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AWARENESS ABOUT CHILDHOOD AUTISM AMONG RESIDENT PHYSICIANS OF SURGICAL, NONSURGICAL AND FIRST-CONTACT DISCIPLINES (FAMILY MEDICINE+ PEDIATRICS+ OTORHINOLARYNGOLOGY) OF A RESEARCH AND TRAINING HOSPITAL IN ISTANBUL, TURKEY

İSTANBUL'DA BİR EĞİTİM VE ARAŞTIRMA HASTANESİNİN CERRAHİ, CERRAHİ DIŞI VE İLK-BAŞVURU DİSİPLİNLERİ (AİLE HEKİMLİĞİ + PEDİATRİ + KULAK BURUN BOĞAZ) ASİSTAN HEKİMLERİNİN ÇOCUKLUK ÇAĞI OTİZMİ HAKKINDA FARKINDALIKLARININ DEĞERLENDİRİLMESİ

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ABSTRACT

Objective: The objective of this descriptive study was to assess the awareness of childhood autism among 275 physicians undergoing their residency training in several disciplines which were classified as surgical, nonsurgical and first-contact disciplines (Family medicine + Pediatrics + Otorhinolaryngology) of a Research and Training Hospital in Istanbul, Turkey.

Material and Method: Data were collected through a self-administered questionnaire. Residents scoring below 20 were considered as "low scoring"; and residents scoring 20 and above were considered as "high scoring"; Chi-square test and Fisher's chi-square test were applied for finding association between categorical variables.

Results: The characteristics of childhood autism emerging with statistically significant differences between the disciplines ($p<0.05$) were "a child with autism frequently has repetitive and stereotypical behaviours" and "about the outstanding talents a child with autism might have". Around 94.1% of the first-contact disciplines and 93.3% of the nonsurgical disciplines were in the high-scoring group; whereas 82.6% of the surgical disciplines could be placed in the high-scoring group. This difference was statistically significant ($p<0.05$).

ÖZET

Amaç: Bu tanımlayıcı çalışmanın amacı, İstanbul'da bir Eğitim Araştırma Hastanesi'nde cerrahi, cerrahi dışı ve ilk -başvuru disiplinlerinde (Aile hekimliği + Pediatri + Kulak Burun Boğaz) Tıpta Uzmanlık Eğitimi almakta olan 275 asistan hekimin çocukluk otizmi farkındalığını değerlendirmektir.

Gereç ve Yöntem: Veriler asistan hekimlerin kendilerinin doldurduğu anket aracılığıyla toplandı.

Yirmi'nin altında puan alan hekimler "düşük puan" almış olarak kabul edildi; 20 ve üzeri puan alanlar "yüksek puan" almış olarak kabul edildi. Kategorik değişkenler arasındaki ilişkiyi bulmak için ki-kare testi ve Fisher'in ki-kare testi uygulanmıştır.

Bulgular: Otizmli bir çocuk tekrarlayıcı ve stereotipik davranışlara sahiptir" ve "otizmi olan bir çocuğun üstün yeteneklere sahip olabileceği" disiplinler arasında istatistiksel olarak anlamlı farklarla ortaya çıkan çocukluk otizminin özellikleridir. İlk -başvuru disiplinlerinin yaklaşık %94,1'i ve cerrahi dışı disiplinlerin %93,3'ü yüksek puan grubunda yer almıştır, oysa cerrahi disiplinlerin daha azı (%82,6'sı) yüksek puan grubunda yer almıştır. Bu fark istatistiksel olarak anlamlıydı ($p<0,05$).

Sonuç: Bu çalışmada ilk-başvuru disiplinlerinde eğtim almakta

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Conclusion: In this study, the physicians undergoing their residency training in the first-contact disciplines, namely Family Medicine + Pediatrics + Otorhinolaryngology, were found to be more knowledgeable on childhood autism as compared to the ones undergoing residency training in the surgical disciplines. This was considered as a pleasing finding since the first-contact disciplines are most likely to be in an initial position to detect a child with autism in the community, refer him/her to the health authorities and continue monitoring him/her from thereon.

Keywords: Childhood autism, awareness, resident physicians, non-surgical disciplines

olan asistan hekimlerin çocukluk otizmi hakkında daha fazla bilgi sahibi oldukları görülmüştür. İlk-başvuru disiplinlerinin, toplumda olası otizmi olan bir çocuğu fark etmek, ilk adımı atacak disiplinler olmaları nedeniyle, bu sonuç yüz güldürücü bir bulgu olarak kabul edildi.

