

# The Effect of Age and Birth Order on Speech and Learning on Autistic Children in Thi-Qar Governorate

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## Abstract :

Autism spectrum disorders (ASD ) are broad spectrum of conditions characterized by impairment in reciprocal social communication and interaction and restricted , repetitive patterns of behavior ,language and interest .

**Aim:** To assess the effect of age on speech and learning among autistic children, and to find out the relationship between mean birth order and its effect on speech and learning .

**Patients and methods :** A prospective case study was conducted at Thi-Qar governorate , south of Iraq through the period from January 2018 to May 2019 .The study involved 70 autistic child (50 boys and 20 girls) from Thi-Qar autistic children center at Al-Nassiryah city . Specialized designed questionnaire used including gender , age at time of present study , order in the family ,speech ( any non-fluent speech considered speech defect ) and learn defect and finally the residence of patients either from Al-Nassiriyah center or from the periphery .The data was collected by direct interview in the presence of one or both parents . Statistical tests used including : the mean ,slander deviation ( S. D ) , a NOVA test and P value ( < 0.05 significant ) .

**Result :** Among 70 autistic child , 50 ( 71.4% ) were boys and 20 ( 28.6%) were girls. The mean age for boys were( 5.3 years) and (6 years ) for girls .The mean birth order for boys was ( 2.6 ) and ( 2.9 ) for girls . Among autistic children 56 ( 80% ) with speech defect with mean age ( 5.1 years ) , while 14 ( 20% ) without speech defect with mean age ( 7 years ) .The mean birth order for autistic children with speech defect was ( 2.9 ) ,while the mean only ( 2 ) for those without speech defect . Among autistic children 47 ( 67% ) were with learn defect with mean age ( 5.5 years ) , while 23 ( 33% ) were without learn defect with mean age ( 5.4 years ) .The mean birth order for autistic children with learn defect was ( 2.8 ),while only ( 2.4 ) for those without learn defect . Most autistic children from Al-Nassiriyah 35( 50% ) , 19 ( 27.1 ) from Shatra , 6 ( 8.6% ) from Suq Al-Sheyokh , from Al-Rifae 5 ( 7.1% ) , 2 ( 2.9% ) from Cheybaish and three cases( 4.3% 0 from other areas .

**Conclusion:** Autism more in boys than girls similar to those reported by other studies . Boys diagnosed earlier than girls and most of autistic children suffering from speech and learn defect .Mean age was significant for those with speech defect , while not for those with learn defect . Mean birth order was significant in autistic children with speech defect while not for those with learn defect . fifty percent of our cases were from central of Thi-Qar governorate .

**Key words :** Autism , speech and learn defect

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## Introduction

Autism spectrum disorder ( ASD ) is defined as a complex and heterogeneous group of neurodevelopmental disorders , the term autism is subgroup of ASD which includes five disorder ,that fall under this title :autistic disorder ,Asperger disorder , pervasive developmental disorder not otherwise specified ( PDD-NOS ).Rett disorder and childhood disintegrative disorder ( CDD ) .<sup>(1,2)</sup>

Even though the exact etiology of autism is as yet not precisely elucidated, existing scientific literature suggests a multifactorial etiopathogenesis encompassing genetic, environmental, and immunological factors, neurotropic dysregulation, and an increased susceptibility to oxidative stress .<sup>(3,4,5,6)</sup>

Oxidative stress resulting from excess generation of reactive oxygen species (ROS) has been implicated in the pathogenesis of autism<sup>(6,7)</sup>. Broadly, ASD is considered to be a multi-factorial disorder resulting from genetic and non-genetic risk factors and their interaction between genes, environment, and diet<sup>(8)</sup>. The symptoms occur in the first three years of life that affect three main symptoms with social interaction, impairment in verbal and non-verbal communication and repetitive behavior or restricted patterns of interests<sup>(2,3,9,10)</sup>.

The diagnosis of ASD is primarily based on behavioral criteria, rather than physical examination findings or laboratory tests .<sup>(11,12)</sup> .and the prevalence of children with ASD continues to increase all over the world .<sup>(13)</sup>

Therapy of autism depend on ,psychosocial intervention include structural behavioral, ,educational and communication interventions are effective for many children beside pharmacotherapy that help in reduced associated symptoms like anxiety , depression ,hyperactivity or repetitive behaviors .<sup>(2,14,15)</sup>

## Patients and Methods :

A prospective case study was conducted at Thi-Qar governorate ,south of Iraq through the period from January 2018 to May 2019 .

The study involved 70 autistic child ( 50 boys and 20 girls ) from Thi-Qar autistic child center diagnosed as patients with autistic spectrum disorder by a team specialized doctors and according to DMS-5 Diagnostic Criteria for Autism Spectrum Disorder .

Specialized designed questionnaire used including gender , age at time of diagnosis and at time of present study , order in the family ,speech ( any non-fluent speech considered speech defect ) and learn defect at time of present study and finally the residence of patients either Al-Nsssiyah center of from periphery .The data was collected by direct interview in the presence of one or both parents .

Statistical tests used including : the mean ,slandered deviation ( S. D ) , NOVA test and P value ( < 0.05 significant ).

