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Parents' Beliefs About the Causes of Autism Spectrum Disorder and Their Relationship to Educational Qualifications

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Abstract

The current study aimed to describe parents' beliefs about the causes of autism spectrum disorder and their relationship to educational qualifications in Jordan. The study sample included 100 parents of children diagnosed with autism spectrum disorder. The researchers developed a study tool consisting of 10 belief statements and verified its validity and reliability. A descriptive survey approach was employed to address the study questions. The results indicated that the overall distribution of beliefs was within the "average" level, with mean values ranging from 2.71 to 3.01. This suggests that most participants' opinions ranged from moderate agreement to neutrality regarding the various perceived causes of autism. The standard deviations also reflected moderate variation in responses across all belief statements, with an overall mean score of 2.85 (standard deviation = 0.33), indicating that most participants generally held moderate neutral views about the causes of autism. Furthermore, the results revealed statistically significant differences in the means, showing that parents with higher levels of education held significantly more scientifically grounded beliefs compared to those with lower levels of education. The study recommended raising awareness of autism spectrum disorder and its causes, and emphasizing the importance of collaboration between families and specialists.

Key words: Parents' beliefs; Autism spectrum disorder; Parents' educational qualifications; Jordan

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1. INTRODUCTION

Autism spectrum disorder is one of the most common and widespread developmental disorders. It is a genetic underdevelopment disorder that negatively impacts social interactions with the surrounding environment and verbal and nonverbal communication skills, as well as exhibiting stereotypical, repetitive behaviors and restricted interests. These characteristics negatively impact daily life activities. This requires effective interventions to develop adaptive daily skills and meet developmental needs (El-Zraigat, 2016). Currently, the disorder has become one of the most common developmental disorders in childhood. According to the latest prevalence estimates from the Centers for Disease Control and Prevention's ADDM Network, 1 in 31 children (3.2%) at age 8 have been diagnosed with an autism spectrum disorder. It is prevalent across communities and socioeconomic levels. Furthermore, autism spectrum disorder is more common among boys, being three times more prevalent than among girls (Centers for Disease Control and Prevention [CDC], 2025).

There are several factors that explain the causes of autism spectrum disorder, some of which are genetic and others environmental (El-Zraigat, 2020). There is no single known cause of autism spectrum disorder. The disorder's symptoms and severity vary from one case to another, opening the door to a wide range of causative and explanatory factors. Because the condition is complex and its symptoms and severity vary, the causes may be multiple (Mayo Clinic, 2025). The diversity of causes and the lack of a clear, precise reason for the disorder influence, to one degree or another, prevailing beliefs

about its causes and the nature of its rapid spread. This can lead to confusion in scientific knowledge related to its causes, and perhaps this explains why some people hold correct beliefs while others have misconceptions or even myths (El-Zraigat, 2016). Therefore, the topic of beliefs is an important one, especially regarding the potential causes of autism spectrum disorder. These beliefs are influenced by scientific knowledge, societal culture, and family traditions. In fact, some people hold scientifically supported views, while others are influenced by common myths. On the other hand, some believe that autism spectrum disorder is caused by genetic and neurological factors. Others hold misconceptions, such as believing that vaccines, diet, or parenting styles can cause autism (Taresh et al., 2020).

One of the misconceptions about autism spectrum disorder is that only males develop autism and that authoritarian or negative parenting styles play a significant role in causing the disorder (Autistica, 2025). In the past, some believed in the so-called "cold mother syndrome," which suggested that cold, isolated, and antisocial mothers traumatized their children, leading to autism spectrum disorder. However, recent studies have confirmed that there is no evidence to support the cold mother theory. Another common misconception in the past was that childhood vaccines cause autism, which led many parents to refuse them. However, research has shown that vaccines do not cause autism (Cleveland Clinic, 2024). Currently, developmental disabilities, including autism spectrum disorder (ASD), are the most common among children, with approximately one in six children (17%) aged 3 to 17 years being diagnosed with a developmental disability (Centers for Disease Control and Prevention [CDC], 2025). This may be due to a combination of explanatory factors. Public awareness of the disorder has increased compared to the past. Parents have become more concerned about obtaining an accurate diagnosis for their children when they exhibit unusual behavioral symptoms, as an accurate diagnosis enables them to receive appropriate treatment. Additionally, healthcare workers have acquired the necessary cognitive and behavioral skills, especially with the availability of accurate diagnostic criteria and appropriate specialized measures (Cleveland Clinic, 2024).

