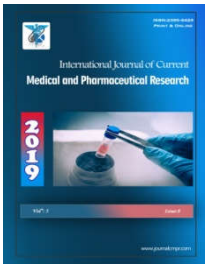
INTERNATIONAL JOURNAL OF CURRENT MEDICAL AND PHARMACEUTICAL RESEARCH
ISSN: 2395-6429, Impact Factor: 4.656
Available Online at www.journalcmpr.com
Volume 5; Issue 08(A); August 2019; Page No. 4460-4464
DOI: http://dx.doi.org/10.24327/23956429.ijcmpr201908721



Research Article

THE DIAGNOSTIC TOOLS AND THERAPEUTIC INTERVENTIONS PROVIDED TO CHILDREN WITH AUTISM SPECTRUM DISORDER IN YEMEN

Amani Qasim Ahmed AL-Ghashany and Saumya Chandra

Faculty of Disability Management and Special Education, Ramakrishna Mission Vivekananda Educational and Research Institute, Coimbatore 20, Tamil Nadu

ARTICLE INFO

Article History:
Received 10th May, 2019
Received in revised form 2nd June, 2019
Accepted 26th July, 2019
Published online 28th August, 2019

Key words:
Diagnostic tools, therapeutic interventions, and autism spectrum disorder.

ABSTRACT

The population of the Arab world exceeds 300 million. ASD is a new field in the Arab world. Al-Farsi et. al. (2011) ensured that the number of confirmed cases of ASD is unknown, and available reports suggest that the prevalence of ASD is 1.4, 29, and 59 per 10,000 children, respectively, in Oman, the United Arab Emirates and Saudi Arabia. The lower incidence of ASD might be due to the shortage of specialists to diagnose ASD properly and the lack of parents' awareness to reorganize symptoms and seek diagnostic clarification. More importantly, scarcity in research evidence may have driven the limited recognition, understanding, and awareness of ASD in the Arab world. Yemen is one of the Arab countries where the ASD is a new field in diagnosis. The present study aimed to identify the diagnostic tools and therapeutic interventions provided to children with autism spectrum disorder in Yemen. Survey research design was considered as the suitable design and has been adopted in this study to attain the objective of the study. The researcher found that the target centers of ASD in Yemen depend on four tools to diagnose ASD which are Medical Report, Case Study, ABC and CARS-2 where medical report has 100% rate. On the other hand the target centers in Yemen adopted four main therapeutic interventions using with CwASD Treatment and Education of Autistic and Related Communication Handicapped Children (TEACCH), Individualized Educational Program (IEP), Sensory Integrated Therapy (SIT), and Portage Program. The researcher concluded that that medical report is the main tool used in the target centers to diagnose CwASD in Yemen while the researches has not yet revealed the factors of ASD which reflects a lack of awareness of diagnosing ASD in the target group in Yemen. The centers of ASD in Yemen have used TEACCH as a main therapeutic intervention with CwASD.

INTRODUCTION

Autism spectrum disorder is a neuro-developmental disorder that diagnoses in the three years of life of the child. Pervasive developmental disorders (PDDs) is also named autism spectrum disorders (ASDs), which includes autism, PDD-not otherwise specified (PDD-NOS) and Asperser's disorder. Three main features of the ASDs are there, which are impairments of reciprocal social interactions, problems in a restricted range of behaviors communication and interests. Asperser's disorder differs from Autism disorder in that person who has an absence of language delay and clinically significant cognitive. With an incidence of six cases per thousand ASDs are observed in all populations, more males diagnosed than females with about four times. 5%–10% is the estimated prevalence of autism in siblings. Autism spectrum disorders are etiologically heterogeneous. They are associated with a recognized cause in about ten percent of cases, most commonly with fragile X and Rett syndrome tuberous sclerosis and other medical genetic conditions. 90% is the heritability estimates for Autism spectrum disorders, as determined from twin and family studies, and linkage scans have mapped candidate risk loci (Marshall, 2008, para. 2).

