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Investigating the impact of social communication deficiencies in children with autism spectrum disorder on their parents' depression and anxiety levels

Otizm spektrum bozukluğu tanısı alan çocukların sosyal iletişim eksikliklerinin ebeveynlerin depresyon ve anksiyete düzeyleri üzerindeki etkisinin incelenmesi

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ÖZET

Amaç: Otizm Spektrum Bozukluğu (OSB), bireylerin sosyal iletişim becerilerini etkileyebilmekte ve sadece tanı konulan çocukları değil, aynı zamanda ebeveynlerini, özellikle ebeveynlerinin ruh sağlığını da etkileyebilmektedir. Mevcut alanyazın, genellikle OSB'li bireylerin doğrudan etkilerine odaklanmış olup, bakım sağlayanlar üzerindeki psikolojik yükü henüz yeterince çalışılmamış gözükmektedir. Bu çalışma, çocukların OSB nedeniyle yaşadığı sosyal iletişim zorlukları ile ebeveynlerinin depresyon ve anksiyete düzeyleri arasındaki ilişkiyi araştırmaktadır.
Yöntem: Araştırma, korelasyonel bir tasarım kullanarak Türkiye'nin çeşitli şehir merkezlerindeki 4-18 yaş arası OSB'li çocukların 400 ebeveyni üzerinde yapılmıştır. Çocukların sosyal iletişim eksikliklerini ve ebeveynlerin psikolojik durumlarını değerlendirmek için Sosyal İletişim Ölçeği, Beck Depresyon Envanteri ve Beck Anksiyete Envanteri kullanılarak veriler toplanmıştır. Spearman korelasyon katsayıları ve alt grup analizleri, çocukların sosyal iletişim problemlerinin ciddiyeti ile ebeveynlerin depresyon ve anksiyete düzeyleri arasındaki ilişkileri değerlendirmiştir.
Bulgular: Bulgular, OSB'li çocukların sosyal iletişim eksikliklerinin ciddiyeti ile ebeveynlerinin depresyon ve anksiyete düzeyleri arasında bir korelasyon olduğunu ortaya koymuştur. Spearman korelasyon katsayıları, depresyon için r=-0.218 ve anksiyete için r=-0.263 ile anlamlı negatif korelasyonlar göstermiştir.
Sonuçlar: Daha ciddi iletişim eksiklikleri olan çocukların ebeveynleri, daha yüksek psikolojik sıkıntı bildirmiştir. Bu model, farklı demografik alt gruplar arasında tutarlı bir şekilde gözlemlenmiştir. Çalışmanın katkısı, bu ilişkileri Türkiye'deki kentsel bir popülasyon içinde nicel olarak doğrulaması ve bütüncül, aile merkezli yaklaşımların gerekliliğini vurgulamasıdır.

Anahtar kelimeler*:* otizm spektrum bozukluğu; sosyal iletişim; ebeveyn; depresyon; anksiyete

ABSTRACT

***Aim*:** Autism Spectrum Disorder (ASD) significantly impacts individuals' social communication abilities, affecting both the diagnosed children and their families, especially the mental health of their parents. While existing literature has focused on the direct implications for individuals with ASD, the psychological toll on caregivers is often overlooked. This study explores the relationship between children's social communication challenges due to ASD and the subsequent mental health outcomes in their parents, specifically depression and anxiety levels.
Methods: Using a correlational design, the research involved 400 parents of children with ASD aged 4-18 from various urban centers in Turkey. Data were collected using the Social Communication Scale, Beck Depression Inventory, and Beck Anxiety Inventory to assess children's social communication deficits and parents' psychological states. Spearman's correlation coefficients and subgroup analyses evaluated the relationships between the severity of children's social communication problems and parental depression and anxiety levels.
Results*:* The findings revealed a strong correlation between the severity of social communication deficiencies in children with ASD and heightened levels of depression and anxiety among their parents. Spearman's correlation coefficients showed significant negative correlations, with r=-0.218 for depression and r=-0.263 for anxiety.
Conclusion: Parents of children with more severe communication deficits reported higher psychological distress. This pattern was consistent across different demographic subgroups. The study's unique contribution lies in its quantitative confirmation of these relationships within a Turkish urban population, underscoring the need for holistic, family-centered approaches in ASD management.

Keywords*:* autism spectrum disorder; social communication; parent; depression; anxiety

Introduction

Autism Spectrum Disorder (ASD) is a developmental disorder characterized by significant social, communication, and behavioral challenges (Ousley & Cermak, 2014). ASD is a complex developmental condition involving persistent challenges with social communication, restricted interests and repetitive behavior. While autism is considered a lifelong disorder, the degree of impairment in functioning because of these challenges varies between individuals with autism. According to the Centers for Disease Control and Prevention, an estimated one in 36 children has been identified with ASD (Tobón, 2024).

