SCREENING OF AUTISM SPECTRUM DISORDER BY USING GILLIAM AUTISM RATING SCALE IN A SAMPLE OF EGYPTIAN CHILDREN ATTENDING BAB AL SHA'REYA UNIVERSITY HOSPITAL

By

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ABSTRACT

Background: *Autism spectrum disorder is a developmental disability that can cause social, communication, and behavioral challenges* ***(Preece, 2014)****. The Gilliam Autism Rating Scale is a helpful in diagnosis and grading the severity of ASD. it is a norm-referenced measure designed to assess symptoms of autism in individuals aged three to 22 years* ***(Gilliam, 2006)****.*

Objectives: *We aimed to*

1. *Evaluate the frequency of Autism Spectrum Disorder (ASD) among a-sample of Egyptian children by using The Arabic Version of Gilliam Autism Rating Scale.*
2. *Identify associated risk factors of Autism Spectrum Disorder (ASD) in children who are screened.*

Design: *This is prospective study that carried out on 500 children selected in sequence (about 5 children per clinic day, 2 days per week) from children (boys &girls) attending the out-patient pediatric clinic of Bab Al Sha'reya university hospital.*

This research was continued until fulfillment of the study from March 2018 to December 2018.

Patient and Methods: *All the patients were selected in sequence by using GARS (Gilliam Autism Rating Scale), CARS (Childhood Autism Rating Scale) and DSM5 (Diagnostic and Statistical Manual of Mental Disorders – 5th edition) criteria for screening of autism spectrum disorder.*

Inclusion Criteria:

- Children aged from (3 years old to 12 years old), both males and females.

Exclusion Criteria:

- Age below 3 years and above 12 years.

Results: *Prevalence of Autism Spectrum Disorder was 3.4%. Age ranged from 3 to 12 years with a mean of 7.12±2.13 years males represented 76.5% of cases, while 23.5% were females. The range of gestational age of cases was 29-38 weeks with a mean of 33.65±1.61 weeks. The father age of cases ranging from 26 to 53 years with a mean of 40.18±7.28 years while mother age ranging from 23 to 37 years with a mean of 30.71±4.25 years. The gestational maternal history of cases revealed that 17.6% of mothers with gestational D.M & 23.5% with gestational HTN & 47.1% with UTI during pregnancy & 35.3% with PROM & 41.2% with history of previous abortion & 11.8% +ve smokers and 29.4% -ve smokers during pregnancy. History of NICU admission in cases was 88.2%, the admission was due to R.D in 66.7% and N. Jaundice in 33.3% of cases. Consanguinity compromised 29.4% in ASD positive children while +ve family history of neuropsychiatric disorders represented 41.2% of ASD positive children. 82.4% of cases were fully vaccinated while 17.6% not fully vaccinated. Cases watching TV for short periods(less than 2 hours/day) were 11.8% & 29.4% for long periods(2 to 6 hours/day) and 52.9% for all the time watching(more than 6 hours/day). GARS+VE cases were classified into mild(29.4%)& below moderate(23.5%)& moderate(35.3%)& above moderate(5.9%) and severe(5.9%), while CARS+VE cases classified into mild (47.1%) & moderate(29.4%) and severe(23.5%). All of these cases were full-filling the DSM5 criteria for diagnosis of ASD.*

Conclusion: *ASD is a common neurodevelopmental disorder. Decision makers must take effective steps to limit the causes and risk factors of the problem.*

It is important for pre-natal monitoring to be performed in a regular and accurate manner, for birth to take place under appropriate conditions with the help of health personnel and for the baby to be regularly monitored after birth of the child to be protected from factors that can impair brain development during or after birth.

Keywords: *Autism spectrum disorder & Gilliam autism rating scale.*

INTRODUCTION

Autism is a behavioral/developmental disorder characterized clinically by delays and qualitative dif¬ferences in communication and social interaction as well as repetitive behaviors and restricted interests **(Fernandez et al., 2017)**.

In 2018 the CDC determined that approximately 1 in 59 children diagnosed with autism spectrum disorder (ASD) **(Autism speaks 2019)**.

Boys are affected with ASDs more frequently than girls with an average male-to-female ratio of 4.3:1.0 **(Kanner et al., 2017)**.