Prevailing beliefs and concepts about the causes of autism spectrum disorder have been the focus of several studies. Mitchell and Locke (2015) conducted a survey on beliefs about autism among the general public in the United States and Canada. Their results indicated that almost all participants believed that the main causes of autism were genetic and neurological. They also believed that current parenting styles, medications, or diets have no connection to the disorder. Furthermore, they believed that it can be diagnosed in the early years of a child's life and that effective treatments reduce symptoms. The results of the study by Fischbach et al. (2016) showed that professional specialists clearly believed in genetic factors as a cause of autism spectrum disorder, while many parents believed in the role of vaccines as a cause of the disorder. The study emphasized the importance of cooperation and communication between specialists and parents, which improves mutual understanding of the child and their needs, positively impacting the well-being and meeting the special needs of children with autism spectrum disorder and their families. The results of Chesani et al. (2024) confirmed that study participants believed that genetics was the main factor explaining the incidence of autism spectrum disorder in Brazil. Participants also indicated that environmental and social factors did not significantly cause the disorder. However, they also believed that social and family environmental factors were important in providing an appropriate environment for people with autism spectrum disorder. In addition, Asbury et al. (2024) found that participants were supportive of ASD research and its results as long as the studies were ethical, transparent, and clear.

Halsey et al. (2001) confirmed that there is no laboratory evidence to support the hypothesis that the MMR vaccine causes autism or related disorders. They emphasized the need for cooperation between pediatricians and families to ensure that children are protected from preventable diseases. In conclusion, vaccines do not cause autism spectrum disorder. Fombonne et al. (2020) found that caregivers who did not believe that vaccines cause autism spectrum disorder were more likely to have higher educational levels, while ethnic minorities and people with lower education levels were more likely to believe that vaccines cause autism. Freed et al. (2010) also reported that most parents in their study believed that vaccines protected their children from disease, while more than half feared potential side effects. Kraśnicka et al. (2020) found that participants who believed that vaccines could cause autism were more committed to proper nutrition and preventive health behaviors. In contrast, parents who did not vaccinate their children had poorer eating habits, and healthy behavior levels were significantly higher among parents who vaccinated their children with combined vaccines.

Kawicka and Regulska-Ilow (2013) emphasized the importance of nutritional therapy in reducing the symptoms of autism spectrum disorder, along with the need for continuous monitoring of diet. They explained that this treatment can improve the health of the digestive system and alleviate its problems. The results of a study by Zuckerman et al. (2016) showed that parents believe that the cause of learning and developmental problems is genetic. Harrington et al. (2006) investigated parents' beliefs about the causes, diagnosis, and treatment of autism spectrum disorder. Their results indicated that 60% of parents suspected a specific cause, and 75%

doubted specialists' skills, while parents who perceived a greater delay in diagnosis or who had tried more diverse treatments tended to have less trust in specialists. The study emphasized the need to understand parents' beliefs regarding the etiology of the disorder. On the other hand, Chaidez et al. (2018) concluded that there may be differences in beliefs regarding environmental and genetic factors as causes of autism spectrum disorder among mothers from various ethnic groups. The study indicated that Asian mothers were more likely to cite multiple causes for the disorder, while environmental causes were strongly associated with receiving 20 or more hours of autism-related services per week. There was also a correlation between the belief that environmental factors, vaccines, and medications cause the disorder and the use of complementary and alternative medicine. Turnock et al. (2022) demonstrated that the stigma surrounding autism spectrum disorder is influenced by public and professional understanding of the condition, and that stigma negatively impacts well-being and increases the prevalence of camouflage behaviors that mask autistic traits. The study also emphasized the importance of awareness, education, and psychosocial training for individuals and professionals. Thus, beliefs play an influential role in the search for accurate diagnosis, appropriate treatment, and the provision of necessary support for children with autism spectrum disorder. Hence, the importance of the current study emerges in describing the beliefs held by parents about the causes of autism spectrum disorder and their relationship to educational qualifications in Jordan.

