

Friendship, Employment, and Well-Being in Adults with Autism Spectrum Disorder

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ABSTRACT

Long-term outcomes for Autism Spectrum Disorder (ASD) vary. This study assessed friendship, employment, and well-being in adults with ASD in Bahrain, diagnosed 20 years prior. The objective was to determine the levels of friendship, employment opportunities, and general well-being of a cohort of participants with ASD from childhood to adulthood in an Arabic country. A cross-sectional study traced young adults diagnosed with ASD in childhood (n=81/114; 81% response rate). Caregivers (mostly mothers) provided information via interview on a fact sheet covering demographics, diagnosis age, comorbidities (epilepsy, intellectual disability [ID], family mental illness), relationships, employment, education, medication use, and living situation. The study was conducted from November 2022 to January 2023; the setup was the centers for the Bahraini Association for Intellectual Disability and Autism. Outcomes were notably poor. Only 3 participants (3.7%) were employed, and only 6 (7.4%) had completed high school or higher education. While 12 participants (14.8%) reported a relationship lasting over one year, none were married. All individuals lived with family and utilized rehabilitation services. Significant comorbidities and challenges were prevalent: 42 (51.9%) used medication. Comorbid ID was highly prevalent (31 participants, 37%). The cohort showed poor long-term prognoses, particularly regarding relationships and employment. Almost half had inferior outcomes. ASD combined with ID constituted a distinct group with lower outcomes. Future research should focus specifically on ASD groups without ID and compare outcomes to the general population.

Keywords: Adult, ASD, Bahrain, comorbidity, well-being.

INTRODUCTION

The early adulthood outcomes of patients diagnosed with autism spectrum disorder (ASD) vary in published studies [1-3]. The outcome difference is probably related to the severity and comorbidities of the studied population's condition. Cognitive abilities and language skills during childhood are predictors of adulthood outcomes [4-7].

Generally, most follow-up studies found the outcome of children with ASD to be poor in adulthood [4, 8-10]. Further, a low intelligence quotient was associated with increased irritability, hyperactivity, and the need for medication [3]. Additionally, the presence of comorbid disorders along with ASD worsens outcomes [9]. Impaired social interactions and communication skills among ASD patients affect their ability to form healthy relationships, such as friendships, as well as their work experience and capacity to live independently.

Information on the outcomes of children with ASD in adulthood is scarce in the Arab region. One study from Bahrain investigated outcomes in adolescence and early adulthood for people diagnosed with ASD during childhood, focusing on their general social functionality [11]. The study showed that most participants attended daycare programs, while 10% were integrated into regular schooling. Moreover, 25% had friends; none

were married, held a regular job, or died during the 10-year follow-up period.

This study aimed to determine the status of children diagnosed with ASD in early childhood, focusing on their general social functionality, friendship, and work opportunities.

METHODOLOGY

This is a cross-sectional study that includes adults with ASD who were diagnosed during early childhood in the years 2000-2005 based on the Diagnostic Manual of Mental Disorders - Fourth Edition [12]. Ethical approval was obtained from the Medical Research and Ethical Committee of the College of Science and Medical Sciences, Arabian Gulf University, dated November 21, 2022 (Approval Number: E3-PI-11-22).

The number of participants was 114, which was later reduced to 81 as non-residents (n = 15) returned to their home countries. Furthermore, 19 cases were untraceable because participants changed their contact numbers and addresses. The study was conducted between November 2022 and January 2023; the setup was the centers for the Bahraini Association for Intellectual Disability and Autism. Sample size was not calculated as the aim included all the traceable cases in the registry.

Participants were recruited from various sources: individuals with ASD attending youth rehabilitation centers, individuals with ASD who attended regular schools, and individuals who were diagnosed with ASD

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at a pediatric unit of a psychiatric hospital. All traceable cases of ASD were included; no exclusion criteria.

Data were collected using a data collection sheet to record information on age, gender, medication history, presence of intellectual disability from their medical reports (I.Q. was below 70 at the time of diagnosis), employment, education, friendship, and marriage. Friendship was defined as a close relationship that lasted more than a year. Well-being was defined according to the Global Assessment of Function (GAF) [13]. An assessment of variables was conducted to distinguish between "pure" ASD and ASD comorbid with ID. Written consent form was obtained from mothers before the study; subjects were not interviewed or examined.

Data were obtained *via* telephone calls to the patients' mothers, fathers, or primary caregivers. A few mothers were interviewed face-to-face (n=3). Those who accepted to participate signed informed consent forms through an online link.

The purpose of the study was explained to each participant. Moreover, participants were assured of complete confidentiality. Further, group analysis of information was done. Participants could withdraw from the study at any stage, and they had the right to access the results.

Data analysis was done using SPSS version 29.0. Frequencies and percentages were computed for categorical variables. Numerical variables were summarized as means \pm standard deviation. Group differences were assessed using t-tests and chi-square tests. Additionally, logistic regression analysis was used to evaluate the role of ID in the outcomes. A p-value of 0.05 or less was considered statistically significant for all the tests.

RESULTS

The study had 81 participants from 99, with a response rate of 81.1%. Males (72.8%) outnumbered females (27.2%) by 4:1. Participants' ages ranged from 17 to 36 years. The mean age at diagnosis was 39.9 ± 19.9 months, with a minimum of 17 months and a maximum of 120 months. Regarding the participants' fathers, 59% were retired, 25.6% were working, 2.1% were unemployed, and 10.3% were dead. Participants' family income was distributed as follows: <500 BHD in 33.8%, 500-1000 BHD in 53.2%, and 1000-2000 BHD in 13%.