It is known that psychological problems such as depression and anxiety are frequently observed in parents of children with ASD. This may be due to the difficulties parents face in trying to cope with their children's special needs. Many studies have shown that parents of children diagnosed with ASD are more likely to show symptoms of depression and anxiety than other parents. For example, a study conducted in Turkey found that mothers of children with autism had higher depression levels than other mothers (Karadag vd., 2014). The effects of ASD extend beyond the individual to their family, particularly impacting parents who play a critical role in their care and support (Karst & Van Hecke, 2012). Recent studies have begun to elucidate on the psychological toll that raising a child with ASD can entail, including increased levels of stress, depression, and anxiety among parents (Kalb vd.,

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2021). However, the specific relationship between the core symptoms of ASD—namely, deficits in social interaction and communication—and the mental health of parents remains underexplored. There are also studies examining how parents' coping strategies and receiving social support affect depression and anxiety levels. These studies emphasize the importance of psychosocial support programs for parents. In this context, there is a general consensus that various measures should be taken at both individual and social levels to protect and support the psychological health of parents of children diagnosed with ASD.

The onset of ASD symptoms can significantly alter familial dynamics, imposing a continuous caregiving burden that may precipitate or exacerbate mental health issues in parents (Kuhlthau vd., 2014). Given the critical role of social interaction and communication in human relationships, deficiencies in these areas for children with ASD can particularly strain parental well-being, potentially leading to higher instances of depression and anxiety (Barker vd., 2011). Understanding this relationship is crucial for developing targeted interventions aimed at supporting not only the children with ASD but also their primary caregivers (Khanna vd., 2011).

There are several studies conducted both in our country and abroad on the impact of communication deficits in children diagnosed with ASD on the levels of depression and anxiety in parents. The study titled "Parental stress and autism: Are there useful coping strategies?" investigates the stress levels in parents of children diagnosed with ASD and explores the underlying factors contributing to this stress. It examines coping strategies of parents and evaluates their impact on stress management and psychological health (Mancil vd., 2009). The study titled "Impact of Autism Spectrum Disorders on Family Functioning and Relationship with Maternal Mental Health" explores the functionality within families of children diagnosed with ASD and investigates the effects on maternal mental health. It focuses on family dynamics and the impact of the child's communication deficits on intra-family relationships. (Wood vd., 2020). The study titled "Associations Between Parental Anxiety/Depression and Child Behavior Problems Related to Autism Spectrum Disorders: The Roles of Parenting Stress and Parent Coping" investigates the effects of anxiety and depression in parents of children diagnosed with ASD on the child's behavior problems. It also addresses parenting stress factors and parental coping strategies. These studies are conducted to understand the impact of ASD on family dynamics and parental psychological health, providing valuable scientific data in this field (Rezendes & Scarpa, 2011).

This study aims to examine the extent to which social interaction and communication problems in children diagnosed with ASD are associated with depression and anxiety levels among their parents. By focusing on a comprehensive sample of parents of children with ASD aged 4-18, this research employs a correlational model to investigate these relationships quantitatively. Through the use of established psychometric instruments—namely, the Beck Depression Inventory, the Beck Anxiety Inventory, and the Social Communication Scale—this study seeks to illuminate the psychological impacts of ASD's core symptoms on the family unit.

The subsequent sections of this article will detail the methods employed in this research, present the findings from our analysis, and discuss the implications of these results for clinical practice and future research. By contributing to the body of knowledge on the psychological well-being of parents of children with ASD, this study aims to underscore the importance of integrated approaches to autism care that address the needs of both children and their caregivers. The aim of this study investigating the impact of communication deficits in ASD on parents' depression and anxiety levels focuses on: Psychological well-being of parents, family dynamics, impact of support services, and social awareness and support. parents of a child with ASD often require targeted care and adjustments. This situation can elevate chronic stress levels and be psychologically challenging. Research is conducted to understand identity information and anxiety levels, aiming to provide support in this regard. In families with a child diagnosed with ASD, there may be changes in relationships between parents and intra-family communication. This study was conducted to understand intra-family dynamics and parental emotional well-being. Families of children with ASD may experience difficulties in accessing psychosocial support services. This study was conducted to assess factors influencing parental psychological health and the effectiveness of support services. Studies aimed at raising societal awareness about ASD and understanding how society can support individuals and families affected by ASD also exist. Such studies are conducted to understand parental emotional well-being and support needs.

Methodology

Study design

This research employed a correlational study design to examine the extent to which problems in social interaction and communication, as experienced by children diagnosed with ASD, affect the likelihood of their parents experiencing symptoms of depression and anxiety. The study specifically aimed to investigate whether deficits in interaction and communication, which are symptoms of ASD, lead to the emergence of depression and anxiety symptoms in parents, and if so, to what extent. The research included children diagnosed with ASD aged between 4 to 18 years and their parents, employing purposeful sampling due to the specific age and diagnosis criteria of the children involved. Purposeful sampling was used to measure the levels of depression and anxiety among parents of children diagnosed with ASD aged between 4 and 18 years. Participants included 181 individuals (45.3%) with children diagnosed with ASD aged 4-7 years, 120 individuals (30%) with children aged 8-11 years, 55 individuals (13.7%) with children aged 12-15 years, and 44 individuals (11%) with children aged 16-18 years. Regarding the age of diagnosis of ASD among participants, 321 individuals (80.3%) received the diagnosis between 0-3 years old, while 79 individuals (19.8%) received the diagnosis between 4-7 years old. No participants reported receiving the diagnosis between 8-11 or 12-15 years old. A correlational model was utilized as the primary quantitative research method to examine the relationships between variables based on numerical data. For collecting the socio-demographic data of the parents, survey forms were used, while specific scales were employed to assess levels of depression, anxiety, and social communication. The Beck Depression Inventory was utilized to measure symptoms of depression among parents, the Beck Anxiety Inventory to assess their levels of anxiety, and the Social Communication Scale to investigate the autistic symptoms of the children diagnosed with ASD. This design ensures a

comprehensive analysis of how ASD-related communication challenges in children might correlate with psychological distress in their parents, thus aiming to provide insights into the indirect effects of ASD on family mental health.

