



Original Research Article

Parental Perspectives on the Perceived Etiology of Autism Spectrum Disorder: A Survey-Based Analysis

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Abstract: Autism spectrum disorder (ASD) is impacted by social, prenatal, environmental, and genetic variables. Medical and therapeutic decisions may be influenced by parental views on the etiology of ASD, but little is known about these attitudes. Comprehending these perspectives is crucial for closing the knowledge gap between science and the general population, which will eventually improve early intervention and assistance for impacted families. A national online survey was sent to 150 parents or legal guardians of people with an ASD diagnosis. The questionnaire had sections on demographics, prenatal impacts, parental views on genetic and environmental causes, and the development of children, particularly regarding motor and sensory processing. For quantitative replies, data were examined using statistical techniques. According to the findings, 46% of parents thought ASD was caused by hereditary causes. Prenatal variables, such as illnesses and medications, were deemed significant by half of the individuals. Of the children, 79% reported sensory sensitivity and 82% had deficits in motor skills. The majority of youngsters (82%) were considered to have moderate difficulties. These results demonstrate the necessity of targeted treatments. The study underscores the multifaceted parental perceptions surrounding the origins of autism spectrum disorder, with a notable emphasis on genetic and prenatal influences. It further reveals the widespread prevalence of motor and sensory processing challenges among affected children. These insights point to a critical need for enhanced prenatal awareness, timely diagnostic practices, and specialized interventions. Continued research with broader participant representation is essential to validate these findings and to inform the development of more effective, individualized therapeutic strategies.

Keywords: Autism Spectrum Disorder, parental perceptions, prenatal influences, environmental factors, ASD interventions, early intervention.

INTRODUCTION

Autism Spectrum Disorder (ASD) is a complex neurodevelopmental disorder characterized by impairments in social interaction, communication, and repetitive behaviors (1). Over recent decades, the prevalence of ASD has increased, with some studies reporting rates as high as 1 in 54 children (2). While significant advancements in genetics and neurobiology have provided insights into its etiology, the causes of ASD remain multifactorial and complex (3,4).

Genetic studies consistently emphasize a strong heritable component to ASD, with twin and family studies suggesting that genetic factors account for a

significant portion of ASD risk (5). Research by Hallmayer et al. (3) and Sandin et al. (4) supports the role of inherited genetic factors, but no single genetic mechanism has been identified to explain the heterogeneity of ASD, and the genetic architecture remains complex and multifactorial (6,7).

In addition to genetic factors, prenatal exposures such as maternal infection, chemical exposure, and pregnancy complications are potential risk factors for ASD (8,9). Chaste and Leboyer (10) highlight the importance of gene-environment interactions, where external environmental factors may modulate genetic risk. This suggests that ASD's development may be influenced by both inherited genetic factors and

environmental exposures. Emerging research also suggests that factors such as diet and societal dynamics may contribute to ASD risk, although these areas remain underexplored (11).

Parents of children with ASD are active participants in the diagnostic and intervention process and their beliefs about the causes of ASD can influence treatment decisions, healthcare utilization, and the pursuit of alternative therapies. These beliefs are often shaped by cultural, social, and personal factors, which may differ from scientific consensus. Such misalignments can create barriers to timely diagnosis and evidence-based treatment, as parental perceptions guide decisions about interventions (12).

Despite a growing body of biomedical research, the literature on parental beliefs about the causes of ASD remains underexplored. While diagnostic tools such as the Autism Diagnostic Observation Schedule (ADOS) (13) and the Autism Diagnostic Interview-Revised (ADI-R) (14) have advanced clinical understanding, they provide limited insight into how parents conceptualize the disorder's origins. Parents often rely on a variety of information sources, including media portrayals, anecdotal experiences, and community narratives, which may not align with empirical evidence (10). This underscores the need for a systematic exploration of parental beliefs to bridge the gap between scientific findings and public understanding, ultimately improving communication between healthcare providers and families.

The rationale for this study lies in the need to contextualize scientific findings within the lived experiences of families affected by ASD. While recent genetic and epidemiological studies have identified key risk factors (15), these findings have not always been effectively communicated to the public. Parental beliefs continue to drive healthcare decisions, and understanding these beliefs is essential for shaping future research and informing public health strategies. This study aims to examine the range of beliefs parents hold regarding the causes of ASD, considering genetic, environmental, prenatal, and societal factors, and how demographic variables such as parental age, education, and geographic location influence these beliefs (16).

