

The extent of the impact of the surrounding environment and genetic factors on the pregnant mother and her child and its relationship to the child's injury with autism disorder

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Abstract

Autism disorder is a complex condition that involves problems with communication and behavior and has no clear cause. but studies suggest that genes can work along with influences from the environment to influence development in ways that lead to autism. This study aimed to determine the prevalence of autism disorder in the city of Al-Bayda and the possible causes of its occurrence. The study population comprised 90 participants (69 male and 21 female, age ranges, 2-15 years) At baseline, autism disorder was more prevalent in males than female (77 % vs. 23%). Meanwhile, the prevalence of autism disorder increased with advanced the mother's age (31%, 69%, among the mothers who were 19 to 35, 36 to 51 years of age, respectively), including the mother's conditions during pregnancy, where the percentage of autism baby deliver from mother suffered from a psychological condition was 52%, mothers constantly carried mobile phones 48%, and mother suffered from diseases during pregnancy 26%. Another cause of autism are environmental factors, as the percentage of children who watch TV constantly was 83%. Genetic factors play important rule to increase the chance of autism incidence, where 8% of autism cases came from parents of consanguinity with 33%.

Keywords: Autism disorder; Environment; Genetic factors; Pregnant mother; Child's injury; Genetic disease.

1. Introduction

Autism is a complex disorder resulting from the combination of genetic and environmental factors. Remarkable advances in the knowledge of the genetic causes of autism disorder have resulted from the great efforts made in the field of genetics (1). autism disorder was originally defined by Leo Kanner in 1943 as an innate inability to create normal, biologically determined, emotional contact with others. The primacy of the social deficit is widely recognized, and lack of social reciprocity is a central part of the diagnosis. Beyond that, there have been great changes in the past decade in the conceptualization of autism and related disorders (2,3). Individuals with autism disorder vary in language ability, ranging from absent speech to fluent language, and in cognitive development, ranging from profound intellectual disability to above-average intellectual functioning. Individuals may also show associated medical comorbidities, including epilepsy and minor physical anomalies, as well as psychiatric comorbidities, thus showing a wide clinical heterogeneity. The clinical heterogeneity of autism disorder has long been a hindrance to understanding the pathophysiological mechanisms involved (1). The recurrence risk of pervasive developmental disorder in siblings of children with autism disorder is 2% to 8% (4). Data on autism disorder are lacking for Libya. Conducted a hospital-based study in the Neurodevelopment Clinic of AI-Khadra Hospital in Tripoli to estimate the prevalence of autistic spectrum disorders ASD in children attending the clinic. There were 38 508 children in total seen during 2005-2009, 180 of whom had a history of delayed speech and language and/or behavioral difficulties. Of the 180, 128 children were

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diagnosed with autistic spectrum disorder: 99 had classical autism, giving the prevalence of about 4 in 1000 (5). Due to the increase in the prevalence of autism disorder among children in Libya and the lack of knowledge of the causes of the injury, the current study was conducted to estimate the extent of the prevalence of autism disorder in the city of Al-Bayda and the possible causes of its occurrence.

2. Material and methods

This study was conducted in the Al-Bayda Center for Autism which treats and take care about children with autism disorder. This Center receives children with autism disorder from the city of El-Beyda and its environs. Overall, 90 children, between the ages of 2-15 years, 69 (77%) male and 21 (23%) female were enrolled in this study. The questioner was distributed to families of autism disorder to collect data. The patient's demographic characteristics, including age and gender as well as possible causes of the disease, including a family history of the disease, the kinship relationship between father and mother, mother's age, the health status of the mother during pregnancy, and the psychological state of the mother during pregnancy, Is the mobile always attached to the mother? Does the child watch TV? Data were presented as numbers and percentages for different parameters.

3. Results

The study population comprised 90 participants (69 male and 21 female, age ranges, 2-15 years) At baseline, autism disorder was more prevalent in males than in female (77 % vs. 23%). Meanwhile, the prevalence of autism disorder increased with advanced the mother's ages. Percentage of mothers between the ages of 19-35 years, who deliver autism baby was 23% while Percentage of mothers between the ages of 36-51years increased up to 67%.as shown in (Figure 1). There were several risk factors associated with autism disorder including the mother's conditions during pregnancy, environmental and genetic factors. The percentage of mothers who suffered from bad a psychological condition was 52%, mothers who constantly carried mobile phones 48%, and who suffered from diseases during pregnancy 26% as shown in (Figure2). Regarding the environmental factors, as the percentage of children who watch TV constantly was 83%. (Figure3). the percentage of kinship between the father and mother of autism babies was 33%, and the family history of autism disorder was 8%. (Figure 4).