Participants

The final sample consisted of 400 participants, which included 268 women (67%) and 132 men (33%). Participants ranged in age from 18 to 60 years, with the majority residing in Istanbul. Participants' cities of residence are as follows: Istanbul, 306 individuals (76.5%); Ordu, 1 individual (0.25%); Trabzon, 1 individual (0.25%); Adana, 30 individuals (7.5%); Kocaeli, 2 individuals (0.5%); Izmir, 15 individuals (3.75%); Ankara, 9 individuals (2.25%); Mersin, 5 individuals (1.25%); Gaziantep, 6 individuals (1.5%); Kahramanmaras, 3 individuals (0.75%); Antalya, 4 individuals (1%); Eskişehir, 3 individuals (0.75%); Çanakkale, 2 individuals (0.5%); Edirne, 6 individuals (1.5%); Osmaniye, 3 individuals (0.75%); Niğde, 2 individuals (0.5%); and Mardin, 2 individuals (0.5%). The sample was diverse in terms of education, income levels, marital status, and living arrangements, reflecting a broad demographic spectrum.

Measures

Socio-demographic data form

This form was prepared to collect information about participants. It gathered data on participants' gender, age, city of residence, educational attainment, income levels, marital status, number of children, individuals they live with, chronic illnesses, psychological disorders, medication usage, number of children diagnosed, the birth order of the child diagnosed with autism, the age of the child diagnosed with autism, and the age at which the child was diagnosed.

Social communication scale

This is a 40-item scale, completed by parents, that assesses symptoms of autism. The scale features dimensions for reciprocal social interaction and communication. It was originally developed by Michael Rutter and Catherine Lord (2003) to assess nuanced social and communicative behaviors associated with ASD's. The Turkish adaptation of the Social Communication Scale was conducted by Avcıl vd. (2015). In the mutual social interaction dimension of the social communication scale, inappropriate facial expression, using someone else's body for communication, friends, eye contact, social smiling, attracting attention, offering to share, wanting to share the fun, trying to console, quality of social suggestion, variety of facial expressions, dealing with children. , responding to the approach of other children, playing imaginary games with peers, and participating in group games were examined. In the mutual communication dimension of the social communication scale, mutual conversation, stereotypical expressions, inappropriate questions, mixing pronouns, making up new words, chatting, imitating, showing interest to indicate interest, making gestures, nodding to mean yes, nodding to mean no, imitating social games. sub-dimensions of making and playing imaginary games were examined. In their study, the cutoff point for the Total Score on the Social Interaction Scale has been set at 14.5 points, while the cutoff point for the Reciprocal Social Interaction score is established at 7.5 points.

Beck depression inventory (BDI)

A widely used 21-item self-report inventory, measuring the severity of depression. The BDI was originally developed by Aaron T. Beck, a pioneer in cognitive therapy, and his colleagues in 1961. The Turkish adaptation of the Beck Depression Inventory was conducted by Hisli Şahin (1989), ensuring cultural relevance and accuracy for use in Turkey. The depression scale usually evaluates a person's emotional state. This sub-dimension includes emotional symptoms such as sadness, sadness and hopelessness. Depression is also often associated with physical symptoms. This subscale evaluates physical symptoms such as fatigue, lack of energy, and sleep disorders. Depression can often cause changes in a person's behavior as well. This subscale evaluates behavioral symptoms such as social withdrawal, loss of interest, and lack of motivation. Depression can often affect thinking processes and cognitive functions. This sub-dimension includes cognitive symptoms such as lack of concentration, difficulty in making decisions, and negative thoughts. Depression often also affects a person's social and occupational functioning. This subscale evaluates functionality-related symptoms such as decline in work performance and difficulties in social relationships.

Beck anxiety inventory (BAI)

A 21-item self-report inventory used to measure the severity of anxiety, developed by Beck vd. (1988). It focuses on the somatic symptoms of anxiety, distinguishing them from depression. The Turkish adaptation of the Beck Anxiety Inventory was conducted by Ulusoy vd. (1998), ensuring its cultural and linguistic suitability for use in Turkey. Anxiety is often associated with physical symptoms. This sub-dimension includes physical symptoms such as increased heart rate, sweating, and tremors. Anxiety is often associated with intense emotional reactions. This subscale evaluates emotional symptoms such as constant anxiety, fear, and irritability. Anxiety often affects thinking processes and cognitive functions. This sub-dimension includes cognitive symptoms such as distraction, difficulty concentrating, and negative thoughts. Anxiety often affects a person's behavior. This subscale evaluates behavioral symptoms such as avoidance behaviors, social withdrawal, and ritual behaviors. Anxiety often affects a person's social and occupational functioning. This sub-dimension includes functionality-related symptoms such as decrease in work performance and difficulties in social relationships.

