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Investigation of the relation between parents' socioeconomic status and the incidence of Autism

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Abstract

Introduction: Real causes of Autism disorders are unknown. Today, neurodevelopment factors are considered as the main cause of this disorder. Possibly, the potential genetic factors and their interaction with environmental factors increase the probability of Autism. Recently, the interest toward the studies on the impact of socioeconomic status on health is increased. This study aims to investigate the relation between parents' socioeconomic status and incidence of Autism.

Materials and Methods: In this case-control study, the case community concluded all children who received Autism diagnosis in the health centers of West Azarbaijan Province, and they were educating in schools in 2016 and the control group concluded the healthy individuals. A SES questionnaire was used to determine the economic and social status, including four components (income, economical class, residence and education).

Results: The results of this study did not indicate any significant difference in maternal leave and socioeconomic status in the studied groups (P>0.05) while distribution of changing in the residence location was statistically significant among the studied groups (P=0.020).

Conclusion: It seems that parents' socio-economic status cannot cause Autism.

Keywords: Autism, Parents, Socio-economic status.

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Introduction

Human evolution is a great and complex issue. If growth is considered as an increase in body size or its different parts, evolution must be considered as changes in action that can be affected by environment. In the other words, the changes of human beings gained in their physical, mental, verbal, and social life are called evolution or development, which is affected by inherited genetic factors, as well as environmental factors, nutrition, and social stimuli. Therefore, any disorder and abnormality from the formation time of egg cell to incidents and events of the perinatal period, the birth and the first years after birth can affect the growth and evolution process. Autism is associated with evolutionary disorders. The disorder affects the normal growth of the brain in the context of social interactions and communication skills. Adults and children with Autism have problems in verbal and non-verbal communication, social interactions, and activity related to playing. The accurate causes of Autism disorders are not known (1). At first, it was believed that the environment is the main cause of this disorder.

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Today, nerve growth factors are considered as the main cause of this disorder (2). Probably, potential genetic factors and their interaction with environmental factors increase the risk of Autism (3).

Recently, the interest to studies on the impact of socioeconomic status on health is increased. In many countries, social problems led their governments to reduce health inequalities as a public health priority. However, contradictory results are obtained on the impact of socioeconomic status on Autism Spectrum Disorder (ASD) in studies.

Many studies (4-11), often conducted in the United States and Australia, indicated an inverse relation between the prevalence of ASD among families with high education of parents (4-6,11) and / or ecological indicators of family income. In the way that by the increase of education and family income level, the incidence of Autism decreased, and on the contrary, the incidence of Autism increased with a reduction in education and family income (4-7,10). On the contrary, most of the European studies on the risk of ASD indicated that the prevalence of ASDs has less relation with lower occupational level of parents (14), lower education of mother (15), or family income (13,14,16).

Since none of the genetic and environmental factors alone are sufficient to cause Autism and a set of them can be involved in incidence of the disease, and regarding that the factors and conditions of environment are different in various regions of the world and also their results differ in the incidence of Autism according to the conducted research; therefore, investigating the other dimensions and viewpoints of this disease, including socioeconomic factors in the new environment, can contribute in completing this puzzle and solving the problem.

Materials and Methods

This is a case-control study. The case group includes individuals with Autism and the control group includes healthy individuals that are compared in terms of the intended variables.

The research community includes all children who received Autism diagnosis in the health care centers of West Azarbaijan province, Iran, and they were educating in schools in 2016.

Considering 1% prevalence of Autism in the community, 76 children with Autism were selected according to their referring to the service centers of the Autistic children in Urmia, and again assessed by a psychiatrist and approved Autism cases were included in the study. For each case, the three individuals of control group were considered, two healthy children were of first degree relatives and one healthy non-relative child. Matching was used to control potential confounding factors. The both groups were matched in terms of sex, residence and age. A total of 226 individuals (149 relatives and 77 non-relatives) were selected for control group.

The method of selecting the case group was as follows: referring to the service centers of the Autisitc children in Urmia and including the confirmed cases of Autism. Sampling was performed by receiving the list of all items in each center and then in terms of weight ratio of each center was conducted according to availability, and all selected children whose parents agreed to participate in the study were selected as the case group.

The control group in this study includes 3 children against each selected child as a sample. This group is composed of 2 children from relatives to neutralize the confounding factors that can be selected due to different ethnicities, lifestyle and cultural factors and a child from a non-relative to examine family and genetic factors. The relative individuals for control group were selected from the first-degree relatives such as uncle and aunt, and non-relative individuals were selected from the same place of residence. The specimens were examined by a pediatrician of psychiatry to confirm the Autism.

