Effectiveness of autism training programme: An example from Van, Turkey

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Abstract

Objective: To determine the knowledge and attitudes of family practitioners before and after their participation in a training programme.

Methods: The study was conducted at Van Training and Research Hospital, Van, Turkey, from December 1to 15, 2016, and comprised family practitioners. Before the training, the practitioners were asked to fill out a questionnaire that was prepared by the researchers. Subsequently, the training course was presented by the child and adolescent psychiatrists. After the training, participants were asked to fill out the same questionnaire again. The results of survey were compared before and after training. Data was evaluated using SPSS 22.Descriptive analyses were used and baseline characteristics were compared between groups using McNemar's test and paired t-test.

Results: Of the 79 family practitioners who filled out the questionnaire,75(94.9%) were included. The mean age of the practitioners was 28.2±11.63, with 40(53%) being females. Moreover,26(34.7%) participants thought that they had sufficient information regarding autism spectrum disorder before training, and this number increased to 66(88%) after training. There was a significant difference between pre-training and post-training scores of the questionnaire ($p<0.001$).

Conclusions: There was a deficiency in knowledge about autism symptoms, aetiology, prevalence and treatment among family practitioners.

Keywords: Autism spectrum disorder, Family practitioners, Knowledge, Training. (JPMA 67: 1708; 2017)

Introduction

Autism spectrum disorder (ASD) is a neurodevelopmental disorder manifesting in early childhood and characterised by persistent deficits in social communication and interaction and restricted, repetitive patterns of behaviour, interests, or activities.[1] The diagnostic criteria of ASD have been changed in the Diagnostic and Statistical Manual of Mental Disorders-5 (DSM-5). In DSM-5, pervasive developmental disorder (PDD) was named as autism spectrum disorder and the group of PDD in DSM-IV is reorganised as a single category of ASD. ASD includes four DSM-IV PDD subtypes (autistic disorder, childhood disintegrative disorder, Asperger's disorder and pervasive developmental disorder not otherwise specified [PDD-NOS]) with Rett's disorder excluded due to its known genetic basis.[1] The prevalence of ASD has increased dramatically over the past few years. In 2006, it was reported to be 1/150, and in 2012 the Centres for Disease Control and Prevention (CDC) reported it as 1/88.[2] The latest study with large numbers has reported it as 1/68.[3] The differences in diagnostic criteria, easy access to health services and awareness level of the public and physicians were demonstrated to be the reasons for this increase.[4]

Early intervention and a multidisciplinary approach are crucial in the diagnosis and treatment of neurodevelopmental disorders. Family practitioners also have a critical role in early detection of neurodevelopmental disorders. Parents refer to family practitioners at 18 and 24 months for vaccinations and routine physical examinations. Family practitioners may assess basically children's developmental stages such as language, social and motor development. Thus, primary healthcare services have the most importance in determining which children are at high risk for autism. Family practitioners can direct the parents of children whom they suspect may have autism to child and adolescent psychiatrists.[5]

Training of family practitioners about ASD may increase awareness and facilitate early diagnosis. Some studies have drawn attention tothe lack of knowledge about ASD in many countries.[6-8] Studies from Turkey also support this finding.[9,10] The lack of knowledge was found to be associated with the period following graduation and it has been suggested that training programmes on ASD should be a part of the curriculum.[9] According to our search of the literature, there are not many studies examining the effectiveness of ASD training programmes on the knowledge of family practitioners. Referral of patients to the appropriate health care providers by family practitioners is crucial in early childhood. Therefore, a two-hour training programme was prepared by two child and adolescent

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psychiatrists for family practitioners with the goal of determining the knowledge and attitudes of family practitioners before and after their participation in the training programme.

The current study was planned to increase awareness of ASD and facilitate early recognition with the goal of improving autism outcomes in Turkey. To achieve this, we first aimed at determining the level of knowledge of family practitioners regarding ASD. At a subsequent stage, we will test the effectiveness of autism training programmes following graduation.