Data collection process

Participants were recruited from various ASD support groups and clinics across Istanbul and other cities in Turkey. ZMA, a clinical psychologist and one of the study authors, actively conducted the data collection from October 2023 to April 2024. Before participation, face-to-face informed consent was obtained from each participant to ensure their understanding and agreement to the study's procedures. To the participants, it has been explained that this study is conducted to investigate whether the lack of interaction and communication, symptoms of ASD, lead to symptoms of depression and anxiety in parents, and if so, to what extent. It was then clarified that participation in the research is voluntary, and there is the right to withdraw after participating. The information obtained from this study will be used solely for research purposes, and your personal information will be kept confidential; however, it was explained that the data could be used for publication purposes, and an informed consent form was

signed. Participants then completed the surveys in person, which included demographic questions and the psychometric instruments mentioned above, designed to assess social communication, depression, and anxiety.

Statistical analysis

All statistical analyses were conducted using SPSS (Statistical Package for the Social Sciences). Descriptive statistics were computed for all demographic variables and scale scores. Spearman's correlation coefficients were utilized to examine the relationships between the children's social communication scores and parental depression and anxiety levels. Subgroup analyses were also performed based on demographic variables such as age, gender, and the presence of chronic illness. Statistical significance was set at $p < 0.05$. This comprehensive use of SPSS enabled a robust examination of the data to identify significant patterns and correlations within the study.

Ethical considerations

The study protocols were approved by the Institutional Review Board at İstanbul Nişantaşı University, Approval Number: 2024/1. All participants provided informed consent, ensuring their understanding of the study's confidentiality measures and their right to withdraw from the study at any time without any consequences. This process underscores the commitment to ethical standards and participant safety throughout the research.

Results

In table 1, the study sample comprised 400 participants, including 67% women and 33% men, showcasing diverse age and geographic distributions, mainly concentrated in Istanbul. The sample displayed a broad spectrum of educational backgrounds and income levels. The majority of participants were married and lived with their families, with a notable proportion reporting chronic health conditions. A significant fraction also indicated the presence of psychological conditions, although the use of psychiatric medication was less prevalent. Most participants had children, with a high prevalence of ASD diagnoses among them, primarily diagnosed before the age of 3 years. This demographic data provides a comprehensive overview of the study's sample, allowing for a detailed analysis of the factors influencing the results.

Table 1. Study sample demographics

Category	Subcategory	Details
Total participants	n=400	268 women (67%), 132 men (33%)
Age distribution		18-30: 94 (23.5%), 31-45: 242 (60.5%), 46-60: 64 (16%)
Geographical distribution		Predominantly from Istanbul (306, 76.5%), followed by various cities
Educational background		Primary: 12 (3%), High School: 187 (46.8%), University: 180 (45%), Postgraduate: 13 (3.2%), Doctoral: 8 (2%)
Income levels (TL)		10-11,000: 34 (8.5%), 11-20,000: 156 (39%), 21-30,000: 143 (35.8%), 31-40,000: 51 (12.7%), >41,000: 16 (4%)
Marital status		Single: 4 (1%), Married: 310 (77.5%), Divorced: 86 (21.5%)
Number of children		One: 134 (33.5%), Two: 194 (48.5%), Three: 58 (14.5%), Four or more: 14 (3.5%)
Living arrangements		With family: 297 (74.25%), With children only: 36 (9%), Various other: 67 (16.75%)
Health conditions		Chronic illness: 138 (34.5%), No chronic illness: 262 (65.5%)
Psychological conditions		With condition: 59 (14.8%), Without condition: 341 (85.2%)
Medication use	Psychiatric	Users: 49 (12.3%), Non-users: 351 (87.7%)
Children with ASD		One child: 375 (93.8%), Two children: 22 (5.5%), Three children: 3 (0.7%)
ASD child birth Order		First: 211 (52.8%), Second: 139 (34.8%), Third: 41 (10.3%), Fourth: 9 (2.2%)
ASD child age Groups		4-7 years: 181 (45.3%), 8-11 years: 120 (30%), 12-15 years: 55 (13.7%), 16-18 years: 44 (11%)
ASD diagnosis age		0-3 years: 321 (80.3%), 4-7 years: 79 (19.7%), None older

Descriptive statistics for psychometric scales in the study

Table 2 provides descriptive statistics for the Social Interaction Scale (SIS), Beck Depression Inventory, and Beck Anxiety Inventory, used in a study with 400 participants. The SIS varied widely, with scores from 0 to 30, a median of 9.5, and a mean of 13.03, reflecting substantial variability in social interactions. The Communication subscale, in particular, had a high standard deviation of 9.88, indicating diverse communication skills among participants. The Reciprocal Social Interaction subscale showed less variation with scores ranging up to 6. For mood assessments, the Beck Depression Inventory showed scores from 21 to 84, with an average of 39.87, while the Beck Anxiety Inventory had scores up to 74, both indicating moderate variability in emotional states among the subjects. These tools collectively highlighted differences in social behavior and emotional well-being in the sample population.

