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Analysis survey for Some risk factors Related with Autism patients in Iraq

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ABSTRACT

ASD is a collection of neurodevelopmental conditions defined by limited and recurrent variations in conduct, hobbies, and interests, as well as a chronic difficulty in socially interaction with others. According to the most recent research in science, autism is thought to start in early childhood and cause changes in the structure, connection, and operation of the brain. Disparities in interaction with others, instruction, interaction, sense of smell, and intellectual capacity are caused by these brain variations. Research conducted in the past several years has shown that early developmental environments and genes both play a role. Current research focuses on the biochemical pathways through which known gene variants may cause autism by modifying the brain's fundamental neuronal circuitry. These variations in genes are linked to several general neuronal activities, such as controlling gene expression timing and patterns and the operation of synapses, the junctions and channels for neural communication.

The current study is a statistical study for the autism in Iraq, (204) cases have been taken. The questioner list that had been taken for the cases was taken for Gender, Certified diet schedule,

approved medication schedule, and other mental disease in the case family. This research includes studying the relationship among four parameters and autism patients. First parameter was the relationship of the gender with the autism case. The second parameter was the relationship of the certified diet schedule with the autism case. Third risk parameter that has been taken was approved medication schedule. The fourth risk parameter that has been calculated statistically was their other mental disease in the case family. In first parameter, it revealed that there is a significant value (*P value* =0.000) between the two genders (male and female) and the disease. In the second parameter, it revealed that there is no significant value between the certified diet schedule and the disease. The third parameter gives a significant *P-value* (0.00) between this parameter and the disease. The last parameter gives a significant *P-value* (0.00) between this parameter and the disease. The questioner list that had been taken for the cases was taken for Gender, Certified diet schedule, approved medication schedule, and other mental disease in the case family. First parameter was the relationship of the gender with the autism case. It revealed that there is a significant value (*P value* =0.000) between the two genders (male and female) and the disease. The second parameter was the relationship of the certified diet schedule with the autism case. It revealed that there is no significant value between the certified diet schedule and the disease. The third risk parameter that has been taken was an approved medication schedule, and it gives a significant *P-value* (0.00) between this parameter and the disease. The fourth risk parameter has been calculated statistically was there other mental disease in the case family, and it gives a significant *P-value* (0.00) between this parameter and the disease.

Keywords: Autism spectrum disorders, childhood autism rating scale, diagnostic statistical association, candidate risk parameters potentials.

Introduction

The term "Autism Spectrum Disorder" (ASD) describes a set of persistent neurodevelopmental abnormalities that affect social abilities and socializing, expression and auditory communication, and recurrent or stereotypical habits and interests. These disorders can affect an individual's daily life moderately to substantially. (Farqad Bader *et.al*., 2022).

ASD is a group of neurodevelopmental disorders characterized by persistent impairment in social communication and interaction and restricted and repetitive patterns of behavior, interests, or activities (Amirhossein Modabbernia, *et.al*., 2017).

There is evidence that one in every 132 to one in every 68 individuals suffers from ASD (Baxter AJ, *et al*, 2015; Wingate M, *et al*., 2014)).

The most noteworthy clinical and personality features of autism include extensive difficulty with social and psychic communication, speech impairment or speechlessness, and a strong tendency toward structured and repeated patterns of behavior. (Padideh Karimi, *et al*., 2017).

Given the illness's steady rise over the past 20 years, the dearth of effective treatments, as well as the challenges faced by people with it and society at large, it is evident how important it is to look into the roots of autism and take steps to prevent it. An increasing amount of research is pointing to the involvement of genetic variables in the genesis of autism, such as genetics and twins. (Padideh Karimi, *et al*., 2017).

According to the important role of epigenetics in autism etiology, a lot of genes have been studied, and in some cases, opposite results obtained (Musavi SM, *et. al*., 2016).

Studying identical twins and lack of complete concordance among them and excessive genetic studies with no conclusive results unveils the importance of environmental risk factors and their role in etiology of autism (Hallmayer J, *et. al*., 2011; Ronald A, Hoekstra RA., 2011).

Hence, the interactions between susceptible genes and environmental factors have been proposed as the major mechanism of autism etiology (Padideh Karimi, *et al*., 2017).