Subjects and Methods

The study was conducted at Van Training and Research Hospital, Van, Turkey, from December 1to 15, 2016, and comprised family practitioners. Van, a province in eastern Turkey, has a total of approximately 215 family practitioners. Approval was obtained from the institutional ethics committee. We approached the Van Public Health Institute (VPHI) to provide information about the study and subsequently contacted all the directorates of family practitioners in Van. All family practitioners were invited to attend an autism training programme and study by the VPHI. Nearly half of the family practitioners could not participate in the study due to weather conditions or personal reasons. The volunteer family practitioners were divided into five groups and received training on different days. Before the training commenced, oral and written information was provided to all the participants and they filled out the questionnaire prepared by the researchers. Subsequently, two child and adolescent psychiatrists prepared and presented a two-hour training course to each group. The course emphasised the identification of symptoms, aetiology, prevalence, and treatment approaches for ASD in the light of current literature. After the training, participants were asked to fill out the same questionnaire again. Questionnaires with answers left blank and those containing unreliable answers were excluded.

The questionnaire consisted of 6 questions, which included sub-items about general knowledge about ASD such as prevalence, aetiology, symptoms, treatments and myths. Other parameters of the participants, such as age, gender, years of practice, and place of practice, were assessed.

Data was evaluated using SPSS 22. Baseline characteristics were compared between groups using McNemar's test. The test was done according to 2 categorical variables. The questions in our survey were mostly in two categories. The questions which had three options (such as correct, wrong or no idea) were categorised as correct and incorrect answers. Descriptive analyses used mean±standard deviation (SD) (range: minimum-maximum) and frequencies and percentages. The effectiveness of the training was tested according to correct answers. The score for each correct was "1 point"; the scores were tested using paired t-test. $P<0.05$ was considered significant.

Results

Of the 79 family practitioners who filled out the questionnaire, 75(94.9%) were included. The mean age of the practitioners was 28.2±11.63, with 40(53%) being females. Moreover, 67(90%) participants had been practising for less than five years.

Before the training, the question about the prevalence of ASD was answered correctly by 9(12%) participants; this increased to 68(90.7%) after training ($p=0.001$). It was observed that family practitioners were misinformed concerning ASD aetiology, such as vaccinations, heavy metals, and television (TV) watching, but after training this misinformation decreased significantly (Table-1).

Besides, 26(34.7%) participants thought that they had sufficient information regarding ASD before training, and this rate increased to 66(88%) after training. Regarding interventions, 72(96%) participants could recognise ASD and referred patients to child psychiatrists after training compared to 51(68%) before training.

Before the training, 27(36%) participants answered correctly at which age children can be diagnosed with ASD; this increased to 59(78.7%) after training ($p<0.001$) (Table-2).

Questions regarding the treatment of ASD included the following treatment options: sensation integration therapy, diet, hyperbaric oxygen, heavy metal detoxification, neurofeedback, early diagnosis and special training programmes, and medical treatments for comorbid disease. Although a higher rate of correct answers was observed in this category than in the others, the training programme still had a significant effect on knowledge of treatment. For example, to a question "Is sensation integration therapy effective in the treatment of ASD?" 14(18.7%) answered correctly before training and 33(44%) after training ($p=0.002$). When asked, "Is diet effective in the treatment of ASD?" 65(86.7%) participants answered correctly before training compared to 74(98.7%) after training (Table-3).

There was a significant difference between pre-training

Table-1: Questions regarding the prevalence and aetiology of ASD.

