

Knowledge, attitudes, and practices of primary health care physicians, junior doctors, and medical college students towards autism in Duhok, Iraq

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Abstract

Background and objective: The knowledge of autism spectrum disorder among physicians and medical students is limited. This study aimed to find out the level of knowledge, attitudes, and practices of primary health care physicians, junior doctors, and 6th year medical college students in Duhok province, Iraqi Kurdistan toward autism spectrum disorder.

Methods: A cross-sectional study was carried out from September 10th until October 30th, 2016. A self-administered questionnaire was used for data collection. Two hundred and two questionnaires were completed by the three participants' groups. Data analysis was carried out using the statistical analysis system (SAS, version 9.4).

Results: Of the 202 participants, 24.8% were sixth year medical students, others were junior doctors (35.6%) and primary health care physicians (39.6%). Of them, 51.5% were females and 48.5% were males. High percentages (90.1% and 91.1%) of respondents heard and knew about autism spectrum disorder, respectively. They showed poor information on identification and management. Primary health care physicians had more knowledge on the genetic basis of autism ($P < 0.001$) and behavioral therapy for autism ($P = 0.016$). No significant differences in knowledge was found between both gender groups except that female participants had limited knowledge on its genetic basis ($P = 0.007$).

Conclusion: Although primary health care physicians, rotators, and medical students generally heard about autism spectrum disorder, they had limited knowledge of its diagnosis and management. It is recommended to introduce autistic disorders lectures to the medical college curriculum and training of physicians by experienced professionals.

Keywords: KAP; Physicians; Medical students; Autism.

Introduction

The general knowledge of mental health among general practitioners and primary health care (PHC) physicians is limited, as identified by more than 400 articles.¹ This gap in knowledge on mental illnesses could be filled with continuous medical education (CME).² In Arabian Gulf countries, including Iraq and Iraqi Kurdistan, primary care physicians are somewhat less efficacious in dealing with patients having psychiatric disorders.³ One of the important challenges of child mental health nowadays is autistic disorders. Autism spectrum disorders (ASD) are disseminated, and lifelong

neurodevelopmental disorder that has uncertain etiology.⁴ It comprises a trio of impairments embodying delay and deviance in (a) social interaction and relationships, (b) communication and language, and (c) limited interests and repetitive behaviors that create a considerable effect on the child or young person and their family.^{5,6} The last decades showed an obvious increase in the prevalence of ASD.⁷ Many cases are missed and not diagnosed until school age.⁸ Both the American Academy of Pediatrics (AAP) and the Royal Australian College of General Practitioners (RACGP)

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insisted on the important role of primary care providers in the early detection of autism.^{9,10} The process of referring to specialist services is enhanced and strengthened by the perfect process of early detection of ASD, which consequently resulted in early intervention.^{11,12} A survey in the United States of America showed differences in knowledge of autism between PHC providers and specialists like psychologists, psychiatrists, and speech therapists.¹³ On another side of the world, misunderstandings about the etiology, treatment, and prognosis of ASD were found among health care workers in Sub-Saharan African subcultures.¹⁴ In developing countries, the health staff concentrates more on tropical diseases with shortages in their knowledge concerned the developmental milestones field.^{15,16} Intrinsically, the documented deficit of knowledge about ASD in between health care workers may be due to a flaw in the academic education system with the inadequacy of practical training and insufficient theoretical lectures provided in terms of pediatrics, psychiatry, and psychology.^{17,18} For this reason, the level of knowledge on ASD among final year undergraduate medical, nursing, and psychology students should be well assessed. They will be future members of the multidisciplinary team responsible for taking care of autistic children.¹⁹⁻²¹

The current study was performed to investigate the knowledge, attitude, and practice (KAP) toward ASD among PHC physicians, junior doctors, and 6th year medical college students in Duhok province, Iraqi Kurdistan.

