

The Childbearing Motivations Scale (CMS) was developed by Guedes et al. (2015) to assess childbearing motivations. The scale's validity and reliability for the Turkish population were tested by Hüseyinzade Şimşek (2017). This 5-point Likert-type scale comprises 35 items distributed across two sections: positive childbearing motivations and negative

childbearing motivations. The positive childbearing motivations section contains 22 items, grouped into three subscales: socioeconomic aspects, couple relationship, and personal fulfillment. Total scores for this section range from 22 to 110, with higher scores indicating increased positive childbearing motivations. The negative childbearing motivations section comprises 13 items, categorized into three subscales: marital stress, financial problems, and social and ecological concerns. Total scores for the negative childbearing motivations section range from 13 to 65, with higher scores indicating increased negative childbearing motivations. The Cronbach's alpha coefficient reported by Hüseyinzade Şimşek (2017) was 0.91; in the current study, it was found to be 0.91.

Data collection

Data were collected from November 2021 to January 2022 through face-to-face interviews. Mothers of children with ASD were invited to participate in the study. The first researcher thoroughly explained the study's procedures, details, aims, and the voluntary nature of participation to interested mothers and verified their eligibility. Subsequently, eligible mothers signed informed consent forms and completed the questionnaires in a separate room. The data collection process with the mothers was conducted in a manner that ensured no disruption to their children's education and adhered to protective social distancing measures for Coronavirus Disease 2019 (COVID-19). The completion time for the questionnaires was approximately 15-20 minutes. Additionally, a pilot study involving 10 mothers was conducted to test the tools. The pilot study data were incorporated into the larger study, as there were no issues with the accuracy and comprehensiveness of the tools.

Statistical analysis

Statistical analyses were conducted using IBM SPSS 25.0© Statistics for Windows (IBM Corp, Armonk, NY, USA). Normality of the data was assessed using skewness and kurtosis. Since coefficients were within the range of ±1.5, the assumption of normality was satisfied. An Independent Sample t-test was employed to examine differences between the two independent groups. One-Way Analysis of Variance (ANOVA) was utilized to investigate differences among more than two independent groups, followed by Tukey's post hoc test to establish confidence intervals for pairwise differences between groups. For predicting the value of a dependent variable based on multiple independent variables, a multiple linear regression model was employed. The strength of the linear relationship between two independent variables was assessed using Pearson's correlation coefficient. Effect size was evaluated according to Cohen's effect size classification (Cohen, 1988). The level of statistical significance was set at $p< 0.05$ (two-sided).

Ethical considerations

The study received ethical approval from the Düzce University Non-Interventional Health Research Ethical Committee (approval number: 2021/165, date approved: July 5, 2021). Additionally, written permission was obtained from the Provincial Directorate of National Education and the institutions where the study was conducted. Permissions to utilize the PSI/SF and CMS were obtained via email from the corresponding authors. All participant data were securely stored and protected for academic research purposes. The study adhered to the principles outlined in the Declaration of Helsinki.

Results

Out of 169 questionnaires distributed, 165 respondents, accounting for 97.6% participation, were included in the study. Four participants were excluded because they did not meet the inclusion criteria.

The mean age of the mothers of children with ASD was 36.96±6.20 years, and the mean age of their children was 8.47±4.30 years. Among the mothers, 52.7% were aged 35-44, 35.8% had literacy/primary school education, 63.6% resided in urban areas, 90.9% were married, 89.1% had a nuclear family structure, 89.7% were not employed, and 46.7% reported a moderate income level. Among the children with ASD, 52.1% were aged 7-14, 84.2% were male, and 50.3% were the firstborn. Regarding family planning decisions influenced by ASD, 57.0% of mothers reported that ASD affected their decision about having another child. Furthermore, 63.0% did not have another child after their child with ASD, 80.6% did not want to have another child, and 83.0% perceived a risk of ASD recurrence in future pregnancies.

The participants' mean PSI/SF score was 104.77±23.56. The mean scores for the PSI/SF subscales were as follows: Parental Distress scored 36.94±9.26, Parent-Child Dysfunctional Interaction scored 30.39±8.68, and Difficult Child scored 37.44±9.66. The mean PCMS score was 62.50±20.26, with subscale scores of 27.48±11.84 for Socio-Economic Views, 20.61±5.39 for Couple Relationships, and 14.41±5.02 for Personal Satisfaction. The mean NCMS score was 33.49±12.74, with subscale scores of 11.15±5.44 for Marital Stress, 12.92±5.59 for Financial Problems, and 9.43±3.87 for Social and Ecological Concerns (Table 1).