REVIEW OF LITERATURE

The studies regarding diagnostic tools

Al-Maweri, S., A., *et al*., (2014) aimed to assess the prevalence of oral lesions among children with autism in Sana'a City, Yemen, and to evaluate their dental status. The study included 42 children with autism, aged between 5 and 16 years, and 84 age- and gender-matched healthy children as controls. Oral lesions were assessed based on standardized criteria according to the World Health Organization (WHO) recommendations. Chi-square test and Mann–Whitney's test were used to compare the groups. Compared to controls, children with autism revealed higher proportion of fistulae (9.5% vs. 2.4%), ulcerative lesions (7.1% vs. 1.2%), gingival hyperplasia (4.8% vs. 0.0%), and cheilitis (4.8% vs. 2.4%); however, the differences were not statistically significant. The mean dmft score was significantly higher in children with

Corresponding author:* **Amani Qasim Ahmed AL-Ghashany
Faculty of Disability Management and Special Education, Ramakrishna Mission Vivekananda Educational and Research Institute, Coimbatore 20, Tamil Nadu

autism than in controls (5.23 vs. 4.06; $P < 0.001$). Moreover, children with autism revealed poorer oral hygiene than controls, and the majority had gingivitis. The researchers concluded their study that children with autism in Yemen have high prevalence of oral soft tissue lesions, caries, and gingivitis. Therefore, proper oral health education programs should be initiated and directed toward this special section of the society.

Chlebowski, Colby, *et al*. (2013) aimed examine use of the Modified Checklist for Autism in Toddlers (M-CHAT) as an autism-specific screening instrument in a large, geographically diverse pediatrics-based sample. Results indicated that 54% of children who screened positive on the M-CHAT and M-CHAT/F presented with an autism spectrum disorder (ASD), and 98% presented with clinically significant developmental concerns warranting intervention. An M-CHAT total score cutoff of ≥3 identifies nearly all screen-positive cases, and for ease of scoring the use of only the M-CHAT total score cutoff is recommended. An M-CHAT total score of 7 serves as an appropriate clinical cutoff, and providers can bypass the M-CHAT/F and refer immediately to evaluation and intervention if a child obtains a score of ≥7.

Huerta, M., & Lord, C. (2012) have studied on Diagnostic Evaluation of Autism Spectrum Disorders (ASD). The research on the identification and evaluation of ASD is reviewed and best practices for clinical work are discussed. The latest research on diagnostic tools, and their recommended use, is also reviewed. Recommendations include the use of instruments designed to assess multiple domains of functioning and behavior, the inclusion of parents and caregivers as active partners, and the consideration of developmental factors throughout the diagnostic process.

The studies regarding therapeutic interventions

Chiang, C. H.,, al., et., (2015) aimed to develop a caregiver-mediated joint engagement intervention programs combined with body movement play to study the effects of joint engagement attention skills in young children with autism spectrum disorders(CwASD). A quasi-experimental research design was conducted. A total of 34 young CwASD aged 2–4 years were separated into an intervention and a control group. The program consisted of 20 sessions, 60 min per session, twice a week, for the target child and his or her parent. The results indicated that child-initiated supportive and coordinated joint engagement was greater for the intervention group compared with the control group at 3-month follow-up. This demonstrated that our joint engagement intervention could enhance joint engagement, especially coordinated joint engagement for young CwASD. The limitations of the study and future directions were discussed.

Romanczyk, R. G., *et, al*., (2014) aimed to provide impetus toward guidelines for comprehensive treatment services, as well as individual skill/behavior interventions, with respect to required service provider characteristics, setting, and "dosage" (number of hours per week for a designated time period). Quantitative analysis permited progress in review panel deliberation for both insurance reimbursement and public services allocation by having appropriate comparisons with which to evaluate progress reported versus progress expected given the specific intervention program being provided.

Pfeiffer, Beth A. , *et, al*., (2011) aimed to establish a model for randomized controlled trial research, identify appropriate outcome measures, and address the effectiveness of sensory integration (SI) interventions in children with ASD. Children ages 6–12 with ASD were randomly assigned to a fine motor or SI treatment group. Pretests and posttests measured social responsiveness, sensory processing, functional motor skills, and social–emotional factors. Results identified significant positive changes in Goal Attainment Scaling scores for both groups; more significant changes occurred in the SI group, and a significant decrease in autistic mannerisms occurred in the SI group. No other results were significant. The study discusses considerations for designing future outcome studies for children with ASD.

Dingfelder, Hilary E. , Mandell, David S., (2010) described reasons why efficacious interventions for autism are rarely adopted, implemented, and maintained in community settings, all revolving around the perceived fit between the intervention and the needs and capacities of the setting. Finally, the researchers suggested strategies for intervention development that may increase the probability that these interventions will be used in real-world settings.

Statement of the problem

It is observed that many studies above mentioned, proved that there are various tools can be used to diagnose children with autism spectrum disorder. Variation of these tools drive to comprehensive diagnosis which can cover all aspects of ASD and all domains can be diagnosis by using more than one tool. Consequently, the therapeutic interventions would affect accordingly. In Yemen, there are no standardized diagnostic tools for diagnosing ASD which make the outcome of the diagnostic various from center to other. Therefore, the researcher found that it is necessary to find out the diagnostic tools and therapeutic interventions provided to CwASD in the centers of ASD in Yemen.