Best practice ASD screening, diagnosis and assessment consists of early recognition (screening) and then referral to a multidisciplinary diagnostic assessment team, who will undertake review of a child's

developmental history (such as communication, social and play skills); integration of information from multiple sources (parent, childcare teacher); clinical assessment through interaction with and observation of the children, and use of standardized developmental or cognitive tests, physical examination and assessment of other co-existing conditions **(NICE 2011**;**Wilkinson 2010)**.

Identifying ASDs in children is made difficult due to considerable symptom variability, varying levels of severity, overlapping symptomatology with other disorders and the occasional late onset of symptoms **(National Institute of Mental Health, 2011)**.

Gilliam Autism Rating Scale-2 **(GARS-2, 2006)** is revised version of **Gilliam Autism Rating Scale (1995)**. GARS-2 was recommended to be used as type two (level two) assessment instruments by **(Johnson, Myer, and the Council on Children with Disabilities (2007) guidelines)**.

The GARS and GARS-2 have been used in several studies **(e.g., Phillips, 2009**; **Al Jabery, 2008**; **Hodge, 2008**; **Tafiadis et al, 2008**; **Mazefsky and Oswald, 2006**; **Lecavalier, 2005**; **Schreck and Mulic, 2000)**. Out of these studies, in two studies GARS-2 was adapted in two different cultures or languages.

GARS-2 can be used for the following five purposes: (a) identifying persons who have autism, (b) assessing persons refereed for serious behavior problems, (c) documenting progress in the areas of disturbance as a consequence of special intervention programs, (d) targeting goals for change and intervention on a student's Individualized Education Plan (IEP), and (e) measuring autism in research projects. As a norm-referenced screening instrument, GARS-2 has been used for the assessment of individuals with autism **(Gilliam, 2006)**.

Aims of the Work

We aimed to:

1. Evaluate the frequency of Autism Spectrum Disorder (ASD) among a sample of Egyptian children by using The Arabic Version of Gilliam Autism Rating Scale (GARS)
2. Identify associated risk factors of Autism Spectrum Disorder (ASD) in children who are screened.

PATIENTS AND METHODS

This is prospective study that carried out on 500 children selected in sequence (about 5 children per clinic day, 2 days per week) from children (boys &girls) attending the out-patient pediatric clinic of Bab Al Sha'reya university hospital.

This research was continued until fulfillment of the study from March 2018 to December 2018.

Inclusion Criteria: were:

Children aged from (3 years old to 12 years old), both males and females.

Exclusion Criteria: were:

Age below 3 years and above 12 years.

Financial Disclosure /Funding:

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Ethical Consideration:

1. The aim of the study was explained to the parents of each participate before collection of data.
2. Verbal consent was taken from parents of each participate in the study.
3. Privacy of all data was assured.
4. An approval of the local ethical committee in the faculty and university was obtained before the study.
5. The patient has the right to withdraw from the study at any time.

At the start of study, an explanation of the study was provided, as well as details of participation, to ensure the potential participant had adequate information to provide informed consent.

All included children were submitted to the following:

A. Full history taking:

1. Personal history taking (name, age, sex, address, order of birth, and socio-economic status).
2. Perinatal history:
   - Anti-natal history: DM, hypertention, UTI, PROM, drugs, obesity, smoking and bleeding.
   - Natal history: mode of delivery, birth weight and number of births (single or twins).
   - Post-natal history: NICU admission and the cause of admission.
3. Developmental history.
4. Nutritional history.

5. Family history of neuro-psychatric diseases and consanguinity.
6. Past history of previous abortion and vaccination.
7. History of electromagnetic irradiations (screen) exposure.

B. Examination:

1. Full general and systemic examination stressing on neurological examination and examination for the presence of dysmorphic features.
2. Vital signs and routine clinical examination.
3. Anthropometric measures (length/Height-for age, Weight for age, Weight for length, weight for height and body mass index for age) **(WHO, 2006)** SD of length/height, Weight and Weight-for-Length/height.

C. Diagnostic and Statistical Manual of Mental Disorders – 5th edition (DSM-5):

For diagnosis of Autism Spectrum Disorder (ASD) **(Blazer et al 2014)**.