Table 1. The mean scores of PSI/SF, positive CMS, and negative CMS

PSI/SF Sub-scales	Mean	SD
Parental distress (PD)	36.94	9.26
Parent-child dysfunctional interaction (P-CDI)	30.39	8.68
Difficult child (DC)	37.44	9.66
Total of PSI/SF	104.77	23.56
CMS Sub-scales		
Positive childbearing motivations		
Socioeconomic aspects	27.48	11.84
Couple relationship	20.61	5.39
Personal fulfillment	14.41	5.02
Total positive childbearing motivations	62.50	20.26
Negative childbearing motivations		
Marital stress	11.15	5.44
Financial problems	12.92	5.59
Social and ecological worry	9.43	3.87
Total negative childbearing motivations	33.49	12.74

PSI/SF: Parenting Stress Index Short Form, CMS: Childbearing Motivations Scale

The PSI/SF scores of the participants showed statistically significant differences based on various variables including age, education level, spousal support in caring for the autistic child, number of pregnancies, birth order of the ASD child's siblings, the influence of autism on the decision to have another child, and perception of the risk of ASD recurrence ($p<0.05$). Specifically, individuals aged 45-49 exhibited significantly higher average PSI/SF scores compared to those aged 19-34 ($p=0.043$). Participants with literacy/primary school education recorded significantly higher PSI/SF scores than those with a high school education ($p=0.024$). Those receiving spousal support in caring for the autistic child had significantly lower PSI/SF scores than those without such support

(p=0.014). Participants who had only one pregnancy showed significantly higher PSI/SF scores compared to those with two pregnancies (p=0.014). Mothers who reported that their decision to have another child was influenced by having a child with ASD had significantly higher PSI/SF scores compared to those who reported no influence (p=0.001). Participants who perceived a lower risk of ASD recurrence in their next pregnancy had significantly lower PSI/SF scores than those who perceived it as moderately or highly risky (p=0.002). However, PSI/SF scores did not show statistically significant differences based on income level, the age or gender of the autistic child, having another child after an ASD-diagnosed child, or the desire to have more children (p>0.05) (Table 2).

The PCMS scores among participants showed statistically significant differences based on several variables: education and income level, the age of the child with ASD, birth of order the child with ASD, whether they had another child after a child with ASD, and the desire to have more children (p<0.05). The PCMS scores of the participants showed statistically significant differences based on various variables including education level, income level, the age of the child with ASD, birth order of the child with ASD, having another child after an ASD-

Table 2. The mean scores of PSI/SF, positive CMS, and negative CMS according to some characteristics