Currently, epigenetic and its complex mechanisms are presented as the most momentous mediator in the environment and genome interactions. Environmental factors can affect the quality and quantity of gene expression without changing the DNA sequence through epigenetic mechanisms, including DNA methylation, changes in histone proteins, and expression of noncoding RNAs. This way, they can be transferred to the next cellular generation or even the next organism generation (Bollati V, Baccarelli A., (2010).

The parents must be fully informed about their child’s care, pediatric autism symptoms, signs and complications, the diagnostic procedures options, follow-up tests, and treatment plans, and this the main aim of family-centered care by participation of parents in management decisions making, taking their preferences in account, with continuous communication about treatment steps using understandable language (Ola H. Al-Zubaidi, Abdul R. Al-Salman, 2022).

Therefore, exposure to detrimental surroundings raises the likelihood of disorders like autism that are caused by genetic imprinting and alters the functioning of developmental important genes during crucial stages of embryo formation. ((Padideh Karimi, *et al*., 2017).

Materials and Methods

Samples collection

In this study, it has been taken (204) patients from different Iraqi governorates, and some cases from other countries. The female number were (45), while male were (157). They were distributed as the following:

Thi Qar (131), Basrah (3), Holly Najaf city (46), Holly Karballa city (2), Wasit (2), Dialah (1), Karkok (1), Baghdad (12), Al-Mothannah (2), Algeria (1), and Turkey (1).

Case questioner sample

The questioner list that had been taken for the cases was taken for

Gender, Certified diet schedule, approved medication schedule, other mental disease in the case family.

Statistical Analysis:

Results were statically analzsed using the statistical package for social sciences (SPSS). Significance is less than 0.05.

Results and Discussion

Gender and disease relationship

The results of the current study for the four parameters were analyzed statistically and calculates *P value* for each one.

First parameter was the relationship of the gender with the autism case. It revealed that there is a significant value (*P value* =0.000) between the two genders (male and female) and the disease, as shown in figure (1) and table (1).

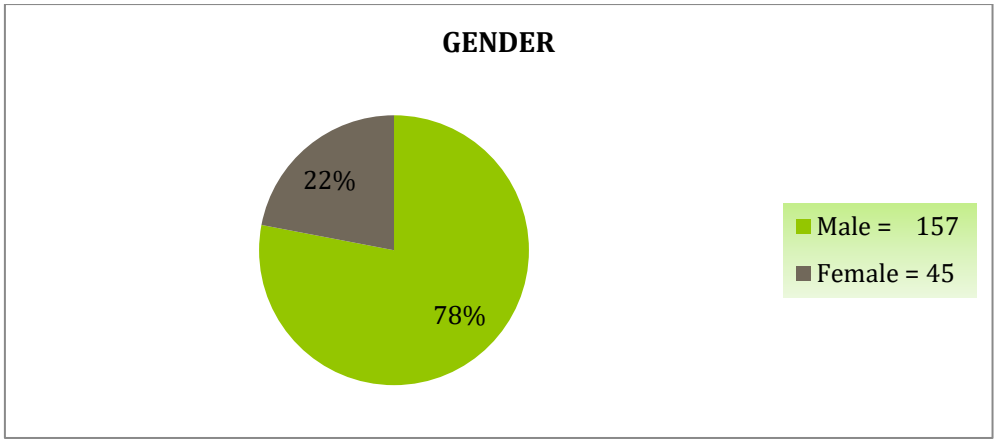

Figure (1) Gender relationship of the gender with the autism case

Table (1) Gender relationship of the gender with the autism case

Gender	Number of cases	*P- value*
Male	157	0.000
Female	45	
Total number	204	

With Sven Bolte, et al., the finding has been embraced (2019). It has been suggested that high levels of embryonic involvement with sex steroids may modify hormones and increase the likelihood of ASD (Baron-Cohen S, et al., 2015). This is related to the hypothesis of the male brain on autism, which holds that autism is a severe instance of the male morphology on cognition and other degree. (Sven Bolte, *et. al*. (2019).

The discovery that prenatal testosterone promotes variations in typical growth in eye contact actions, vocabulary size, limited interests, cognitive, feelings for others, organize, focus to detail, and autistic features provides data in favor of this theory. (Auyeung B, *et.al*., 2013).

According to research on neuroimaging, variations in the anatomical and operational development of the brain are influenced by fetal testosterone. These tendencies align with those observed in other sex-biased cognitive diseases, such as autism, gender identity disorder, and others. (Lombardo MV, *et.al*., 2012).

