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RESEARCH ARTICLE

CHARACTERISTICS OF CHILDREN WITH AUTISM SPECTRUM DISORDER WITH ASSOCIATED COMORBIDITIES, IN RIYADH, KSA

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Abstract

physicians, policy makers and patents alike. Yet, there are few articles focusing on addressing the current characteristics of ASD children in Saudi Arabia.

Rationale: Assessing the status quo of children of ASD and suggest improvement measures to be taken by stakeholders, policy makers and physicians. Allowing an opportunity to tailor high-quality interventions to our population.

Methods: This is a cross-sectional study from first of June 2019 through the end of January 2020, involving Saudi Arabian children diagnosed with ASD following at the Division of Developmental Pediatrics at King Saud medical city. Using a questionnaire formate to collect age, gender, age at time of diagnosis, psychiatric comorbidities, details of school affiliation, severity of ASD in terms of verbal vs. nonverbal, socioeconomic status, housing environment, total family members and the total income of the household with descriptive analysis.

Results: The most common associated comorbidity in children with ASD was ADHD in 74% of our population. Notably, the median age of ASD diagnosis remains advanced at 3 years of age. Further educational programs to primary health care practitioners for early detection and public awareness programs are needed.

Background: Autistic Spectrum Disorder (ASD) is a neurodevelopmental disorder that impacts children’s communication, as well as their ability to perform socially. A recent surge in the number of patients diagnosed with ASD spurred concern for

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7. Introduction:-

Autistic Spectrum Disorder (ASD) is a neurodevelopmental disorder that impacts on children's communication, as well as their ability to perform socially. It is one of the most common developmental disorders, affecting persons of all ethnic and socioeconomic backgrounds(1). Current estimates suggest that in the United States the prevalence of ASD is 20 in every 1000 school-aged children(2). Factors contributing to the development of ASD is still under investigation, however, several reports have indicated the nature and nurture etiologies (genetics and environmental).(3)

There is a high risk for developing co-morbidities in children with ASD, seizure disorders, ADHD, and learning disabilities.(4) A meta-analysis study conducted over 1993 to 2019 found that 28% ASD children attention-deficit hyperactivity disorder(ADHD); 20% had anxiety disorders; 13% had sleep-wake disorders; 12% had disruptive, impulse-control, and conduct disorders; 11% had depressive disorders; 9% had obsessive-compulsive disorder; 5% had bipolar disorders; and 4% had schizophrenia spectrum disorders. (5) In this study we aim to explore the most common comorbidities associated with ASD children in a single tertiary hospital in Riyadh, and explore their characteristics and family attributes to better tailor appropriate interventions to our population.

Material and Methods:-

This study was conducted from the first of June 2019 through the end of January 2020 at the Division of Developmental Pediatrics at King Saud medical city in Riyadh, Saudi Arabia via a structured questionnaire, parents Characteristics were collected; (gender, age, marital status, education level, current employment, total household income, housing settings, the total number of children, and affiliation to family support groups). Children's characteristics (gender, age, age at diagnosis, gestational age, schooling, and receiving specialized care programs in terms of speech therapy, occupational therapy or behavioural therapy, level of global developmental delay and associated disorders).

Inclusion criteria:

1. Child with ASD who has been diagnosed by a developmental pediatrician at least 6 months prior to the commencement of this study;
2. Child with ASD who receives follow-up treatment at the king Saud medical city children's Hospital.
3. Child with ASD who is between the age of 1 years and 14 years.
4. Children residing in Saudi Arabia for at least 6 months prior to the commencement of this study.
5. Primary caregiver offering informed consent.

Exclusion criteria:

1. Child who has dimorphic features or a diagnosed genetic syndrome.
2. Child with ASD who has sibling diagnosed with ASD.

Analysis was carried out using SPSS25.0 (IBM SPSS Statistics for Windows, Version 25.0. Armonk, NY: IBM Corp.). The variables under study were categorical and presented as percentages and mean.

Results:-

54 children with ASD met the inclusion criteria and were enrolled in the study (n. 54), 75.9% were males. With mean age of 3.5 (± 1.6) years at time of diagnosis. Majority of these children were full term 92.6%. 77% of the studied population attended schools and receive supportive care in terms of speech therapy, occupational therapy in 66% (table 1).