Characteristics	n (%)	PSI/SF Mean±SD	Analysis	Positive CMS Mean±SD	Analysis	Negative CMS Mean±SD	Analysis
Mother							
Age (years)							
1) 19-34	59 (35.7)	99.75±25.16	**[a]0.043*** 1-3[c]	63.83±20.66	[a]0.64	32.61±12.32	[a]0.339
2) 35-44	87 (52.7)	106.03±21.39		61.10±20.46		33.22±12.69	
3) 45-49	19 (11.5)	114.58±25.26		64.74±18.53		37.47±14.17	
Education status							
1) Primary school	59 (35.8)	110.42±24.83	**[a]0.024*** 1-3[c]	64.68±20.16	**[a]0.036*** 2-3[c]	36.27±14.19	[a]0.101
2) Secondary school	23 (13.9)	101.00±20.14		70.22±22.51		33.61±13.76	
3) High school	47 (28.5)	97.26±20.81		56.30±18.18		32.89±11.04	
4) University and over	36 (21.8)	107.72±24.62		62.08±19.93		29.64±10.91	
Income status							
1) Income less than expenses	76 (46.1)	107.95±24.73	[a]0.172	58.14±18.94	**[a]0.037*** 1-2[c]	36.16±12.01	**[a]0.044*** 1-3[c]
2) Income equals expenses	77 (46.7)	101.09±22.79		66.35±20.71		31.30±13.42	
3) Income more than expenses	12 (7.3)	108.25±18.35		65.33±21.62		30.67±10.04	
Spouse support in caring for a child with ASD							
1) Yes	100 (60.6)	100.67±21.96	**[a]0.014*** 3-1,2[c]	61.54±21.04	[a]0.229	31.97±12.23	**[a]0.015*** 1-3[c]
2) No	28 (17.0)	113.93±23.57		59.50±19.36		31.89±12.14	
3) Sometimes	37 (22.4)	108.92±25.59		67.35±18.37		38.81±13.41	
Pregnancy history							
1) 1	21 (12.7)	117.90±18.79	**[a]0.014*** 1-2[c]	62.24±20.98	[a]0.605	37.90±9.62	**[a]0.001*** 2-1,3[c]
2) 2	67 (40.6)	100.87±22.70		60.72±19.98		29.10±11.77	
3) ≥3	77 (46.7)	104.58±24.41		64.12±20.43		36.10±13.28	
Child with ASD							
Age (years)							
1) 1-3	19 (11.5)	100.00±27.20	[a]0.627	54.26±16.63	**[a]0.014*** 2-4[c]	32.89±10.71	[a]0.377
2) 4-6	45 (27.3)	102.64±25.05		57.44±18.81		34.69±12.53	
3) 7-14	86 (52.1)	106.62±22.24		67.10±20.79		32.22±12.97	
4) ≥15	15 (9.1)	106.60±22.45		61.67±20.27		37.93±14.24	
Gender							
Female	26 (15.8)	96.73±21.063	[b]0.058	67.00±18.70	[b]0.218	33.23±12.91	[b]0.910
Male	139 (84.2)	106.27±23.76		61.65±20.49		33.54±12.76	
Sibling birth order							
1) First child	83 (50.3)	106.42±23.04	**[a]0.032*** 2-3[c]	66.98±20.52	**[a]0.004*** 1-2[c]	33.46±13.05	**[a]0.004*** 3-1,2[c]
2) Second child	57 (34.5)	98.88±23.77		55.53±18.29		30.46±10.59	
3) Third child and over	25 (15.1)	112.72±22.42		63.52±19.98		40.52±13.86	
Views on having another child							
Having another child after a child with ASD							
Yes	61 (37.0)	102.70±22.63	[b]0.390	67.51±20.71	**[b]0.015***	31.97±14.06	[b]0.241
No	104 (63.0)	105.98±24.11		59.56±19.50		34.38±11.88	
Impact of ASD on the decision to have another child							
Yes	94 (57.0)	109.81±21.19	**[b]0.001***	61.66±20.02	[b]0.543	34.77±12.02	[b]0.140
No	71 (43.0)	98.10±24.98		63.61±20.66		31.80±13.53	
Desire to have another child							
1) Yes	14 (8.5)	91.93±32.12	[a]0.089	73.57±20.79	**[a]0.001*** 2-1,3[c]	30.00±9.93	[a]0.391
2) No	133 (80.6)	106.33±23.01		59.54±19.15		34.14±12.92	
3) Indecisive	18 (10.9)	103.22±17.24		75.72±20.69		31.39±13.25	
Recurrence risk of ASD in future pregnancies							
1) Very Risky	32 (19.4)	110.19±21.75	**[a]0.002*** 3-1,2[c]	57.03±19.31	[a]0.371	34.31±11.38	[a]0.328
2) Risky	51 (30.9)	111.75±24.67		63.53±19.17		35.82±12.96	
3) Low risky	54 (32.7)	95.83±18.36		64.80±20.05		31.91±13.16	
4) No risky	28 (17.0)	103.11±27.38		62.43±23.39		31.36±12.85	

*p<0.05, **p<0.001, [a]One-Way ANOVA, [b]Independent t-test, [c]difference between the groups, PSI/SF: Parenting Stress Index Short Form, CMS: Childbearing Motivations Scale