	Pre- training		Post- training		p	χ^2
	N	%	N	%		
Do you have sufficient information about ASD						
YES	26	34.7	66	88.0	<0.001	33.065
NO	49	65.3	9	12.0		
What is the prevalence of ASD accurately						
Correct answer	9	12.0	68	90.7	<0.001	57.017
Wrong answer	66	88.0	7	9.3		
Does heavy metal exposure cause ASD(No)						
Correct answer	28	37.3	63	84.0	<0.001	25.689
Wrong answer	47	62.7	12	16.0		
May advanced paternal age cause ASD (Yes)						
Correct answer	36	52.0	67	89.3	<0.001	24.324
Wrong answer	39	48.0	8	10.7		
Does frequently changing caregivers cause ASD(No)						
Correct answer	59	78.7	70	93.3	0.027**	
Wrong answer	16	21.3	6	6.7		
Does TV exposure in early years cause autism (No)						
Correct answer	48	64.0	64	85.3	0.010	6.618
Wrong answer	27	36.0	11	14.7		
Do vaccinations cause ASD (No)						
Correct answer	70	93.3	72	96.0	0.727**	
Wrong answer	5	6.7	3	4.0		
Do pesticides do not cause ASD						
Correct answer	59	78.7	68	90.7	0.064**	
Wrong answer	16	21.3	7	9.3		
Do you think you can recognize ASD						
YES	51	68.0	72	96.0	<0.001**	
NO	24	32.0	3	4.0		

*McNemar Test
**Binomial distribution used.
ASD: Autism spectrum disorder
TV: Television.

Table-2: Questions regarding diagnosis of ASD.

	Pre- training		Post- training		p*	χ^2
Knowledge about ASD	N	%	N	%		
ASD is a disorder that is diagnosed after 3 years of age						
Correct	30	40.0	13	17.3	<0.001	21.841
Wrong	27	36.0	59	78.7		
No idea	18	24.0	3	4.0		
Having eye contact excludes ASD						
Correct	22	29.3	18	24.0	0.018	5.625
Wrong	38	50.7	54	72.0		
No idea	15	20.0	3	4.0		
ASD is always accompanied by mental retardation						
Correct	16	21.3	13	17.3	0.186	1.750
Wrong	50	66.7	58	77.3		
No idea	9	12.0	4	5.3		
All children with ASD should only receive special education. and not attend regular schools						
Correct	39	52.0	14	18.7	<0.001	23.077
Wrong	28	37.3	59	78.7		
No idea	8	10.7	2	2.7		

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The most common cause of language delay is ASD						
Correct	30	40.0	36	48.0	0.643	0.214
Wrong	28	37.3	32	42.7		
No idea	17	22.7	7	9.3		
ASD core symptoms can be treated by medications						
Correct	15	20.0	12	16.0	<0.001	16.690
Wrong	36	48.0	59	78.7		
No idea	24	32.0	4	5.3		

*McNemar Test

Note: All of the sentences related to autism in the table is incorrect. so wrong answers are the correct options. McNemar test has been done according to 2 categoriesas 'correct' and 'not correct' answers.
ASD: Autism spectrum disorder.

Table-3: Questions regarding treatment of ASD.

	Pre- training		Post- training		p	χ^2
	N	%	N	%		
Is sensation integration therapy effective in the treatment of ASD						
Correct answer	14	18.7	33	44.0	0.002	9.818
Wrong answer	61	81.3	42	56.0		
Is diet effective in the treatment of ASD						
Correct answer	65	86.7	74	98.7	0.012**	
Wrong answer	10	13.3	1	1.3		
Is hyperbaric oxygen effective in treatment of ASD						
Correct answer	68	90.7	73	97.3	0.180**	
Wrong answer	7	9.3	2	2.7		
Is heavy metal detoxification effective in the treatment of ASD						
Correct answer	52	69.3	69	92.0	0.002	9.481
Wrong answer	23	30.7	6	8.0		
Is neurofeedback effective in the treatment of ASD						
Correct answer	54	72.0	66	88.0	0.031	4.654
Wrong answer	21	28.0	9	12.0		
Are early diagnosis and special training programmes effective in the treatment of ASD						
Correct answer	68	90.7	71	94.7	0.508**	
Wrong answer	7	9.3	4	5.3		
Is medical treatment for comorbid disorders appropriate for ASD						
Correct answer	22	29.3	31	41.3	0.176	1.829
Wrong answer	53	70.7	44	58.7		

*McNemar Test

**Binomial distribution used.

ASD: Autism spectrum disorder.

and post-training scores of the questionnaire (p<0.001).

