



Diagnostic Evaluation of Autism Spectrum Disorders, A Health Professional Survey

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Authors' contributions

This work was carried out in collaboration among all authors. Author KS designed the study and wrote final draft. Author MSGK performed final review of article. Authors IN, AF and AR helped in article writing and data collection. Authors SS and AN performed data analysis. All authors read and approved the final manuscript.

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ABSTRACT

Background: Since the prevalence and awareness Autism Spectrum Disorders (ASD) is growing day by day, it is crucial to correctly allocate diagnosis of ASD. According to the guidelines, there should be a multi-agency strategy group for diagnosis of ASD.

Aim: To find out the diagnostic practices of ASD among different Health Professionals.

Place and Duration of Study: Riphah International University, Lahore campus. The study was conducted from October 2017 till March 2018.

Methodology: Data was collected from 116 professionals which included Speech-Language Pathologists, Pediatricians, Psychiatrists, Psychologists and Occupational Therapists by using

questionnaire. A cross-sectional survey was carried out by using the technique of convenient sampling. Researcher collected the data from Riphah International University in person and some professionals were sent questionnaires online.

Results: Majority of professionals provide diagnostic service i.e. 84.4% as a part of multidisciplinary team whereas 15.6% are sole practitioners for giving diagnosis; 51.1% collaborate with other professionals to make a consensus diagnosis and the most frequently used tool by professionals for diagnosing ASD is Childhood Autism Rating Scale CARS (76.7%) and Diagnostic and Statistical Manual of Mental Disorders V/IV (DSM V OR IV) criteria (67.8%).

Conclusion: The professionals in the current study are using multidisciplinary approach for diagnosing ASD and a small number are sole practitioners. The most frequently used tool for diagnosing ASD are CARS and DSM V OR IV criteria. However, very few practitioners use the diagnostic tool Autism Diagnostic Observation Schedule ADOS and Autism Diagnostic Interview-Revised ADI-R. The professionals who provide diagnosis of ASD are Speech and language Pathologists, Psychologists, pediatricians, psychiatrists and Occupational therapists.

Keywords: Diagnostic tools; diagnostic practices; autism spectrum disorders.

1. INTRODUCTION

The term Autism is procured from a Greek term “auto” which means “self” [1]. It is indicated by difficulties in areas of communication and social reciprocity or interaction and stereotypic repetitive sequences and patterns of behaviors interests and restricted routines [2]. Males are affected more and it’s about four times boys are affected than girls [3].

Autism is now more common than disorders like Downs Syndrome, Mental Retardation and Diabetes around the world. It has now become a worldwide health crisis but no recognition and knowledge about autism is still trivial in comparison with other disorders [1].

Autism is diagnosed in compliance with the criteria given in “diagnostic statistical manual of mental disorders” 5th ed. (DSM-5) which states that, Persistent deficits in” social communication” and “social and emotional” reciprocity in addition presence of restricted rituals, repetitive activities, behaviors and interests with severity ratings grounded on the amount of support the individual is in need of [4]. The current studies advocate that children can be reliably given the diagnosis of “ASD”, in the age of second year in their life, with a trained and experienced professional team [3].

The doctors are generally the first ones to pin point and identify the signs and symptoms of ASD, whom parents reach when they suspect that there is a problem with child, therefore, it is important for doctors to have basic knowledge of Autism and where to refer these children for further assessments and counseling [5]. The

fresh researches regarding sleep problems, gastrointestinal and epilepsy in children with ASD has led the clinical and medical pathways to evaluate and shed a light on these issues within the framework of primary i.e. Medical care [6].

There is little evidence to escort optimal service framework, moreover the consensus is on the core Multidisciplinary diagnostic assessments team, and it is advisable.⁷According to the guidelines there should be a multi-agency strategy group [5,7], for maintaining the local pathway of diagnosing, referral and recognition of suspected autism. This group will include a number of professionals, who should be aware of the pathway for diagnosis. The agency will appoint a lead professional, a coordinator of evaluation who will be responsible for incorporating the results.⁹The multidisciplinary team will include some core professionals including, pediatrician or adolescent and child psychiatrist, speech and language pathologists [8] clinical psychologist or educational psychologist [5, 8-10]. Also, they should have a regular access for occupational therapist. Other pertinent professionals who may be skilled to impart to the diagnostic assessment and evaluation of Autism [8,10].

Ideally SLP play an important role in interdisciplinary team where members are trained in diagnosing ASD. In the absence of such team a speech and language pathologist who has knowledge of criteria of ASD and has experience regarding diagnosing and assessing ASD, may give diagnostic statement as a sole practitioner. The Speech and language pathologists (SLPs) play an important role in providing assessments, diagnostics, intervention

and screening in persons suspected of ASD [11]. The speech-language pathologist (SLP), is a key player in the attenuation of effects of ASD [12].