D. Gilliam Autism Rating Scale (Arabic version):

As a screening tool for diagnosis of ASD **(GARS-2; Gilliam, 2006)**.

E. Childhood Autism Rating Scale (Arabic version):

As a confirmatory test for screening of ASD **(CARS; Schopler et al, 1986)**.

Statistical Analysis:

Data were fed to the computer using IBM SPSS software package version 20.0.

RESULTS

Table (1): Percentage of autism spectrum disorder by using Gilliam autism rating scale in the studied children

autism spectrum disorder	Number	Percent
Positive	17	3.4
Negative	483	96.6
Total	500	100.0

This table shows percentage of autism spectrum disorder by using gilliam autism rating scale in the studied children. 3.4 % (17 cases) of the children were positive for ASD.

Table (2): Relation between personal history and ASD

Variables	autism spectrum disorder		Test P
	Negative	Positive	
Age (years)			
Range	3.0-12.0	3.0-11.0	T=0.562
Mean	6.49	7.12	0.454
S.D.	2.41	2.13	
Sex			
Male	250 (51.8%)	13 (76.5%)	X^2=4.022
Female	233 (48.2%)	4 (23.5%)	0.037*
Gestational age (weeks)			
Range	30.0-40.0	29.0-38.0	X^2=82.923
Mean	37.01	33.65	0.0001*
S.D.	1.41	3.12	

This table shows that ASD positive children have statistically significant lower gestational age and number of ASD positive males statistically exceeded females.

Table (3): Relation between parents age and autism spectrum disorder

	autism spectrum disorder		t-Test p value
	Negative	Positive	
Motherage(Yrs)			
Range	18.00-37.00	23.00-37.00	18.414
Mean	26.17	30.71	0.0001*
S.D.	4.29	4.25	
Father age(Yrs)			
Range	20.00-50.00	26.00-53.00	25.924
Mean	32.68	40.18	0.0001*
S.D.	5.92	7.28	

This table shows that ASD positive children have positive statistically significance with mean higher parental age.

Table (4): Relation between clinical maternal history and autism spectrum disorder

Maternal history	Autism spectrum disorder		X^2 Test P value
	Negative	Positive	
D.M			
No	471(97.5%)	14 (82.4%)	12.974
Yes	12 (2.5%)	3 (17.6%)	0.012*
HTN			
No	444(91.9%)	13 (76.5%)	4.990
Yes	39 (8.1%)	4 (23.5%)	0.049*
UTI			
No	446(92.3%)	9 (52.9%)	31.124
Yes	37 (7.7%)	8 (47.1%)	0.0001*
PROM			
No	469(97.1%)	11 (64.7%)	44.881
Yes	14 (2.9%)	6 (35.3%)	0.0001*

This table shows that children delivered to mothers with history of DM, HTN, UTI and/or PROM have higher statistically significant risk to develop ASD.

Table (5): Relation between maternal risk factors and autism spectrum disorder

Maternal history	Autism spectrum disorder		X^2 Test P value
	Negative	Positive	
Obesity			
No	440 (91.1%)	13 (76.5%)	4.125
Yes	43 (8.9%)	4 (23.5%)	0.65
Smoking			
No.	428 (88.6%)	10 (58.8%)	42.85
Negative smoking	54 (11.2%)	5 (29.4%)	0.0001*
Positive smoking	1 (0.2%)	2 (11.8%)	
Bleeding			
No	450 (93.2%)	13 (76.5%)	6.681
Yes	33 (6.8%)	4 (23.5%)	0.030*
Previous Abortion			
No	449 (93.0%)	10 (58.8%)	25.42
Yes	34 (7.0%)	7 (41.2%)	0.0001*

This table shows that children delivered to mothers with previous abortion, smoking and/or antenatal bleeding were significantly more vulnerable to have risk of ASD.

Table (6): Relation between neonatal ICU admission and autism spectrum disorder

Neonatal ICU admission	autism spectrum disorder		X^2 Test P value
	Negative	Positive	
NICU admission			
No	393 (81.4%)	2 (11.8%)	47.953
Yes	90 (18.6%)	15(88.2%)	0.0001*
Cause of admission			
N. Jaundice	46 (51.1%)	5 (33.3%)	6.12
R.D	44 (48.9%)	10(66.7%)	0.006*

This table shows that children positive for ASD have statistically significant higher percent of NICU admission and respiratory distress representing statistically higher percent as a cause of admission.