2. SIGNIFICANCE OF THE STUDY

Beliefs about the causes of autism spectrum disorder clearly influence our understanding of the factors that contribute to or cause it. These beliefs vary: some attribute the causes to genetics, others to environmental factors, and still others to specific cultural elements, such as envy. Beliefs can affect the ability to obtain an accurate diagnosis for a child's condition. They also influence the acceptance of treatment and the capacity to meet the special needs of the affected child.

Scientific knowledge of the causes of autism spectrum disorder encourages families to seek specialized support services, accept treatment, and assist in providing the child with appropriate developmental skills, whether social, emotional, behavioral, or related to self-care. In addition, beliefs play a crucial role in the provision of early educational and social services. Early intervention helps reduce the negative effects on a child's development, facilitates the acquisition of age-appropriate skills, and provides a supportive environment that meets the special needs of both the child and their family (El-Zraigat, 2016; Mayo Clinic, 2025).

Therefore, understanding beliefs about the causes of autism spectrum disorder contributes to improving community awareness and public education about the condition. It also aids in developing targeted treatment and educational programs (Turnock et al., 2022). Hence, the current study is significant in identifying parents' beliefs regarding the causes of autism spectrum disorder.

2.1 Study Questions

The current study sought to answer the following two questions:

- What are the prevailing beliefs among parents of children diagnosed with autism spectrum disorder?
- Do the prevailing beliefs among parents of children diagnosed with autism spectrum disorder differ depending on their educational qualifications?

3. METHODOLOGY

To answer the study questions, a descriptive survey approach was employed. This approach was considered appropriate for achieving the study's objectives.

3.1 Participants

Convenience sampling was used to ensure cooperation in data collection. The study included 100 parents of children diagnosed with autism spectrum disorder in Amman, Jordan. Data were collected between March 1, 2025, and June 10, 2025. Table 1 shows the frequencies and percentages according to the educational qualification variable.

Table 1
Frequencies and percentages according to educational qualification

Categories	Frequency	Percentage
High school or below	25	0.25
Bachelor's degree	50	0.50
Graduate studies	25	0.25
Total	100	100.0

Table 1 shows that half of the sample held a bachelor's degree (50%). The remaining participants were equally distributed between secondary school or below and postgraduate studies, with 25 individuals (25%) in each category. This distribution indicates that the majority of the sample had a university education, which may influence their perceptions and beliefs differently compared to individuals with lower or higher educational levels.

3.2 Autism Spectrum Disorder Cause Beliefs Scale

The scale was developed based on a review of relevant scientific literature (Goin-Kochel et al., 2020; Pivetti et

al., 2020; Anderson-Chavarria & Turner, 2023; Sahni et al., 2020; Samadi, 2020; Bonsu et al., 2021; El-Zraigat, 2016, 2020; Al Saad et al., 2023). The scale consisted of 10 belief items, with responses measured on a four-point Likert scale (strongly agree, agree, disagree, strongly disagree).

3.2.1 Construct validity of the scale:

To assess construct validity, the correlation coefficients of each belief with the total scale score were extracted from a pilot sample of 30 participants outside the study sample. The correlation coefficients ranged from 0.48 to 0.69, as shown in Table 2.