Assessment should include the developmental profile of a child, this includes, cognitive skills, language skills, social communication and interaction skills, adaptive skills, motor milestones, atypical sensory behaviors, family history [10].

Since the prevalence and awareness of ASD is growing day by day it is crucial to correctly allocate diagnosis of ASD, in order to dispense timely and effective intervention services children with ASD diagnosis are more likely to develop psychiatric comorbidity, which includes disorders of anxiety, attention deficit/hyperactivity disorder (ADHD), and depression [13].

It is the first study in the knowledge of researcher to investigate the diagnostic practice among varied health professionals in Lahore, Pakistan. There still remains confusion about which professionals are involved in diagnosing ASD and a comprehensive national guideline and the tools to be used for ASD diagnosis.

The objective of the study is to find out the diagnostic practices of different Health Professionals in diagnosing ASD. The diagnostic practices include, the diagnostic service i.e. sole practitioner or in a part of multidisciplinary team. The tests used to diagnose ASD and how often professionals take information from multidisciplinary reports to inform ASD diagnosis.

A study conducted in Indonesia in order to find out that how the diagnostic practices for ASD in developed countries differ from those in developing countries. A questionnaire was distributed among 67 health care providers who assessed one child with ASD in a month. They concluded that the best practices were not employed in Indonesia. Most practitioners supported the notion of having tools that are validated in Indonesian language and training in assessing children with ASD [14].

Josephine Boland conducted a research titled Assessments Used by Indian Speech Language Pathologists for Patients with Autism Spectrum Disorder. The population included was Speech and language pathologist of India. The results of study indicated that the three most frequently

used English language-based assessments used in diagnosis are MCHAT (80.95%), CARS (76.19%), and the ABC (47.62%) [15].

A study by JW Felderhoff on the topic Survey of the assessment methods used in Texas public schools for the diagnosis of pervasive developmental disorders in children. Their sample included Speech-language pathologists, Special educators and licensed specialists in school psychology (LSSPs), and educational diagnosticians. The results of this study indicated that the mostly used diagnostic assessments are Gilliam Autism Rating Scale, Childhood Autism Rating Scale, Gilliam Asperger's Disorder Scale and Autism Diagnostic Observation Scale [16].

2. MATERIALS AND METHODS

Descriptive cross-sectional survey design was conducted from October 2017 till March 2018 to find out the diagnostic practices of ASD among different health Professionals. Convenient sampling technique was used for data collection. Researcher collected the data from Riphah International University in person and some professionals were sent questionnaires online.

A study was conducted on the Experiences of diagnosing Autism Spectrum disorder. A survey of professionals were carried out in the United Kingdom in which the sample size of multi professionals were 116 [17]. Another study Diagnosis of autistic spectrum disorders in Queensland: Variations in practice had a sample size of 105 professionals [18]. In another study on The Diagnosis of Autism Spectrum Disorder in Urban Indonesia: A Brief Report they had a sample of 67 Indonesian health practitioners [14]. With reference to these three studies the sample size of this study was 122. The questionnaire distributed in different institutes were 150 and 122 were received back. The respondent rate of questionnaire was 81.33 %.

The participants of study were Occupational therapists, Speech and Language Pathologists, Psychologists, and Pediatricians male and female with a minimum of 1 year experience working with Autism.

First of all, the permission was taken from the institutes to conduct the survey and then professionals were requested to provide their consent and they were briefed by the researcher about the objectives of the study. The objectives

of the study were explained by researcher in formal interview. After consenting demographic information was completed by each professional which included name, age, gender, education and other pertinent personal information. Data collection was from speech-language pathologists, Psychologists, Occupational Therapists, Pediatricians and Psychiatrists by use of questionnaire. Questionnaire was also filled through email.

A statement-based questionnaire was used which was comprised of 19 statements. It was formulated with the help from literature review and opinions of the experts. The content validity of questionnaire was confirmed by means of Content Validity Index (CVI). Consequently, 5 experts with at least 5 years of experience working with ASD in the disciplines of speech and language pathology, and Psychology were formally requested. The analysis of the results was carried out by researcher by the content validity of the scale. The items that were with CVI above 0.75 were retained for final questionnaire and the rest was dropped.