Research instrument

The SES questionnaire was used to determine the socioeconomic status including four components (income, economic class, residence and education). The research tool is a socio-economic status (SES) questionnaire with $\alpha =$ 89% validity. Using Cronbach's alpha, the reliability of questionnaire was (α=0.79) and (α=0.83), respectively. Autistic children were examined by a psychiatrist. Then, the socio-economic level of the family was determined in

the questionnaire according to the statements of parents. Parents also reported about the physical illnesses. Self-report in some cases is the only way of awareness. Data analysis was conducted based on descriptive methods such as statistical tables and calculating central indexes and dispersion and percentage of qualitative variables.

Analytical statistics methods such as Pearson correlation coefficient, Chi square, one-way ANOVA and t-test were used for two independent samples and logistic regression.

All analyzes were performed by SPSS and significance level was considered to be P<0.05.

Results

Based on the results of the present study, in terms of the distribution of divorce according to the groups under study, the highest frequency in the case group was related to "not divorced", and also the same in the control group. Chi square test results indicate that the distribution of divorce among the three groups under study was not statistically significant (P=0.277) (Table 1).

Table 1. Distribution of parents divorce in the groups

P-value	Sum	Parents' Divorce				
		No	Yes			
	76	74	2	Number	Case	Group
	100.0%	97.4%	2.6%	%		
	149	144	5	Number	Relative	
	100.0%	96%	3.4%	%	control	
	77	77	0	Number	Non-relative	
0.277	100.0%	100.0%	0.0%	%	control	
	302	295	7	Number	Sum	
	100.0%	97.7%	2.3%	%		

Based on the results of the present study, there is no significant difference in terms of maternal leave and socioeconomic status in the studied groups (P>0.05) (Tables 2 and 4). Therefore, according to the results, the social and economic factors cannot be the cause of Autism. But the distribution of the change of residence among the studied groups was statistically significant (P= 0.020) (Table 2).

Table 2. Distribution of maternal leave in the Groups

P-value	Sum	Maternal Leave				
		No	Yes			
	76	74	2	Number	Case	Group
	100.0%	97.4%	2.6%	%		
	149	148	1	Number	Relative control	
	100.0%	99.3%	0.7%	%		
0.223	77	77	0	Number	Non-relative control	
	100.0%	100.0%	0.0%	%		
	302	299	3	Number	Sum	
	100.0%	99.0%	1.0%	%		

Table 3. Distribution of residence change in the groups

P-value	Sum	Residence Change				
		No	Yes			
	76	68	8	Number	Case	Group
	100.0%	89.5%	10.5%	%		
	149	137	12	Number	Relative	
	100.0%	91.9%	8.1%	%	control	
	77	77	0	Number	Non-relative	
0.20	100.0%	100.0%	0.0%	%	control	
	302	282	20	Number	Sum	
	100.0%	93.4%	6.6%	%		

Table 4. Distribution of social and economic status in the studied groups

P-value	Sum	SES					
		Good	Medium	Weak			
	76	5	30	41	Number	Case	Group
	100.0%	6.6%	39.5%	53.9%	%		
	149	12	68	69	Number	Relative control	
	100.0%	8.1%	45.6%	46.3	%		
0.112	77	0	38	39	Number	Non-relative control	
	100.0%	0.0%	49.4%	50.6%	%		
	302	17	136	149	Number	Sum	
	100.0%	5.6%	45.0%	49.3%	%		

Discussion

The results of this study indicated that social and economic factors cannot cause Autism. The findings of the present study were consistent with the studies conducted in Sweden and Denmark (15,17). Contrary to the current study, American studies indicated that social and economic factors have a significant relation with the incidence of Autism in children (18,19). The possible reason for the lack of correlation between this study and the American studies may be due to the difference in the study design as well as the sample size.

The lack of correlation between the findings of epidemiological studies in Denmark and Sweden and the lack of correlation between the risk of Autism and socio-economic factors with American studies may be due to that the Scandinavian countries have less social and economic diversity and their equal access to services is more than the US population.

According to the results of the present study, the place of residence has a significant relation with the incidence of Autism in children. Along with this study, the findings of the study by Briciet et al. indicated that urban children are more likely to have Autism compared to villagers. This is probably due to the presence of air pollution. As it was addressed in various studies that environmental contamination and air inhalation in these environments increase the risk of Autism (20,21).

Despite all the efforts to detect the causes of this disease, the causes of this problem cannot be fully judged in any particular person. But what is known so far is that all of the environmental and controllable factors at least exacerbate the symptoms, and none of them are the main cause. On the other hand, it is clear that parents did not intentionally behaved in a way to exacerbate the symptoms and it may be an unconscious behavior. It is natural and essential that parents try to learn how to behave their child properly so that they can play a more effective role in the recovery process of child, but at the same time, after diagnosing the disease, looking at the future and trying to help the child effectively is an important task and the obsessive look of the past and extreme blame will prevent us in performing our task.

Conclusion

The results of this study indicated that social and economic factors cannot cause Autism.

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