



CODEN [USA]: IAJPBB

ISSN : 2349-7750

**INDO AMERICAN JOURNAL OF  
PHARMACEUTICAL SCIENCES**

SJIF Impact Factor: 7.187

<https://doi.org/10.5281/zenodo.8022095>Available online at: <http://www.iajps.com>

Research Article

**AWARENESS AND KNOWLEDGE ABOUT CHILDHOOD  
AUTISM AMONG FAMILY MEDICINE RESIDENTS IN KING  
FAHAD MEDICAL CITY, RIYADH, SAUDI ARABIA-2023**

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**Abstract:**

**Aim:** to assess knowledge and awareness of autism among family medicine residents in King Fahd Medical City "KFMC" in Riyadh Region in Saudi Arabia.

**Methods:** A descriptive cross-sectional study among all family Medicine residents in KFMC-Riyadh using knowledge about childhood autism among health workers (KCAHW) questionnaire.

**Results:** 116 residents' doctors participate in the study with 66 (56.9%) males and 50 (43.1%) females. Of all participants 17 (14.7%) attended workshops or conferences about autism. The total mean score on the questionnaire among the participants was  $12.35 \pm 3.6$ , with a total of 80 (68.9%) of the participants scoring within and above the total mean score.

**Conclusion:** Knowledge of family medicine residents regarding childhood autism spectrum disorder is moderate, and it is mandatory to update the awareness and train them to provide healthcare services that would ensure early diagnosis and proper management of these cases.

**Keywords:** Autism spectrum disorder – awareness – knowledge - family medicine.

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Please cite this article in press Nasser Mohammed Alamri et al., *Awareness And Knowledge About Childhood Autism Among Family Medicine Residents In King Fahad Medical City, Riyadh, Saudi Arabia-2023.*, *Indo Am. J. P. Sci.*, 2023; 10 (05).

## INTRODUCTION:

Autism spectrum disorder is a spectrum of neurodevelopmental disorders characterized by repetitive behaviors and deficits in social communication[1]. Diagnostic criteria for autism were updated in 2013 in *Diagnostic and Statistical Manual of Mental Disorders*—5th edition (DSM-5)[2]. The prevalence of autism spectrum disorder is estimated one in 100 children around 16% of the global children population, per World Health Organization 2022. It is diagnosed more commonly in males than in females. Its prevalence may be uniform across all races and ethnicities but is identified more in the Caucasian race than in African American or Hispanic groups [3]. Family physicians are the first line to provide protective healthcare services, diagnosis and treatment services, and refer patients to specialists. With the increase in family and physicians' knowledge about autism and a decrease in stigma around it, the difference in the rate of identifying the disorder in children between various ethnicities has been decreasing[4].

As with any chronic condition, autism spectrum disorders (ASD) pose serious challenges to patients and their families. Autism requires early diagnosis and years of cognitive and behavioral therapy to manage the condition. Usually, autism is screened in well-child visits at pediatricians' offices starting at less than 18 months[5]. Once diagnosed, the family and patient require intensive social and therapeutic support to manage for years, depending upon severity. Lack of early diagnosis, awareness among healthcare workers and/or child caretakers, stigmatization around mental illnesses, and lack of proper social support, including modified school curriculum at school or behavioral therapy centers, pose serious challenges and make autism a difficult condition to manage in Saudi Arabia[6].

In previous studies done to assess knowledge of autism in Saudi Arabia, reports show that the primary source of education among common people regarding autism remains social media. However, people with a master's degree education or higher were 3.5 times more likely to understand autism spectrum disorder. Starting in the late 90s, the Saudi health departments and other non-governmental organizations have invested in creating a wide range of services for

treatment and education for children with autism and support to their families[7]. This study aims to evaluate the awareness of the family Medicine residents in King Fahd medical city In Riyadh Region in Saudi Arabia concerning childhood autism and assess their knowledge concerning childhood autism.

## METHODOLOGY:

A descriptive cross-sectional study using a self-administered KCAHW questionnaire. This study was conducted among all family Medicine residents in KFMC-Riyadh in February 2023. The total number of Family medicine residents in this region is 116. The exclusion criteria were as follows: none of KFMC Family medicine residents, Family Medicine specialists, or consultants.

Statistical Package for Social Sciences (SPSS) version 26 was used to calculate the mean, median, and mode scores of the total score for the family medicine residents on the KCAHW questionnaire. The various mean scores concerning the socio-demographic variables of the participants were also one-way Analysis of Variance (ANOVA) to determine the correlates of knowledge scores on the KCAHW questionnaire. The frequency and percentage distribution of the participant's opinions were also computed. The Ethical Committee of the Ministry of Health gave ethical clearance.