Data was gathered through questionnaire which consisted of different sections. First part comprised on demographic Information. The second part is based on Diagnostic practice which included questions regarding practice i.e. either sole practitioners or in a team. Professionals were asked about different tools used for diagnosis, medical referrals i.e. audiological assessment, genetic testing etc. and input from other professional groups i.e. speech pathology report , cognitive assessments .The responses were recorded on a five point Likert scale with ranges as (always, sometimes , often, rarely , never).The third part consists of Diagnostic labels , which included questions regarding terminology used when making a diagnosis .The fourth part consists of training on conducting ASD assessments, the questions included were Have the professionals received Training and Type of training involved either post graduate, undergraduate etc. Descriptive analysis technique was applied by using SPSS 2.

3. RESULTS AND DISCUSSION

The table no 1 indicates the participants from different professions i.e. 45 Psychologists, and 47 Speech Therapists etc. This table also shows qualification of different professionals who participated in study. Majority of professional's i.e. 34 were MS/MPHIL in qualification and 27

participants were Bachelor in their profession. The age range of professionals who have participated in this study is that 60.7 % lies in age range of 22-30 years 15.6 % lies in the range of 31 – 40 years. Majority of participants had 2-3 years of experience. The results indicate that few numbers of participants i.e. 9 had 12-18 years of experience and 3 had 20-22 years of experience.

Table no 2 shows the multi professionals who diagnose ASD and the diagnostic service provided by professionals. Majority 84.4% provide diagnostic service as a part of multidisciplinary team.

The results in table no 3 shows that most commonly used tool for diagnosis are CARS i.e. 76.7% use this tool and Diagnostic and Statistical Manual of Mental Disorders-IV (DSM-IV) or DSM 5 used by 67.8% of professionals.

In table no 4 majority of professionals take information from other professionals before informing ASD diagnosis. The professionals who includes cognitive assessments are 80%, speech assessments and occupational therapy assessments are included 76.7% and 67.8% respectively.

The findings of this study indicated that (84.4%) clinicians provide diagnosis as a part of multidisciplinary team, whereas (15.6%) are sole practitioners. This result can be compared by a survey performed in Australia where the sole practitioners were (37%) and those part of a multidisciplinary team were (39%) [19]. The number of participants in multidisciplinary team approach for diagnosis is more in current survey.

The multi professional group which includes Pediatricians, Speech Therapists, Psychologists, Psychiatrists, and Occupational Therapists are administering ASD specific assessments in many studies [14,19,20]. In this survey very less number of pediatricians provide diagnosis which is (3.3%). The fact of the time is that the pathway which is a standard for diagnosis of ASD and its assessment starts and commences with a medical health professional [14].

In view of the professionals involved in the diagnosis of ASD, the current study found out that the diagnostic tool used by majority of professionals for providing diagnosis is CARS i.e. 76.7 %. In other researches the most commonly used tool was the Childhood Autism Rating Scale (CARS) [17]. Similarly, in a study conducted the

most frequently used tool by SLPS is CARS and MCHAT [21].

For the diagnosis Gilliam autism rating scale (GARS) is Never used by 71.1% of individuals indicating that it is not a popular tool among professionals of Lahore, Pakistan. Contrary to research in Texas schools the popular tool for diagnosis is GARS its use ranges from 47 to 78 % in different geographical areas [20].

The criteria DSM 5 or DSM IV is used by (67.8 %), these findings are concurrent with the findings of a study where Sixty-eight per cent also reported they would use DSM-5 when available, while 29% were unsure if they would [22]. In a study conducted in unitedkingdom (28%) utilized DSM-IV (American Psychiatric Association,2000) criteria [23]. The same criteria is used by majority in a similar study [14,17].

Table 1. Profession and Qualification of participants

Profession	Frequency n/ (%)
Psychologist	45/ (36.9)
Speech Therapist	47/ (38.5)
Pediatrician	8/ (6.6)
Occupational Therapist	18/ (14.8)
Psychiatrist	4/ (3.3)
Qualification	Frequency/ (%)
Diploma	25/ (20.50)
Bachelor	27/ (22.1)
Master	21/ (17.2)
MS/MPHIL	34/ (27.9)
PHD	3/ (2.5)
MBBS	1/ (.8)
FCPS	9/ (7.4)
Others	2/ (1.6)
Age Range	Frequency/Percent (%)
Not Mentioned Age	15/ (12.3)
22-30 years	74/ (60.7)
31-40 years	19/ (15.6)
41-50 years	9/ (7.4)
51-59 years	5/ (4.1)
Experience of professionals	Frequency/Percent (%)
2-3 years	38/ (31.1)
4-5 years	14/ (11.5)
6-10 years	26/ (21.3)
12-18	9/ (7.4)
20-22	3/ (2.5)