Anahtar Kelimeler: Çocukluk çağı otizmi, farkındalık, asistan hekimler, cerrahi olmayan disiplinler

INTRODUCTION

Autism was first described in 1943 by Kanner (1). Kanner had suspected that these children had an inborn feature which prevented their regular social contacts (1).

Autism can be considered as a neurodevelopmental condition particularly interfering with a person's ability to communicate and relate to other individuals (2). Autism appears to be one of the fastest growing disabilities in children with increasing prevalence rates (3).This rise in prevalence is reported to be considered as a serious public health concern (4, 5).

Although there is no known medical cure (6), early diagnosis of an autism spectrum disorder is crucial because educational, social and behavioural intervention programmes are very effective in younger children and greatly impact long term prognosis (7).

Adequate knowledge and awareness about childhood autism among healthcare workers can ensure early diagnosis of children with autism and this in turn allows early interventions (8). The identification of autism most of the time occurs in multiple settings and is frequently made by a variety of health professionals, including primary care physicians, family practitioners, pediatricians, medical specialists and psychiatrists (9-11).

Given that deficits associated with autism manifest before the age of 36 months, primary care physicians, family practitioners and pediatricians are commonly the first healthcare providers the child and parents might have contact with through routine infant/toddler wellness checks (9, 10).

In several countries, family practitioners and pediatricians are the initial line of contact between the parents and the health care system (4). Actually, it is reported that parents generally expressed their initial concerns about peculiarities in the development of their child to pediatricians and family practitioners (12-14).

However, it is also reported that early diagnosis of childhood autism is challenging in the context of primary care visits, because there is no pathognomonic sign or laboratory test to detect it (1). Thus, the physician can be in a position to identify the child having autism based on the presence or absence of a constellation of symptoms (15). Early identification is also recommended to be dependent on listening carefully to parents' concerns about their child's development and behaviour (15).

The primary care physicians, family practitioners and pediatricians are among the key positions to also inform, provide support and refer the children with autism to the appropriate authorities (7).

Physicians working in the discipline of Otorhinolaryngology can also be considered as a first contact discipline for childhood autism since some of these children might frequently seem to be deaf or dumb (8). The differential diagnosis might be challenging since a child having autism can hardly cooperate with the otorhinolaryngologist.

To this end, the objective of this descriptive study was to assess the awareness of childhood autism among 275 physicians undergoing their residency training in several disciplines which were classified as surgical, nonsurgical and first-contact disciplines (Family medicine + Pediatrics + Otorhinolaryngology) of a Research and Training Hospital in Istanbul, Turkey.

MATERIAL AND METHOD

This cross-sectional study was conducted on 275 physicians undergoing their residency training in several disciplines of a Research and Training Hospital in the Istanbul Province of Turkey, in May 2015. A total of 298 residents were present at the time of the study in the participating disciplines of the concerned hospital. Data were collected on 275 residents who gave their consent to be included in the study.

The Neuropsychiatric disciplines of the concerned hospital, including Psychiatry; Child and Adolescent Psychiatry; Neurology and Child Neurology were not included in our study since they were expected to be fully knowledgeable on childhood autism.

The remaining disciplines being included in our study were analysed in three categories as Nonsurgical disciplines-104 residents (Internal Medicine; Chest Diseases; Cardiology; Infectious Diseases; Dermatology; Radiology), Surgical disciplines-86 residents (General Surgery; Obstetrics and Gynaecology; Ophthalmology; Urology; Plastic Surgery; Orthopaedics; Chest Surgery; Cardiovascular Surgery) and First contact disciplines (FCD)-85 residents (Family medicine+ Paediatrics+ Otorhinolaryngology). Sixteen residents from Family medicine, 56 residents from Paediatrics and 13 residents from Otorhinolaryngology participated in our study. Among the total 275 residents, 144 were males and 131 were females.

Data were collected through a self-administered questionnaire. Questions about "awareness on autism" were prepared referring to "KCAHWC – Knowledge about Childhood Autism among Health Workers" (8, 16, 17) and to "Using the modified checklist for autism in toddlers in a health child clinic in Turkey: Adapting the screening method based on culture and setting" (18), and also to "Sosyal İletişim Ölçeğinin Okul Öncesi Çocuklardaki Geçerlik ve Güvenilirliği" Study carried out by Öner et al. (19).