Table 2
Correlation coefficients between items and the total scale score

Belief	Correlation coefficient
I believe autism is a genetic condition.	0.69**
I believe autism results from exposure to toxins before birth or events during birth.	0.58**
I believe autism results from problems during birth.	0.49**
I believe autism results from the stress a child experiences during birth.	0.60**
I believe that vaccinations cause autism.	0.53**
I believe that autism results from the mother's diet during pregnancy.	0.55**
I believe that autism results from health complications during childbirth.	0.67**
I believe that autism results from inappropriate parenting behavior.	0.49**
I believe that autism is "God's will."	0.48**
I believe that autism results from envy.	0.49**

All correlation coefficients were acceptable and statistically significant; therefore, none of the items were deleted.

3.2.2 Reliability of the Scale

The reliability of the study tool was assessed using the test-retest method. The scale was administered to 30 participants outside the study sample and re-administered two weeks later. The Pearson correlation coefficient between the two administrations was 0.91. Internal consistency was also calculated using Cronbach's alpha, which reached 0.85, indicating that the scale was sufficiently reliable for this study.

3.3 Ethics

Parents were interviewed, and the purpose of the study, along with instructions for responding to the scale, was explained. Participants were informed that all information would be kept confidential and used solely for research purposes. In addition, consent was obtained from all participants.

3.4 Statistical Analysis

Arithmetic means, standard deviations, one-way analysis of variance (ANOVA), and Scheffe's post hoc test were used to analyze the data.

3.4.1 Statistical Standard

The four-point Likert scale was scored numerically as follows: strongly agree = 4, agree = 3, disagree = 2, strongly disagree = 1. The following scale was adopted for result interpretation:

- 1.00–2.00: Low
- 2.01–3.00: Medium
- 3.01–4.00: High

The scale was calculated using the formula:

(Upper limit of the scale (4) – Lower limit (1)) ÷ Number of categories (3)} = (4–1)/3 = 1.00

The value of 1.00 was then added to the upper limit of each category.

4. RESULTS

This section presents the study findings, organized according to the research questions.

1. What are the prevailing beliefs among parents of children diagnosed with autism spectrum disorder?

To answer this question, the arithmetic means and standard deviations of parents' beliefs were calculated, as shown in Table 3.

Table 3
Means and standard deviations of parents' beliefs (arranged in descending order)

Rank	Belief	Mean	Standard Deviation	Level
1	I believe autism is a genetic condition.	3.01	0.66	Medium
2	I believe that autism results from envy.	2.92	0.55	Medium
3	I believe that vaccinations cause autism.	2.90	0.58	Medium
4	I believe autism results from problems during birth.	2.88	0.59	Medium
5	I believe that autism results from health complications during childbirth.	2.89	0.63	Medium
6	I believe autism results from the stress a child experiences during birth.	2.88	0.67	Medium
7	I believe autism results from exposure to toxins before birth or events during birth.	2.84	0.57	Medium
8	I believe that autism results from the mother's diet during pregnancy.	2.81	0.62	Medium
9	I believe that autism is "God's will."	2.75	0.72	Medium
10	I believe that autism results from inappropriate parenting behavior.	2.71	0.65	

The overall distribution of beliefs falls within the "Medium" level, with mean values ranging from 2.71 to 3.01. This indicates that most participants held opinions ranging from moderate agreement to neutrality regarding various causes of autism. Among the beliefs listed, the most accepted was that autism is a genetic condition (Mean = 3.01). The least accepted belief was that autism is God's will (Mean = 2.75). Standard deviations indicate moderate variation in opinions across all beliefs. Overall, the mean score for all beliefs was 2.85 (SD = 0.33), showing that most participants held fairly moderate views on the causes of autism.

2. DO THE PREVAILING BELIEFS AMONG PARENTS DIFFER DEPENDING ON THEIR EDUCATIONAL QUALIFICATIONS?

To answer this question, the arithmetic means and standard deviations of the level of beliefs among parents were extracted according to the educational qualification variable, as illustrated in the Table 4.