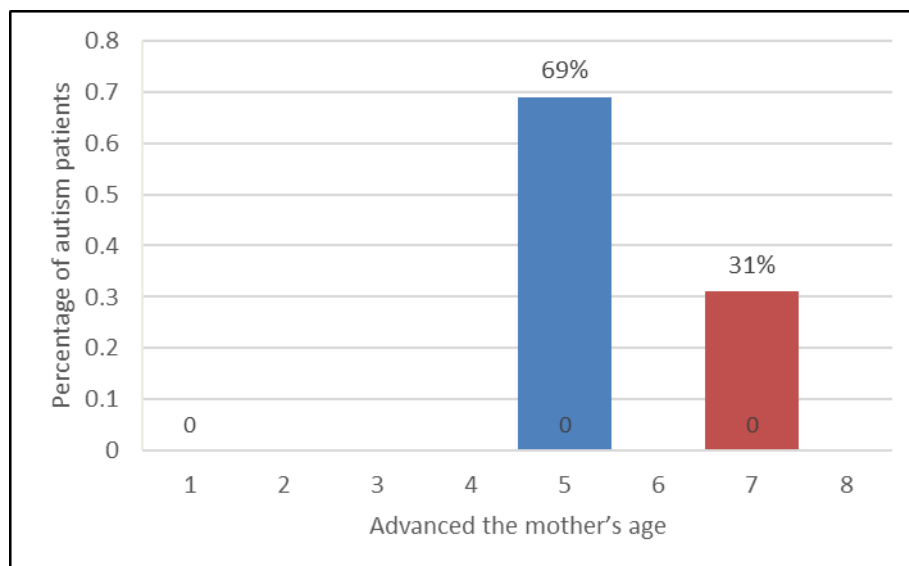


Figure 1 Prevalence of autism disorder increased with advanced the mother's age

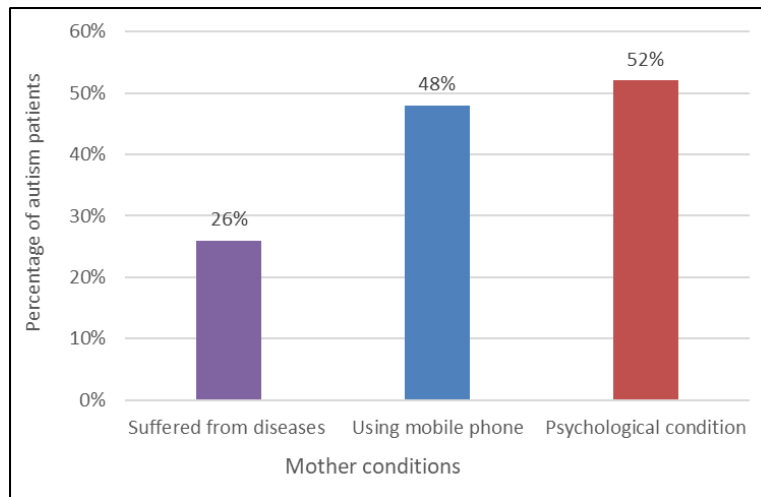


Figure 2 Mother's conditions during pregnancy

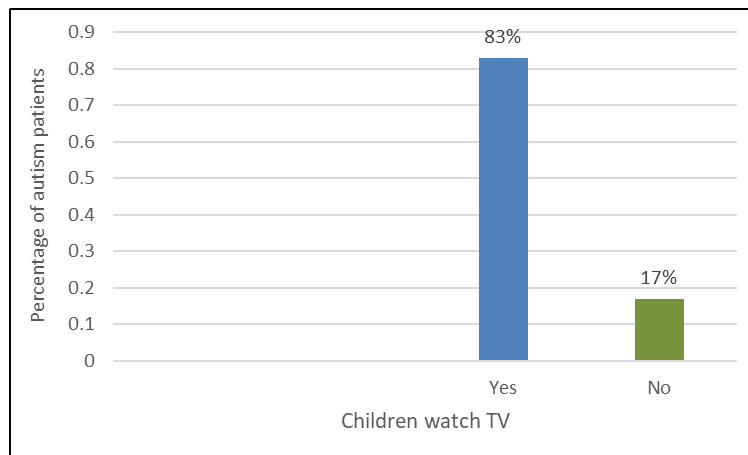


Figure 3 Percentage of children who watch TV constantly

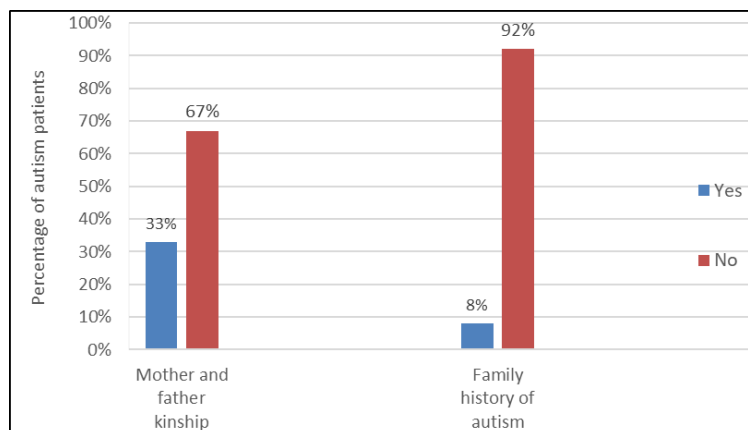


Figure 4 Percentage of genetic factors that may cause autism disorder

4. Discussion

The prevalence of autism disorder has increased dramatically in recent decades, supporting the claim of an autism epidemic (6,7,8). This study was carried out in El-Beyda city, which showed autism disorder was more prevalent in males than in the female. This result similar to the previous result has reported that Autism is 4–5 times more common among boys than girls (9,10,11). The current study was reported the prevalence of autism disorder increased with advanced the mother's age (31%, 69%, among the mothers who were 19 to 35, 36 to 51 years of age, respectively). Similar results have been reported that increase in maternal age manifests a correlation with autism, (12,13,14,15,16,17,) chromosomal abnormalities and trinucleotide repeat expansion in the ovule, (16) and increase in the obstetric intervention (17) may be proposed as probable reasons. The risk factors associated with autism disorder were varied, including the mother's conditions during pregnancy, where the percentage of mothers who suffered from bad a psychological condition was 52%, mothers who constantly carried mobile phones 48%, and who suffered from diseases during pregnancy 26%. This finding is similar to many reported studies that found Physical, mental, and psychological health and financial state throughout the pregnancy are important factors affecting fetal development and health. An unhealthy mother who is not mentally and physically healthy and well-nourished might be unable to have a healthy neonate. This A set of prenatal risk factors which increase a child's susceptibility to autism disorder (3). Among the causes of autism disorder are environmental factors, as the percentage of children who watch TV constantly was 83%. Agree with these results, study by Healy et al. who found that children with autism disorder had a longer screen time and less physical activity than typically developing TD children (18). In addition, because of their lower activity rate and longer screen time, children with autism disorder were more commonly overweight or obese than TD children (19). Must et al. reported that children with autism disorder spent more time in sedentary pursuits than TD children and that the major component driving sedentary behavior was screen time (20). Nevertheless, not all studies reached the same conclusions. Montes conducted a large sample study involving 1,393 children