Table 2. Descriptive statistics for the scales used in the study (n = 400)

Scale	Median	Minimum	Maximum	Mean	SD
Social Interaction Scale (SIS)	9.5	0	30	13.03	8.72
Communication	5.5	0	24	9.57	9.88
Reciprocal Social Interaction	4	0	6	3.46	2.46
Beck Depression Inventory	42	21	84	39.87	12.15

Scale	Median	Minimum	Maximum	Mean	SD
Beck Anxiety Inventory	42	21	74	38.43	12.32

*SD = Standard Deviation

Comparative analysis of depression and anxiety scores by demographic and clinical variables

According to the analysis results presented in Table 3, no significant difference was found in Beck Depression Inventory scores between genders (p = 0.086). However, a significant difference was observed in Beck Anxiety Inventory scores between genders (p = 0.012), with males exhibiting a higher median anxiety score of 42 compared to females at 37.5. Age distributions showed no significant difference in Beck Depression Inventory scores (p = 0.071). Yet, significant differences were noted in Beck Anxiety Inventory scores across age groups (p = 0.030), with individuals aged 46-60 showing higher anxiety levels than those in the 31-45 age group (p = 0.024). No significant differences were found in depression and anxiety scores across educational levels (p < 0.05). Similarly, no significant differences were detected in these scores between individuals with and without chronic illnesses (p < 0.05). Significant differences were identified in depression and anxiety scores between individuals with and without psychological disorders (p < 0.001 for both), with those affected showing median scores of 57 for both depression and anxiety, indicating higher levels of both compared to unaffected individuals. Individuals using psychological medications also showed significant differences in both depression and anxiety scores (p < 0.001 for both), with median scores of 57, suggesting higher levels of both compared to those not on medication. Significant differences were found in depression and anxiety scores among age groups of children with ASD diagnoses (p = 0.012 for depression and p = 0.036 for anxiety). Subgroup analysis indicated that children aged 4-7 with an ASD diagnosis had higher levels of depression compared to those aged 8-11 (p = 0.006) and higher levels of anxiety compared to those aged 8-11 (p = 0.025).

Table 3. Comparison of depression and anxiety scores across sociodemographic characteristics

Variable	Depression	Anxiety
Gender		
Female (n=268)	42 (21-84)	37.5 (21-74)
Male (n=132)	42 (21-66)	42 (21-68)
p-value^a	0.086	0.012*
Age		
18-30 (n=94)	42 (21-84)	40.5 (21-63)
31-45 (n=242)	42 (21-66)	40 (21-74)
46-60 (n=64)	42 (22-75)	43 (21-63)
p-value^b	0.071	0.030*
Education level		
Elementary (n=12)	43.5 (25-60)	36 (22-74)
High School (n=187)	42 (21-75)	42 (21-63)
University (n=180)	42 (21-84)	40 (21-68)
Master's Degree (n=13)	37 (21-45)	29 (21-63)
Doctorate (n=8)	36.5 (21-63)	42 (21-52)
p-value^b	0.151	0.194
Chronic illness		
Yes (n=138)	42 (21-75)	37.5 (21-63)
No (n=262)	42 (21-84)	42 (21-74)
p-value^a	0.513	0.130
Psychological disorder		
Yes (n=59)	57 (21-84)	56 (21-74)
No (n=341)	42 (21-63)	37 (21-66)
p-value^a	<0.001*	<0.001*
Psychological medication		
Yes (n=49)	57 (21-84)	57 (21-68)
No (n=351)	42 (21-65)	37 (21-74)
p-value^a	<0.001*	<0.001*
Age of child with ASD diagnosis		
4-7 (n=181)	42 (21-84)	42 (21-66)
8-11 (n=120)	41 (21-65)	37.5 (21-68)
12-15 (n=55)	42 (21-66)	42 (21-74)
16-18 (n=44)	42 (21-75)	38.5 (21-63)
p-value^b	0.012*	0.036*

*p-values marked with an asterisk indicate statistical significance. ^a and ^b denote different statistical tests used.

Analysis of social interaction scale scores across demographic and health variables