diagnosed child, and the desire to have children (p<0.05). Specifically, participants with a middle school education had significantly higher PCMS scores compared to those with a high school education (p=0.036). Participants whose income matched their expenses registered significantly higher PCMS scores than those with lower income levels (p=0.037). Participants with autistic children aged 15 and above scored significantly higher on the PCMS than those with children aged 4-6 (p=0.014). Participants whose first child was diagnosed with ASD had significantly higher PCMS scores compared to those whose first child was not autistic (p=0.004). Those who had another child after the one with ASD exhibited significantly higher PCMS scores than those who did not have another child (p=0.015). Participants who did not desire to have children had significantly lower PCMS scores compared to those who wanted to have children or were undecided (p = 0.001). PCMS scores did not show statistically significant differences based on the age of the mother, spousal support in caring for the child with ASD, number of pregnancies, the gender of the child with ASD, the influence of ASD on the decision to have another child, and the perception of the risk of ASD recurrence (p>0.05) (Table 2). The NCMS scores among participants showed statistically significant differences based on various variables including income level, spousal support in caring for the child with ASD, number of pregnancies, and birth order of the child with ASD (p<0.05). Specifically, participants with lower income had significantly higher NCMS scores compared to those with equal income (p=0.044). Those who had consistent spousal support in caring for the child with ASD exhibited significantly lower NCMS scores compared to those who received occasional spousal support (p=0.015).

Table 3. Pearson correlation analysis between PSI/SF and CMS scores

	PSI/SF	Parental distress	Parent-child dysfunctional interaction	Difficult child
Positive CMS				
r	-0.001	0.011	0.014	-0.027
p	0.986	0.883	0.857	0.729
Socioeconomic aspects				
r	0.034	0.048	0.049	-0.008
p	0.669	0.541	0.535	0.921
Couple relationship				
r	-0.125	-0.109	-0.113	-0.098
p	0.110	0.162	0.150	0.210
Personal fulfillment				
r	0.049	0.051	0.063	0.014
p	0.532	0.516	0.420	0.859
Negative CMS				
r	0.345	0.435	0.231	0.216
p	**0.000****	**0.000****	**0.003****	**0.005****
Marital stress				
r	0.345	0.427	0.246	0.212
p	**0.000****	**0.000****	**0.001****	**0.006****
Financial problems				
r	0.346	0.426	0.238	0.222
p	**0.000****	**0.000****	**0.002****	**0,004****
Social and ecological concerns				
r	0.150	0.218	0.073	0.092
p	0.055	**0.005***	0.353	0.242

*p<0.05, **p<0.01, r: Pearson correlation coefficient, PSI/SF: Parenting Stress Index Short Form, CMS: Childbearing Motivations Scale

Table 4. The predictors of mothers' of child with ASD parenting stress level

Independent variables	β	St. Error	St. B	t	p
Mother's age	0.683	0.331	0.180	2.064	**0.041***
Mother's education status (primary school)					
Secondary school	-3.305	6.014	-0.049	-0.549	0.583
High school	-12.332	4.566	-0.237	-2.701	**0.008***
University and over	-1.929	4.919	-0.034	-0.392	0.695
Number of pregnancies	-2.186	1.774	-0.102	-1.232	0.220
Spouse support in the care of child with ASD (yes)					
No	8.979	4.641	0,143	1.935	0.055
Sometimes	3.412	4.167	0,061	0.819	0.414
Sibling order of child with ASD (first child)					
Second child	-8.922	3.876	-0.181	-2.302	**0.023***
Third child	2.942	5.542	0.045	0.531	0.596
Effect of ASD on the decision to have another child (no)					
Yes	8.099	3.725	0.171	2.174	**0.031***
Recurrence risk of ASD in future pregnancy (very risky)					
Risky	3.220	5.044	0.063	0.638	0.524
Low risk	-9.161	5.013	-0.183	-1.828	0.070
Not risky	4.114	5.907	0.066	0.697	0.487
F=4.168					
p<0.0001					
R^2=0.264					
Adjusted R^2=0.201					

*p<0.05

Participants with two pregnancies recorded significantly lower NCMS scores compared to those with one pregnancy or three or more pregnancies (p=0.001). Participants whose autistic child was the third child or higher scored significantly higher on the NCMS compared to those whose autistic child was the first or second child (p=0.004). NCMS scores did not show statistically significant differences based on age, education level, age and gender of the child with ASD, the decision to have another child, the influence of ASD on the decision to have another child, desire to have a child, and perception of the risk of autism recurrence in a new child (p>0.05) (Table 2).

The total score for parental distress in mothers of children with ASD was positively and moderately correlated with the total score for negative childbearing motivation, a relationship that was statistically significant (p<0.05) (Table 3).