Table 4
Means and standard deviations of beliefs by educational qualification

Category	N	Mean	SD
High school or below	25	2.68	0.301
Bachelor's degree	50	2.91	0.328
Graduate studies	25	2.94	0.315
Total	100	2.85	0.331

Apparent variations in means and standard deviations suggest differences in beliefs based on educational level. To test for statistical significance, a one-way ANOVA was conducted (Table 5).

Table 5
One-way ANOVA for educational qualification effect on beliefs

Source	Sum of Squares	df	Mean Squares	F	Sig.
Between groups	0.970	2	0.485	4.791	0.010
Within groups	9.830	97	0.102		
Total	10.801	99			

The results indicate statistically significant differences at $\alpha = 0.05$ due to educational qualification. Scheffe post-hoc comparisons were conducted to identify pairwise differences (Table 6).

Table 6
Scheffe post-hoc comparisons of educational qualification effect on beliefs

Means	High school or below	Bachelor's degree	Graduate studies
High school or below	2.68	—	—
Bachelor's degree	2.91	0.208*	—
Graduate studies	2.94	0.255*	

Table 6 shows significant differences ($\alpha = 0.05$) between parents with secondary education or below and those with bachelor's or postgraduate degrees. Differences between high school and both higher education levels were statistically significant.

3. DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

Some parents still hold unscientific beliefs or misconceptions. For instance, some believe that the measles vaccine causes autism, while others attribute the onset of autism to spiritual factors such as envy. Some also believe that extreme fear or trauma during early childhood causes autism, or that a lack of emotional support contributes to the disorder. In Jordanian society, some parents attribute autism to inadequate prenatal care or maternal nutrition, late pregnancies, or circumstances during childbirth. However, a large group of parents adopt positive interpretations, attributing autism to hereditary and genetic causes, as well as the interaction of environmental and genetic factors. They also recognize autism as a developmental disorder that negatively impacts the affected child's life.

The results indicate that higher education is associated with fewer false beliefs, and families show continued interest in identifying the true causes of autism to reduce feelings of blame. These beliefs directly influence families' attitudes toward early diagnosis and seeking appropriate treatment. Moreover, they affect the level of cooperation with specialists and service providers. Therefore, understanding these beliefs is a key factor in early diagnosis and selecting suitable interventions.

Abuhamdah et al. (2023) reported that some Jordanian families still lack sufficient knowledge about the causes and nature of autism spectrum disorder and emphasized the importance of awareness programs to enhance public understanding. Similarly, Al-Zyoud and Hyassat (2023) found that some parents rely on religious beliefs when caring for children with autism.

Zuckerman et al. (2016) indicated that parents often attribute learning and developmental problems to genetic factors. Harrington et al. (2006) highlighted the importance of identifying parents' beliefs regarding

the etiology of the disorder. Chaidez et al. (2018) found that beliefs regarding environmental and genetic causes may vary among mothers from different ethnic groups. Negative beliefs and misconceptions can reduce the chances of providing an appropriate educational environment, limit access to healthcare, and delay early intervention services, thereby hindering the child's developmental needs.

The current study was limited to the content of a scale measuring beliefs, and responses were self-reported. Additionally, the sample size was 100 participants from Amman, Jordan. Therefore, generalizations should be made within these limitations.

In conclusion, the spread of misconceptions and incorrect beliefs significantly hinders access to reliable, evidence-based information. This, in turn, complicates accurate diagnosis and limits access to appropriate early intervention, healthcare, treatment, and educational services aimed at developing the skills of children and supporting their families.

5.1 Recommendations

The study recommended the following:

• Raise awareness of the scientific causes of autism spectrum disorder through community programs aimed at correcting misconceptions.

• Promote collaboration between specialists and families to disseminate accurate scientific information about autism spectrum disorder.

• Encourage parents to seek information about the disorder, its diagnosis, and causes exclusively from qualified specialists.

• Conduct further studies on the impact of parental beliefs and misconceptions on the diagnosis and treatment of autism spectrum disorder.

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