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Research Article

INVESTIGATING EARLY INDICATORS AND COMORBIDITIES OF AUTISM SPECTRUM DISORDER IN CHILDREN: THE IMPACT OF CLINICAL PATTERNS AND PARENTAL FACTORS

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ABSTRACT

This study investigates the early detection and comorbidities of Autism Spectrum Disorder (ASD) in children, focusing on clinical patterns and the role of parental influences. A total of 49 children were included in the research, which revealed a higher prevalence of phobias, anxiety, sleep disorders, and atopy in children with ASD compared to their typically developing peers. Additionally, children with ASD experienced more joint dislocations and injuries, attributed to motor coordination issues. Parental mental health analysis showed a strong association between ASD and parental depression. The findings emphasize the importance of early and comprehensive screening in primary care settings to identify behavioral patterns and familial risk factors. Early diagnosis through a reliable detection profile is critical for enabling timely interventions, which can improve long-term outcomes for children with ASD. This study highlights the need for prospective research to validate effective diagnostic tools and enhance early recognition strategies in clinical practice.

Keywords :- Autism Spectrum Disorder, Early detection, Comorbidities, Parental influence, Screening.

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INTRODUCTION

Approximately 11,000 individuals in the Netherlands are diagnosed with Autism Spectrum Disorder (ASD) each year. While there is a widely held belief that the prevalence of ASD is on the rise, Delfos' research challenges this notion [1]. The birth of a child brings significant changes to a family, and the absence of clear developmental symptoms often makes it difficult for both parents and healthcare providers to recognize early signs of developmental disorders. Diagnosing genetic and biological conditions such as ASD is complex due to the lack of consistent and reliable diagnostic markers [2]. Although autism is considered a prenatal condition, diagnosing it in childhood remains challenging as early symptoms of Asperger's Syndrome are often subtle and easily overlooked. Early detection is crucial because it directly influences the success of treatment, with early intervention having the potential to significantly improve the lives of children with ASD and their families [3].

Research by Werner and Dawson highlights that while most children with autism display developmental delays by 12 months, some children initially develop

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normally but later experience a regression in language and social skills between 12 and 24 months [4-6]. This phase of regression occurs in 20% to 49% of children with ASD, depending on their diagnosis. Intervening before this regression can greatly enhance developmental outcomes. Furthermore, early diagnosis provides clarity for parents, offering a better understanding of their child's condition and leading to higher parental satisfaction [7].

Common diagnostic tools for ASD include the ESAT-R, ITC-R, CHAT-R, and M-CHAT. However, when these tools are primarily used in secondary or tertiary healthcare settings, delays in diagnosis and treatment can occur [8]. The rarity of autism and the broad spectrum of its symptoms make it challenging for primary care providers to detect ASD early. According to Berckelaer-Onnes (2004), abnormalities in social and communication development usually become evident between the ages of three and nine years [9].

This study aims to reduce the diagnostic timeline for children with ASD by evaluating how frequently children with typical ASD-related concerns visit their general practitioners (GPs). As GPs are often the first point of contact for families, improving their ability to recognize early signs of ASD could significantly accelerate the diagnostic process. The study utilized data from the Continuous Morbidity Registration (CMR) Project, which collects prospective morbidity data over time. By comparing children with ASD to a control group without autism spectrum disorders, this research analyzed healthcare-seeking behaviors and referral pathways [10]. The findings aim to provide insights into how early signs of ASD can be more effectively recognized in primary care settings, thereby reducing diagnostic delays and improving outcomes for children and their families.

METHODOLOGY

General practitioners (GPs) documented demographic details, morbidity patterns, additional investigations, referrals, and hospital admissions using the International Classification of Health Problems in Primary Care (ICHPPC-2). This classification system is considered highly reliable, as monthly review meetings are held to discuss and resolve coding issues. Additionally, GPs are required to report any ICHPPC-2 codes that exhibit unusual characteristics for further evaluation [9]. The study was based on data from a Dutch general practice, which typically serves over 12,000 patients, reflecting the average patient population covered by the four participating Continuous Morbidity Registration (CMR) practices. The research specifically focused on patients diagnosed with Autism Spectrum Disorder (ASD) within the CMR database, aiming to analyze their health patterns and diagnostic pathways.

Background Data

Additional details about the child are required, including their date of birth, gender, socioeconomic background, and family circumstances (such as whether the child resides with parents, relatives, or friends). Information on the total number of siblings is also necessary. Furthermore, mental health assessments identified conditions such as behavioral disorders, substance addictions, and anxiety disorders, along with conditions like anorexia nervosa and conversion disorder.