Table (7): Relation between consanguinity and autism spectrum disorder

Consanguinity	autism spectrum disorder		X^2 Test P value
	Negative	Positive	
No	442 (91.5%)	12 (70.6%)	8.606
Yes	41 (8.5%)	5 (29.4%)	0.014*

This table shows that ASD positive children have statistically higher percent of positive consanguinity.

Table (8): Relation between past history and autism spectrum disorder

Past history	autism spectrum disorder		X^2 Test P value
	Negative	Positive	
Vaccination			
Fully Vaccinated	**468 (96.9%)**	**14 (82.4%)**	**10.01**
Not fully Vaccinated	**15 (3.1%)**	**3 (17.6%)**	**0.19**
Family history of neuropsychatric disorders			**38.6**
Negative	**460 (95.2%)**	**10 (58.8%)**	**0.0001***
Positive	**23 (4.8%)**	**7 (41.2%)**	

This table shows that ASD positive children have statistically significant higher percent of positive neuro-psychatric disorders in their families.

Table (9): Relation between screen exposure and autism spectrum disorder

Screen exposure	Autism spectrum disorder		X^2 Test P value
	Negative	Positive	
Exposure time (Hrs/day)			
Short periods (<2Hrs)	227 (47.0%)	2 (11.8%)	104.604 0.0001*
Long periods (2-6Hrs)	237 (49.1%)	5 (29.4%)	
All the time (>6Hrs)	19 (3.9%)	9 (52.9%)	

This table shows that ASD positive children who had screen exposure for long periods have higher statistically significant risk for ASD.

DISCUSSION

Autism spectrum disorder (ASD) is a complex neurodevelopmental disorder increasing in prevalence in the past 30 years. It was estimated to occur in 1: 68 in USA **(CDC, 2014)**. **Seif Eldin et al. (2008)** estimated the prevalence of ASD among the developmentally disabled children in Egypt to be 33.6%. A lot of risk factors interact together during the critical period of development and govern the future phenotype of such disorder **(Matelski and Van de Water, 2016)**. Advanced maternal age and neonatal complications such as jaundice were suggested to be associated with ASD **(Gao et al., 2015)**.

In our study, the frequency of positive cases was 17 (3.4%). The high frequency in our study could be attributed to the work being carried out in University hospital (Tertiary/referral center) containing more than one pediatric neurology unit in the pediatric department. The general incidence in 2018 as reported by the CDC determined that approximately 1 in 59 children diagnosed with an autism spectrum disorder (ASD) **(Autism speaks 2019)**.

We found that the age of positive cases shows insignificant effect on the frequency of autism, while the sex shows a significant increase in males than females, the ratio was 4:1, our study is in agreement with that of **(Christernsen et al., 2019)** who concluded that prevalence of autism was higher among boys than girls and male: female ratio was 3:1.

We also found that the positive cases of autism spectrum disorder show a significant low gestational

age less than the negative cases, In a large population-based study carried out by Kuzniewicz et al., (2014), they found that the risk of ASD increased with decreasing gestational age. Risk of ASD was nearly 3 times higher in infants born at <27 weeks compared with term infants after controlling for other important risk factors. Small for gestational age (SGA) was a risk factor for ASD, independent of gestational age.

The parental age in our study shows a significant increase in autism spectrum disorder children more than the negative cases. Our study is in agreement with that of **Parner et al., (2012)** who studied the Parental Age and Autism Spectrum Disorders, they found that increased maternal age as well as paternal age were associated with a greater risk of ASD diagnosis in the offspring.

The association between maternal and paternal age and autism has previously most often been explained by an increased occurrence of spontaneous genomic alterations. However, if spontaneous genomic alterations in parents was the sole causal mechanism we might expect to find a higher ASD risk when both parents ages were advanced than when just one parent's age was advanced **(Parner et al., 2012)**.

Moreover, we found that children delivered to mothers with history of diabetes mellitus, hypertention, urinary tract infection and/or premature rupture of membranes have higher statistically significant risk to develop ASD.