Questions included 19 specific characteristics of childhood autism. Each question had "Yes"; "No"; and "Don't Know" choices. "Yes" was the correct answer in every question, which can be considered a limitation of our study. "Yes" was scored as 2; "No" and "Don't Know" were scored as 1. The maximum score could be 38. Residents scoring below 20 were considered as "low scoring"; and residents scoring 20 and above were considered as "high scoring". Chi-square test and Fisher's chi-square test were applied for finding association between categorical variables. P value less than 0.05 was taken as statistically significant.

Ethical considerations

Ethics approval for our study was granted by the Ethical Committee of the Marmara University School of Medicine.

All procedures performed in this study involving human participants were done in accordance with the ethical standards of the institutional and national research committee and with the 1964 Helsinki declaration and its later amendments, or comparable ethical standards.

RESULTS

The disciplines being included in this descriptive study were analysed in three categories as Nonsurgical disciplines, Surgical disciplines and First contact disciplines (Family medicine+ Pediatrics+ Otorhinolaryngology). Among all residents, the characteristics of childhood autism most frequently known were "they have hard time maintaining eye-contact (94.5%)" and "they have difficulty using body language, mimics and gestures (90.9%)" (Table 1). Both of which were not statistically significantly distributed between the three disciplines (p>0.05).

"They like to perform routine activities" presented to be one of the top ranking characteristics of childhood autism in our study, with a percentage of 80.4 (Table 1); be-

Table 1: The specific characteristic of childhood autism and percentages of correct responses given by the resident physicians (n=275)

Characteristic of autism	Correct responses	
	n	%
They have hard time maintaining eye-contact	260	94.5
They have difficulty using body language, mimics and gestures	250	90.9
They might be unattentive to outside world	234	85.1
They like to perform routine activities	221	80.4
Their ability to speak is little or delayed	218	79.3
They might seem as if deaf or dumb	215	78.2
Autism can be cured when early educational intervention (special/social)is given	202	73.5
They can have eating habits different than their peers(e.g. smelling food, difficulty in chewing, eating only special food)	181	65.8
Autism is a genetic disorder	160	58.2
They are not willing to share an object/activity with others spontaneously	159	57.8
They are not usually involved in imaginative plays	149	54.2
They don't point out at an object they want	138	50.2
Difficulty in building up friendship	118	42.9
They have hard time imitating their caregiver	116	42.2
They aren't willing to turn to you when called	71	25.8

[a]The above-mentioned characteristics were not found to be statistically significantly distributed between nonsurgical, surgical and first-contact disciplines (Fam.med+Pediatrics+Otorhinolaryngology) (p>0.05)

Table 2: The specific characteristic of autism and the distribution of the correct responses according to disciplines

Characteristic of autism	Disciplines						Total (n=275)		Statistical significance
	Nonsurgical disciplines[a] (n=104)		Surgical disciplines[b] (n=86)		First-contact disciplines[c] (n=85)				
	n	%[d]	n	%[d]	n	%[d]	n	%[d]	
A child with autism frequently has repetitive and stereotypical behaviours	90	86.5	67	77.9	78	91.8	235	85.5	x^2=6.763 p=0.034
A child with autism does not generally have a social smile	74	71.2	60	69.8	74	87.1	208	75.6	x^2=8.760 p=0.013
A child with autism can be talented in music, math, computer science and arts	96	92.3	64	74.4	74	87.1	234	85.1	x^2=12.250 p=0.002
A child with autism can have strong memory	96	92.3	61	70.9	69	81.2	226	82.2	x^2=14.776 p=0.001

[a]Internal Medicine, Chest Diseases, Cardiology, Infectious Diseases, Dermatology, Radiology; [b]General Surgery; Obstetrics and Gynecology, Ophthalmology, Urology, Plastic Surgery, Orthopaedics, Chest Surgery, Cardiovascular Surgery; [c]Familymed + Pediatrics + Otorhinolaryngology; [d]Column percentage within discipline

sides, this characteristic was not statistically significantly distributed between the three disciplines (p>0.05).

"Their ability to speak is little or delayed" was one of the well-known characteristics of childhood autism by the residents participating in our study, presenting with a percentage of 79.3 (Table 1). This feature was not statistically significantly distributed (p>0.05).

Several other characteristics of childhood autism were well-known, with higher percentages by the physicians undergoing their residency training in the disciplines participating in our study (Table 1); the difference not being statistically significant (p>0.05). The characteristics of childhood autism emerging with statistically significant differences between the disciplines (p<0.05) were "a child with autism frequently has repetitive and stereotypical behaviours" and "about the outstanding talents a child with autism might have" (Table 2). Furthermore, in Table 2, surgical disciplines presented with lower percentages as far as the above-mentioned characteristics of childhood autism were concerned, causing statistically significant differences (p<0.05).