### **Knowledge about Childhood Autism among Healthcare Workers (KCAHW) questionnaire:**

It is a nineteen-item questionnaire divided into four domains, each having three options to choose from (correct option yields 1 score while incorrect ones get zero[7]). The first domain (eight-item questions) assesses the impairments in social interaction. The second domain (one-item question) addresses communication and language development. The third domain (four-item questions) evaluates the obsession and compulsive pattern of restricted, repetitive, and stereotyped behavior in children with childhood autism. The fourth domain (six-item questions) studies the etiology, comorbid conditions, and onset. Therefore, the total scores range from 0 to 19. The mean total score for the KCAHW questionnaire measures the knowledge level about childhood autism among that particular population.

The questionnaire was modified to include the gender, level of residency, and any attended Autism workshops or conferences.

### RESULTS:

116 residents' doctors from the family medicine department consented to participate in the study. There were 66 (56.9%) males and 50 (43.1%) females. The total number of residents attending workshops or conferences about autism is 17 (14.7%). Other socio-demographic variables are shown in Table 1.

To measure the knowledge of family medicine residents about childhood autism; (KCAHW) questionnaire. The questionnaire contains four domains, with maximum total scores of 8, 1, 4, and 6 possible in domains 1, 2, 3, and 4, respectively. The total mean score on the questionnaire among the participants was  $12.35 \pm 3.6$ , with 80 (68.9%) of the participants scoring within and above the total mean score. The median score was 12, and the mode score was 13.

SOCIO-DEMOGRAPHIC VARIABLES	N (%)
<b>GENDER</b>	
MALE	66 (56.9)
FEMALE	50 (43.1)
<b>AGE</b>	
25-30 YEARS OLD	101 (87.1)
31-35 YEARS OLD	11 (9.5)
ABOVE 35 YEARS OLD	4 (3.4)
<b>TRAINING LEVEL</b>	
R1	38 (32.8)
R2	32 (27.6)
R3	46 (39.7)
<b>ATTENDING ANY WORKSHOPS OR CONFERENCES ABOUT AUTISM</b>	
YES	17 (14.7)
NO	99 (85.3)

Table [1]: Socio-demographic variables

The pattern of distribution of scores in the different domains of the KCAHW questionnaire is shown in Table 2 represents domain 1, which contains the questions on the area of impairments in social interaction and has a mean score of  $5.78 \pm .18$ , with a total of 91 (78.4%) participants who scored within and above the mean score in this domain. The mean score in domain 2 deals with questions on communication impairments  $.62 \pm .05$ , and 106 (91.3%) of the participants scored within and above the mean score in this domain. Domain 3, which deals with questions on obsessive and repetitive behavioral patterns, had a mean score of  $2.63 \pm .12$ , and 94 (81.0%) participants scored within and above the mean score in this domain. Domain 4, which measures what type of disorder childhood autism is and possible associated co-morbidity, recorded a mean score of  $2.63 \pm .12$ , and 47 (40.5%) participants scored within and above the mean score in this domain. The knowledge gap was higher in domain 4, followed by domains 1, 3, and 2, respectively. Figure 1 contains the histogram and normal distribution curve showing the pattern of scores from a minimum of 0 to a maximum of 19 on the KCAHW questionnaire among family medicine residents.

Domains	Area of Knowledge	Total Score	Mean Scores	The total no. of participants scored within and above the mean score in this domain (%)
<b>Domain1</b>	Impairments in Social Interaction	8	5.78 ± .18	91 (78.4%)
<b>Domain2</b>	Impairment in Communication	1	.62 ± .05	106 (91.3%)
<b>Domain3</b>	Obsessive and Repetitive Behavioral Pattern	4	2.63 ± .12	94 (81.0%)
<b>Domain4</b>	Type of Disorder Autism is and Possible associated Comorbidity	6	3.31 ± .14	47 (40.5%)
<b>Total</b>		19	12.35 ± 3.6	80 (68.9%)

TABLE [2]: THE PATTERN OF DISTRIBUTION OF SCORES IN THE DIFFERENT DOMAINS OF THE KCAHW QUESTIONNAIRE AMONG FAMILY MEDICINE RESIDENTS