Multivariate linear regression analysis was conducted with PSI/SF scores as the dependent variable. Mother's age and the influence of ASD on the decision to have another child emerged as statistically significant, independent positive predictors of parenting stress, while education level and the birth order of the child with ASD were identified as significant independent negative predictors of parenting stress, explaining up to 20.1% of the variance (p < 0.05) (Table 4).

Multivariate linear regression was performed on positive CMS scores as the dependent variable. Income status, and the desire to have another child were among statistically significant independent positive predictors of the positive childbearing motivations, while mother's education status, and sibling order of child with ASD were among statistically significant independent negative predictors of the positive childbearing motivations, explaining up to 18.7% of the variance (p < 0.05) (Table 5).

Table 5. The predictors of mothers' of child with ASD positive childbearing motivations

Independent variables	β	St. Error	St. B	t	p
Mother's education status (primary school)					
Secondary school	2.368	4.689	0.041	0.505	0.614
High school	-8.738	3.782	-0.195	-2.311	**0.022***
University and over	-3.843	4.208	-0.079	-0.913	0.363
Income status (income less than expenses)					
Income equals expenses	6.461	3.211	0.160	2.012	**0.046***
Income more than expenses	0.351	5.949	0.005	0.059	0.953
Age of child with ASD	0.398	0.366	0.086	1.087	0.279
Sibling order (First child)					
Second child	-9.067	3.380	-0.213	-2.683	**0.008***
Third child and over	2.428	4.641	0.043	0.523	0.602
Having a child after a child with ASD (No)					
Yes	4.024	3.547	0.096	1.134	0.258
Desire to have another child (No)					
Yes	16.792	5.356	0.232	3.135	**0.002***
Undecided	13.096	4.815	0.202	2.720	**0.007***
F=4.420					
p<0.0001					
Adjusted R^2=0.241					
R^2=0.187					

*p<0.05

Discussion

Our study aimed to investigate parenting stress and childbearing motivations among mothers of children with ASD, as well as to examine the predictors of parenting stress and childbearing motivations. We observed a moderately high level of parenting stress and a low level of positive childbearing motivation among these mothers. Additionally, we identified a positive and moderate correlation between parenting stress and negative childbearing motivations. Several factors predicted the level of parenting stress, including mother's age, the impact of ASD on the decision to have another child, education level, and the birth order of the child with ASD. Similarly, positive childbearing motivations were predicted by factors including income status, the desire to have another child, mother's education level, and the birth order of the child with ASD. In our study, the mean PSI-SF score was 104.77 ± 23.56, indicating that mothers' parenting stress was moderately high. Consistent with this finding, Tsermentseli and Kouklari (2021) found that the mean PSI-SF score for mothers of children with ASD was 105.50 ± 19.23. Meirsschaut et al. (2010) found that mothers of autistic children experience high levels of stress related to feelings of inadequacy. Valicenti McDermott et al. (2015) noted higher parental stress in families of children with ASD compared to those with other developmental disabilities. Furthermore, a meta-analysis by Hayes et al. (2013) suggested that parents of children with ASD experience greater parenting stress compared to parents of typically developing children or those with other disabilities. Our findings align with these previous studies, confirming the significant stress experienced by this population.

The impact of having a child with ASD on parents' choices regarding future childbearing remains largely unexplored. Our study revealed that mothers of children with ASD exhibited a low level of positive childbearing motivation. This outcome may be influenced by several factors: 83.0% of mothers perceived a high risk of autism recurrence in any future pregnancies, 57.0% reported that having a child with autism influenced their decision against having more children, and 80.6% expressed a lack of desire to have more children in the future. These factors likely contributed to the observed low motivation for further childbearing. Navot et al. (2016) similarly found that mothers of first-born children diagnosed with autism were influenced by autism in their decision-making process about having another child. Some mothers shared that the perceived risk of autism recurrence heavily influenced their decision not to have more children. They indicated that availability of a genetic test determining the likelihood of autism recurrence might change their decision; without such information, the risk seemed too great to consider further childbearing. Our study found that parental stress levels were higher among individuals who were older and had lower levels of education. Mother's age and educational status were identified as influential factors in the multiple linear regression analysis model, consistent with previous research findings. These findings suggest that older mothers may experience increased stress due to the growing responsibilities of meeting the needs of their autistic children, while mothers with lower education levels may face additional pressures due to difficulties in understanding and managing the special requirements of their autistic children. In line with our findings, previous studies have indicated that mothers become more vulnerable to stress as they manage education and intervention services for their children with ASD, handle household chores, and engage in employment (Nicholas et al., 2020; Rayan & Ahmad, 2017; Reddy et al., 2019). These results highlight the challenges that mothers, particularly those of older age or lower educational backgrounds, might face in managing the demands of parenting children with ASD. Supporting these mothers with targeted interventions, education, and resources could potentially help alleviate some of the stress they experience in fulfilling the unique needs of their children with autism.