Evidence linking SNP in genes that responsible for sex steroid production to autism was discovered through a genomic investigation on the condition. (Sven Bolte, *et. al.* (2019).

Certified diet schedule and disease relationship

The second parameter was the relationship of the certified diet schedule with the autism case. It revealed that there is no significant value between the certified diet schedule and the disease, as shown in figure (2) and table (2).

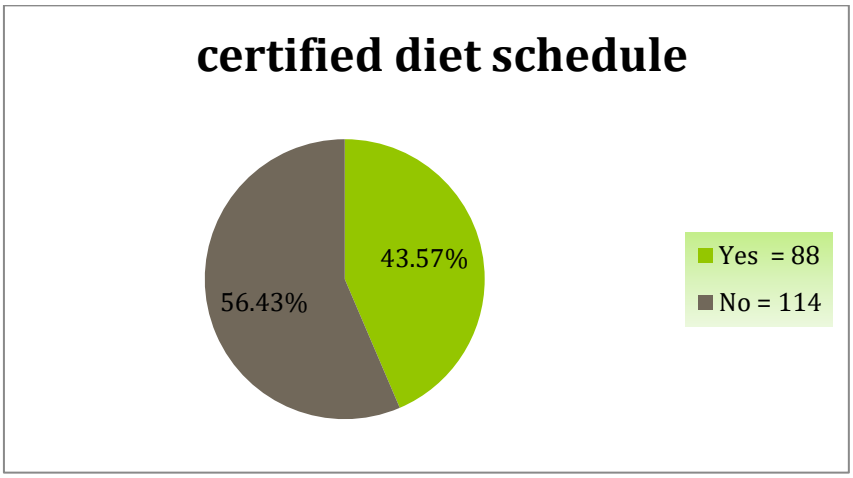

Figure (2) Certified diet schedule relationship of the gender with the autism case

Table (2) Certified diet schedule relationship of the gender with the autism case

certified diet schedule	**Number of cases**	***P- value***
certified diet schedule	88	0.064
no certified diet schedule	114	
Total number	204	

The result of current study about the correlation between the certified diet schedule with the autism case shows no significant value, and this result doesn't agree with many researches like Sven Bolte, *et. al.*, (2019), James B. Adams *et. al.*, (2018), and Jennifer Harrison Elder *et. al.*, (2015). This may be due to number of cases ((Sven Bolte, *et. al*., 2019; James B. Adams, *et. al*., 2018; Jennifer Harrison Elder, *et. al*., 2015).

Approved medication diet schedule and disease relationship

The third risk parameter that has been taken was approved medication schedule, and it gives a significant *P-value* (0.00) between this parameter and the disease, as shown in figure (3) and table (3).

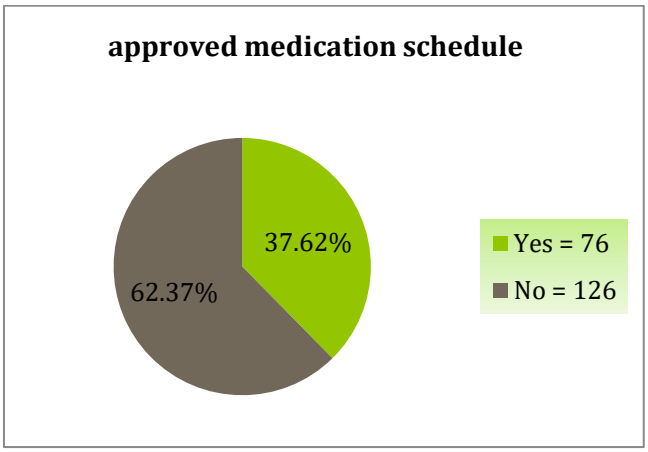

Figure (3) Approved medication schedule relationship of the gender with the autism case

Table (3) Approved medication schedule relationship of the gender with the autism case

Approved medication schedule	**Number of cases**	***P- value***
take medication schedule	76	0.000
no take medication schedule	126	
Total number	204	

