Comorbid Psychiatric Problems among Children with Autism Spectrum Disorder in an Egyptian Sample

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Abstract: The study aims to assess comorbid psychiatric problems among children with Autism Spectrum Disorder in an Egyptian sample. A descriptive exploratory cross sectional study design was utilized with a sample of 90 children diagnosed with Autism spectrum disorder who attended the children's outpatient clinic of psychiatry department at Mansoura University Hospital. Data was collected by using three tools. Results revealed that the majority of the studied sample had low and very low levels of socioeconomic status (53.4%), about two thirds (68.9%) of the studied sample have a moderate level of severity of autism symptoms, while (31.1%) of the studied patients have a high level of severity of autism symptoms. The most common comorbid psychiatric problems of studied sample were Attention deficit hyperactivity problems, learning problems, conduct problems, impulsive-hyperactive, anxiety and psychosomatic problems (19.07 ±3. 01), (9.91±1.01), (8.77 ±2.76), (8.32 ±1. 68), (6.16 ±1. 60) and (1.12±1.06) respectively. There is a statistically significant correlation between severity of autism, and all comorbid psychiatric problems (except the anxiety) (p ≤ 0.001). It can be concluded from the present study that the most of the studied children have moderate and high level of severity of ASD symptoms which is significantly correlated with all comorbid psychiatric problems (except the anxiety).

INTRODUCTION

Autism spectrum disorder (ASD) is the fastest growing neurodevelopmental condition among children in the world (**Kim et al., 2016**). Autism spectrum disorder (ASD) is a neurodevelopmental disorder characterized by marked deterioration in interpersonal interaction, conversation skills, and the existence of limited and restricted practices (**American Psychiatric Association, 2013**).

Autism is recognized to occur in up to 1 in 150 children of the population worldwide (**Akhter et al., 2018**). In low middle-income countries (LMIC), concern about ASD has raised in the last decade (**Wallace et al., 2012**). Egypt as a low middle income country, there is more than 800.000 child diagnosed with ASD (**Omar, 2014**).

Deficits in the social domain and communication as well as restricted and repetitive behavior are pre-requisites to diagnose the child with autism (**APA, 2013**). Among the early signs of autism, failure to coordinate the direct gaze with body gestures and speech is prominent in addition to problems in reacting to non-verbal social cues for example, the language of the body, expressions of the face and body gestures within conversations (**Peters & Thompson, 2015**).

Beside defects in communication and social interaction, restricted and repetitive practices are among the presenting characteristic features of ASD (**Rodgers et al., 2012**). According to the DSM 5, restricted and repetitive behaviors (RRBs) include different areas; motor stereotypes for example hand flapping, preoccupation with parts of objects like the spinning fan, insistence on sameness for example tantrums after changing routines, restricted interests, ritualistic behaviors e.g., lining up of toys. Additionally, sensory hypo- and hyper-reactivity, as well as unusual sensory interests were reported (**APA, 2013**).

High rates of co-occurring manifestations that are not included in the core areas or categories of ASD were reported and give a reason to stretching out the study of ASD (**Wakschlag et al., 2012**). The most prevalent co-morbid psychiatric disorders experienced in children with ASD are attention deficit hyperactivity disorder (ADHD), depression and specific developmental disorders of speech and language (**Abdallah et al., 2011**). Furthermore, other co-morbid disorders like intellectual disability (ID), seizures, anxiety, gastrointestinal conditions, and sleep disturbance are also common among children with autism (**Rice et al., 2012**).

Aim of the study:

The study aims to assess comorbid psychiatric problems among children with autism spectrum disorder in an Egyptian sample.

Subjects and Method:-

Study Design:-

A descriptive cross sectional research design was used to conduct the current study.

Setting:-

This study was conducted at the children's outpatient clinic of psychiatry department at Mansoura University Hospital.

Subjects:

The subject of the study comprised 90 children diagnosed with Autism spectrum disorder who fulfill the following criteria: all children diagnosed with Autism spectrum disorder, according to DSM-5, both gender, age (3-6) and IQ>80 on Intelligence tests.

Tools:

Tool I: Socioeconomic status scale to address health research in Egypt (SES) and Socio-demographic Data Sheet:

Part (1): Arabic version of socioeconomic status scale to address health research in Egypt (SES):

This scale was translated into Arabic language and validated by **(El-Gilany et al., 2012)** to measure family the socioeconomic status. The scale is composed of seven domains with a total score of 84. A scoring system of SES is classified into as high, middle, low, and very low depending on the quartiles of score calculated.

Part (2): **Socio-demographic Data Sheet**: It includes name, sex, age and gender.