## Result :

**Table ( 1 ) Gender distribution of autistic children .**

Sex	No.	Mean	S.D.	ANOVA	P. Value
Age at time of study	M	50 (71.4%)	5.3100	1.277	0.262
	F	20 (28.6%)	6.0000		
Birth Order in family	M	50	2.6600	0.080	0.778
	F	20	2.9000		

Significant p value < 0.05

Table one showed that boys affected more than girls ( 71.4 % , 28.6 % respectively ) , and the mean age for boys less than girls, so the boys diagnosed earlier than girls ,but it is not significant p value (0.262) . Also the mean birth order in the family showed no significant differences between the boys and girls p value ( 0.778 ) .

**Table ( 2 ) autistic children according speech defect**

Speech defect		No.	Mean	S.D	ANOVA	P .Value
Age at time of study	Yes	56 (80%)	5.1161	2.78795	10.671	.002
	No	14 (20%)	7.0714	5.55344		
Birth Order in family	Yes	56	2.9107	2.18488	5.173	.026
	No	14	2.0000	1.10940		

Significant p value < 0.05

Table two showed that was a significant difference ( p value < 0.002 ) between autistic children with and without speech defect ,and clearly that patients with speech defect have been with younger mean age at time of study Most of autistic children were with speech defect ( 80% ) versus ( 20% ) to those without speech defect . Also that, the patients with speech defect had higher mean age group than patients without speech defect, regarding birth order in the family ( p value <0.026 ) .

**Table ( 3 ) distribution of autistic children according to learn defect .**

Learning defect		No.	Mean	S.D.	ANOVA	P value
Age at time of study	Yes	47 (67%)	5.5426	3.66361	.469	.496
	No	23 (33% )	5.4348	3.39553		
Birth order in the family	Yes	47	2.8511	2.15668	.267	.607
	No	23	2.4783	1.80579		

Table three, showed that there was no significant difference in mean age between autistic children with or without learn defect at time of study ( p value 0.496 ) . Most of autistic children present with learn defect ( 67% ) versus ( 33% ) without learn defect .

Regarding birth order in the family , there was no significant differences in mean age of autistic children with or without learn defect ( p value < 0.6 ) .

**Table ( 4 ) distribution of autistic children according to the residence .**

Residence	Sex		Total
	F	M	
<b>Nasiriya</b>	12	23	35
	34.3%	65.7%	50%.0%
<b>Suq Al-Sheyokh</b>	3	3	6
	50.0%	50.0%	8.6%.0%
<b>Shatra</b>	2	17	19
	10.5%	89.5%	27.1%.0%
<b>Chebayish</b>	0	2	2
	0.0%	100.0%	2.9.0%
<b>Rifae</b>	2	3	5
	40.0%	60.0%	7.1%.0%
<b>Other</b>	1	2	3
	33.3%	66.7%	4.3.0%
<b>Total</b>	20 ( 28.6 )	50 ( 71.4 )	70 ( 100 % )

Table four showed clearly that most of the studied autistic children ( 50% ) were from Al-Nassiriua district ( central of governorate ) ,while other ( 50% ) distributed in different arias of governorate as follows : Shatra ( 27.1 ) , Suq-Al-Sheyokh ( 8.6 % ) ,Rifae ( 7.1% ) , Chebayish ( 2.9% ) and other ( 4.3 % ) .

## Discussion :

In this study , we have demonstrated that autism affect boys more than girls ( 71.4 % versus 28.6 ) with male female ratio 2.5:1 and this similar to that proved by ( Mezzilani et al.,2016 ) with a prevalence ratio of 4:1 <sup>(16)</sup>. And this also supported by (Al-Farsi Y.M.et al 2011 ) <sup>(17)</sup>. And ( McFayden 2021 ) that found ( 86.4% were boys) <sup>(18)</sup>. This differences could be rooted in biological differences between the sexes .

This study showed that the mean of order in the family is about 2.6 for boys and 2.9 for girls, so the differences not significant and this finding not agree with the study that done by ( Cagaty et al. 2019 ) <sup>(19)</sup>

In present study ,in spite of male diagnosed earlier than girls,( main age for boys was 3.4 years versus 3.8 years for girls ) ,the study not prove a significant differences between the two sexes and this similar to that found by ( AAP 2015 ) <sup>(20)</sup>. And this finding may be due to milder symptoms among young girls and fewer behavioral problems than boys that makes a masking of symptoms .

This study declare that ( 80% ) of studied autistic children have been with different degrees of speech defect, from mild degree to nonverbal states and this finding more than that proved by ( Catherine et al 2011 ) <sup>(21)</sup>.In this study any no fluent speech considered speech defect .

This study document that autistic child with speech defect were have less mean age group than those without speech defect ( 5.1 and 7.0 respectively ) with significant p value ( 0.002) .and this idea agree with the concept that explained by ( Ericka L 2013 ) that found many severely language delay attained phrase or fluent speech after age 4 years <sup>(22)</sup>

This explain the effectiveness of different programs skills in young autistic child .

