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A Study of Awareness and Knowledge of Autism Spectrum Disorder among Physiotherapist

Dr. Khushbu Naik

Assistant Professor, Shree Bharatimaiya College of Optometry & Physiotherapy, Surat, Gujarat, India
Email: *drdesai88[at]gmail.com*

Abstract: ***Background: ASDs is a neuro- developmental disorder in which persons present with a range of impairments in social interaction, verbal and nonverbal communication, as well as restrictions in behaviors and interests. The incidence of autism spectrum disorders (ASD) has increased in recent years. This is because of greater awareness and newer, more effective diagnostic criteria. Aims & Objective: To assess awareness and knowledge of autism spectrum disorders among physiotherapists. Method: 210 physiotherapists were given online web - based questionnaire and knowledge was assessed based on their response. Result: 100% of the physiotherapists were aware of autism. Only 26.19% had adequate knowledge. 78 physiotherapist had treated autism patients. Physiotherapist with more experience and priorly treated patients performed better. Conclusions: The physiotherapist had appropriate adequate knowledge of ASD. Clinical experience and prior training were positively correlated to knowledge.***

1. Introduction

Autism spectrum disorder (ASD) is a neurodevelopmental disability, characterized by deficits in social and emotional reciprocity, and by the presence of repetitive, restricted and stereotyped patterns of behavior and interests (American Psychiatric Association, 2013) [1] In addition to communication and behavioral concerns, children with ASD have a higher motor and postural abnormalities, and poorer coordination and balance than typically developing children. Typically, the onset occurs before 2½ years and usually persists throughout life. Autism Spectrum Disorder (ASD) is a condition that affects individuals across social, ethnic and geographic groups. However, the way it is perceived, understood, accepted and treated may vary across regions, depending on cultural beliefs and practices[2].

There have been various epidemiological surveys to determine the prevalence estimates of ASD during the past decade. The estimated prevalence in Italy is 11.5% in children with age between 7 to 9 years, 3.10% in China and in Gulf countries it ranges between 0.14 to 2.9%. Prevalence in Asian countries has been done and it is 0.51% in East Asia, 0.35% in West Asia and 0.31% in South Asia. There is increased rate of Autism in European countries as well[3, 4].

Similar to the western world, there has been an increase in the prevalence of autism in India over the years. Recent prevalence in 2018 estimated in ASD in India ranges from 0.15% to 1.01%. The prevalence of ASD was 1 in 125 in children 3 - 6 years and 1 in 85 in children 6 - 9 years of age. The prevalence in rural areas was 0.90%, 0.6% in hilly regions, 1.01% in urban areas, 0.1% in tribal areas, and 0.61% in the coastal regions.2 Doctors in India have conventionally considered autism a disease of the West doubting its prevalence in India. In reality, it is highly prevalent and rising. This prevalence increase has also been thought to be attributable to increased knowledge among health workers in India and global media[5].

The research, however, about this condition is limited in developing countries. In South Asian developing countries, the exact prevalence of autism is unknown. There are only few articles supporting the prevalence of autism in India. One such study was carried out to estimate the prevalence of autism in Northwestern states in India surveying 11, 000 (children in the age group 1–10 years) participants. An overall prevalence of 0.9/10, 000 was calculated, which is lower than the global prevalence but still alarming[6]. Among the reasons for this increase, changes in the diagnostic criteria have played an important role, but education and awareness works conducted in society have also contributed to this increase[7].

Current evidence indicates that interventions to increase the functionality of children with ASD are more effective in young ages and long - term prognosis is better[8]. Therefore, training and awareness of healthcare professionals about ASD are crucial.

It must be noted that autism requires early detection and intervention to allow child to grow as normally as possible and to help with activities of daily living[9]. However, diagnosis of autism relies heavily on clinical signs as per the Diagnostic and Statistical Manual of Mental Disorder-5 and the variability in symptoms and severity makes diagnosis difficult[10], and most children are not even diagnosed until after age 4 years as per CDC 2014[11]. Physicians do play an important role in early recognition of ASD because they are usually the first point of contact for parents.