Objective of the study

The present study aimed to:

- Find out the diagnostic tools used for children with autism spectrum disorder in Yemen.
- Find out the therapeutic interventions given to children with autism spectrum disorder in Yemen.

Research Questions

1. What are the tools used to diagnose ASD in Yemen?
2. What are the therapeutic interventions given to children with autism spectrum disorder in Yemen?

METHODOLOGY

As per of the research objectives and research questions mentioned above, the survey research design was considered as the suitable design and has been adopted in the present study to attain the objective of the study.

Sample of the study

The sample of the present study was selected using the multi-stage technique of purposive sampling method. The sample of the present study includes special educators. Three governorates that represent north (Sana'a), middle (Ibb) and south of Yemen (Hadramoot) were included. The participants were selected purposively from the centers of ASD.

Tool of the study

Open Ended Questionnaire was designed to collect narrative data individually from special educators regarding the diagnostic tools used with children with ASD. The questionnaire included two open ended questions which were given to special educators.

Statistical analysis

Research Question 1

What are the tools used to diagnose ASD in Yemen?

To identify the used diagnostic tools, frequency was calculated, mean and percentage were found to get the used diagnostic tools in each center of the ASD in the target centers in Yemen, for that open ended questionnaire was used. Frequency and percentage analysis was taken into consideration for interpreting the result as shown below:

Table No. 1 Usage of diagnostic tools in Yemen

S.N	Tools	Frequencies	Percentage
1	Autism Behavior Checklist (ABC)	1/6	16 %
2	Childhood Autism Rating Scale, Second edition (CARS2)	1/6	16 %
3	Case Study	5/6	83 %
4	Medical Report	6/6	100 %

Interpretation

Table No. 1 shows that the used diagnostic tools in the centers of ASD in Yemen were depending on four tools to diagnose ASD. The centers of ASD have used medical report as a main tool to diagnose ASD as represented in the table no. 1 which is 100% whereas all the target centers are used medical report as a tool for assessing ASD. Case study got 83% as a second diagnostic tool which are using in all target centers except one of them (Altomooh Association). Autism Behavior Checklist (ABC) and Childhood Autism Rating Scale, Second edition (CARS2) got less percentage which are 16% both of them. ABC tool is used in one center of the target group Altomooh Association in Ibb governorate, as well as CARS2 is used in one center of the target centers which is Altahadi center in Sana'a governorate that reflects the very less use of these tools in the centers for ASD in Yemen.

It is inferred that it happens due to lack of awareness of the tools used to diagnose ASD. Table No. 1 reflects the extent to which center of ASD in Yemen rely on medical reports to diagnose ASD, although there are no obvious biological causes for autism, the total dependence on medical reports is inaccurate method to diagnosis ASD. Similarly, using the case study model to diagnose ASD reflects the lack of comprehensive understanding as the case study is not a tool that can be used to diagnose ASD. Surprisingly, each center has an own case study model without any validation and reliability, prepared by the staff members based on personal experiences. On the other hand, table No. 1 reflects less usage of ABC & CARS2 which are very important scales to diagnose ASD that reaffirms lack of awareness.

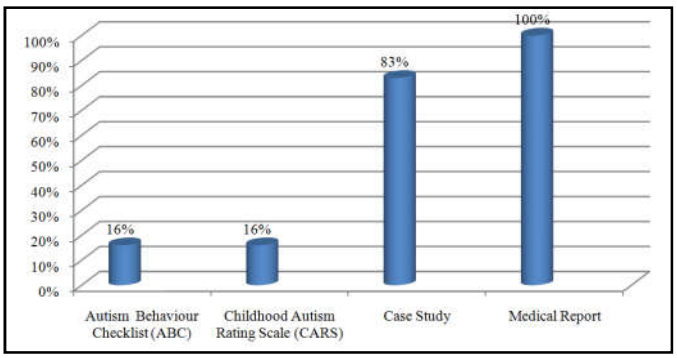


Figure No 1 Percentage of used diagnostic tools

Research Question No. 2

What are the therapeutic interventions given to CwASD in Yemen?