Tool II: Arabic version of Conner's Parent Rating Scale (CPRS):

This scale was translated into Arabic language and validated by **(Al-Behairy, 2011)**. The scale helps in identifying how many behavioral problems a child experiences. This tool was used to measure six sub- domains: Conduct disorder, Learning problems, Psychosomatic, Impulsive- hyperactive, Anxiety problem and hyperactivity index.

Tool (III): Arabic version of Gilliam Autism Rating Scale "GARS" (Gilliam 1995):

This tool was translated into Arabic language and validated by **(Mohamed, 2006)**. This scale is a highly standardized test developed to assess the severity of autistic symptoms. A scoring system of GARS follows the following: Very low; less than or equal 69', Low; 70:79, Below average; 80:89, Average; '90:110, Over average; 111:120, High; 121:130 and Very high; more than 131".

Method:-

1. The permission was gained from the research ethics committee of the Faculty of Nursing – Mansoura University
2. The consent of caregivers of children diagnosed with ASD was gained after explaining the purpose and benefits of the study and assure confidentiality.
3. Data collection was conducted during the period from January 2017 to January 2018.

Statistical analysis:

SPSS version 22 was used to analyze Data. One-sample "Kolmogorov-Smirnov test" was utilized to test the normality of data first. Numbers and percent was used to describe qualitative data. "Chi-square test" was utilized to test the association between categorical variables . "Fisher exact test" was used when more than 25% of the cells have expected count less than 5.

Continuous variables were described using "Mean ± SD (standard deviation)" for parametric data and "Median" for non-parametric data. Pearson correlation was utilized to correlate between continuous parametric data while spearman correlation to correlate between continuous non-parametric data. For all above statistical tests done, significance occur when the probability of error is 5% or less than 5% (p ≤ 0.05).

RESULTS

The studied sample consisted of (90) children diagnosed with autism, the majority of the studied sample were males (74.4%) and about one-quarter (25.6%) were female, their age ranged from (3:6) years with a mean±SD (4.33 ±.89) years. The majority of the studied sample live in urban areas (75.5%).

Table (1): socioeconomic status of the studied sample:

Studied variables	Number (n=90)	%
Socioeconomic status (SES)		
Very Low	23	25.6
Low	25	27.8
Moderate	22	24.4
High	20	22.2
Mean (SD) Min: Max	44.83 (12.17) 23:67	

Table (1) demonstrates that more than one- quarter of the studied sample (27.8%) had low socioeconomic status, (25.6%) had very low socioeconomic status, (24.4%) have moderate socioeconomic status while (22.2%) have high socioeconomic status.

Table (2): severity of autism symptoms among the studied sample:

Severity of autism symptoms	Number (n=90)	%
High	28	31.1
Moderate	62	68.9
Mean (SD) Min: Max	114.05 (10.20) 90:129	

Table (2) shows that the majority of the studied sample had moderate level of severity of autism symptoms (68.9%) and nearly one third had a high level of severity of autism symptoms (31.1%).

Table (3): comorbid psychiatric problems of the studied sample:

Comorbid Psychiatric problems	Study group	
	Mean ± SD	Range
Conduct score	8.77 ±2.76	5-15
Learning problems score	9.91±1.01	8-11
Psychosomatic score	1.12±1.06	0-3
Impulsive hyperactive score	8.32±1. 68	5-12
Anxiety score	6.16 ±1. 60	3-9
Hyperactivity index score	19.07 ±3. 01	13-24

It is obvious from the table (3) that the most common comorbid psychiatric problems of studied sample were hyperactivity index, learning problems, conduct problems, impulsive-hyperactive, anxiety and psychosomatic problems (19.07 ±3. 01), (9.91±1.01), (8.77 ±2.76), (8.32 ±1. 68), (6.16 ±1. 60) and (1.12±1.06) respectively.

Table (4): correlation between comorbid psychiatric problems and severity of autism symptoms among the studied sample.

Comorbid Psychiatric problems Domains	Severity of autism symptoms	
	Test of Significance	
	R	P
Conduct score	.764	<.001**
Learning score	.525	<.001**
Psychosomatic score	.629	<.001**
Impulsive hyperactive score	.653	<.001**
Anxiety score	.163	.124
Hyperactivity index score	.594	<.001**

*** Highly significant p ≤ 0.001, * significant p <0.05*
P= Spearman test
r= Spearman correlation

Table (4) reveals highly statistically significant correlation between severity of autism symptoms and Comorbid Psychiatric problems domains(p ≤ 0.001) except the anxiety subdomain.

