

# PREVALENCE AND CLINICAL CHARACTERISTICS OF AUTISM SPECTRUM DISORDERS IN SCHOOL-AGE CHILDREN IN TAIF-KSA

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## ABSTRACT

**Background:** There has been a reported worldwide increase in the apparent prevalence of autism and related autism spectrum disorders, Such an increase, whether due to an actual increase in incidence of autism or better detection methods.

**Aims & Objective:** To determine the prevalence and describe the clinical characteristics of autism spectrum disorders (ASDs) in school-age children.

**Material and Methods:** The study proceeded in four steps: screening, sampling, and diagnostic assessment. All parents and teachers asked to complete the ASSQ. Children from regular schools were considered screen positive if they had a teacher-rated ASSQ score  $\geq 10$ .

**Results:** The result of the current study have shown that the overall prevalence of autism in the primary school of Taif district whose age ranged from 7 to 12 years was 0.035 % from a sample population of 22950 student , the prevalence of autism in male (0.031%) was greater than female (0.004%). The general characteristic of autistic disorders present in the sample population was concentrated on certain items mainly, Has a different style to communicate with others, either formally or informally (80 %), Deal with others with his own style (80%).

**Conclusion:** The overall prevalence of autism in the primary school of Taif district whose age ranged from 7 to 12 years was 0.035 %.

**KEY-WORDS:** Autism; Prevalence; Saudia Arabia; Clinical Characteristics

## Introduction

Autism spectrum disorders (ASDs), characterized by pervasive impairments in social reciprocity and/or communication, stereotyped behaviour, and restricted interests, have been the focus of debate in recent years, largely as a result of multinational reports of increasing prevalence.<sup>[1]</sup> Prevalence estimates range from 0.07% to 1.8%.<sup>[1,2]</sup> The increased prevalence appears to be attributable to greater public awareness, broadening ASD diagnostic criteria, lower age at diagnosis, and diagnostic substitution.<sup>[3]</sup>

Autism is the most sever manifestation of a broad spectrum of disorders, known as autistic spectrum disorders (ASD) that share these essential features, but vary in their degree of severity and/or age of onset. The worldwide prevalence of ASD is 58.7 per 10,000 individual<sup>[4]</sup> with male female ratio of 4:1. Genetic involvement of the disorder has been manifested through twin and

family based studies<sup>[5]</sup> and these familial connections have paved the path for numerous genome wide scans to identify the autism susceptibility regions in the human genome. A strong genetic basis is accepted<sup>[5,6]</sup> and the estimated heritability of autism is upwards of 90%, which is higher than many other complex genetic disorders such as breast cancer<sup>[7]</sup> or type I diabetes, however, the aetiology of autism is poorly understood both at the cellular and the molecular level. The tyrosine hydroxylase gene consists of fourteen exons<sup>[8]</sup> and maps to chromosome 11p15<sup>[9]</sup> tyrosine hydroxylase (TH) is the rate limiting enzyme in the synthesis of dopamine and nor epinephrine<sup>[10]</sup>. Dopamine modulates a broad variety of process, functions and behaviours that are abnormal in individual with ASDs including motor function, cognitive process, emotional regulations, social interaction and homeostatic processes such as blood pressure, sleep patterns and GI function. Changes in TH gene expression or function may influence

such processes or behaviour that is modulated by dopamine.<sup>[11]</sup>

The incidence of autism has increased remarkably, becoming an explosion. In recent years<sup>[12]</sup> and second, a distinct shift in the time of onset of autistic symptoms has become evident. Late onset autism (starting in the second year) was almost unheard of in the 1950s, 60s, and 70s; today such cases outnumber early onset cases five to one.<sup>[13]</sup>

Parents in increasing numbers are reporting similar stories. A child, most often a boy who is developmentally, socially, and verbally on par for his age, suddenly stops acquiring new words and skills in the second year of life and then regresses, losing speech, cognitive abilities, and social dexterity. Children in this group are said to have regressive autism. Further, overwhelmed parents may drift apart, and siblings. Stress may be manifested as behaviour problems.<sup>[14]</sup>

The epidemiology of autism is the study of factors affecting autism spectrum disorders (ASD). A 2012 review of global prevalence estimates of autism spectrum disorders found a median of 62 cases per 10,000 people.<sup>[1]</sup> There is a lack of evidence from low- and middle-income countries though.<sup>[1]</sup>