A meta-analysis performed by Wan et al. in 2017 identified that about 40 prenatal, natal and postnatal factors which might increase the risk for ASD. However, these factors were examined individually. Therefore, it was still unclear that whether these factors are causal or play a secondary role in the development of autism. Moreover, although pre-eclampsia and gestational hypertension were identified as risk factors for autism in their study, these results were based on 3 or 5 studies, which had potential impact on the overall effect estimates. While in the present study, 9 and 11 studies were selected respectively to explore the association between gestational hypertension/pre-eclampsia and ASD, to draw a more reliable conclusion.

We found that children delivered to mothers with history of previous abortion, smoking and/or antenatal bleeding were significantly more vulnerable to have risk of ASD. Our findings

were in agreement with those of **Karimi et al., (2017)**, who investigated the environmental factors influencing the risk of autism.

In this study, we found a statistically significant relation between neonatal ICU admission and autism spectrum disorder occurrence. This outcome is related to the low gestational age of the infants, so the majority of them would be admitted to NICU. This could be secondary to a common etiology of neurologic injury or separate mechanisms that are each influenced by the infant's physiological instability and severity of illness. Larger studies of preterm infants, which take into account severity of illness, will be necessary to sort out the independent influences of gestational age and factors associated with the NICU environment.

In our study, there was no statistically significant relation between autism spectrum disorder and vaccination. Our results were in agreement with, **Taylor et al., (2014)**, who concluded that vaccines are not associated with autism.

We also found that there was statistically significant relation between autism spectrum disorder occurrence and consanguinity. Our results were in agreement with, **Mamidala et al., (2013)**, who demonstrated consanguinity as a significant risk factor for ASD.

Moreover, we found that there was statistical significant relation between autism spectrum disorder occurrence and positive Family history. In agreement with our results, **Xie et al. (2019)**, **Anttila et al. (2018)** and **Grove et al. (2017)**, who concluded that family history of mental and neurological disorders is associated with ASD.

We found in our study that there was statistically significant relation between autism spectrum disorder and prolonged screen exposure. Our results were in agreement with, **Healy et al. (2016)**, **Must et al. (2014)**, **Mazurek and Wenstrup (2013)**, who compared screen-time between siblings with and without ASD revealing that children with ASD spent more time in screen-based activities per day than TD (Typically Developing) children.

On the other hand, **Nally et al. (2000)**, found that television and video games served as a means to calm the child with ASD, as reported by parents. A small focus group study conducted with parents of children with ASD revealed that television and video games are often used as a way of managing child behavior, but that

parental disagreements around child viewing patterns were often a source of stress within the family.

Finally, we can conclude that the results of the Arabic version of Gilliam Autism Rating Scale – second edition (GARS-2), DSM-5 and Childhood autism rating scale (CARS), all of them showed statistically matching results. So we can depend on them without significant difference and these scales gave the same diagnosis.

CONCLUSION

- ASD is a common neurodevelopmental disorder; both sexes were affected with males more than females.
- Prematurity, consanguinity, family history, advanced maternal and paternal age and prolonged screen exposure are important risk factors of ASD.
- Maternal gestational history of D.M, HTN, UTI, and obesity are also important risk factors of ASD.

RECOMMENDATIONS

Based on the practical work and results obtained from the present study, we put forward the following recommendations:

- Strengthening of the health systems to include information about the risk factors for ASD in their outreach programs could reduce the prevalence of ASD.
- Adequate and proper prenatal care aimed at avoiding problems during pregnancy and perinatal measures could reduce complications that may result in ASD.

REFERENCES

1. **Al Jabery, MA. (2008):** The examination of validity and reliability indicators of the Jordanian translated Arabic version of the Gilliam Autism Rating Scale (GARS-2). Unpublished doctoral dissertation (2008), Wayne State University, Michigan.
2. **Anttila V, Bulik-Sullivan B, and Finucane HK. (2018):** Analysis of shared heritability in common disorders of the brain. 2018; 360 (6395): 8757. doi:10.1126/science.aap8757.
3. **Autism speaks. Autism Facts and Figures. (2019):** https://www.autismspeaks.org/autism-facts-and-figures.
4. **Centers for Disease Control. Prevalence of Autism Spectrum Disorder Among Children Aged 8 Years (2010):** Autism and Developmental Disabilities Monitoring Network, 11 Sites, United States, 2010. MMWR

Surveillance Summaries. 2014; 63(2) 1-21.