DISCUSSION

Regarding the sociodemographic characteristics of the studied sample, results of the current study revealed a predominance of male gender (3:1), mean age of the studies sample was four years and three quarters of them live in urban areas. Additionally, the majority of the studied sample had low and very low levels of socioeconomic status.

Regarding the severity of autism symptoms, the current study showed that more than two thirds of the recruited sample had moderate level of severity of autism symptoms and nearly one third of the studied children have high level of severity of autism symptoms.

The study finding is consistent with **Khaled et al., (2016)** in Egypt. However, the Egyptian study of **Elbahaaey et al., (2016)** revealed that the majority of their studied sample had severe autism symptoms.

The possible explanation behind the predominance of moderate and high level of severity of autism symptoms in the current study may be attributed to only moderate and severe symptoms of ASD attract attention of parents and surrounding due to lack of awareness about mild symptoms of ASD and the normal development of children.

Regarding comorbid psychiatric problems among the studies sample, the current study showed that the most common comorbid psychiatric problems were attention deficit/hyperactivity problems, learning problems, conduct problems, impulsive-hyperactive, anxiety and psychosomatic problems. Attention deficit/hyperactivity problems were the most common comorbid condition in the current research. This result is congruent with **Joshi et al., (2017).** In contrast to the present study results, **Amr et al., (2012)** in Egypt demonstrated that attention deficit/hyperactivity disorder was the second most common comorbid condition in children with autism.

Possible explanations of the predominance of ADHD symptoms in the current sample could be due to the possible overlap between symptoms of ASD and ADHD.

Concerning learning disorders, results of the present study showed that the second most common comorbid condition was learning disorder. This result was harmonious with the results of the study by **Posserud et al., (2018).**

This finding may be attributed to communication impairments in children with autism. Children with autism have impairments in establishing connections with others; also, they have problems in face-to-face interaction and mutual gaze so that difficulties in communication skills set limits on opportunities for learning, as they are unable to respond to commands and instructions that consequently hinder learning.

In the current study, conduct problems were revealed as the third comorbid disorder among the studied participants that is consistent with **Pondé et al., (2017)**. However, **Salazar et al., (2015)** reported that conduct disorder was the least prominent comorbid disorder among children with autism in their study.

The co-occurrence of conduct disorder in the current study may be explained by the fact that the core symptoms of ASD like problems in social interaction, communication and presence of repetitive behavior may contribute to various forms of maladaptive coping e.g. acting-out behaviors. For example, children with ASD are fond of sameness and repetition (Insistence on sameness) and they feel more comfortable in adherence to routines in all aspects of their daily living so any change in their life or activities provokes tantrums.

The present study revealed anxiety and psychosomatic symptoms were the least notable among comorbid problems in the studied sample. This finding is consistent with **Libove et al.,(2017)**. In contrast to the present study results, **Amr et al., (2012)** in Egypt demonstrated that anxiety disorders were the most common comorbid condition in children with autism.

A possible reason for the low prevalence rates of anxiety among the current sample was the limited number of questions related to anxiety problems on Conner's Parent Rating Scale (CPRS) might not cover all profiles of anxiety problems which might be a possible reason for decrease rates of anxiety symptoms among children with ASD.

Additionally, the low prevalence rates of psychosomatic symptoms among the current sample may be due to children with ASD have difficulties in communicating their feelings

of pain and discomfort due to impairments in expressive language.

The current study reported a highly statistically significant positive correlation between all comorbid psychiatric problems (except the anxiety) and severity of autism symptoms.

These results are consistent with **Mansour et al., (2017)** who reported that the severity of autism symptoms increase with the a greater number of comorbid psychiatric disorders.

These findings may be explained by the presence of co-occurring conditions that lead to lower quality of life, greater demands for assistance in everyday living activities and poor prognosis and severe symptoms. For example, conduct problems, learning problems, ADHD symptoms, anxiety and psychosomatic problems that co-occur with ASD may impede the child's ability to socialize, communicate, and interact properly, thus increase the severity of autism symptoms.

CONCLUSION

It can be concluded from the present study that the most of the studied children have moderate and high level of severity of autism symptoms. There is a wide variety of psychiatric comorbidity afflicting children diagnosed with ASD.

RECOMMENDATION

In the light of the current study, the following recommendations are suggested:
1- Conducting follow up studies on the current study sample to evaluate their developmental milestones
2- Individual interventions should be applied to children with autism spectrum disorder because of the presence of comorbid psychiatric problems in the studied sample.
3- Application of early intervention programs as much as possible to promote children's behavior by improving communication and socialization skills first

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