By exploring parental beliefs about ASD's etiology, this study aims to provide a comprehensive overview of the factors that shape public perceptions of ASD. Understanding these beliefs can guide the development of educational interventions, improve

communication between clinicians and families, and enhance adherence to evidence-based treatment (17,18). Moreover, integrating parental perspectives into research acknowledges the importance of family-centered approaches, which are increasingly recognized as essential for effective healthcare delivery (19,20).

In conclusion, this article aims to address an important gap in the literature by exploring parental beliefs about the causes of ASD. By investigating how parents perceive the etiology of ASD, this study seeks to offer a nuanced understanding of how scientific knowledge is interpreted and applied in real-world settings. The findings may inform research, clinical practice, and public health strategies, ultimately improving outcomes for families affected by ASD through better communication and targeted interventions.

METHODOLOGY

Study Design: This study used an online survey with a cross-sectional design to gather parental views on the causes of Autism Spectrum Disorder (ASD). The survey included 5 sections: The Autism Spectrum Disorder Illness Perception Questionnaire. The sections were designed to gather data on genetic, prenatal, environmental, and developmental factors related to ASD.

Survey Instrument: The Autism Spectrum Disorder Illness Perception Questionnaire contained 25 closed-ended questions [Table 1], covering demographics, parental beliefs about ASD, and prenatal and developmental factors. Responses were scored into three categories: Low Risk/Minimal Challenges (<25), Moderate Risk/Challenges (25–45), and High Risk/Significant Challenges (>45).

Participants: The survey targeted 150 parents or legal guardians of children diagnosed with ASD. Participants needed to be adults, proficient in the survey language, and willing to give informed consent. Demographic information was collected to ensure a diverse sample across different backgrounds.

Data Collection: The survey was hosted on a secure online platform to protect participant privacy and ensure anonymity. Participants received clear instructions and consent forms at the start of the survey. The survey remained open for a set period, with efforts to encourage participation and ensure a representative sample.

Ethical Statement: Informed Consent was obtained before the study began and approval for conducting the study was provided by the Institutional Review Board with the Ref Number: PD/2607/PHYSIO/IRB/2024-2025. Participants provided informed consent electronically, and their responses were kept confidential. All data were securely stored, following institutional guidelines for research involving human subjects.

TABLE 1: AUTISM SPECTRUM DISORDER ILLNESS PERCEPTION QUESTIONNAIRE

Q. No.	Question	Options	No. of Populations (n=150)	No. of Populations in %
Genetic and Family History				
1	How strongly do you believe that hereditary/ family history plays a role in the development of ASD?	Strongly agree	34	23%
		Agree	34	23%
		Disagree	33	22%
		Strongly Disagree	49	32%
Prenatal and Maternal Health Factors				
2	How frequently you have any infections during pregnancy (e.g., viral, bacterial or other infections etc)?	Infected frequently	34	23%
		Infected occasionally	41	27%
		Infected rarely	37	25%
		Not infected	38	25%
3	Did you take any prescription medications during pregnancy (e.g., antidepressants, antiepileptic drugs)?	Always	36	24%
		Sometimes	30	20%
		Very rarely	48	32%
		Never	36	24%
4	Did you consume alcohol, tobacco, or recreational drugs during pregnancy?	Almost always	33	22%
		Sometimes	41	27%
		Rarely	46	31%
		Almost never	30	20%
5	During your pregnancy, did you have dietary habits that included the consumption of junk foods? If yes, how strongly do you believe that these dietary habits may have impacted ASD symptoms or overall health?	Highly influential	34	23%
		Moderately influential	47	31%
		Slightly influential	35	23%
		Not at all influential	34	23%
Perinatal and Birth Factors				
6	What was the type of delivery for your child?	Caesarean section (C-section)	26	17%
		Assisted vaginal delivery	38	25%
		Out-of-hospital birth	43	29%
		Vaginal delivery	43	29%
7	Did your child experience birth complications (e.g., birth asphyxia, premature birth)?	Severely affected	33	22%
		Moderately affected	40	27%
		Mildly affected	44	29%
		Not affected	33	22%
8	Do you think that your baby's admission to the Neonatal Intensive Care Unit (NICU) after birth had an impact on the development of ASD?	Strongly agree	39	26%
		Agree	31	21%
		Neutral	45	30%
		Disagree	35	23%
9	If your baby was admitted to the NICU, mention the duration of NICU stay?	More than 4 weeks	30	20%
		2-4 weeks	39	26%
		1-2 weeks	48	32%
		Less than 1 week	33	22%
10	How severely your baby experienced postnatal infections(viral ,bacterial or other infections)	Severely infected	37	24%
		Moderately infected	33	22%
		Mildly infected	34	23%
		Not infected	46	31%
11	Did your child have any seizure attack?	Many times	40	26%
		Few times	34	23%
		Once	43	29%
		Never had seizures	33	22%
12	What was your child's gestational age at birth?	Less than 32 weeks	33	22%
		32-36 weeks	41	27%