Methods

Study setting and design

A cross sectional study was carried out to assess the KAP of current physicians (PHC physicians and junior doctors) working at the Directorate of Health, Duhok and 6th year medical college students from the University of Duhok. The participants responded to a questionnaire designed to assess KAP toward ASD. Four interviewers entered a training course of two days to practice the questionnaire in the psychiatric department in Azadi teaching hospital. During about two months, they conducted their interviews with participants from Duhok city and surrounding areas.

Participants

The General Directorate of Health in Duhok governorate had seven health sectors, including Duhok Center sector. Meantime, there were 50 students in the 6th year of the medical college at the University of Duhok during the academic year 2015-2016, and all were invited to participate in our study. The study population was 202, according to Table 1.

Table 1: Distribution of the sample according to the workplace.

Sector	Participants
Students of medical college (6th year)	50
Physicians: PHC physicians and junior doctors	152
Physicians in Duhok city	79
Physicians in Zakho city	19
Physicians in Summel town	14
Physicians in Amediye town	18
Physicians in Shekhan town	8
Physicians in Bardarash town	5
Physicians in Akre city	9
Total	202

Study Instruments

A questionnaire was designed by the authors to assess KAP toward ASD among participants who are physicians and medical college students. The instrument was designed in such a way as to cover all aspects of KAP. The first part included some demographic data of the participant like gender, age, place of work, number of years of experience. The second part of the study tool composed of 20 questions covering areas of KAP toward ASD including the three main domains of clinical information and etiology, diagnosis, and treatment of ASD. The validity of the research tool was done by presenting the instrument to four specialists, including two psychiatrists and two community medicine specialists, to review it and give their valuable notes, which were applied to the original questionnaire.

The Pilot Study

Then a pilot study that lasted for seven days was conducted after discussions with experts. It has been conducted through using a small group of respondents consists of 10 PHC physicians, five junior doctors, and five medical college students of 6th year, those who were not included in the study. The investigators did their pilot study to train on the questionnaire, achieve more practice, and estimate the appropriate time required to complete the survey.

Data Analysis

Data from 152 physicians and 50 medical students were extracted from the survey instrument/responses and entered into Microsoft Excel. The data were then cleaned and formatted for input into statistical software. Data were imported into the statistical analysis system (SAS) software and analyzed. Descriptive statistics were used to summarize physician responses as presented in the results section. The distribution of physician and medical student's correct responses were determined and presented. Chi-square tests were conducted to check for any significant difference among the

physician types and student responses. A $P \leq 0.05$ was considered statistically significant, and a $P < 0.001$ was considered highly significant. Likewise, Chi-square tests were performed to check for any significant differences by gender. Percentages for the correct answer of knowledge, identification, and management of autism were identified. Chi-square test was performed to check for any significant differences among the physician groups with regard to the percentages of correct answers. Data were analyzed using SAS version 9.4 (SAS Institute, Cary, NC).

Ethical Consideration

This study was approved by the ethics committee of the College of Medicine, University of Dohuk. Informed written consent was obtained from all participants, and an information leaflet has been provided at the time of implementing the study.

Results

The total number of participants in this survey was 202; 51.5% were females, and 48.5% were males. Most of the respondents were between the age of 25 and 34 years (68.8%). Fifty of them were 6th year medical students (24.8%), the 72 junior doctors were 35.6%, and the PHC physicians were 80 making 39.6%. About 75.3% of the physicians had 1-5 years of experience. Nearly half of the participants have taken a training course on ASD, 45.1% included in the college curriculum and 11.9% outside the college, as shown in Table 2.

Table 2: Demographic characteristics of the study sample

Characteristic	N=202 (%)
Sex	
Female	104 (51.5)
Male	98 (48.5)
Age (years)	
18 – 24	50(24.8)
25– 34	139(68.8)
≥ 35	13(6.4)
Position	
6 th year student	50 (24.8)
Junior/Rotator	72 (35.6)
PHC physician	80 (39.6)
Years of service for physicians (n = 150)	
< 1	18(12.0)
1 to 5	113(75.3)
6 to 10	8(5.3)
11 to 20	5 (3.3)
≥ 21	6 (4.0)
Training (n = 202)	
Have taken a course on ASD	91 (45.0)
Other training outside of college on ASD	24 (11.9)

Table 3 shows the number and percentages of correct responses about knowledge, identification, and management of autism by physicians' types and 6th year medical students, separately and totally.