5. **Christensen DL, Maenner MJ and Bilder D. (2010):** Prevalence and Characteristics of Autism Spectrum Disorder Among Children Aged 4 Years — Early Autism and Developmental Disabilities Monitoring Network, Seven Sites, United States, 2010, 2012, and 2014. MMWR Surveill Summ 2019;68(No. SS-2):1–19.
6. **Fernandez, B. A. and Scherer, S. W. (2017):** Syndromic autism spectrum disorders: moving from a clinically defined to a molecularly defined approach. Dialogues Clin. Neurosci. 2017; 19, 353–371.
7. **Gao, L., Xi, Q., Wu, J., Han, Y., Dai, W., Su, Y. and Zhang, X. (2015):** Association between Prenatal Environmental Factors and Child Autism: A Case Control Study in Tianjin, China. Biomed Environ Sci. 2015; 28(9) 642-50. doi: 10.3967/bes2015.090.
8. **Gilliam, J.E. Gilliam Autism Rating Scale: Second Edition. Austin, TX. (2006):** PRO-ED (2006).
9. **Grove J, Ripke S and Als TD. (2017):** Common risk variants identified in autism spectrum disorder 2017. bioRxiv. doi:10.1101/224774.
10. **Healy, S., Haegele, J. A., Grenier, M. and Garcia, J. M. (2016):** Physical Activity, Screen-Time Behavior, and Obesity Among 13-Year Olds in Ireland with and without Autism Spectrum Disorder. Journal of Autism and Developmental Disorders. 2016; 47(1), 49–57. doi:10.1007/s10803-016-2920-4.
11. **Hodge, D. (2008):** Children's sleep problems and maternal mental health in mothers of children with and without Autism [Unpublished doctoral dissertation]. Claremont Graduate University, California (2008).
12. **Johnson, C.P., Myers, S.M. and Council on Children with Disabilities (2009):** Identification and evaluation of children with autism spectrum disorders. Pediatrics, 2007; 120 (5), 1183–1215. Retrieved 2009, from www.aap.org/pressroom/AutismID.pdf.
13. **Kanner L. (2017):** Autistic disturbances of affective contact. Nervous Child. 2017; 2: 217–50.
14. **Karimi P, Kamali E, Mousavi SM and Karahmadi M. (2017):** Environmental factors influencing the risk of autism. J Res Med Sci 2017; 22; 27.
15. **Kuzniewicz MW, Wi S, Qian YG, Walsh EM, Armstrong MA and Croen LA. (2014):** Prevalence and neonatal factors asociated with autism spectrum disorders in preterm infants. J Pediatr. 2014; 164:20–5. http://dx.doi.org/10.1016/j.jpeds.2013.09.021.
16. **Lecavalier, L. (2005):** An evaluation of the Gilliam Autism Rating Scale Journal of Autism and Developmental Disorders, 2005; 35 (6), 795- 805.

17. **Mamidala, MP., Polinedi, A., PraveenKumar, Rajesh, N. and Vallamkonda, OR. (2013):** Prenatal, perinatal and neonatal risk factors of Autism Spectrum Disorder: A comprehensive epidemiological assessment from India. Research in Developmental Disabilities, 2013; 34, 3004–3013.

18. **Matelski, L., Van de Water, J. (2016):** Risk factors in autism: Thinking outside the brain. J Autoimmun. 2016; 67: 1-7.

19. **Mazefsky, C. and Oswald, D. (2006):** The discriminative ability and diagnostic utility of the ADOS-G, ADI-R, and GARS for children in a clinical setting. Autism, 2006; 10 (6), 533-549.

20. **Mazurek, M. O. and Wenstrup, C. (2013):** Television, video game and social media use among children with ASD and typically developing siblings. Journal of Autism and Developmental Disorders, 2013; 43, 1258–1271.

21. **Must, A., Phillips, S., Curtin, C., Anderson, S., Maslin, M., Lividini, K. and Bandini, L. (2014):** Comparison of sedentary behaviors between children with autism spectrum disorders and typically developing children. Autism, 2014; 18 (4), 376–384. doi: 10.1177/1362361313479039.