ID was comorbid in 31 participants (37%), and 9.9% had a history of mental disorders within their nuclear family. Further, 51.88% used medications such as risperidone, Concerta, and antipsychotic medication. Moreover, seventeen participants (19.75%) were currently in a friendship, and 12 (14.8%) had a relationship that lasted over one year. Only 3 participants (3.7%) held steady jobs at the time of data collection, and 6 (7.4%) had completed high school or had higher education. Of the

6, three (3.7%) had completed high school, and 3 had completed college (3.7%) (**Table 1**). The well-being scores (GAF were between 40 and 60 points out of 100).

Table 1: Cases by presence of ID, medication, seizure, friendship, education, employment, and sexual interest (N = 81).

Variable	Frequency	Percentage
Presence of ID		
Yes	30	37.04
No	51	62.96
Use medication		
Yes	42	51.85
No	39	48.15
The nuclear family has a history of mental disorders		
Yes	9	9.88
No	72	90.12
Friendship		
Yes	16	19.75
No	68	80.25
Friendship during the past year		
Yes	3	3.70
No	78	96.30
Work	3	3.7
Education: High school or university		
No	76	77.3

A logistic regression analysis was used to determine the effect of ID on the participants on the studied variables (friendship and employment), and no significant association was found except for the use of medication ($p=0.041$). Employment ($p=0.176$) and friendship ($p=0.610$) were not significantly associated with ID. All participants and those who had completed high school or university were among those who had ASD without ID.

None of the participants was married, and one had died at the age of 12 following a seizure attack. Further, all participants were living with their families. None were in a hospital or a residential institution. Moreover, all participants had received more than 10 years of rehabilitation services.

DISCUSSION

A 20-year follow-up evaluation on a cohort of children diagnosed with ASD showed mixed results. All the participants were living with their families, and most continued receiving rehabilitation services. However, only a small minority (3.7%) were employed and had completed high school or university (7.4%). Further, nearly one-fifth had a friendship that extended over one year with a person within or outside their family circle.

This study included a large number of youth, had a high response rate, and a satisfactory gender mix.

The long-term outcomes of at least half of the individuals with ASD are generally poor, especially regarding employment, education, and work opportunities. Similar results were found in other studies [14, 15].

Friendship seems to be a critical milestone in the emotional development of persons with ASD. The number of their friends had an independent effect on their self-esteem, depression, and anxiety. Friendship serves as a protective emotional factor for adults with ASD.

Adults with ASD lack certain qualities, such as companionship, selflessness, and closeness, necessary to form friendships. Further, one might need these qualities to obtain and maintain a job. Many adults with ASD have jobs in a protected workplace run by family members. In our study, the 3 employed participants worked in a protected family environment.

The approaches of developing social stories and group role-playing are effective methods of dealing with intimacy issues. These approaches have also been shown to improve their safety. Psychiatrists should use interventions such as social skills training, educational transition programs, and employment. Independent living and marriage were not expected to be prevalent in our sample, where the mean age was 22 years.

The integration of children with ASD into the regular education system was implemented in the last decade. Researchers anticipate that the number of children with high school certificates will double in the next few years. A careful assessment of an expanded cohort of adults with ASD should be conducted, focusing on youth without comorbid ID to explore their educational opportunities, employment, and friendship in greater detail. The strength of this study lies in its originality in Bahrain and the Arabic region.

CLINICAL IMPACT

Knowing which children have satisfactory or poor outcomes will help staff adjust their rehabilitation program according to the participants' strengths and weaknesses. Additionally, the results of this study can be used to educate parents and teachers on what constitutes risk factors and who will probably have a better outcome.

STUDY LIMITATIONS

This is the first study with an almost 20-year-long follow-up period on ASD in adulthood in the Arabic region. However, the study suffered from some limitations. For instance, although the authors tried to include all identified ASD cases in the country, there were some problems with generalizability. The results reflect the status of children who used public services, not those who utilized the private sector.

CONCLUSION

This follow-up study of a cohort of children with ASD attending rehabilitation centers 20 years ago shows that their mean age now is 22.6 years ($n = 81$). Further, they have a low employment rate, with only 3 (3.7%)

employed. Further, 12 (14.8%) had a friendship for more than one year with family or non-family members. Additionally, 6 (7.4%) had completed high school or university. The ASD + ID group constituted 37% of the sample. This group used medication significantly more than the ASD group.

The outcome of this long-term study is similar to that of other studies that examined a similar sample composition. In the future, ASD-only cases should be examined to eliminate the effects of ID.

ETHICS APPROVAL

Ethical approval was obtained from the Medical Research and Ethical Committee of the College of Science and Medical Sciences, Arabian Gulf University, dated November 21, 2022 (Approval Number E3-PI-11-22).

CONSENT FOR PUBLICATION

Written consent form was obtained from mothers before the study; subjects were not interviewed or examined.

AVAILABILITY OF DATA

Participants can have access to the results if they wish; however, the public has limited access due to subjects' confidentiality.

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None.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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AUTHORS' CONTRIBUTION

Both authors contribute equally to Conceptualization, Data curation, Methodology, Project administration, Writing of original draft, review and editing.

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