Table 2. Professionals diagnosing ASD and diagnostic service

Professionals	Frequency n/ (%)
Psychologist	45/ (50)
Speech Therapist	30/ (33)
Pediatrician	3/ (3.3)
Occupational Therapist	8/ (8.9)
Psychiatrist	4/ (4.4)
Diagnostic service	Frequency n/ (%)
Sole Practitioner	14/ (15.6)
As a part of Multidisciplinary team	76/ (84.4)

Table 3. Professionals applying different tests for Autism Diagnosis

Test	Always	Often	Sometimes	Rarely	Never
a) Childhood Autism Rating Scale (CARS)	76.7%	11.1%	3.3%		8.9%
b) Checklist for Autism in Toddlers (CHAT)	23.3%	16.7%	14.45	6.7%	38.9%
c)Autism Diagnostic Observation Schedule (ADOS)	3.3 %	10 %	12.2 %	10%	64.4%
d)Gilliam Autism Rating Scale (GARS)	2.2%	5.6%	8.9%	12.2%	71.1%
e) Diagnostic Interview for Social and Communication Disorders (DISCO)	5.6%	4.4%	5.6%	8.9%	75.6%
f) The Developmental, Dimensional and Diagnostic Interview (3di)	2.5%	2.5%	8%	7.4%	60.7%
g) Autism Diagnostic Interview-Revised (ADI-R)	2.2%	2.2%	10%	14.4%	71.1%
h) Asperger's Diagnostic Assessment (Tony Attwood)	2.2%	3.3%	4.4%	10%	80%
I5) Diagnostic and Statistical Manual of Mental Disorders-IV (DSM-IV) or DSM 5.	67.8%	11.1%	11.1%	5.6%	4.4%
j) International Classification of Diseases (ICD-10)	14.4%	10%	11.1%	7.8%	56.7%

Table 4. How often professionals have information from other multidisciplinary reports

Multidisciplinary Reports	Always	Often	Sometimes	Rarely	Never
a) Cognitive/developmental assessment	80%	13.3%	2.2%	3.3%	1.1%
b) Speech Pathology assessment	76.7%	11.1%	5.6%	3.3%	3.3%
c) Occupational Therapy assessment	67.8%	15.6%	5.6%	3.3%	7.8%
d)Physiotherapy assessment	50%	15.6%	8.9%	2.2%	23.3%
e) Psychology assessment	82.2%	12.2%	4.4%	1.1%	
f) Parent report	88.9%	8.9%			2.2%
g) Teacher/childcare report	62.2%	22.2%	7.8%	2.2%	5.6%
i) Informal observations of child	84.4%	4.4%	5.6%	1.1%	4.4%

In the present study regarding the diagnostic tool used, the majority of professionals i.e. 64.4% never applied Autism Diagnostic Observation Schedule in the same manner, GARS, DISCO and ADI-R. In contrast to study conducted in United Kingdom the most frequently used assessment/diagnostic tools were the Autism Diagnostic Observation Schedule–Generic (ADOS-G), Diagnostic Interview for Social and Communication Disorders (DISCO), Social Communication Questionnaire (SCQ), Autism Diagnostic Interview–Revised (ADI-R) and Gilliam Autism Rating Scale (GARS). Majority of professionals were using these tools. Regarding the usage of tool 3di, 60.7 % individuals never applied it, whereas only 2.5% always used this tool, the findings seen in UK study is that 9 % of professionals used this tool [19,23].

The tools ADI-R, ADOS in the study are not used by majority of professionals, which are gold standards for assessment [14], as recommended by studies of USA, Canada, UK [24].

It is important to include multidisciplinary assessment report before giving a diagnosis of ASD. The majority of professionals in current study obtained information from following to inform their diagnosis i.e. Cognitive assessments (80%), Speech pathology (76.7%). A study in UK also included these assessments reports as a part of ASD assessments [23]. The findings are similar to an Indonesian study in which 90% professionals referred to other practitioners before giving ASD diagnosis [14].

4. CONCLUSION

It is worth mentioning that number of pediatricians participating in diagnosis are very less as this is an emerging frequent diagnostician in other countries. The professionals in the current study are using multidisciplinary approach for diagnosing ASD which is in line with the international guidelines and a small number are sole practitioners. The most frequently used tool for diagnosing ASD are CARS and DSM V

OR IV criteria. However, very few practitioners use the diagnostic tool Autism Diagnostic Observation Schedule ADOS and Autism Diagnostic Interview-Revised ADI-R. The professionals who provide diagnosis of ASD are Speech and language Pathologists, Psychologists, pediatricians, psychiatrists and Occupational therapists.

CONSENT

As per the International standard or university standard. Participants written consent has been collected and preserved by the authors.

ETHICAL APPROVAL

As per the International standard or university standard written ethical approval has been collected and preserved by the authors.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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