		37-40 weeks	48	32%
		More than 40 weeks	28	19%
13	Did your child experience feeding difficulties during infancy?	Severe feeding difficulties	35	23%
		Moderate feeding difficulties	34	23%
		Mild feeding difficulties	46	31%
		No feeding difficulties	35	23%
Gross Motor Skills (Large Movements: Walking, Running, Jumping, Balance, Coordination)				
14	Did your child experience delays in gross motor development (e.g., sitting, crawling, and walking)?	Severe delay	46	30%
		Moderate delay	40	27%
		Mild delay	37	25%
		No delay	27	18%
15	Does your child have any difficulty with activities like balance and coordination (e.g., jumping, hopping, and climbing stairs)?	Severe difficulty	31	21%
		Moderate difficulty	48	32%
		Slight difficulty	36	24%
		No difficulty	35	23%
16	How does your child take part in physical activities compared to other children?	Struggles a lot	41	28%
		Difficulty in coping up	32	21%
		Slightly behind	39	26%
		The same as other children	38	25%
17	Does your child have abnormality in muscle tone (e.g., appearing floppy or overly stiff)?	Severe abnormality	28	18%
		Moderate abnormality	40	27%
		Mild abnormality	34	23%
		No abnormality	48	32%
Fine Motor Skills (Small Movements: Hand, Finger, Writing)				
18	Does your child have difficulty with fine motor skills (e.g., grasping objects, using utensils, holding a pencil)?	Yes, Severe difficulty	32	21%
		Yes, Moderate difficulty	41	27%
		Yes, Slight difficulty	40	27%
		No difficulty	37	25%
19	Does your child struggle with activities like buttoning clothes, using zippers, or tying shoelaces?	Yes, severe difficulty	41	28%
		Yes, moderate difficulty	35	23%
		Yes, mild difficulty	36	24%
		No difficulty	38	25%
20	Does your child have trouble with hand-eye coordination (e.g., catching a ball, stacking blocks, and cutting with scissors)?	Severe difficulty	30	20%
		Moderate difficulty	43	28%
		Slight difficulty	34	23%
		No difficulty	43	29%
Sensory Processing Issues (Over- or Under-Responsiveness to Stimuli)				
21	Does your child show an aversion to certain textures, sounds, or bright lights?	Yes, always	32	21%
		Yes, occasionally	42	28%
		Yes, rarely	42	28%
		Never	34	23%
22	How does your child react to loud noises, such as vacuum cleaners, sirens, or crowded places?	Extremely distressed	30	20%
		Moderately bothered	43	28%
		Slightly bothered	34	23%
		Not bothered at all	43	29%
23	Does your child seek excessive sensory input (e.g., spinning, jumping, hand-flapping, seeking tight hugs)?	Yes, always	38	26%
		Yes, occasionally	42	28%
		Yes, rarely	29	19%
		Never	41	27%
24	Does your child have difficulty tolerating touch (e.g., dislikes certain fabrics, refuses hugs or haircuts)?	Yes, always	39	26%
		Yes, occasionally	31	21%
		Yes, rarely	38	25%
		Never	42	28%
25	Does your child struggle with food	Always	39	26%

	textures or have extremely picky eating habits?	Occasionally	35	23%
		Rarely	45	30%
		Never	31	21%
	Low Risk/Minimal Challenges		19	13%
	Moderate Risk/Challenges		123	82%
	High Risk/Significant Challenges		8	5%