The diagnosis and treatment of Autism occurs in multiple settings and is provided by variety of health professionals including family physicians, pediatricians, neurologists, psychiatrists, psychologists and speech & language therapists. Most of these health professionals have little or no formal training in child and adolescent psychiatry though they are having primary role in treating autism symptoms[12, 13]. To date, little research has been published from developing countries regarding the above mentioned issues.

Research consistently suggests that physical activity (PA) participation for children and youth (hereafter children) with autism spectrum disorder (ASD) has a number of positive

physical, psychosocial, and cognitive benefits. As noted by Jachyra and Gibson (2016) [14], PA participation can be conceptualized as any bodily movement that expends energy and can include physical fitness exercise, sports, performance arts, play, and active transport. Participation in PA can be structured (organized programs, sports) and unstructured (free play, going for a walk), and is influenced by social, scientific, economic, political, geographical and individual mechanisms that shape bodily movement (s). For children with ASD, PA can increase aerobic capacity, enhance strength, improve motor control, and improve overall fitness (Ketcheson, Hauck, & Ulrich, 2018) [15]. Furthermore, PA can facilitate the creation of routines and schedules, reduce stress and anxiety, increase self - efficacy and self - esteem, and enhance overall psychological well - being (Lang et al., 2010; Lochbaum & Crews, 2003; Sowa & Meulenbroek, 2012) [16, 17, 18]. PA participation has also been shown to have positive benefits in managing some symptoms and behaviors (Prupas & Reid, 2001; Sorensen & Zarrett, 2014) [19.20]. For example participation in jogging, martial arts, and horseback riding has demonstrated reductions in stereotypical behaviors such as rocking and hand flapping (Gabriels et al., 2012; Nicholson, Kehle, Bray, & Heest, 2011) [21, 22]. Similarly, moderate to vigorous PA has been shown to improve attention, enhance performance on cognitive tasks, enhance communication skills, and decrease self - stimulating/self - injurious behaviors seen in children with ASD (Bass, Duchowny & Llabre, 2009; Dillon, Adams, Goudy, Bittner, & Mcnamara, 2016) [23, 24].

As movement experts, PTs are skilled in optimizing motor development, prescribing physical activity, and addressing physical skills and fitness[25]. In addition to enhancing functional mobility, PTs also possess a unique role as physical activity and health advocates and thus are arguably, uniquely positioned to promote and enhance PA participation. Indeed, in recent years there have been increasing suggestions that PTs have a unique skillset to offer children with ASD.

Acknowledging that there may be knowledge and clinical practice gaps, the objective of this study was to test baseline knowledge of autism among Physiotherapist in South Gujarat using the KCAHW tool. The advantage of this cross-sectional study is that we are able to assess the knowledge of autism among physiotherapists, to compare them with similar studies conducted across other country, and to identify specific questions wherein there is a knowledge deficit. The present study seeks to address this knowledge gap in India.

Statement of Problem

Awareness of knowledge of autism among various populations like medical students, nurses, health care professionals (occupational therapists, speech therapists, psychologists), physicians (pediatrician, general practitioner) has been established in many countries. But there is a gap of awareness among physiotherapists in India as well other countries, even after knowing the role of PT in autism children. Thus, the need of study arises.

2. Materials and Methods

A self - report questionnaire (online web based) was sent to physiotherapists of different places (private clinics, hospital set up, Academic set up) in Gujarat.210 physiotherapists were assessed on their knowledge of autism spectrum disorders. Socio - demographic information such as gender, clinical experience and ever treated autism patients was elicited. The source of their knowledge and the factors influencing their perception of autism was assessed. The physiotherapists were asked about the need for a workshop/module/seminar on ASD and their willingness to attend it. The knowledge of autism among the physiotherapist was assessed by their awareness about 12 symptoms and signs for ASD. The physiotherapists were ranked based on their knowledge and a score of above 8/12 was deemed as good knowledge of ASD. The symptoms and signs listed in the questionnaire were adopted from two diagnostic instruments used for autism, namely the Autism Diagnostic Interview Revised (ADI - R) and the Childhood Autism Rating Scale (CARS).