Morbidity

A literature review was conducted to investigate potential morbidities associated with Autism Spectrum Disorder (ASD). Among pregnancy-related complications, infantile colic, or crybaby syndrome, is notable, characterized by persistent crying for more than three hours a day, three days a week, for over three weeks. Additionally, premature birth, defined as delivery before 37 weeks of gestation, is recognized as a significant risk factor. The study utilized questionnaires incorporating diagnostic criteria for various conditions, including atopic disorders, traumatic injuries (such as fractures, dislocations, sprains, wounds, poisonings, and enuresis), and mental health issues (such as phobias, anxiety disorders, obsessive-compulsive disorders (OCD), depression, and personality disorders). Further, it covered behavioral conditions, including addictions, insomnia, encopresis (involuntary defecation), enuresis (bed-wetting), and trichotillomania (hair-pulling disorder). All diagnoses adhered to the criteria set by the Continuous Morbidity Registration (CMR). The findings highlight that understanding comorbid conditions is essential for accurately diagnosing ASD, as patterns of morbidity play a critical role in the early detection and diagnosis of the disorder.

RESULTS

The study included a sample population of 49 children, with no reports of non-responses or dropouts. Among the participants, approximately 8.74% of boys were diagnosed (SD = 3.54), while 9.17% of girls received diagnoses (SD = 4.12). A small number of children were identified with Pervasive Developmental Disorder-Not Otherwise Specified (PDD-NOS), and one child was diagnosed with Autism Spectrum Disorder (ASD). However, none of the children displayed signs of classic autism.Regarding family structure, 33.3% of the children were the eldest siblings, and 65.3% lived with both parents. The age distribution of the participants included children aged 14, 13, and 13.4 years. On average, fathers were 34.5 years old at the time of their child's birth, while mothers were 31.9 years old.Parental mental health records, as presented in Tables 1 to 4, revealed that 40% of files indicated a history of

psychiatric disorders in parents, while 31% of maternal records included mental health concerns. The analysis further showed that the likelihood of experiencing depression was significantly higher, with an odds ratio (OR) of 7.85 for fathers and between 1.71 and 1.77 for mothers. These findings suggest a potential correlation between parental mental health and developmental outcomes in children.

MORBIDITY

The study found that 82% of patients with preeclampsia and 2% of patients with eclampsia were affected, with 10.2% of cases resulting in premature births. Preterm deliveries occurred in 12.2% of cases during the first trimester. A total of seven newborns received Apgar scores. Additionally, one out of every two boys and one out of every four girls exhibited excessive crying behavior.Among mothers of girls, 28.6% reported feeding difficulties after birth, compared to 7.1% of mothers of boys. Individuals with Autism Spectrum Disorder (ASD) showed a significantly higher prevalence of phobias, anxiety disorders, and obsessive-compulsive disorders (16.3% vs. 0.0%) compared to those without ASD.The likelihood of experiencing sleep disorders was notably higher among girls, with an odds ratio of 8.74 (95% CI: 1.97 to 61.77). Specifically, 42.9% of girls with ASD reported sleep issues, compared to 2.5% of girls without ASD, while 41.9% of boys with ASD experienced sleep disorders compared to 2.5% of boys without ASD.Atopic conditions were diagnosed in 50% of boys with ASD, with the other half receiving treatment. Participants with ASD also demonstrated a higher incidence of joint dislocations (20.4% vs. 3.0%, with an odds ratio of 6.57; 95% CI: 1.79 to 31.13). Additionally, 76.2% of participants with ASD reported experiencing injuries or wounds, compared to 45.5% of participants without ASD.When comparing the control group with the fracture group, there were no significant differences in the incidence of poisonings or fractures. These findings highlight the increased risk of injuries, anxiety-related disorders, and sleep disturbances among children with ASD compared to their peers.

Table 1: Fathers of a child with ASD and population number.

Condition	Fathers of Children with ASD (n)	Fathers in Control Population (n)	Odds Ratio (OR)	p-value
Depression	14	5	7.45	0.02*
Phobia/Anxiety/Obsessive–Compulsive Disorder	7	1	6.80	0.05
Addiction: Alcohol/Drugs/Other (Tobacco Excluded)	5	3	2.80	0.40
Personality Disorder	3	1	3.20	0.42
Autism Spectrum Disorder (ASD)	1	0	-	0.50
Schizophrenia/Psychosis	1	1	1.00	0.55

Table 2: Mothers of a child with ASD and population number.

Condition	Fathers of Children with ASD (n)	Fathers in Control Population (n)	Odds Ratio (OR)	p-value
Depression	28	15	7.90	0.02*
Phobia/Anxiety/Obsessive–Compulsive Disorder	10	3	7.65	0.75
Personality Disorder	5	1	1.20	0.60
Anorexia Nervosa/Conversion Disorder	3	1	0.25	0.20

Table 3: Children with autism spectrum disorder and healthy children with comorbid conditions.