To identify the therapeutic intervention provided to CwASD in the centers of ASD in Yemen, frequency and percentage were calculated and for that open ended questionnaire was used. Frequency and percentage analysis was taken into consideration for interpreting the result as shown below:

Table No. 2 Therapeutic Interventions being used in Yemen

S.N	Therapeutic Intervention	Frequencies	Percentage
1	Treatment and Education of Autistic and Related Communication Handicapped Children (TEACCH)	4/6	67 %
2	Sensory Integrated Therapy (SIT)	2/6	33 %
3	Individualized Educational Program (IEP)	2/6	33 %
4	Portage Program	3/6	50 %

Interpretation

Table No. 2 shows the therapeutic interventions provided to CwASD in the target centers in Yemen. They are providing four types of therapeutic interventions such as: TEACCH, SIT, IEP and Portage. 67% of the target centers of ASD are using TEACCH program which are Altahadi, Algasim, Alrahma, and Albasma centers which are located in Sana'a governorate. 33% of the target centers of ASD in Yemen are using SIT and IEP, whereas Altahadi and Alqasim centers in Sana'a are using SIT, while Altomooh association in Ibb and Hadramoot center in Ibb are using IEP. Portage program is used at 50% in the centers of ASD in the target centers ASD in Yemen which are Altomooh association in Ibb governorate, Alqasim, Alrahma centers in Sana'a governorate. The researcher attributes the variety of therapeutic programs used for CwASD are based on the availability of professionals in the field of autism.

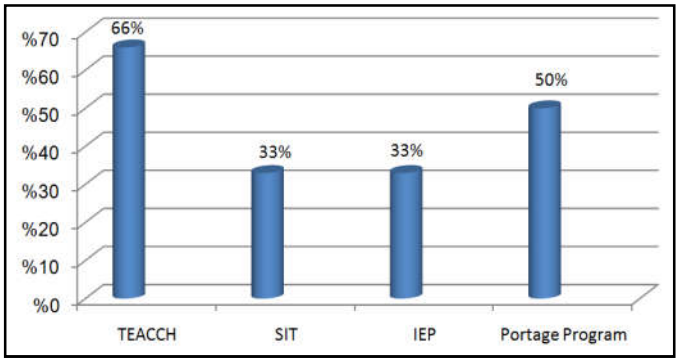


Figure No. 2 Percentage of used therapeutic interventions

RESULT AND DISCUSSION

Frequency was calculated, mean and percentage were found to get the used diagnostic tools and therapeutic interventions in each center of the ASD in the target centers Yemen, and it revealed that:

- The target centers of ASD in Yemen depend on four tools to diagnose ASD which are Medical Report, Case Study, Autism Behavior Checklist (ABC) and Childhood Autism Rating Scale, Second edition (CARS-2).
- Medical Report has 100% rate that is the main tool used in the target centers to diagnose CwASD in Yemen, whereas all the target centers are using medical report as a tool for assessing ASD.
- Case Study got 83% as a second diagnostic tool which is used in all target centers except one of them (Altomooh Association).
- Autism Behavior Checklist (ABC) and Childhood Autism Rating Scale (CARS) got less percentage 16%, whereas ABC tool is used in one center of the target group (Altomooh Association in Ibb governorate. A CAR is used in one center of the target centers (Altahadi center in Sana'a governorate), that reflects the less usage of these tools in the centers of ASD in Yemen.
- The target centers of ASD in Yemen are depending on four therapeutic interventions using with CwASD Treatment and Education of Autistic and Related Communication Handicapped Children (TEACCH), Individualized Educational Program (IEP), Sensory Integrated Therapy (SIT), and Portage Program.
- The centers of ASD have used TEACCH as a main therapeutic intervention used with CwASD, so it got 67%, whereas most target centers are using TEACCH with CwASD which are Altahadi, Algasim, Alrahma, and Albasma located in Sana'a governorate.
- Portage program is used at 50% in the centers of ASD in Yemen that are Altomooh association in Ibb governorate, Alqasim Alrahma centers in Sana'a governorate.
- 33% of the target centers of ASD in Yemen are using SIT and IEP, whereas Altahadi and Alqasim centers in Sana'a are using SIT. Altomooh association in Ibb and Hadramoot center in Hadramoot are using IEP.

CONCLUSION

Through this survey study, the research has attempted to bring into light the diagnostic tools and therapeutic interventions provided to CwASD in Yemen. The researcher has prepared open ended questionnaire for special educators working with CwASD. The responses gain from the sample can be explained as:

- The diagnostic tools which are used in the target centers in Yemen are inaccurate.
- The therapeutic interventions which provided to CwASD are not functioning accurately.
- The special educators do not have any awareness about standardized tool used effectively for CwASD.
- The special educators do not have any awareness about therapeutic intervention using with ASD.
- Many parents of CWASD are not aware about the therapeutic intervention given to their CwASD.
- The long procedure of getting their CwASD admitted to the autism center is so troublesome that eventually the parents tend to keep their CWASD at home only.

It is assumed that this study will contribute to the research in the field of ASD. It is also assumed that future research can draw the base and build on new findings of the present research by overcoming its limitations.