3. Result

In our study the total number of respondents was 210, There were 108 (53.73%) Female and 93 (46.26%) Male physiotherapists, gender as a variable was not considered. Total clinical experience were the variables considered. The total clinical experience ranged from fresher's to more than 20 years; nearly half of the participants were having less than 2 years of clinical experience this is shown on Figure 1. Figure 2 shows the major source of information on autism for the physiotherapists, almost half of the physiotherapists cited Books as their sources of information, others attributed, colleagues, social media, friends, relatives and newspapers as their source. Table 1 shows the number of physiotherapists who have treated autism patient in past. Only 78 physiotherapists have treated autism and 188 physiotherapist felt that training on autism regarding its diagnosis and treatment was required and 201physiotherapist expressed willingness to attend such session like any seminar/workshop/module on autism.

Table 2 shows the awareness and knowledge of the physiotherapist, all physiotherapists were aware of 'autism' but among those aware 73.80% admitted that their knowledge was inadequate. More than 50% of the physiotherapists identified 6 of the 12 signs and symptoms correctly. Table 3 shows the variables influencing knowledge. Table 3 shows the variables influencing knowledge. Clinical experience had a strong positive correlation with knowledge and the veterans clearly outperformed the novices, the responses were graded into 4 categories, those who were not 'aware', a correct score of 1 to 4, 4 to 8 and above 8, a score exceeding 8 was termed as good or adequate knowledge and only 69 physiotherapist qualified for this plaudit. Those who have priorly treated patients also had a positive correlation with knowledge and 38 of the 78 physiotherapists who had priorly treated patients had a score exceeding 8.

Table 1: Physiotherapists who have treated autism patients

Variable	Yes	No
Have you ever treated autism patient	78 (37.14%)	132 (62.85%)
Need for any seminar/ workshop/ module on autism spectrum disorder diagnosis and treatment	188 (89.52%)	22 (10.47%)
Willingness to attend seminar/ workshop/module	201 (95.71%)	9 (4.28%)