ASD averages a 4.3:1 male-to-female ratio. The number of children known to have autism has increased dramatically since the 1980s, at least partly due to changes in diagnostic practice; it is unclear whether prevalence has actually increased;<sup>[15]</sup> and as-yet-unidentified environmental risk factors cannot be ruled out.<sup>[16]</sup> The risk of autism is associated with several prenatal factors, including advanced parental age and diabetes in the mother during pregnancy.<sup>[17]</sup> ASD is associated with several genetic disorders<sup>[18]</sup> and with epilepsy<sup>[19]</sup> and autism is associated with mental retardation<sup>[20]</sup>.

The three basic approaches used to estimate prevalence differ in cost and in quality of results. The simplest and cheapest method is to count known autism cases from sources such as schools and clinics, and divide by the population. This approach is likely to underestimate prevalence because it does not count children who have not

been diagnosed yet, and it is likely to generate skewed statistics because some children have better access to treatment. The second method improves on the first by having investigators examine student or patient records looking for probable cases, to catch cases that have not been identified yet. The third method, which is arguably the best, screens a large sample of an entire community to identify possible cases, and then evaluates each possible case in more detail with standard diagnostic procedures. This last method typically produces the most reliable, and the highest, prevalence estimates.<sup>[21]</sup>

Experts disagree about the causes and significance of the recent increases in the prevalence of autism spectrum disorders (ASDs). Limited data on population base rates contribute to this uncertainty. Using a population-based sample, the authors sought to estimate the prevalence and describe the clinical characteristics of ASDs in school-age children.

## Materials and Methods

### Target Population

This study will be conducted between 2011 and 2012 in the Taif City, KSA, a stable, residential community near Makah. The target population included all children born from 1999 through 2004 (ages 7–12 years at screening) and attending Taif elementary schools.

### Case Identification

We used a two-stage design for case identification. Stage 1 used Autism Spectrum Screening Questionnaire (ASSQ), a 27-item questionnaire assessing social interactions, communication problems, and restricted and repetitive behaviours. In stage 2, screen-positive children were evaluated using standardized diagnostic assessments: the Autism Diagnostic Observation Schedule (ADOS), the Autism Diagnostic Interview–Revised (ADI-R).

### Procedure

The study proceeded in three steps: screening, sampling, and diagnostic assessment.

### Screening

All parents asked to complete the ASSQ. Additionally, teachers asked to complete the ASSQ for all children who had any ASD characteristics, which described in educational sessions led by the research team. Children from regular schools were considered screen positive if they had a teacher-rated ASSQ score  $\geq 10$ .

### Sampling

All screen-positive children in the Disability Registry or in special education schools were invited to participate in confirmatory diagnostic evaluations; for this group, there was no sampling. Because we expected some ASD cases among children in the regular schools, we offered to evaluate those most likely to have ASDs, that is, those who will be screened positive on the teacher rated ASSQ.

### Diagnostic Assessment

Extensive efforts were made to contact parents of all screen-positive children who provided consent for diagnostic evaluations. Children whose parents could not be contacted were classified as nonparticipants. Diagnostic evaluations used the Autism Diagnostic Interview - Revised (ADI-R), and the Autism Diagnostic Observation Schedule (ADOS) Children were classified as having an ASD if they met DSM-IV criteria for any pervasive developmental disorder. To generate best-estimate clinical diagnoses, all relevant data, including ADOS and ADIR scores, were reviewed by one of two clinical teams who were independent of the original evaluators. The final diagnosis was based on clinical judgment.

## Results

The result of the current study have shown that the overall prevalence of autism in the primary school of Taif district whose age ranged from 7 to 12 years was 0.035 % from a sample population of 22950 student, the prevalence of autism in male (0.031%) was greater than female (0.004%) as shown in table 1, interestingly, all of cases of autistic disorders were found in private school and not in the governmental school.

