

# Prevalence, Trend, Determinanants and Prediction of Autism Spectrum Disorders among Dubai population, Diagnostic approach and management contexts

## Abstract

**Background:** Autism spectrum disorder (ASD) is a public health concern in Dubai, Autism is the most common of the Pervasive Developmental Disorders in Dubai. Autism poses a particularly large public health challenge and an inspiring lifelong challenge for many families; it is a lifelong challenge of a different nature, it is a spectrum of neurodevelopment disorder, which often results in an array of motor impairments. These motor impairments often lead to reduced performance in activities of daily living as well as in societal tasks which require specific motor abilities and skills

**Objectives:** To study the prevalence's, determinants and prediction of Autism among Dubai population. To study some associated factors

**Methodology:** Retrospective records review approach has been applied, qualitative methodology (focus groups with mental health experts working at: Al Jalila hospital (AJH), Dubai Autism Centre (DAC), Dubai Rehabilitation Centre for Disabilities, Latifa hospital, Private Sector Healthcare (PSH).) Quantitative methodology through, Prevalence, incidence estimates based on international research (a systematic research review) along with expert interviews has been applied as well.

**Results:** The study showed that 84.9% of the cases were males and 51.9% of the autism cases were females, 30.9% were UAE nationals and 69.1% were expatriate, about 72.4% were diagnosed as Autism spectrum disorders, 9.2% as ASD features and 9.2% were diagnosed as other disorders when autism diagnostic test applied Dubai Autism Centre estimates it affects 1 in 146 births (0.68%). By apply these estimates to the total number of births in Dubai for 2014, it is predicted there would be approximately 199 children (of which 58, (29.1%) were Nationals and 141, (70.9%) were Non-Nationals) suffering from autism at some stage. About 16.4% of children seek help for ASD assessment (through their families) between the age group 6–18+. It is critical to understand and address factors for seeking late-stage diagnosis, as ASD can be diagnosed much earlier and how many of these later presenters are actually diagnosed with ASD. Families do not consult GPs for early diagnosis for a variety of reasons including cultural reasons. The study reflected future prediction of the cases based on international standards prevalence and the population density as reflected by figure one which reflected the highest prevalence at the age intervals of 25-29 years, 30-34 years and 35-39 years respectively

**Conclusion:** Autism is still ongoing challenging public health issue in Dubai, in terms of raising up prevalence, incidences, trends, cases sorting out and management context of autism is one of actual national health care system gaps.

**Recommendation:** Effective school health strategies is needed and implemented by nurses who are qualified and experienced in identifying children with ASD. Training of GP's to aid early diagnosis of Autism and increase awareness. There is an urgent need for an adult autism centre for when the children leave the safe environment of the school at 18 years. There is a need for further studies to cover the needs of people with an Autism Spectrum Disorder (ASD).

**Keywords:** Autism spectrum; Dubai population; Prevalence; prediction

## Research Article

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## Background

Autism poses a particularly large public health challenge and an inspiring lifelong challenge for many families; it is

a lifelong challenge of a different nature. It is a spectrum of neurodevelopment disorder, which often results in an array of motor impairments. These motor impairments often lead to reduced performance in activities of daily living as well as in

societal tasks which require specific motor abilities and skills. Global prevalence estimates of autism spectrum disorders found a median of 62 cases per 10,000 people [1]. There is a lack of evidence from low- and middle-income countries though [1]. ASD averages a 4.3:1 male-to-female ratio [2]. 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 [2]; and as yet-unidentified environmental risk factors cannot be ruled out [3]. The risk of autism is associated with several prenatal factors, including advanced paternal age and diabetes in the mother during pregnancy [4]. ASD is associated with several genetic disorders [5] and with epilepsy [6].

On 2006 study of nearly 57,000 British nine- and ten-year-old reported a prevalence of 3.89 per 1,000 for autism and 11.61 per 1,000 for ASD; these higher figures could be associated with broadening diagnostic criteria [7]. Studies based on more-detailed information, such as direct observation rather than examination of medical records, identify higher prevalence; this suggests that published figures may underestimate ASD's true prevalence [8]. A 2009 study of the children in Cambridgeshire, England used different methods to measure prevalence, and estimated that 40% of ASD cases go undiagnosed, with the two least-biased estimates of true prevalence being 11.3 and 15.7 per 1,000 [9]. On 2009 U.S. study based on 2006 data estimated the prevalence of ASD in 8-year-old children to be 9.0 per 1,000 (approximate range 8.6–9.3) [2]. A 2009 report based on the 2007 Adult Psychiatric Morbidity Survey by the National Health Service determined that the prevalence of ASD in adults was approximately 1% of the population, with a higher prevalence in males and no significant variation between age groups; [10]. These results suggest that prevalence of ASD among adults is similar to that in children and rates of autism are not increasing [11-13].