Table 3: Distribution of physicians' and medical students' correct responses.

Area of KAP	Medical student (n = 50)	Junior / Rotator (n = 72)	PHC-Doctor (n = 80)	P value	Total number (%) (n = 202)
Knowledge					
Heard about ASD	41 (82.0)	66 (91.7)	75 (93.8)	0.079	182 (90.1)
Knows what ASD is	43 (86.0)	67 (93.1)	74 (92.5)	0.344	184 (91.1)
Definition of ASD	15 (30.0)	23 (31.9)	36 (45.0)	0.133	74 (36.6)
Age ASD diagnosed	36 (72.0)	63 (87.5)	62 (77.5)	0.092	161 (79.7)
Gender rates of occurrence of ASD	29 (58.0)	38 (52.8)	52 (65.0)	0.307	119 (58.9)
ASD and genetic basis	21 (42.0)	12 (16.7)	37 (46.3)	<0.001	70 (34.7)
Pollution as being an environmental factor	23 (46.0)	21 (29.2)	36 (45.0)	0.078	80 (39.6)
Relationship between ASD and diet	4 (8.0)	9 (12.5)	15 (18.8)	0.207	28 (13.9)
ASD being curable condition	22 (44.0)	25 (34.7)	32 (40.0)	0.574	79 (39.1)
Identification					
Diagnosis of ASD dependence	27 (54.0)	39 (54.2)	47 (58.8)	0.809	113 (55.9)
Requirement of laboratory to diagnose ASD	12 (24.0)	22 (30.6)	22 (27.5)	0.728	56 (27.7)
Existence of proper facilities for labs regarding ASD	33 (66.0)	41 (56.9)	48 (60.0)	0.600	122 (60.4)
Heard of Childhood Autism Rating Scale	7 (14.0)	13 (18.1)	18 (22.5)	0.47	38 (18.8)
Childhood Autism Rating Scale usage	1 (2.0)	3 (4.2)	3 (3.8)	0.800	7 (3.5)
Management					
Behavioral therapy is best management option	42 (84.0)	55 (76.4)	67 (83.8)	0.430	164 (81.2)
Scientific-practical-concerned programs and Behavioral Therapy	3 (6.0)	14 (19.4)	21 (26.3)	0.016	38 (18.8)
Final treatment decision after diagnosis	11 (22.0)	14 (19.4)	14 (17.5)	0.818	39 (19.3)
Referral to Specific Center for Autism	15 (30.0)	7 (9.7)	12 (15.0)	0.011	34 (16.8)

Speaking about the results of all participants together, 90% of them responded positively about the first two questions of the questionnaire, which are mostly subjective on knowledge of autism. Regarding the third question, which wonders autism to be defined as which type of disorders, only 36.6% of respondents gave the correct answer as a neurodevelopmental disorder among four alternative answers. The age at which autism can be diagnosed and the gender differences in the occurrence of this disorder were also answered correctly by 79.7% and 58.9% of participants. Questions 6-8 of this instrument were concerning knowledge of etiology and were mostly wrongly answered by participants. Genetic factors, environmental and diet relationship to etiology of autistic disorder were answered correctly only by 34.7%, 39.6%, and 13.9% of respondents. Question 9 of knowledge is whether autism is a curable disorder and again was answered correctly by only 39.1%. Regarding the second part of the questionnaire, which is specific for the identification of autism, five questions are included. The first question, which is concerned with the best way of confirmation of autism diagnosis, is answered correctly by nearly half of the participants (55.9%). The remaining four questions deliver Yes, or No answers are specified for tools of Autism identification and are mostly answered incorrectly. The questions were concerned with laboratory requirements, local laboratory services, autism rating scale, and whether there is previous or current usage by the participant. The responses percentages were: 27.7%, 60.4%, 18.8%, and 3.5% respectively. The third part of the instrument deals with the management of autistic disorders and consists of four questions. Behavioral therapy to be the best way of autism management was the content of the first question and was answered correctly by most of the respondents (81.2%). The second concern