22. **Nally, B., Houlton, B. and Ralph, S. (2000):** Researches in brief: The management of television and video by parents of children with autism. Autism, 2000; 4(3), 331–338.

23. **National Institute of Mental Health. (2011):** A parent's guide to autism spectrum disorders (2011).

24. **NICE. (2011):** Autism in under 19s: Recognition, referral and diagnosis. National Institute for Health and Care Excellenc (2011). e. nice.org.uk/guidance/cg128.

25. **Parner E., Baron-Cohen S., Lauritsen Marlene B., Jørgensen Meta, Schieve Laura A., Yeargin-Allsopp M. and Obel Carsten. (2012):** Parental Age and Autism Spectrum Disorders. 2012; 22: 143–150.

26. **Phillips, N. (2009):** A survey of the work and interactions of school psychologists, school neuropsychologists and clinical psychologists in schools today (2009). Unpublished doctoral dissertation, Claremont Graduate University, California.

27. **Preece, D. (2014):** Providing training in positive behavioral support and physical interventions for parents of children with autism and related behavioral difficulties. Support for Learning, 2014; 29 (2), 136-153.

28. **Schreck, KA., and Mulick, JA. (2000):** Parental report of sleep problems in children with Autism. Journal of Autism and Developmental Disorders, 2000; 30 (2), 127-135.

29. **Seif Eldin A, Habib D, Noufal A, Farrag S, Bazaid K, Al-**

Sharbati M, Badr H, Moussa S, Essali A and Gaddour N (2008): Use of M- CHAT for a multinational screening of young children with autism in the Arab countries. International Review of Psychiatry, 2008; 20 (3), 281-289.

30. **Tafiadis, D., Loli, G., Tsanousa, E and Tafiadi, M. (2008):** The Gilliam Autism Rating Scale (GARS - 2), a pilot study for the Greek autistic population (2008). Poster presented at International Society on Brain and Behaviour: 3rd International Congress on Brain and Behaviour, Thessaloniki, Greece. 28 November – 2 December 2007.
31. **Taylor, LE., Swerdfeger, AL. and Eslick, GD. (2014):** Vaccines are not associated with autism: An evidence-based meta-analysis of case-control and cohort studies. Vaccine, 2014; 32(29), 3623–3629. doi:10.1016/j.vaccine.2014.04.085.
32. **Wan H. Zhang C, Li H., Luan S. and Liu C. (2018):** Association of maternal diabetes with autism spectrum disorders in offspring. A systemic review and meta-analysis. Medicine, 2018; 97; 2.
33. **Wilkinson, L. (2010):** A best practice guide to assessment and intervention for autism and asperger syndrome in schools (2010). London: Jessica Kingsley Publishers.8.
34. **Xie S, Karlsson H, Dalman C, Widman L, Rai D, Gardner RM, Magnusson C, Schendel DE, Newschaffer CJ and Lee BK. (2019):** Family History of Mental and Neurological Disorders and Risk of Autism. JAMA Network Open. 2019; 1; 2 (3): e190154.

فحص اضطراب طيف التوحد باستخدام مقياس جيليام لتشخيص التوحد فى عينة من الأطفال المصريين المترددين على مستشفى باب الشعرية الجامعى

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المركز القومى للبحوث**

الهـــدف: الهـدف مـن هـذه الدراسـة هـو تحديـد مـدى انتشـار اضـطراب طيـف التوحـد فـى عينـة مـن الأطفـال المصـريين المتـرددين علـى مستشـفى بـاب الشـعرية الجـامعى وتحديـد عوامـل الخطر المرتبطة بهذا المرض.

المنهجيـــة: تضـمنت هـذه الدراسـة التـى تـم إجرؤهـا علـى 500 طفـل تتـراوح أعمـارهم بـين 3سـنوات إلـى 12سـنة تـم اختيـارهم عشـوائيا مـن بـين الأطفـال المتـرددين علـى العيـادات الخارجيـة فـي قسم طب الأطفال مستشفى باب الشعرية الجامعي.