### Objectives

To study the prevalence's, determinants and prediction of Autism among Dubai population. To study some associated factors

### Methodology

Retrospective records review approach has been applied, qualitative methodology (focus groups with mental health experts working at: Al Jalila hospital (AJH), Dubai Autism Centre (DAC), Dubai Rehabilitation Centre for Disabilities, Latifa hospital, Private Sector Healthcare (PSH).) Quantitative methodology through, Prevalence, incidence estimates based on international research (a systematic research review) along with expert interviews has been applied as well.

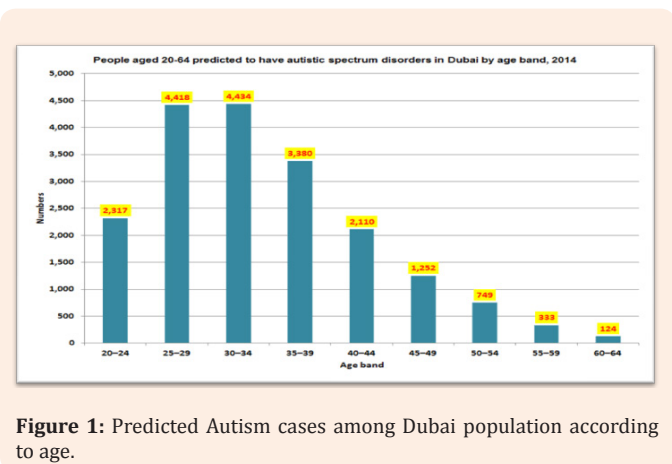
### Results

The study revealed that prevalence of Autism is steadily rising along the last 4 years as per cases registry at Dubai autism centre for both national and expatriate population, the study showed that about two third of autism cases in Dubai is among expatriate population and on third among UAE national population as reflected by table 1. The study reflected future prediction of

the cases based on international standards prevalence and the population density as reflected by figure one which reflected the highest prevalence at the age intervals of 25-29 years, 30-34 years and 35-39 years respectively as shown by figure 1.

**Table 1:** Prevalence of Autism cases among Dubai Population by nationality and years.

	Nationals	Non-Nationals	Total
2011	60	119	179
2012	61	130	191
2013	60	138	198
2014	58	141	199



**Figure 1:** Predicted Autism cases among Dubai population according to age.

The study showed the 84.9% of the cases were males and 51.9% of the autism cases were females, 30.9% were UAE nationals and 69.1% were expatriate, about 72.4% were diagnosed as Autism spectrum disorders, 9.2% as ASD features and 9.2% were diagnosed as other disorders when autism diagnostic test applied for assessment as shown by table 2 (Figure 2 & 3).

**Table 2:** Dubai Autism Centre (DAC) assessment statistics during September 2014–June 2015.

		Number	%
Gender	Male	129	84.9
	Female	23	15.1
Nationality	U.A.E.	47	30.9
	Non-U.A.E.	105	69.1
Residence	U.A.E.	128	84.2
	Non-U.A.E.	24	15.8
Diagnosis	ASD	110	72.4
	ASD features	14	9.2
	Other	28	18.4

Type of assessment	Full – 2 parts assessment	62	40.8
	Only short form for screening tool	90	59.2
Short form of assessment for screening tool	ASD	48	31.6
	ASD features	16	10.5
	Other	26	17.1
<b>Total</b>		<b>152</b>	<b>100%</b>

converging at around 1%. Further, prevalence estimates reported from other countries fall within the confidence intervals of our estimates reported in this paper [17-19].

Similar the current study which showed increasing trend of prevalence along the last four years, many of other worldwide publication showed that, the prevalence of autism is increasing with time. Earlier prevalence estimates were lower, centering at about 0.5 per 1,000 for autism during the 1960s and 1970s and about 1 per 1,000 in the 1980s, as opposed to today's 1–2 per 1000.21].

Reports of autism cases per 1,000 children grew dramatically in the U.S. from 1996 to 2007. It is unknown how much, if any, growth came from changes in autism's prevalence [20]. The number of reported cases of autism increased dramatically in the 1990s and early 2000s, prompting investigations into several potential reasons [21]: More children may have autism; that is, the true frequency of autism may have increased. There may be more complete pickup of autism (case finding), as a result of increased awareness and funding. For example, attempts to sue vaccine companies may have increased case-reporting. The diagnosis may be applied more broadly than before, as a result of the changing definition of the disorder, particularly changes in DSM-III-R and DSM-IV. An editorial error in the description of the PDD-NOS category of Autism Spectrum Disorders in the DSM-IV, in 1994, inappropriately broadened the PDD-NOS construct. The error was corrected in the DSM-IV-TR, in 2000, reversing the PDD-NOS construct back to the more restrictive diagnostic criteria requirements from the DSM-III-R [22]. Successively earlier diagnosis in each succeeding cohort of children, including recognition in nursery (preschool), may have affected apparent prevalence but not incidence. A review of the "rising autism" figures compared to other disabilities in schools shows a corresponding drop in findings of mental retardation [23]. The reported increase is largely attributable to changes in diagnostic practices, referral patterns, availability of services, age at diagnosis, and public awareness [24-27]. A widely cited 2002 pilot study concluded that the observed increase in autism in California cannot be explained by changes in diagnostic criteria [28], but a 2006 analysis found that special education data poorly measured prevalence because so many cases were diagnosed, and that the 1994–2003 U.S. increase was associated with declines in other diagnostic categories, indicating that diagnostic substitution had occurred [29]. A 2007 study that modeled autism incidence found that broadened diagnostic criteria, diagnosis at a younger age, and improved efficiency of case ascertainment, can produce an increase in the frequency of autism ranging up to 29-fold depending on the frequency measure, suggesting that methodological factors may explain the observed increases in autism over time [30]. A small 2008 study found that a significant number (40%) of people diagnosed with pragmatic language impairment as children in previous decades would now be given a diagnosis as autism [31]. A study of all Danish children born in 1994–99 found that children born later were more likely to be diagnosed at a younger age, supporting the argument that apparent increases in autism prevalence were at least partly due to decreases in the age of diagnosis. A 2009 study of California data