**Table-1: Prevalence of Autism**

Prevalence	N (%)
Male	5 (0.021%)
Female	3 (0.013%)
Total	8 (0.035 %)

**Table-2: General Characteristics of Autistic Disorders**

Element	%
1 A child of the old-fashioned	5
2 The unusual child in relation for other children	6
3 A special world of its own	6
4 Remembers facts on a particular subject, but he does not know the meaning	5
5 Has a literal and metaphorical understanding of ambiguous language	5
6 Has a different style to communicate with others, either formally or informally	3
7 Invented words or phrases	8
8 His voice and speech different compared to others	3
9 Issued votes involuntarily	4
10 Surprisingly good in some things and weak are also amazing in other things	7
11 Uses language very well, but it fails to be harnessed to cope with the social context	5
12 Lacks empathy	4
13 Called the remarks naive and embarrassing at the same time	3
14 Method has perverted view of others	3
15 Wishes to communicate social and fails to build relationships with others	4
16 Deal with others own style	1
17 Lacks a good friend	8
18 Lacks a sense of delicate	8
19 Poor in games and has no idea <sup>s</sup> how cooperation within teams	5
20 Clumsy ungainly movements display is clear	4
21 Gestures involuntarily	5
22 Has difficulties in completing daily activities	5
23 Has special and daily routine	3
24 Has a unitive link with things	5
25 Outcast by other children	4
26 Facial expressions has the unusual	3

The general characteristic of autistic disorders present in the sample population was concentrated on certain items mainly, Has a different style to communicate with others, either formally or informally (80 %), Deal with others with his own style (80%), Wishes to communicate social and fails to build relationships with others(8%), His voice and speech different compared to others(70%) ,The unusual child in relation for other children (60%), and A special world of its own (60%) as shown in table 2.

## Discussion

Autism is a disorder characterized by impairments in communication, social interaction, and repetitive behaviours. Over the past 40 years,

the measured prevalence of autism has multiplied roughly 10-fold. While progress has been made in understanding some of the factors associated with increased risk and rising prevalence, no one knows with certainty what causes autism or what caused autism prevalence to rise so precipitously. There is, however, a growing awareness among scholars that focusing solely on individual risk factors such as exposure toxicants, prenatal complications, or parental education is insufficient to explain why autism prevalence rates have increased so stunningly. Social and institutional processes likely play an important role. For example, changes in diagnostic criteria and an influx of resources dedicated to autism diagnosis may be critical to understanding why prevalence rates have risen. Increased awareness and social influence have been implicated in the rise of autism and a variety of comparable disorders, where social processes mimic the effects of contagion.<sup>[22]</sup>

That is why the main objective of the current study was to assess the prevalence of autism in Taif district in an attempt to calculate the total prevalence in KSA.

In the present study, the authors describe the prevalence of an autistic spectrum disorder in Taif district, Saudi Arabia, a country in the Middle East of about 23m people, which, despite its immense oil wealth, faces enormous problems of access to health care.<sup>[23]</sup> Although half the population is below 15 years of age, services for children with developmental and psychiatric disorders are not well developed.<sup>[24]</sup> While exact figures are not available, anecdotal reports suggest an increase in the prevalence of autism is in Saudi Arabia.

The prevalence of autistic spectrum disorder in Taif district, Saudi Arabia was (0.035 %) which goes hand in hand with other developed country like Tripoli ,Libya (0.06), but the male to female ratio in Tripoli ,Libya was 4:1 but in Taif ,KSA was 7:1, i.e the liability of male to develop autism in Taif ,KSA is bigger than female.<sup>[25]</sup>

The proportion of children with Autism who had communication impairment was 80 % which is consistent with reports from other studies.<sup>[26]</sup> The proportion of children had isolated speech and

language disorder was (70%). This is a significant percentage and highlights the fact that every child with speech and language delay must have a proper hearing test and should be assessed by an expert as soon as possible to confirm or refute a diagnosis of ASD.

## Conclusion

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There has been a true and significant increase in autism prevalence worldwide. To date, the health and education authorities have not paid enough attention to this serious epidemic and its present and future impact. Many of those being diagnosed are still not in any form of education or any form of early intervention programme. The biggest problem in any developing country, including KSA, is the lack of awareness of the parents and hence the lack of early interventions that may be available. Special education is rarely started early enough and even if, against all difficulties, a child gains a place in the school, the majority only start at 6 or 7 years, by which time they are “fixed observers”. It is very important therefore that all paediatricians and primary health care providers consider autism when dealing with children presenting with speech and language delay. Although our findings are preliminary, school based and the first to be conducted in KSA, they indicate the need for decision-makers to plan services and research the problem of ASDs country wide.

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