Condition	Children with ASD (n)	Children without ASD (n)	Odds Ratio (OR)	p-value
Phobia/Anxiety/Obsessive–Compulsive Disorder	14	2	0.02*	0.01*
Enuresis (Bed-wetting)	20	5	10.30	0.01*
Sleep Problems	22	1	-	0.01*
Atopy (Allergic Conditions)	44	48	0.90	0.70
Fractures	10	14	0.85	0.72
Intoxications (Poisoning Incidents)	7	5	1.60	0.12
Luxations/Distortions (Joint Dislocations or	18	7	3.80	0.02*

Sprains)				
Wounds/Injuries	68	88	3.45	0.03

DISCUSSION

Compared to the general population, individuals with Autism Spectrum Disorders (ASDs) do not show a significant difference in the occurrence of pregnancy-related complications. The likelihood of developing preeclampsia during pregnancy is approximately 1 in 12, affecting around 7.0% to 10.0% of pregnant women, according to statistical data. Additionally, eclampsia is more prevalent in pregnant women compared to those who are not pregnant.Mental health conditions such as obsessive-compulsive disorder (OCD), phobias, and anxiety disorders are far more common than is often recognized. Research indicates a strong connection between obsessions, compulsive behaviors, and anxiety-related disorders, highlighting the interrelationship between these mental health conditions

Anxiety disorders can manifest through rigidity and repetitive movements, which are common signs of stress and tension. Individuals with autism spectrum disorder (ASD) may struggle with managing stress and anxiety, partly because identifying anxiety-inducing situations can be challenging due to the complexity of anxiety disorders. The research on detecting ASD in general practice (GP) settings does not mention the prevalence of enuresis (bed-wetting) among children with ASD, which could be attributed to factors such as reduced instructional effectiveness or hypotonic pelvic floor muscles in children with ASD. Interestingly, there were 25% more visits for sleep disorders among the control group than in the experimental group. Additionally, bowel issues are frequently reported in children with ASD, and these problems may often be managed through dietary adjustments. A topic conditions (such as eczema, asthma, or hay fever) are more commonly found in children with ASD than in those without it, despite the higher prevalence of postpartum feeding issues in the control group, where atopy rates were lower. Children with ASD also showed a significant increase in trauma, joint dislocations, and sprains (distortions). According to Mint et al., 34% of children with ASD exhibited motor apraxia (difficulty with motor planning), and 51% had hypotonia (low muscle tone), which may explain the increased rate of dislocations and sprains, as these are common in children with hypotonia. Many children with ASD required multiple specialist referrals before receiving an official diagnosis. For example, children with motor apraxia are often referred to physiotherapists due to their difficulties with movement coordination. On the other hand, children with verbal developmental delays, particularly those without Asperger's syndrome, are commonly referred to speech therapists. In a 2005 study, Previous study found that parents of children with autism frequently reported bronchial infections to ear, nose, and throat (ENT) specialists [10]. The research also revealed that depression is more prevalent among families with children diagnosed with ASD. The age of diagnosis varies across different autism-related conditions [11]. For example, girls with Asperger's syndrome or PDD-NOS were diagnosed at an average age of 7.2 years, while boys received their diagnosis earlier, at around 3.9 years. In contrast, ASD is generally identified later in life. Our study included several participants with Asperger's syndrome and PDD-NOS, highlighting the diagnostic challenges associated with these conditions. Developing detection profiles for these disorders is crucial to improve early diagnosis. Additionally, general practitioners (GPs) often record the patient's age when entering the ASD code into the medical record, which is then updated by the psychiatrist following an official diagnosis. This procedural difference could be a limitation in our study. Since the diagnosis and registration processes were conducted by GPs, our study may have faced some constraints. However, CMR registration validity was ensured through peer reviews, where GPs cross-checked one another's records.The study's sample size was relatively small, with only 49 participants, limiting the ability to detect minor effects. Nevertheless, the results contribute valuable insights to clinical practice, as CMR data allows for a unique case-control comparison, especially given the absence of selective non-response or dropout within the dataset.

CONCLUSION

Children with Autism Spectrum Disorder (ASD), particularly girls, are more likely to exhibit excessive crying behavior (crybaby tendencies). Additionally, feeding difficulties are more prevalent among girls with ASD. A significant number of referrals for procedures such as tympanostomy tube insertions (ear tubes) and tonsillectomies are made by physiotherapists and speech therapists, highlighting the presence of speech delays and hearing-related issues. Parental depression is far more common among families with ASD children than is often assumed. It is important to note that a diagnosis of Autism Spectrum Disorder cannot be based solely on individual symptoms. However, identifying and combining multiple behavioral patterns can be instrumental in detecting ASD. To confirm these observations and refine our approach, a prospective study is essential to develop a comprehensive detection profile for primary care settings. Establishing a valid and reliable symptom profile for ASD will significantly accelerate the diagnostic process and enable early intervention, which is

critical for improving outcomes for children with Autism Spectrum Disorder.

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