Studies showed that parenting children with ASD can be a stressful and challenging experience, especially when there is limited support from a spouse or in the general care of the children with ASD (Falk et al., 2014; Papadopoulos, 2021; Shattnawi et al., 2020). White and Hasting (2004) found that social support received by families of disabled children was associated with a reduction in stress levels. In the study by Pepperell et al. (2018), mothers emphasized the importance of support from family members and spouses, and inadequate support was linked to increased stress levels. Consistent with the literature, our study found that mothers who perceived spousal support as insufficient had higher levels of stress. This finding is noteworthy in terms of the negative impact of lack of spousal support on parenting stress. Spousal support can be a crucial source of assistance for families with autistic children, and its absence may hinder mothers in meeting their emotional and psychological needs. Furthermore, our study revealed that having the first child diagnosed with autism also affects parenting stress levels. Mothers of the first child with autism might experience higher stress due to their inexperience in understanding and managing the symptoms of autism. This suggests that a lack of knowledge about autism spectrum disorder could contribute to increased parenting stress. These findings highlight the significance of providing adequate social support and information resources for families with autistic children, particularly focusing on spousal support and addressing the unique challenges that come with parenting a child on the ASD.

Our study found that mothers who indicated that having a child with autism affected their decision to have another child, had a higher sibling order for their autistic child, and perceived

a high recurrence risk of autism in a new pregnancy had higher levels of parental stress. The effect of ASD on the decision to have another child and the order of siblings (first child) were significant factors in the multiple linear regression analysis model, aligning with previous research findings. Prata et al. (2019) found that the number of children with special needs in the family significantly influenced the negative emotions mothers experienced. Studies noted that mothers worry about what their children will do in the future, whether they will be independent, what will happen to them when the mothers themselves pass away, and concerns about the safety of their children (Diken, 2006; Ivey, 2004). In a study conducted by Karaca and Konuk Sener (2021), mothers of children with developmental disabilities expressed significant concerns regarding their child's future, with a particular focus on what would happen to their children after the parents had passed away. Lee et al. (2008) found that families with autistic children expressed more concerns about their children's future compared to families with children from other disability groups. Our study findings are in line with the literature. Furthermore, these findings emphasize the importance of health professionals in addressing and managing these types of concerns of families and mothers, highlighting their role in providing support on how to handle these worries effectively.

In our study, mothers with lower education levels and higher income levels had higher levels of positive childbearing motivation. Education level and income status emerged as significant factors in the multiple linear regression analysis model, consistent with previous research findings. These findings draw attention to the impact of socio-economic conditions on childbearing motivation. Mothers with lower education levels may place greater value on the belief that having children strengthens family unity. These beliefs can be seen as enhancing positive childbearing motivation. A higher income level can provide advantages to mothers in meeting the child's medical and educational needs, providing specialized therapies, and accessing broader social opportunities. Therefore, it can be suggested that economic security plays a role in enhancing motivation for having children. Furthermore, our study found that mothers with spousal support in caring for the autistic child had lower levels of negative childbearing motivation. This result indicates that spousal support can contribute to emotional balance and psychological well-being in mothers, potentially reducing negative thoughts about having children. These findings provide an important perspective on how family values, societal norms, and individual experiences can influence the decision to have children.

Our study showed that mothers with older autistic children and those whose first child was autistic had higher levels of positive childbearing motivation. Sibling order (first child) was found to be a significant factor in the multiple linear regression analysis model, aligning with prior research findings. However, the age of child with ASD was not an effective factor. It is considered that having a younger autistic child might increase caregiving responsibilities and dependency on the mother, potentially leading to a decrease in positive attitudes towards having more children. Additionally, mothers whose first child was autistic might have a stronger desire for a healthy child and perceive the new child as a potential source of assistance in caring for their autistic sibling, positively influencing their childbearing motivation. Consistent with our study findings, Navot et al. (2016) conducted a study with mothers of first-born autistic children and found that while many mothers were aware of the risk of autism recurrence, it did not play a significant role in family planning decisions. Each mother expressed a desire to have more than one child, reflecting their ideal vision for their family. Some mothers expressed fear of the risk of having another autistic child, but they also believed that their increased knowledge and experience would better equip them to handle any challenges their other children might face (Navot et al., 2016). Furthermore, Şengül Erdem (2023) found that mothers with multiple children with ASD desired to have healthy siblings for their autistic children, which contributed to their motivation for having more children.