- تـم شـرح الهـدف مـن إجـراء الدراسـة وتـم الحصـول علـى موافقـة شـفهية لكـل حالـة قيـد الدراسـة وتمـت الموافقـة علـى إجـراء الدراسة بواسطة لجنة الأخلاقيات بكلية الطب، جامعة الازهر.

النتائج: وقد أسفرت نتائج الدراسة عن الآتى:

- بالنسبة للتوزيع العمرى وجدنا ان الأطفال المصابين يتراوح أعمارهم من سن 3 سنوات حتى12سنة بمتوسط قدره (2.13 ± 7.12 سنة).

- بالنسبة للتوزيع الجنسى وجدنا أن نسبة الأطفال المصابين الذكور 76.5% والإناث 23.5%, وأن عمر الأطفال المصابين الرحمى تراوح بين 29 إلى 38 أسبوع بمتوسط 1.61±33.65 أسبوع.

- أما بالنسبة لعمر الأب فكان يتراوح من 26 إلى 53 سنة بمتوسط 7.28±40.18 سنة, وعمر الأم كان يتراوح من 23 إلى 37 سنة بمتوسط 4.25 ±30.71 سنة. وكانت نسبة زواج الأقارب 29.4% بين والدى الأطفال المصابين.

- أما بالنسبة إلى تاريخ الأم المرضى أثناء الحمل فكانت نسبة مرض السكرى 17.6% من الأمهات, مرض الضغط بنسبة 23.5%, العدوى بنسبة 47.1%, انفجار كيس الجنين المبكر بنسبة 35.3% , الإجهاض بنسبة 41.2%, التدخين الإيجابى بنسبة 11.8%, التخين السلبى بنسبة 29.4%, السمنة بنسبة 23.5%.

- أما بالنسبة للأطفال المصابين الذين سبق حجزهم بالعناية المركزة للأطفال حديثى الولادة وجدنا أن نسبتهم 88.2%, وأن 66.7% منهم كانوا يعانون من صعوبة بالتنفس, 33.3 كانوا يعانون من ارتفاع نسبة الصفراء بالدم.

- أما بالنسبة للجلوس أمام التلفاز فقد وجدنا أن 11.8% من المصابين يجلسون لفترات قصيرة, 29.4% يجلسون لفترات طويلة, 52.9% يجلسون طوال الوقت.

- هذا, وقد تم تقسيم الحالات الإيجابية لمقياس جيليام إلى بسيطة بنسبة 29.4%, تحت المتوسطة بنسبة 23.5%, متوسطة بنسبة 35.3%, فوق المتوسطة بنسبة 5.9% وشديدة بنسبة 5.9%. أما مقياس التوحد (كارز) فقد تم تقسيمه إلى بسيط بنسبة 29.4%, متوسط بنسبة 35.3% وشديد بنسبة 23.5%فيما يتعلق بالتطعيمات فقد وجدنا انه 82.4% من الأطفال قد أتموا تطعيماتهم كاملة, 17.6% لم يتموا جميع التطعيمات الإجبارية كاملة.

الإستنتاجات:

1- إن اضطراب طيف التوحد هو مرض عصبى تطورى شائع.

2- إن كلا الجنسين معرضين للإصابة بمرض التوحد ولكن الذكور أكثر عرضة للإصابة بالتوحد عن الإناث.

3- تعد الولادة المبكرة وتقدم عمر الأم والأب وقرابة النسب بين الأبوين والتاريخ العائلي ومشاهدة التلفاز والهاتف لفترات طويلة من عوامل الخطر المهمة للتوحد.

4- من عوامل الخطر أيضاً التاريخ المرضى للأم أثناء الحمل مثل السكر والضغط والتعرض للعدوى والسمنة والتوتر العصبى الشديد والمستمر.

التوصيات:

بناءً على ما سبق نوصى بما يلى:

1- تقوية النظم الصحية لتشمل معلومات حول عوامل الخطر لمرض التوحد في برامج التوعية الخاصة بهم يمكن أن تقلل من انتشار هذا المرض.

2- الرعاية الكافية والسابقة قبل الولادة والتي تهدف إلى تجنب المشاكل أثناء الحمل والتدابير المحيطة بالولادة يمكن أن تقلل من المضاعفات التي قد تؤدي إلى التوحد.