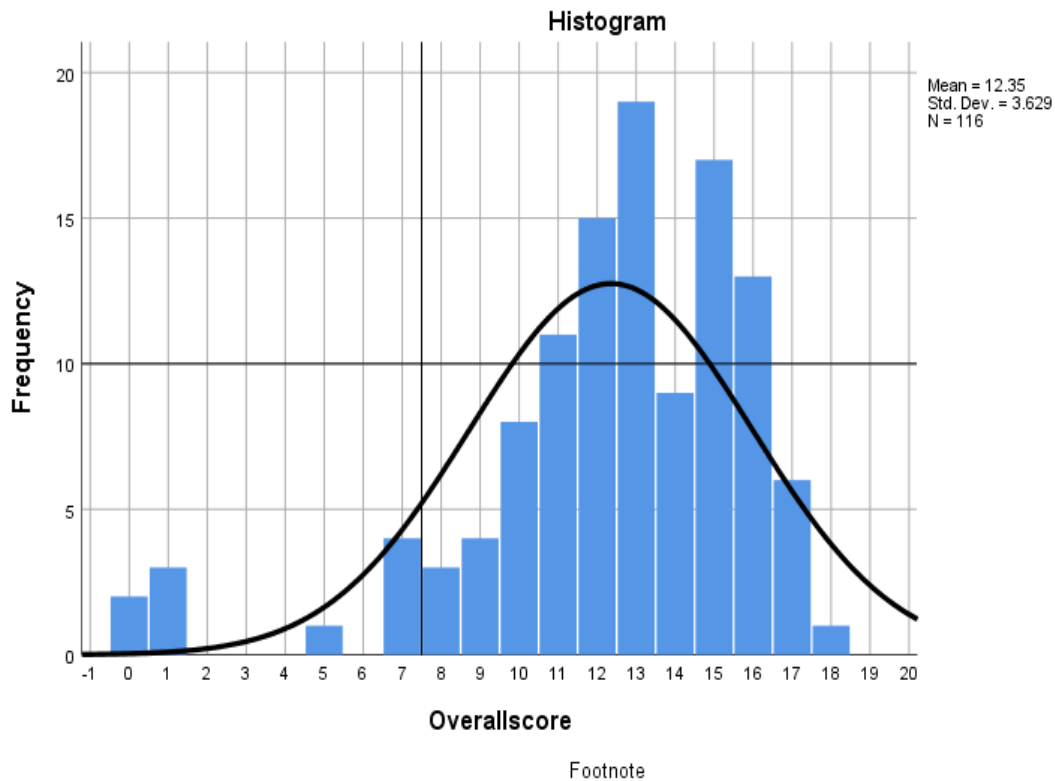


FIGURE [1]: HISTOGRAM AND NORMAL DISTRIBUTION CURVE OF FAMILY MEDICINE RESIDENTS ON KCAHW QUESTIONNAIRE.

A significant relationship was found between the mean score on the KCAHW questionnaire and the age group distribution of the participants (p-value= .022) and a non-significant relation with the other factors Table 3.

SOCIO-DEMOGRAPHIC VARIABLES	MEAN SCORES ON KCAHW QUESTIONNAIRE	ONE-WAY ANOVA COMPARING MEAN SCORES
<b>GENDER</b>		
MALE	11.9 ± 3.7	F-ratio=2.01 df=1 p-value=.159
FEMALE	12.9 ± 3.6	
<b>AGE</b>		
25-30 YEARS OLD	12.6 ± 3.0	F-ratio=3.966 df=2 p-value= .022*
31-35 YEARS OLD	11.5 ± 6.0	
ABOVE 35 YEARS OLD	7.8 ± 6.3	
<b>TRAINING LEVEL</b>		
R1	11.5 ± 3.8	F-ratio=1.517 df=2 p-value= .224
R2	12.6 ± 2.6	
R3	12.9 ± 4.0	
<b>ATTENDING ANY WORKSHOPS OR CONFERENCES ABOUT AUTISM</b>		
YES	11.2 ± 4.0	F-ratio=2.116 df=1 p-value= .149
NO	12.6 ± 3.6	

TABLE [3]: COMPARISON OF MEAN SCORES ON THE KCAHW QUESTIONNAIRE ABOUT THE FAMILY MEDICINE RESIDENTS' SOCIO-DEMOGRAPHIC VARIABLES

### DISCUSSION:

The mean score on the questionnaire among the participants was  $12.35 \pm 3.6$ ; This revealed a much higher level of knowledge about childhood autism compared to the previous studies[8-10] and with a similar mean result to other studies [11-13] which is a good indicator for family residents in KFMC to know about childhood autism and aid early recognition and diagnosis of the case. Given the importance of Family physicians' sufficient knowledge plays a fundamental role in diagnosing ASD, further training and education are highly recommended to fill the knowledge gap in domain 4, followed by domain 1 of the KCAHW questionnaire found in our results.

The knowledge regarding autism is a common problem and has been reported by several studies with various psychiatry curriculums and residency programs. A study done in Egypt reported that the mean total score of the knowledge questionnaire was  $11.2 \pm 3.5$ , indicating an average level of knowledge [14]. Another study had a moderate knowledge of Autism [15]. Furthermore, a study among general practitioners in Pakistan revealed that 44.6% had heard of autism [16]. Additionally, a study in Saudi Arabia noted that only (10%) answered correctly on more than 50% of the questions [17]. Besides, many studies described that physicians who lack the

necessary knowledge about ASD are more prone to delays in diagnosis and treatment, leading to the situation's complications [17-19]. On the other hand, many studies reported that improving knowledge and diagnostic skills with continuing medical education and training leads to provides the necessary information to ASD patients and their caregivers regarding its management[20-23].

### CONCLUSION:

Knowledge of family medicine residents regarding childhood autism spectrum disorder is moderate, and it is mandatory to update the awareness and train them to provide healthcare services that would ensure early diagnosis and proper management of these cases.

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