In our study, mothers who had healthy children after having a child with autism, as well as those who expressed a desire to have another child, had higher levels of positive childbearing motivation. The desire to have another child emerged as a significant factor in the multiple linear regression analysis model, consistent with prior research findings. However, having a child after a child with ASD did not demonstrate significance in the analysis. The higher level of childbearing motivation can be explained by the reduction of mothers' concerns about the recurrence risk of autism in their subsequent births when the born sibling is healthy. Additionally, it is believed that concerns about who will care for the autistic child in case something happens to the mother can increase stress levels, and the presence of a healthy sibling might mitigate these concerns and reduce stress, thus contributing to more positive attitudes towards having children. Similarly, Şimşek Tarsuslu et al. (2015) found that parents of chronically disabled children, including autism, could be influenced by concerns about having another child with a disability when considering having more children. Güleç-Aslan (2017) mentioned that uncertainty about who would provide care for their children when they age or pass away constitutes a source of anxiety for mothers. Şengül Erdem (2023) also found that mothers desire healthy siblings for their autistic children after having an autistic child, particularly with the hope that there would be someone to take care of them when they are no longer able to, reflecting their motivation for having more children. Our study findings align with these previous findings in the literature.

Strengths and Limitations

To the best of our knowledge, this study is the first to investigate the predictors affecting parenting stress and childbearing motivations among mothers of children with ASD using a validated scale. However, the study also has several limitations. Firstly, the CMS has not been widely used in studies conducted in different societies or within our country, which limits the comparability of our findings with those of other studies. Secondly, the study population consisted only of mothers of children with ASD who are registered and attending educational institutions where the research was conducted. However, some of the children registered in these institutions may simultaneously attend multiple institutions where the research was conducted. Therefore, “the sampling size formula for a known population” could not be utilized, leading to an inability to reach the entire target population and resulting in a smaller sample size. Finally, the use of a convenience sample composed of mothers from specific Special Education and Rehabilitation Centers and a Special Education Practice School in a particular province may limit the representativeness and generalizability of the results.

Conclusion

The results of the study revealed that mothers of children with ASD experience a moderately high level of parenting stress and a low level of positive childbearing motivation. Predictors of parenting stress, accounting for up to 20.1% of the variance, included mother's age, educational status, the birth order of the child with ASD, and the impact of ASD on the decision to have another child. Similarly, factors influencing positive childbearing motivations, explaining up to 18.7% of the variance, were the educational and income status of the mother, the birth order of the child with ASD, and the desire to have another child. A positive, moderate relationship was also found between parenting stress and negative childbearing motivations.

We recommend several strategic interventions to alleviate parenting stress and enhance positive childbearing motivations. First, it is crucial to develop targeted support systems offering specialized training and resources tailored to the needs of these mothers. This should include professional counseling services to address emotional and psychological challenges, along with educational programs that enhance understanding of ASD and effective parenting strategies. Additionally, creating inclusive community support networks can foster a sense of belonging and shared experience, potentially reducing feelings of isolation. Financial support initiatives, considering the influence of economic status on childbearing motivations, could also prove beneficial. These could take the form of subsidies or grants specifically designed for families affected by ASD. Future research should focus on investigating the effectiveness of interventions that enhance parents' stress management skills. Conducting qualitative studies or larger sample size quantitative studies to uncover the factors and reasons that influence parental stress and childbearing motivation could contribute significantly to further understanding these phenomena.

Conflict of Interest

The authors have no conflicts of interest to declare.

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Informed Consent

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Author Contributions

A. K.: Literature Search, Design, Concept, Writing-Original Draft, Materials, Data Collection and Processing, Analysis and/or Interpretation, Writing-Review & Editing.

A. A.: Literature Search, Design, Concept, Writing-Original Draft, Materials, Analysis and/or Interpretation, Critical Review, Supervision, Writing-Review & Editing.

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