References

Al-Maweri, S. A., Halboub, E. S., Al-Soneidar, W. A., & Al-Sufyani, G. A. (2014). Oral lesions and dental status of autistic children in Yemen: A case–control study. *Journal of International Society of Preventive & Community Dentistry*, 4(Suppl 3), S199.

American Psychiatric Association, (2013), Diagnostic and Statistical Manual of Mental Disorders (5th ed.), American Psychiatric Association, Washington, D.C revised at 2:30 on17/03/2018from https://www.sciencedirect.com/science/article/pii/S1878929316301736#bib0025

American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders (DSM-V). 5th Edition. Washington, DC: American Psychiatric Publishing, 2013.

American Psychology Association, 2018, DSM–5: Frequently Asked Questions, revised at 03:45 pm on 23/02/2019 from https://www.psychiatry.org/psychiatrists/practice/dsm/feedback-and-questions/frequently-asked-questions, 1- 13.

Autism diagnostic interview-revised, A. D. I. R. (2012). Diagnostic Interview for Social and Communication Disorders.

Autism Society, 2016, Diagnostic and Statistical Manual of Mental Disorders, fifth edition, 4340 East-West Hwy, Suite 350 Bethesda, Maryland 20814, revised at 05:35 pm on 23/02/2019 from http://www.autism-society.org/what-is/diagnosis/diagnostic-classifications/

Autism Speaks Inc., 2018, How Is Autism Diagnosed ©2018 Autism Speaks Inc. Autism Speaks and Autism Speaks It's Time To Listen & Design are registered trademarks owned by Autism Speaks Inc. All rights reserved.

A-Z, Health reference, 2019, Types of interventions for children with autism spectrum disorder, the Austrilian parenting website, 3- 30. revised at 05:30 pm. on 013/02/2019 from https://raisingchildren.net.au/guides/a-z-health-reference/types-of-interventions-for-asd

Barbaro, J., & Dissanayake, C. (2009). Autism spectrum disorders in infancy and toddlerhood: a review of the evidence on early signs, early identification tools, and early diagnosis. Journal of Developmental & Behavioral Pediatrics, 30(5), 447-459.

Buie, T., Campbell, D. B., Fuchs, G. J., Furuta, G. T., Levy, J., VandeWater, J., ... & Carr, E. G. (2010). Evaluation, diagnosis, and treatment of gastrointestinal disorders in individuals with ASDs: a consensus report. Pediatrics, 125(Supplement 1), S1-S18.

Burnip, B., 2006, Effectiveness of Early Intervention for Children with Autism in British Columbia: A Literature Review, Flinders University, Adelaide, Australia.

Center for Disease Control and Prevention, 2018, What is autism spectrum disorder, revised at 10:30 am. on 03/02/2019 from https://www.cdc.gov/ncbddd/ autism/facts.html.

Chiang, C. H., Chu, C. L., & Lee, T. C. (2016). Efficacy of caregiver-mediated joint engagement intervention for young children with autism spectrum disorders. Autism, 20(2), 172-182.

Chlebowski, C., Robins, D. L., Barton, M. L., & Fein, D. (2013). Large-scale use of the modified checklist for autism in low-risk toddlers. Pediatrics, peds-2012.

Daniels, A. M., & Mandell, D. S. (2014). Explaining differences in age at autism spectrum disorder diagnosis: A critical review. Autism, 18(5), 583-597.

Dawkins, T., Meyer, A. T., & Van Bourgondien, M. E. (2016). The relationship between the Childhood Autism Rating Scale: and clinical diagnosis utilizing the DSM-IV-TR and the DSM-5. *Journal of autism and developmental disorders*, 46(10), 3361-3368.

Dawson, G., Rogers, S., Munson, J., Smith, M., Winter, J., Greenson, J.,... & Varley, J. (2010). Randomized, controlled trial of an intervention for toddlers with autism: the Early Start Denver Model. Pediatrics, 125(1), e17-e23.

Di Martino, A., Yan, C. G., Li, Q., Denio, E., Castellanos, F. X., Alaerts, K., ... & Deen, B. (2014). The autism brain imaging data exchange: towards a large-scale evaluation of the intrinsic brain architecture in autism. Molecular psychiatry, 19(6), 659.

How to cite this article:

Amani Qasim Ahmed AL-Ghashany and Saumya Chandra (2019) 'The Diagnostic Tools and Therapeutic Interventions Provided to Children With Autism Spectrum Disorder In Yemen', *International Journal of Current Medical and Pharmaceutical Research,* 05(08), pp 4460-4464.

****