Discussion

Early diagnosis of ASD is important to access early intervention programmes. Children diagnosed with ASD at a younger age benefit more from intense special educational programmes. The primary aims of these educational programmes are to improving social skills and daily functioning and decreasing maladaptive behaviours such as self-injury and aggressive behaviours. Family practitioners have a significant role in the early recognition of ASD. In our study, we tested family practitioners' knowledge of ASD. We questioned their basic information about ASD before and after the training. Before the training, 40% of the practitioners thought, "ASD can be diagnosed after 3 years of age". This issue has been much debated for years. In the past, many clinicians had agreed that ASD could be diagnosed after 3 years of age. Now, ASD can be recognised earlier and intervention programmes can be started earlier. Generally, if a specialist diagnoses ASD at 2 years of age, the diagnostic reliability has been determined to be as high as that at 4 years of age.[11] Besides, 29.3% of the family practitioners thought that "Having eye contact excludes ASD". Eye contact in itself is insufficient for excluding diagnosis. The quality of eye contact is more important. Normal developing children can make eye contact and respond to smiling at the age of one month. Eye contact is

deficient and limited in people with ASD. Moreover, 21.3% of the participants believed that "ASD is always accompanied by mental retardation". Mental retardation coexists in 70% of typical autism patients and 15-40% of the whole spectrum of autism.[12] Indeed, most patients with ASD do not have mental retardation. The differential diagnosis of ASD and intellectual disability (ID) should be done carefully. For a differential diagnosis of ASD and ID, at one year of age, patients do not respond to their names, and at 3 years of age, they are isolated from their environments, reluctant to attract the attention of others, do not play like other children, and are sensitive to certain sounds.[13]

Nearly half of the participants (52%) thought "Children with ASD should receive only special education and not attend regular schools". However, ASD patients with normal intelligence and verbal skills can attend regular schools. They may have learning difficulties and adaptation problems, unlike their peers. Moreover, 40% of the practitioners thought that "The most common cause of speech delay is ASD". The most consistently reported risk factor is a family history of speech and language delay.[14] Other risk factors are hearing loss, developmental delay, ASD, attention deficit hyperactivity disorder (ADHD), television viewing, psychosocial deprivation and bilingualism.[15-18] Further, 20% of the participants thought that "ASD core symptoms can be treated by medications". The most proven approach to minimise ASD core symptoms is early intervention programmes.[19] Medications are used for comorbid psychiatric symptoms such as hyperactivity, disruptive and self-mutilative behaviours, not for the treatment of core symptoms. Questions about ASD aetiology and treatment had a higher rate of correct answers than questions about ASD symptoms. Nonetheless, most of the participants thought that "Heavy metal exposure is one of the etiologic factors for ASD". However, studies have shown that there is no relation between mercury/vaccination and ASD.[20,21] Of the participants, 52% thought "Advanced paternal age is one of the aetiologic factors for ASD". Actually, meta-analysis has demonstrated that advanced paternal age increases the risk of autism.[22] In our study, 34.7% of the participants thought that they had sufficient information about ASD, and most of them were aware of their lack of knowledge about ASD. Studies also had drawn attention to the lack of knowledge about ASD.[7,8] Only 12% of the participants answered the question "What is the prevalence of ASD?" correctly. For many years, it was thought that autism was a rare disease. Recently, most studies have indicated that autism prevalence is greater than 1%.[2,3] According to estimates by the CDC's Autism and Developmental Disabilities Monitoring Network and large sample studies, about 1 in 68 children are diagnosed with ASD.[3]

There are limitations of this study. The sample size was small, which may limit ability to generalise the results to a larger population. Second, we did not observe the long-term effects on family practitioners references or determinations.

Conclusion

Family practitioners in Van lacked sufficient knowledge about autism symptoms, aetiology, prevalence, and treatment. Because family practitioners play an important role in the early diagnosis of autism, they should receive additional training either during their medical education or following graduation to increase their awareness and knowledge of ASD. Comprehensive studies are required to evaluate family practitioners' knowledge of ASD and to determine any deficiency in information or awareness of ASD. Training programmes may then be prepared according to the needs of the family practitioners in question. Further research in this area should address deficiencies in knowledge regarding ASD among family practitioners in larger samples in order to increase awareness and extend training to other regions in Turkey and even other countries.

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