The analysis presented in Table 4 indicates significant differences in the Communication subscale of the Social Interaction Scale based on gender (p = 0.049). Females had a median communication score of 8.5, significantly higher than males, who had a median score of 1. This suggests that females scored higher in communication compared to males. No significant differences were found in the total scores of the Social Interaction Scale or its subscales, Communication and Reciprocal Social Interaction, across age distributions (p > 0.05). Similarly, no significant differences were observed across educational levels (p > 0.05). Significant differences were detected in the Communication subscale scores between individuals with and without chronic illnesses (p = 0.002), with a median score of 14.5 for those with chronic illnesses compared to 3 for those without, indicating higher communication scores among the chronically ill. Additionally, a significant difference was found in the total Social Interaction Scale scores between these groups (p = 0.001), with those having chronic illnesses scoring higher (median = 17.5) than those without (median = 8). No significant differences were noted in the total scores of the Social Interaction Scale or its subscales between individuals with or without psychological disorders, or between those using or not using psychological medications (p > 0.05). Significant differences were observed in the Social Interaction Scale total and subscale scores among age groups of children diagnosed with ASD (p < 0.001, p = 0.025, p = 0.001 respectively). For communication, children aged 12-15 and 16-18 had higher scores compared to those aged 4-7, indicating lower communication levels in younger children (p = 0.001, p = 0.012). Similarly, older children aged 16-18 had lower scores in Reciprocal Social Interaction compared to younger groups aged 4-7 and 8-11 (p = 0.016, p = 0.047). Overall, children aged 12-15 with ASD had higher total scores on the Social Interaction Scale compared to those aged 4-7, indicating higher social interaction levels (p = 0.002).

Table 4. Comparison of social interaction scale total scores and subscales across sociodemographic characteristics

Variable	Communication	Reciprocal social interaction	Total social communication score
Gender			
Female (n=268)	8.5 (0-24)	4 (0-6)	12 (0-30)
Male (n=132)	1 (0-24)	4 (0-6)	6 (0-30)
p-value^a	0.049*	0.280	0.082
Age			
18-30 (n=94)	1.5 (0-24)	5 (0-6)	6 (0-30)
31-45 (n=242)	7 (0-24)	4 (0-6)	11 (0-30)
46-60 (n=64)	4 (0-24)	4 (0-6)	8.5 (0-30)
p-value^b	0.194	0.188	0.345
Education level			
Elementary (n=12)	9 (0-24)	3.5 (0-6)	13 (1-24)
High School (n=187)	3 (0-24)	5 (0-6)	8 (0-30)
University (n=180)	10 (0-24)	4 (0-6)	15 (0-30)
Master's Degree (n=13)	14 (0-24)	4 (0-6)	15 (0-30)
Doctorate (n=8)	0.5 (0-24)	0.5 (0-6)	3.5 (0-26)
p-value^b	0.060	0.066	0.051
Chronic illness			
Yes (n=138)	14.5 (0-24)	4 (0-6)	17.5 (0-30)
No (n=262)	3 (0-24)	4 (0-6)	8 (0-30)
p-value^a	0.002*	0.211	0.001*
Psychological disorder			
Yes (n=59)	9 (0-24)	4 (0-6)	14 (0-30)
No (n=341)	5 (0-24)	4 (0-6)	9 (0-30)
p-value^a	0.099	0.176	0.135
Psychological medication use			
Yes (n=49)	6 (0-24)	4 (0-6)	10 (0-30)
No (n=351)	5 (0-24)	4 (0-6)	9 (0-30)
p-value^a	0.261	0.274	0.399
Age of child with ASD diagnosis			
4-7 (n=181)	2 (0-24)	4 (0-6)	6 (0-30)
8-11 (n=120)	4.5 (0-24)	4 (0-6)	8.5 (0-30)
12-15 (n=55)	18 (0-24)	4 (0-6)	20 (2-30)
16-18 (n=44)	15 (0-24)	2 (0-6)	18.5 (0-26)
p-value^b	0.000*	0.025*	0.001*

*p values < 0.05 indicate significance. ^aMann-Whitney U test, ^bKruskal-Wallis H test. Median (minimum:maximum) values are presented.

Correlations between social communication scores and psychological outcomes

Table 5 presents the results examining the relationships between scales. A significant inverse relationship was found between the total score on the Social Communication Scale and both depression and anxiety scores ($p < 0.001$ for both). Similarly, the Communication subscale of the Social Communication Scale also showed a significant inverse relationship with depression and anxiety scores ($p < 0.001$ for both). In contrast, the Reciprocal Social Interaction subscale displayed a significant positive relationship with depression and anxiety scores ($p = 0.018$ and $p = 0.004$, respectively).

Table 5. Examination of relationships among scales used in the study

n=400	**Depression Correlation (rs)**	**Anxiety Correlation (rs)**
Communication	-0.218**	-0.263**
Reciprocal Social Interaction	0.118*	0.145**
Total Social Communication Score	-0.211**	-0.262**

*rs = Spearman Correlation Coefficient. *p < 0.05, **p < 0.01 significance level.

Discussion

This study's examination of the relationship between social communication deficits in children with ASD and the mental health of their parents, particularly concerning symptoms of depression and anxiety, provides significant insights into the broader impacts of ASD on families. The findings confirm a direct correlation where greater social communication problems in children with ASD are associated with increased levels of depression and anxiety in parents. These results align with prior studies indicating that the chronic stress associated with managing ASD symptoms often extends to psychological distress in caregivers (Hastings vd., 2005).