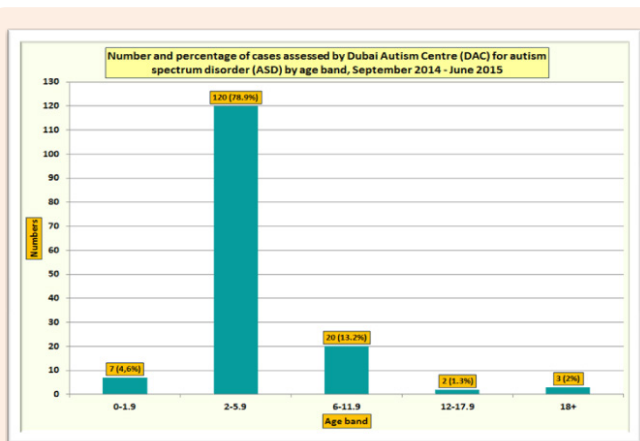


Figure 2: Autism cases assessed by Dubai Autism centre in Dubai.

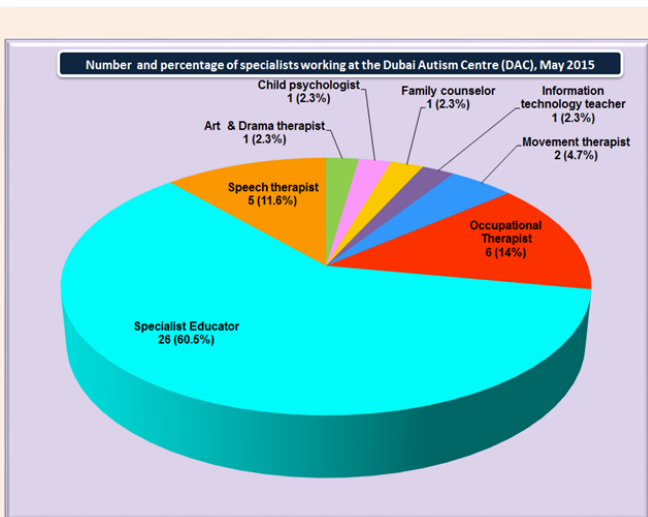


Figure 3: Management approach by Dubai Autism centre by roles and function.

The current study adopt a novel approach to estimating the prevalence of these conditions and presents strong evidence that undiagnosed cases do indeed exist in the school-aged population. Similar to other studies, The estimates of known cases reported in this paper accord with previous prevalence estimates [14-16]

found that the reported incidence of autism rose 7- to 8-fold from the early 1990s to 2007, and that changes in diagnostic criteria, inclusion of milder cases, and earlier age of diagnosis probably explain only a 4.25-fold increase; the study did not quantify the effects of wider awareness of autism, increased funding, and expanding treatment options resulting in parents' greater motivation to seek services [29]. Another 2009 California study found that the reported increases are unlikely to be explained by changes in how qualifying condition codes for autism were recorded [31]. Several environmental risk factors have been proposed to support the hypothesis that the actual frequency of autism has increased. These include certain foods, infectious disease, and pesticides. There is overwhelming scientific evidence against the MMR hypothesis and no convincing evidence for the thiomersal (or Thimerosal) hypothesis, so these types of risk factors have to be ruled out.

### Conclusion

Autism is still ongoing challenging public health issue in Dubai, in terms of raising up prevalence, incidences, trends, cases sorting out and management context of autism is one of actual national health care system gaps .

### Recommendation

Effective school health strategies is needed and implemented by nurses who are qualified and experienced in identifying children with ASD. Training of GP's to aid early diagnosis of Autism and increase awareness. There is an urgent need for an adult autism centre for when the children leave the safe environment of the school at 18 years, there is a need for further studies to cover the needs of people with an Autism Spectrum Disorder (ASD).

### Conflict of Interest

None.

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