This result is agreed with Sheena LeClerc and Deidra Easley, (2015), Vivanti, G. *et al.*, (2016), Reichow, B., *et al.*, (2018), which revealed that these medications are not relief from autism, but they may reduce symptoms, improve cognitive ability and daily living skills, and maximize the ability of the child to function and participate in the community. Neurodevelopmental difficulties fall under the umbrella of autism spectrum disorder (ASD). Within the general title of ASD, the Diagnostic and Statistical Manuel of Mental Disorders, Fifth Edition (DSM-5) classifies Asperger's disorder, autism, and "pervasive personality disorder not otherwise specified." ASD symptoms typically start to show up in children around their second year and three. The illness impedes the social, verbal, and cognitive ability development of all affected children. In order to aid sufferers, carry out everyday situations,

pharmaceutical medicines are introduced after behavioral therapy, which is typically the first-line treatment. (Sheena LeClerc and Deidra Easley,2015; Vivanti, G. *et al.*,2016; Reichow, B., *et al.*,2018),

Other mental disease in the case family and disease relationship

The fourth risk parameter has been calculated statistically was is there other mental disease in the case family, and it gives a significant *P-value* (0.00) between this parameter and the disease, as shown in figure (4) and table (4).

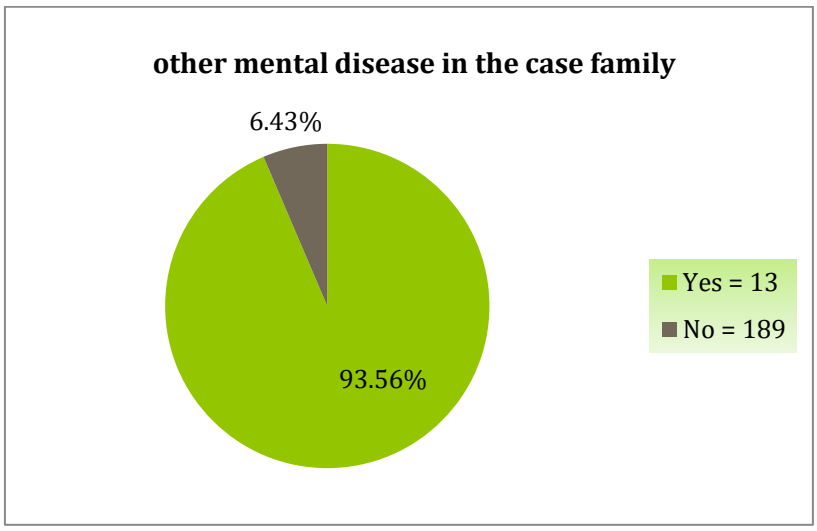

Figure (4) Other mental disease in the case family relationship of the gender with the autism case

Table (4) Other mental disease in the case family relationship of the gender with the autism case

Other mental disease in the case family	Number of cases	*P- value*
has family history	13	0.000
hasn't family history	189	
Total number	204	

This result accepted with many research, one of them is Tick B, *et. al.*, (2016); Jokiranta-Olkoniemi E *et. al.*, (2016); Sherlly Xie, *et. al.*, (2019).

The greatest recognized warning sign for ASD is, by far, having a family history of ASD repetition. For instance, twin data show that ASD has 60% to 90% genetics and that monozygotic twins have excellent congruence values. Family histories of additional

cognitive or neurological illnesses, however, might also be linked to an increased risk of ASD. It was additionally determined that having relatives with attention deficit hyperactivity disorder (ADHD), ID, or ASD raises the likelihood of ASD in the index person—the person who enlisted the family in the study—by 11.8, 3.7, and 3.1 times, respectively. Sons with a doubling risk of ASD have experiences of affective disorders, childhood-onset disorders, nonaffective psychotic disorders (NAPD), and schizophrenia in both parents. (Tick B, *et. al*., 2016; Jokiranta-Olkoniemi E *et. al*., 2016; Sherlly Xie, *et. al*., 2019).

Conclusions

1. The questioner list that had been taken for the cases was taken for Gender, Certified diet schedule, approved medication schedule, and other mental disease in the case family.

2. First parameter was the relationship of the gender with the autism case. It revealed that there is a significant value (*P value* =0.000) between the two genders (male and female) and the disease.

3. Second parameter was the relationship of the certified diet schedule with the autism case. It revealed that there is no significant value between the certified diet schedule and the disease.

4. Third risk parameter that has been taken was approved medication schedule, and it gives a significant *P-value* (0.00) between this parameter and the disease.

5. The fourth risk parameter has been calculated statistically was is there other mental disease in the case family, and it gives a significant *P-value* (0.00) between this parameter and the disease.

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