of the management is whether the participant has any idea about an applicable scientifically practical concerned programs, was wrongly answered by most of the respondents i.e., only 18.8% of them answered it correctly. The last two questions on management were providing multiple choices and were also mostly answered wrongly. The question of final treatment decision and the preferable center of referral of autistic patients were answered correctly by only 19.3% and 16.8%, respectively. The pattern of distribution of correct responses among the physicians and students is also clarified in Table 3. The three groups had similar responses in most areas of the questionnaire except for three questions: one is concerned with knowledge, and the other two were concerned with management. Regarding the genetic bases as etiology of autism, there was a highly significant difference between the responses of the three groups ($P < 0.001$). PHC doctors and sixth year medical students had more correct answers percentages than the junior doctors, 46.3% and 42%, in contrast to 16.7%. Although most of the responses about whether the respondents have an idea about an applicable scientific practical concerned program used in behavioral therapy were negative, the PHC doctors showed more positive answers (26.3%) in comparison to 19.4% and 6% of the other two groups. Regarding referral to specific centers of autism management and rehabilitation, the question was more correctly answered by 6th year medical students (30%) in comparison to 15% and 9.7% of other groups. Differences between gender groups are shown in Table 4. There were no significant differences between the male and female respondents except the question concerning the genetic etiological factors of autism which was answered correctly by males 43.9% vs. only 26% of females ($P = 0.008$).

Table 4. Distribution of responses by gender.

	Gender (N = 202)		P value
	Female	Male	
Knowledge	N = 104	N = 98	
1. Heard about ASD	95 (91.4)	87 (88.8)	0.541
2. Knows what ASD is	95 (91.4)	89 (90.8)	0.895
3. Definition of ASD	43 (41.4)	31 (31.6)	0.152
4. Age ASD diagnosed	82 (78.9)	79 (80.6)	0.755
5. Gender rates of ASD	66 (63.5)	53 (54.1)	0.176
6. ASD and genetic basis	27 (26.0)	43 (43.9)	0.008
7. Pollution as being an environmental factor	45 (43.3)	35 (35.7)	0.273
8. Relationship between ASD and diet	19 (18.3)	9 (9.2)	0.062
9. ASD being curable condition	41 (39.4)	38 (38.8)	0.925
Identification			
1. Diagnosis of ASD dependence	55 (52.9)	58 (59.2)	0.368
2. Requirement of laboratory to diagnose ASD	29 (27.9)	27 (27.6)	0.958
3. Existence of proper facilities for labs regarding ASD	64 (61.5)	58 (59.2)	0.732
4. Heard of Childhood Autism Rating Scale	21 (20.2)	17 (17.4)	0.605
5. Childhood Autism Rating Scale usage	4 (3.9)	3 (3.1)	0.761
Management			
1. Behavioral Therapy best management option	83 (79.8)	81 (82.7)	0.605
2. Scientifically-practical-concerned programs and Behavioral Therapy	21 (20.2)	17 (17.4)	0.605
3. Final treatment decision after diagnosis	22 (21.2)	17 (17.4)	0.493
4. Referral to Specific Center for Autism	17 (16.4)	17 (17.4)	0.849