Communication deficits of children with ASD can have various psychological effects on parents. Lack of communication can cause parents to have difficulty understanding their children, have difficulty establishing emotional bonds, and have difficulty properly understanding their children's needs. This situation may be associated with emotional symptoms such as stress, anxiety and depression in the parents. The prevalence of depression and anxiety symptoms in parents of children diagnosed with ASD may be higher than other parents. This may be caused by factors such as uncertainties experienced during the child's diagnosis and treatment process, difficulties of daily life, social isolation and changes in the family's routines. Many studies show that the stress experienced by parents of children with autism is associated with symptoms of depression and anxiety. For example, Karadag vd. (2015) revealed that the depression levels of mothers with children with autism were higher than other mothers. Parents' strategies for coping with lack of communication and receiving social support can play an important role in managing symptoms of depression and anxiety. These strategies may include participating in parent support groups, receiving psychological counseling, and applying stress management techniques. In conclusion, it is known that lack of communication on parents of children with ASD may have negative effects on psychological symptoms such as depression and anxiety. Therefore, supporting and empowering parents is an important requirement.

ASD is often characterized by lack of communication and social interaction difficulties. Parents of children diagnosed with ASD may have difficulty coping with their children's communication deficits. This can have various psychological effects on parents and cause symptoms such as depression and anxiety. ASD is often characterized by lack of communication and social interaction difficulties. Parents of children diagnosed with ASD may have difficulty coping with their children's communication deficits. This can have various psychological effects on parents and cause symptoms such as depression and anxiety. Having a child with autism can create a number of challenges in daily life for parents. Making and managing decisions about the diagnostic process, therapies, education, and other support services can be stressful. This can increase parents' overall stress levels and lead to symptoms of depression and anxiety over time. Parents of children with autism may make extra efforts to meet their child's needs. During this process, the risk of social isolation may increase and parents may become distant from their support systems. Loneliness and lack of social support can trigger symptoms of depression and anxiety. ASD can create uncertainty about the child's future. Parents may be concerned about issues such as their child's education, employment potential, and level of independence. These concerns can negatively impact parents' mental health. It is important for parents of children with autism to receive support to cope with these difficulties. Strategies such as attending support groups, receiving psychological counseling, and learning and practicing stress management techniques can help parents manage symptoms of depression and anxiety. As a result, parents of children with ASD may show symptoms of depression and anxiety due to communication deficits and the difficulties of daily life. Therefore, it is important for parents to be supported, informed and their emotional needs met.

Our findings resonate with the work of Gray (2002), who noted that parents of children with more severe ASD symptoms reported higher stress levels, which could lead to an increased risk of depression and anxiety. This study extends those findings by quantifying the severity of mental health symptoms through validated measures such as the Beck Depression and Anxiety Inventories, which emphasize the somatic and emotional burdens experienced by parents.

The significant correlations found between the children's deficits in reciprocal social interactions and the severity of parental anxiety and depression symptoms underscore the specific challenges posed by these interaction difficulties. Similar to Aman vd. (2009), our study highlights that the difficulties in achieving normal social interactions for children with ASD can severely disrupt family routines and expectations, contributing to parental mental health decline.

The impact of communication deficits as measured by the Social Communication Scale in our study showed that even subtle difficulties in the child's ability to communicate effectively were linked to noticeable increases in parental anxiety and depression scores. This is in line with Tomeny (2017), who found that communication improvements in children with ASD were associated with reductions in parental stress and depressive symptoms, suggesting a dynamic interplay between child capabilities and parental well-being.

Our study further elucidates that not just the presence of ASD, but the particular nature of a child's social communication impairments, can have varying degrees of impact on parental mental health. This nuanced understanding aligns with findings from Smith and Elder (2010), who posited that targeted interventions aimed at improving specific child deficits could potentially ameliorate parental psychological distress.

Overall, these comparisons underscore the complex relationship between child-specific symptoms of ASD and parental mental health outcomes. They highlight the necessity for targeted psychological interventions for both children with ASD and their parents to reduce the overall family burden and improve outcomes for both. Furthermore, they suggest that enhancing a child's communication skills could serve as a protective factor against significant mental health challenges in their caregivers, advocating for integrated therapeutic approaches within ASD treatment programs.

Limitations

While this study provides valuable insights into the impact of children's social communication deficiencies on the mental health of their parents, several limitations should be considered when interpreting the findings:

The study's cross-sectional nature limits the ability to establish causality between the social communication deficiencies in children with ASD and the subsequent levels of depression and anxiety in parents. Longitudinal research is needed to determine the directionality of these relationships and to observe how these dynamics evolve over time.

The use of self-report instruments for measuring depression, anxiety, and social communication might introduce response biases, such as social desirability or recall biases, which can affect the accuracy of the data. Future studies might benefit from incorporating objective measures or clinical evaluations to validate the self-reported data.

Although the study sample was diverse in terms of demographic characteristics, all participants were recruited from urban centers in Turkey, predominantly Istanbul. This geographical limitation may restrict the generalizability of the findings to rural areas or to populations in different cultural settings. Expanding the geographical scope in future studies could help to understand cultural influences on the observed relationships.

The study focused solely on parental reports of their mental health and their perceptions of their children's social communication skills. This approach may overlook the perspectives of other family members, such as siblings, who also play significant roles in the family dynamics surrounding a child with ASD. Including multiple family members in future research could provide a more comprehensive view of the family's psychological health.