Table 1

ASD child Characteristics**Gender of the ASD Child**

	Number (54)	Percentage %
Female	13	24.1%
Male	41	75.9%

Age at Diagnosis

Mean (years)	Minimum	Maximum
3.54 ± 1.6	1	8

Current age of ASD child

Mean	Minimum	Maximum
7.76 ± 2.5	4	14

Gestational age

	Number (54)	Percentage %
Preterm	4	7.4%
Term	50	92.6%

ASD child attend school

	Number (54)	Percentage %
No	12	22.2%
Yes	42	77.8%

Type of school

	Number (54)	Percentage %
ASD center	17	31.5%
General education	12	22.2%

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intellectual	10	18.5%
merged	2	3.7%

Type of specialized care

	Number (54)	Percentage %
Speech Therapy	14	25.93%
Speech Therapy & Occupational Therapy	22	40.74%
Non	18	33.33%

Medications

	Number (54)	Percentage %
Atomoxetine	1	1.9%
Risperidone	8	14.8%
Methylphenidate	8	14.8%
No	37	68.5%

Child speak more than 10 words

	Number (54)	Percentage %
No	32	59.3%
Yes	22	40.7%

Global Developmental delay

	Number (54)	Percentage %
GDD		
Mild	23	42.6%
Moderate	22	40.7%
Severe	9	16.7%

Associated disorders

	Number	Percentage %
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	(54)	
ADHD	40	74.1%
ADHD, Aggression, Destructive	1	1.9%
Defiant	1	1.9%
N/A	10	18.5%
self-harm	2	3.7%

Table 2

Parents Characteristics

Gender of the parent

	Number (54)	Percentage %
Father	28	51.90%
Mother	26	48.10%

Age

In years	Number (54)	Percentage %
20-30	4	7.41%
30-40	24	44.44%
40-50	19	35.19%
>50	7	12.96%

Marital Status

Status	Number (54)	Percentage %
Divorced	4	7.40%
Married	48	88.90%
Separated	2	3.70%

Currently Employed

No	Number (54)	Percentage %
Yes	16	29.60%
	38	70.40%

Income

Total income	Number (54)	Percentage %
equal or < 5k	8	14.81%

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>5k - <10k	20	37.04%
10k - < 15k	18	33.33%
equal or > 15k	8	14.81%

Housing

Type of housing	Number (54)	Percentage %
Family house	9	16.70%
Apartment	16	29.60%
Floor	11	20.40%
Villa	18	33.30%

Level of Parents' Education

	Number (54)	Percentage %
primary school	4	7.40%
secondary school	4	7.40%
high school	16	29.60%
university	30	55.60%

Part of Family support group

	Number (54)	Percentage %
No	29	53.70%
Yes	25	46.30%

Number of Siblings

Total children	Number (54)	Percentage %
1	11	20.37%
2	12	22.22%
3	7	12.96%
4	6	11.11%
5	8	14.81%
more than 5	10	18.52%

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Discussion:-

Throughout the world, ASD has gained exponential rise in diagnosis. This might be attributed to public awareness and higher qualified pediatricians. Studies conducted in Denmark, USA, and Canada observed an incidence of 12-18.5 per 1,000. (6-8) In Saudi Arabia the incidence was 2.81 per 1,000 children. (9)

The majority of our population had parents with high education status 85%, this might be attributed to parental awareness. We found the majority of ASD children to have mild to moderate developmental delay which was aligned with similar regional and international studies (10-14).

Our findings are consistent with literature and diverse studies, as the male predominance of ASD diagnosis has been established with median age of diagnosis at 3 years of age. (10,11,15). Although early signs and symptoms of ASD can be established sooner through well-baby clinics, yet, the median age of diagnosis is still advanced. This might be linked to paucity of regional educational programs for primary health care practitioners to assess early signs of ASD.

Children with ASD has diverse comorbidities, we observed ADHD in 74% of our population in contrast to a study conducted in Riyadh in 2015 which showed 37% patients with hyperactivity (12). However, only 18% received therapeutic treatment for hyperactivity; which families' concerns about side-effects, level of education and financial resources have influenced this delay in management. Although governmental aids in Saudi Arabia to families caring for ASD children has not changed the need for better total household income in order to provide a comprehensive support system for these children.

We found the majority of our population had less than 10,000 SR, with 33% did not receive supportive treatment in the form of speech therapy, or occupational therapy. A study by Bassem et al showed the importance of higher governmental subsidies to support children schooling and resources. (15)

Modifiable factors that have the ability to elevate the quality of life of these children (16) to receive early detection and diagnosis has the ability to improve their gain of needed social, and communication skills for future independence later in life. Further educational programs to primary health care practitioners for early detection and public awareness programs are needed.

Study limitations

Cross sectional study will be descriptive and will not show any causality. There may be a sampling bias as all subjects will be parents whose children come to King Saud Medical City in Riyadh and will not be generalizable to all settings. The correlates evaluation in our study only included child and caregiver characteristics, Environmental and other social factors such as social support and special supportive services may also be important for early diagnosis of comorbidities.

Ethical statement

Participants were informed about the research aim and their optional, voluntary participation. Institutional Review Board, at King Saud Medical City, Riyadh, KSA.

Ethical approval

We obtained consent from the families for enrollment in the study

Funding

None.

Declaration of competing interest

None.

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