This study found that autistic children with higher mean birth order have been developing speech defect in comparison to those without speech defect ( 2.9 versus 2 respectively ) . This finding not comparable to that found by ( McFayden 2012 ) <sup>(18)</sup> , were no differences in language between the first and second born children .

This study document that ( 67% ) of autistic children were with learn defect and this higher than that found by ( Car Autism Roadmap 2008 ) <sup>(23)</sup> . Also this study find there was no significant differences regarding mean age group between the autistic child with or without learning defect , this point need to be investigated more .

This study did not find any significant effect of the mean birth order ( p value 0.6 ) between autistic children with or without learn defect and this went with the opinion of ( J.G 2010 ) <sup>(24)</sup> and this may related to the fact that different mechanism that involving to be a risk factors for autism .

In this study most of autistic children were urban residence ,and this finding proved by study done at Taiwan ( Hsu,2022 ) <sup>(25)</sup> .and also agree with study done by ( Lauritsen 2014 ) at Denmark <sup>(26)</sup> . And this urbanity of autism may be due to the availability of certain resources at urban and for the level of parental education .

## Recommendation :

Well trained specialized team should be in time and place to ass all children with speech and learning defect to discover autism spectrum earlier ,especially in those with positive family history of autism.

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## دراسة تأثير العمر و ترتيب الولادة على الخلل في النطق و التعلم عند اطفال التوحد في محافظة ذي قار

### الخلاصة :

دراسة اجريت في محافظة ذي قار جنوب العراق خلال الفترة من 2018 كانون الاول الى شهر ايار 2019 . الدراسة تضمنت ( 70 ) طفلا ( 50 ذكورا و 20 اناثا ) كانوا يعانون من طيف التوحد تم تشخيصهم في مركز ذي قار لمعالجة التوحد . تم تقديم استبيان متخصص تضمن السؤال عن المتغيرات التالية ( جنس المريض ، عمر المريض في وقت الدراسة ، ترتيب الطفل بين اخوانه ، الخلل في الكلام ، الخلل في اكتساب التعلم ، وكذلك اشتملت الدراسة على التوزيع الجغرافي للمرضى داخل المحافظة ) . الاستبيان جرى بوجود كلا الوالدين او احدهما .

تم الاعتماد في اظهار النتائج باستخدام العمليات الإحصائية ( الانحراف المعياري ، المعدل ، قيمة ع و اختبار NOVA ) . اهداف الدراسة: دراسة تأثير العمر عند اطفال التوحد على الخلل في النطق و التعلم و كذلك دراسة العلاقة بين تأثير ترتيب الولادة و اثره على الخلل في النطق وكذلك التعلم .

من بين 70 طفلا يعانون من طيف التوحد ، كانوا 50 ( 71.4 % ) ذكورا و 20 ( 28.6 % ) من الاناث . معدل العمر للذكور كان ( 5.3 سنة ) و ( 6 سنة ) للإناث . معدل ترتيب الولادة للذكور كان ( 2.6 ) و ( 2.9 ) للإناث . كان 56 ( 80 % ) يعانون من خلل في النطق و كان معدل اعمارهم ( 5.1 سنة ) بينما كان 14 ( 20 % ) لا يعانون من خلل في النطق و بمعدل عمري كان ( 7 سنة ) . الترتيب الولادي داخل العائلة لأطفال التوحد للذين يعانون من خلل في النطق كان بمعدل ( 2.9 ) و بمعدل ( 2 ) لأطفال التوحد بدون خلل في النطق . كان 47 ( 67 % ) من اطفال التوحد يعانون من خلل في التعلم و بمعدل عمري ( 5.5 سنة ) بينما هناك 23 طفلا ( 33 % ) لم يعانون من خلل في التعلم و بمعدل عمري ( 5.4 ) . الترتيب الولادي بين اطفال التوحد مع خلل في التعلم كان ( 2.8 ) بينما كان الترتيب الولادي للذين لا يعانون من خلل في التعلم هو ( 2.4 ) .

اغلب اطفال التوحد في الدراسة كانوا من مركز مدينة الناصرية 35 ( 50 % ) طفلا ، 19 طفلا ( 27.1 % ) من الشطرة ، 6 ( 8.6 % ) طفلا من سوق الشيوخ ، 5 ( 7.1 % ) طفلا من الرفاعي ، اثنتان ( 2.9 % ) من الجبايش و ثلاثة اطفال ( 4.3 ) من مناطق متفرقة . الاستنتاجات : التوحد مرض يصيب الاطفال الذكور اكثر من الاناث و كذلك يتم تشخيص الذكور مبكرا كما هو مثبت في دراسات اخرى . اغلب اطفال التوحد يعانون من خلل في النطق و التعلم .

معدل عمر اطفال التوحد كان مهم و ذو تأثير على الخلل في النطق بينما لم يكن مؤثرا في اطفال التوحد الذين كانوا يعانون من خلل في التعلم . ترتيب الولادة كان ذو تأثير على اطفال التوحد الذين يعانون من خلل في النطق بينما لم يكن ذو تأثير على الاطفال الذين كانوا يعانون من خلل في التعلم . معظم الحالات في الدراسة هم من مركز المحافظة .