RESULT:

The Autism Spectrum Disorder (ASD) Illness Perception Questionnaire evaluated motor and sensory processing issues in children with ASD as well as prenatal, perinatal, and postnatal variables. Of the 150 participants, 46% thought that ASD was caused by hereditary causes, whereas 54% disagreed. In terms of prenatal health, 44% of pregnant women took prescribed medicines, and 50% had infections. 20% of respondents reported infrequently using drugs or alcohol, indicating modest substance usage. 54% of participants said that junk food consumption and dietary practices had a moderate impact on ASD. In terms of delivery circumstances, 17% underwent cesarean sections and 58% gave birth vaginally. 78% of patients experienced birth difficulties, and 77% required NICU hospitalizations. Seventy-eight percent of children had seizures, and sixty-nine percent suffered postnatal infections. Delays in motor skills were prevalent; 82% of respondents had gross motor delays, 77% had balance problems, and 75% had trouble with physical activities. With 79% exhibiting sensitivity to textures, noises, or lights and 73% participating in sensory-seeking activities, sensory processing problems were prevalent. According to risk classification, 82% of kids fell into the moderate risk group, 13% into the low-risk group, and 5% into the high-risk group (Table 1).

DISCUSSION:

Studies show how genetic, prenatal, perinatal, and postnatal variables interact intricately to cause symptoms of ASD. There should be more awareness of genetic predispositions in ASD, as indicated by the conflicting views on hereditary significance. The need of monitoring maternal health is highlighted by the high frequency of prenatal infections and medication use. Dietary practices during pregnancy were also thought to have an effect, which is consistent with other studies that linked neuro developmental problems to maternal nutrition.

Postnatal infections and NICU hospitalizations were among the birth problems that were substantially linked to symptoms of ASD. The anticipated influence of extended NICU stays on the development of ASD points to a possible topic for further study on early neonatal stress and neurodevelopment.

The majority of children in the sample struggled with gross and fine motor abilities, and sensory processing problems and motor skill delays were common. This

supports the body of research showing that sensory and motor dysfunctions are central to ASD. The significance of sensory integration therapy in ASD interventions is further supported by the high incidence of tactile sensitivity and selective eating.

According to the risk classification, most kids with ASD have moderate difficulties, which highlights the necessity of specialized therapy approaches to address both motor and sensory deficiencies.

CONCLUSION:

This study focuses light on the major difficulties children have with motor development and sensory processing, as well as the recognized contributing factors to ASD. The results highlight the value of early intervention, therapeutic support, and prenatal care for children with ASD. Future studies should concentrate on examining the efficacy of focused therapies for motor and sensory deficits in ASD and verifying these findings with larger sample data.

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CONFLICTS OF INTEREST

The authors declare no conflicts of interest, financial or otherwise, related to this study.

DECLARATION OF GENERATIVE AI AND AI ASSISTED TECHNOLOGIES IN THE WRITING PROCESS

No generative AI or AI-assisted technologies were used in the writing, editing, or preparation of this manuscript.

CLINICAL TRIAL REGISTRATION

As this study was observational and survey-based, it was not registered as a clinical trial.

AUTHOR CONTRIBUTIONS

- **Srilakshmi¹** – Conception, study design, data collection, manuscript drafting and final approval of the manuscript
- **Veenakirthika S²** – Data acquisition, statistical analysis, interpretation of results and final approval of the manuscript
- **Senthilkumar N³** – Critical review of the manuscript, supervision of methodology.
- **Selvaraj Sudhakar⁴** – Guidance on study framework, final approval of the manuscript.

ETHICS APPROVAL

Approval from the Institutional Review Board was obtained prior to the commencement of the study with the Ref Number: PD/2607/PHYSIO/IRB/2024-2025

DATA AVAILABILITY

The datasets generated and analyzed during the current study are available from the corresponding author on reasonable request.

ABBREVIATION

1. **ASD** – Autism Spectrum Disorder
2. **QOL** – Quality of Life
3. **SD** – Standard Deviation
4. **SPSS** – Statistical Package for the Social Sciences
5. **ADOS** - Autism Diagnostic Observation Schedule
6. **ADI-R** - Autism Diagnostic Interview-Revised
7. **NICU** – Neonatal Intensive Care Unit

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