The study did not account for the variability in the severity of ASD among children, which can significantly influence the stress levels and mental health outcomes of parents. Future research should consider stratifying results based on the severity of the disorder to determine if and how these factors influence parental mental health differently.

Addressing these limitations in future research could enhance our understanding of the complex relationships between child ASD symptoms and parental mental health and inform more effective interventions tailored to the needs of families affected by ASD.

Clinical implications

The findings of this study on the impact of children's social communication deficiencies associated with ASD on parental mental health have several important clinical implications:

The strong association between children's ASD symptoms and parental mental health underscores the necessity for integrated care approaches that address the needs of both children with ASD and their caregivers. Healthcare providers should adopt a family-centered model of care that includes psychological support and resources for parents alongside interventions for the child.

Given the elevated risks of depression and anxiety among parents of children with ASD, it is crucial for clinicians to implement routine mental health screenings for these individuals. Early identification of mental health issues can facilitate timely intervention, potentially mitigating the severity of these conditions and improving overall family well-being.

Clinics and community health centers should offer or connect families to support programs specifically designed for parents of children with ASD. These programs might include stress management workshops, parental support groups, and education about ASD to help parents better manage their child's condition and their own mental health.

The availability of respite care can provide parents with temporary relief from the demands of caregiving, which is critical for reducing stress and preventing burnout. Ensuring that parents have access to these services can significantly improve their quality of life and their ability to provide sustained support for their children.

Interventions aimed at improving the social communication skills of children with ASD are crucial, not only for the child's development but also for alleviating parental stress and anxiety. Therapy programs should include targeted strategies to enhance these skills, potentially reducing the impact of the child's difficulties on the family dynamics.

Healthcare professionals working with ASD families should receive training to recognize the signs of caregiver stress and mental health struggles. Enhanced awareness and understanding among professionals can lead to better support for families, ensuring that both the child's and the parents' needs are adequately addressed.

Policymakers should consider these findings when designing public health policies and allocating funding. Supporting families affected by ASD through comprehensive health and social services can reduce long-term costs associated with mental health care and improve outcomes for both children with ASD and their families.

By acknowledging and addressing the dual needs of children with ASD and their parents, clinicians can better support families in managing ASD and its extensive impact. This holistic approach not only benefits individual family members but also contributes to healthier, more resilient family systems.

Conclusion

This study contributes valuable insights into the relationship between social communication deficiencies in children with ASD and the mental health of their parents. By demonstrating a significant correlation between the severity of children's social communication problems and increased levels of parental depression and anxiety, the research highlights the extensive impact of ASD beyond the individual to the entire family unit.

The findings underscore the importance of adopting holistic and integrated approaches in the clinical management of ASD that not only address the developmental needs of the child but also attend to the psychological well-being of the parents. Clinicians are encouraged to implement routine screenings for depression and anxiety among parents, facilitate access to mental health resources, and promote family-centered care strategies that support both the child and their caregivers.

To reduce the risk of depression and anxiety in parents of children with ASD, several measures and strategies can be important. Participating in support groups, sharing similar experiences, and seeking support are crucial for parents of children with ASD. These groups can provide emotional support and foster solidarity among parents. Gaining accurate information about ASD and staying informed about current research can help parents better understand their children's needs and manage this process effectively. It's important for parents to seek psychological counseling to cope with emotionally challenging situations. A trained counselor or therapist can provide emotional support and work on effective coping strategies. Learning and practicing stress management techniques can help parents maintain balance in their daily lives. Methods such as yoga, meditation, and deep breathing exercises can be effective in reducing stress. Strengthening support systems within the family and sharing responsibilities can lighten the burden on parents. Family members or close friends can provide practical help and emotional support. It's crucial for parents to take time for their own needs and self-care. Sufficient sleep, healthy eating, and regular exercise can support overall health and better stress management. Utilizing professional support and services available for children with autism can not only support their development but also help parents maintain their psychological well-being. These measures can help reduce and manage psychological issues such as depression and anxiety among parents of children with ASD. Since every family has different needs, a personalized approach is important.

Furthermore, the study emphasizes the need for comprehensive support systems that include educational programs, support groups, and respite care services to mitigate the burden on parents and improve family dynamics. By enhancing the communication abilities of children with ASD and supporting the mental health of their parents, clinicians can foster more positive family environments and better overall outcomes for children with ASD.

Ultimately, the research contributes to a deeper understanding of the interconnected dynamics within families affected by ASD and lays a foundation for future studies to explore targeted interventions. Moving forward, it is essential for continued research to refine these interventions and for policymakers to ensure that adequate resources are allocated to support these families comprehensively.

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Hakem Değerlendirmesi

Dış bağımsız.

Yazar Katkıları

M.Ç.: Çalışma Tasarımı, Veri Toplama, Veri Analizi, Makale Yazımı, Makale Gönderimi ve Revizyon

Z.M.A.: Çalışma Tasarımı, Veri Toplama, Veri Analizi, Makale Yazımı, Makale Gönderimi ve Revizyon

E.Y.: Çalışma Tasarımı, Veri Toplama, Veri Analizi, Makale Yazımı, Makale Gönderimi ve Revizyon

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