with autism disorder and 64,163 TD children and concluded that half of US children aged 6–17 years exceeded the (American Academy of Pediatrics) AAP-recommended screen time and that children with autism disorder had amounts of total screen time similar to those of children without autism disorder. However, children with autism disorder constituted a higher proportion of children who were high screen users (>2 h/day) (21). Among the factors that cause autism disorder are genetic factors, where the percentage of kinship between the father and mother who deliver autism babies was 33%, and the family history of autism disorder was 8%. This result is similar to previous results has reported that Family history is strongly associated with autism disorder risk. For example, a study by Sandin et al. observed that having a full sibling or co-twin with autism disorder was associated with a 10.3- to 153.0-fold increase in a child's risk of autism disorder (21).

5. Conclusion

This study was conducted in the Al-Bayda Center for Autism which treats and take care about children with autism disorder. This study confirmed that the highest percentage of autism patients was caused by environmental factors such as watch TV constantly (83%) followed by the psychological conditions of the mother (52%) and using mobile phone (48%) during pregnancy. Percentage of autism patients increased as the mother's age increased (69%). Percentage of autism patients caused refer to relationship between parents reached only 33%. Given that autism is an epigenetic disorder in which environmental risk factors are the most momentous mediators in its pathogenesis, detection of these factors can help parents avoid the danger of autism onset in their children. By following the mentioned tips, parents can provide a lower risk condition for the outbreak of autism.

Recommendation

- Increasing parents' awareness of autism disorder to facilitate dealing with children.
- Educating mothers about the dangers of late childbearing.
- Trying to keep children away from watching TV for long periods because it may be a cause of the autism disorder.
- Increasing people's awareness of the dangers of consanguineous marriage and everyone with a family history of autism disorder.

Compliance with ethical standards

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Disclosure of conflict of interest

The Authors proclaim no conflict of interest.

Statement of ethical approval

The present research work does not contain any studies performed on animals/humans subjects by any of the authors'.

Statement of informed consent

The data was collected using questioner which was distributed to families of autism patients. Informed consent were duly obtained from each family of autism patients.

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