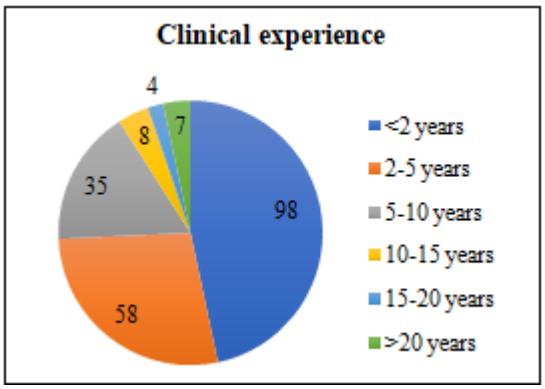

Figure 1: Total clinical experience in years

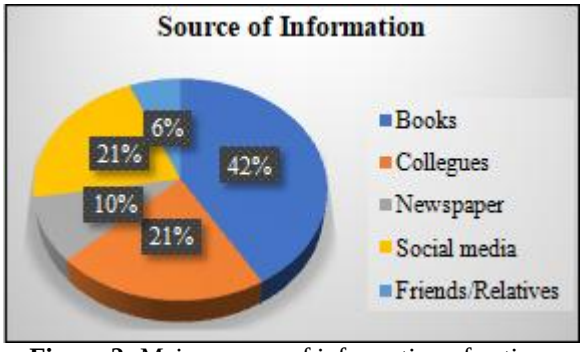

Figure 2: Major source of information of autism

Table 2: Knowledge of symptoms & sign

	Aware of the term 'Autism'	Aware	Unaware
		210 (100%)	0 (0%)
	Grading of Knowledge	Adequate	Inadequate
		55 (26.19%)	155 (73.80%)
Sr. No	Sign & Symptoms	Aware	Unaware
1	Look at other children when interacting with them or make good eye contact.	115 (54.76%)	95 (45.23%)
2	Make good and appropriate use of hand and body gestures when having conversations.	87 (41.42%)	123 (58.57%)
3	Fails to show interest in other children or no interest in interacting with other children	175 (83.33%)	35 (16.66%)
4	Have emotional reciprocity (Awareness about others being happy, sad, angry etc and responding appropriately).	110 (52.38%)	100 (47.61%)
5	Language development is delayed.	157 (74.76%)	53 (25.23%)
6	Has repetitive behavior (flapping hands, body rocking repeatedly)	198 (94.28%)	12 (5.71%)
7	Does not respond to name.	154 (73.33%)	56 (26.66%)
8	Does not respond to emotional cues, i. e. to affection. Does not like to be cuddled or hugged	124 (59.04%)	86 (40.95%)
9	Inappropriate attachment in certain toys or objects (prefers to play with same toy for hours)	168 (80%)	42 (20%)
10	No perception of fear or danger, ex: Crosses road without looking.	98 (46.66%)	112 (53.33%)
11	Upset at even minor changes in routine, obsessed with the same routine.	105 (50%)	105 (50%)
12	Repetitive phrases at odd or inappropriate times, like singing an advertisement jingle suddenly.	89 (42.38%)	121 (57.61%)

Table 3: Variable influencing physiotherapist's knowledge

Clinical experience in years	Criteria Awareness - correct score			
	Not aware	1 - 4	4 - 8	>8
<2	7.7%	51.3%	32.1%	8.9%
2 - 5	6.7%	44.6%	36.5%	12.2%
5 - 10	3.5%	42.1%	31.6%	22.8%
10 - 15	2.4%	33.3%	35.7%	28.6%
15 - 20	0%	21.8%	39.1%	39.1%
>20	0%	23.1%	40.4%	36.6%
Who have treated before autism patient	0%	8.5%	47.9%	43.6%

4. Discussion

The aim of this study is to assess awareness and knowledge of autism spectrum disorder among physiotherapists. Early diagnosis and better line of treatment can minimize the sign and symptoms of autism spectrum disorder. Physiotherapist could play pivotal role in managing the Autism child for their sensory issue, gross motor and fine motor issues. In this study almost every physiotherapist is aware about the term autism, but very few of them are having adequate knowledge about the sign and symptoms. In compare with other study done on the health care professionals in Pakistan and oman[14]have more knowledge on childhood autism. Out of 12 items of knowledge almost half of the physiotherapists are aware about sign and symptoms. It is important for physiotherapist to realize that autism is not just a disease of social impairment and to address impairment in language and abnormal repeated movements as diagnostic features of autism. Clinical experience is also correlates with their knowledge, but it shows mild to moderate correlation with it. Those who have treated autism patient already, they are also having some adequate knowledge about few sign and symptoms. In present study, only 37.14% physiotherapist treated autism patient priorly, which might indicate that either therapist have inadequate exposure of autism spectrum disorder. Out of 100%, 89.52% physiotherapists demanding for such seminar, workshop or module should be

conducted for more knowledge and awareness regarding autism spectrum disorder.

Autistic children are a part of society and have the right to enjoy all available resources to its optimum. Inclusiveness is the key factor which has to be practiced at all levels right from schools to public spaces and social settings. It is thus important that these children are diagnosed correctly and at the earliest. This would ensure early intervention which would help them live a more enriched life. To enable this, physiotherapists would help them with sensory issues, gross and fine motor issues and social behavioral issues to get them back into normal life. The past studies have shown a deficit in knowledge on autism among health-care professionals in developing countries, and this must be changed at the root level. In this study, we have shown that there is a deficit of few sign and symptoms like" Make good and appropriate use of hand and body gestures when having conversations" & "Repetitive phrases at odd or inappropriate times, like singing an advertisement jingle suddenly". It is important for physiotherapist to realize that autism is a development disorder which has a broad spectrum and enhanced clinical exposure is required to for autism diagnosis and it will help to decide their clinical goal for treatment and minimize their sensory and motor issues.

5. Conclusion

The physiotherapists in present study had appropriate adequate knowledge about autism spectrum disorder. Clinical experience and priorly treated condition had a positive bearing on knowledge. Most physiotherapist advocated proper training required on ASD and express their willingness to attend it also. This sentiment should be taken advantage of and more physiotherapist should be trained to make them more effective facilitators of identifying and treating ASD and promoters of creating awareness.

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