Discussion

Up to our knowledge, this study can be regarded as the first one in Iraq examining the knowledge, attitude, and practice of graduate doctors, general practitioners, and medical students on autistic disorders. There are suggestions that physicians, in order to make an early diagnosis of ASD and giving the needed support to their parents, must be knowledgeable on current researches on ASD.²² In general, a higher proportion of the respondents heard about and know what autism is. Differences between the three groups are clear regarding knowing and hearing about autism. This may be due to the differences in working experience and years of serving as health workers, which are higher in PHC doctors than junior doctors and, in turn, more than medical students. This can be explained on the basis of their experience. Esegbe and colleagues' study on knowledge of childhood autism among medical doctors in Kaduna state, northwest Nigeria, displayed similar results in which the doctors presented an appreciable knowledge of autism.²³ Additionally, the latter study showed that psychiatrists and pediatric doctors have more knowledge than other specialties, which again depend on their past attendance to autistic children. While most of the participants have heard about and know what autism is, still only a lesser percentage of them have appropriate knowledge of the etiology of autism. The findings were similar to other studies like the survey in Nigeria in which 58.2%, 14.2%, and 26.9% of their healthcare workers have information about etiological factors of childhood autism that can be explained by natural, preternatural, and supernatural causes, respectively.²⁴ The majority of medical doctors in Sri Lanka (61.9%) regarded themselves as incapable of diagnosing autism.²⁵ Although most of the respondents in our study knew the age of diagnosis of autism which is at three years, physicians in other countries have different percentages of correct answers.²⁶ In Pakistan, only 56.2% of them

recognized that the onset of symptoms of autism should be before 36 months.²⁷ Around third of the participants in this study could define autism as a neurodevelopmental disorder. This was lesser than what doctors of Colombo south teaching hospital reported, in which 64.2% of them regarded autism as a neurodevelopmental disorder.²⁵ In Lahore, Pakistan, 51% of physicians considered autism a developmental disorder.²⁷ Less than half of the participants believe that autism is a curable condition. This was close to the opinions of Nigerian health care workers in which 54.5% and 32.1% of them subscribed that autism is a treatable and preventable condition, respectively.²⁴ The three groups of respondents were not knowledgeable about treatment options, including the concerned treatment programs, treatment decisions, and referral to specified centers. The correct answers were chosen by only 16.8% and 19.3% of all participants together. This may be due to the deficiency of services and centers specialized for ASD treatment in our locality. Other studies provided similar findings; only 15-34% gave advice on medical or educational programs, and 6% advised referral to ASD specialists.²² The exception was the agreement of most respondents of our study on behavioral therapy to be the best treatment options. The gender variation on knowledge about autism was not seen in this study in most areas of assessment. Bakare MO et al. study showed no significant gender differences in Autism knowledge.¹⁶ The only significant association with gender was one item related to the etiology of autism. Male doctors and medical students were significantly more likely to recognize the genetic basis of autism. The knowledge gap in this study and other similar studies could view the deficient autism education in the medical academic discipline and in the professional formative practice. Insufficient knowledge in these areas may lead to delay recognition, identification, or

intervention. This may, in turn, result in leaving them untreated and worsen the quality of life of autistic persons and their parents. Several limitations existed in the present study. The sample size was somewhat small, making it possible that the results are not reflecting the actual knowledge of the medical students and doctors. Limiting the study to only 6th year medical students, rotators, and PHC physicians was the second limitation. Specialist doctors and other health care workers were not included, and they may be less or more knowledgeable about autism. The questionnaire is designed to be self-administered and gathered immediately. It is not covering all etiological factors of autism, the comorbidities of autism like seizure and intellectual disabilities, and does not contain all management routes. Additionally, it cannot assess the cultural beliefs held by the participants about autism.

Conclusion

The majority of participants knows and heard about ASD, but they showed poor information on its definition, identification, and management. PHC physicians' knowledge of genetic etiological factors of autism and behavioral therapy was better compared to the other two groups. It is recommended to introduce autistic disorders lectures to the medical college curriculum and more medical training for physicians. This may enhance better access to care for autistic children in their early stages and improve parents' care by education.

Competing interests

The authors declare no competing interests.

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