"A child with autism can be talented in music, math, computer science and arts" and "a child with autism can have strong memory" were the outstanding talents in our study better known by the nonsurgical and first contact disciplines, with statistically significant differences from the surgical disciplines (p<0.05).

In our study, childhood autism awareness scores were calculated. Around 94.1% of the first-contact disciplines and 93.3% of the nonsurgical disciplines were in the high-scoring group; whereas 82.6% of the surgical disciplines could be placed in the high-scoring group. This difference was statistically significant (p<0.05) (Table 3).

Table 3: The distribution of childhood autism awareness scores according to disciplines

Disciplines	Scores (n= 275)	
	Low scoring n (%)	High scoring n (%)
Nonsurgical disciplines[a]	7 (6.7)	97 (93.3)
Surgical disciplines[b]	15 (17.4)	71 (82.6)
First-contact disciplines[c]	5 (5.9)	80 (94.1)
Total	**27 (9.8)**	**248 (90.2)**

x^2=0.016 p<0.05; [a]Internal Medicine, Chest Diseases, Cardiology, Infectious Diseases; Dermatology, Radiology; [b]General Surgery, Obstetrics and Gynaecology, Ophthalmology, Urology, Plastic Surgery, Orthopaedics, Chest Surgery, Cardiovascular Surgery; [c]Familymed + Pediatrics + Otorhinolaryngology; *when Surgical Disciplines were removed from the Table and chi-square test was performed on the remaining 2x2 Table, the difference turned out to be statistically not significant (x^2=0.0566 and p=0.8119)

DISCUSSION

The disciplines included in our study were analysed in three categories as Nonsurgical disciplines, Surgical disciplines and First contact disciplines (Family medicine + Pediatrics + Otorhinolaryngology).

Among all residents, the characteristics of childhood autism most frequently known were "they have hard time maintaining eye-contact" and "they have difficulty using body language, mimics and gestures". Both of which were not statistically significantly distributed between the three disciplines ($p>0.05$). Opposite to our study, in Lahore and New York studies, the leading features of childhood autism were found to be "social interaction difficulties and lack of social responsiveness" (3, 20). A study carried out in India among pediatricians, resembled our study by presenting "lack of eye-contact" and "lack of social responsiveness" among the top two features necessary for childhood autism (21).

"They like to perform routine activities" appeared to be one of the high ranking characteristics of childhood autism in our study. This characteristic was less known in the Lahore and India studies (20, 21). However, the potential first-contact providers in the New York study emerged with higher percentages than our study, as far as the above mentioned characteristic of childhood autism was concerned (3).

"Their ability to speak is little or delayed" was one of the well-known characteristics of childhood autism by the residents participating in our study, presenting with a percentage of 79.3. "Language delay" is considered to be one of the characteristics of childhood autism (8, 15). Actually, Heidgerken implies that even if children falling in the lower end of the spectrum can often achieve adequate functioning in language and social behavior, they can still retain some persistent speech and behavioural pecularities (10). In the Lahore, New York and India studies, this characteristic was less known as compared to our study (3, 20, 21).

The characteristics of childhood autism emerging with statistically significant differences between the three disciplines in our study ($p>0.05$) were "a child with autism frequently has repetitive and stereotypical behaviours", "a child with autism does not generally have a social smile" and "about the outstanding talents a child with autism might have". Surgical disciplines presented with lower percentages as far as the above-mentioned characteristics of childhood autism were concerned, causing statistically significant differences.

"A child with autism frequently has repetitive and stereotypical behaviours" was less expressed in the Lahore and India studies as compared to our study (20, 21). However, in the New York study, the potential first-contact providers appeared with higher percentages than in our study (3).

"Stereotypical behaviours", in general, are reported not to prevail among the initial autism symptoms (22). Not only physicians but even parents might sometimes fail to find an association between stereotypical behaviours and childhood autism (22). Stereotypical behaviours in childhood autism tend to be more prominent as the child gets older, specifically after the age of three years (22). This might explain the physicians of the surgical disciplines attending our study being less knowledgeable about the above-mentioned characteristic of autism, as compared to nonsurgical and first contact disciplines. However, this characteristic is reported to decrease with intensive early intervention programs (15).Therefore, these behaviours are worth being identified early by all physicians.

"A child with autism does not generally have a social smile " was best known by the residents of the first contact disciplines (Family medicine+ Pediatrics+ Otorhinolaryngology) ($p<0.05$). This can be an important feature indicating many social disabilities, such as lack of social responsiveness and inappropriate laughing or giggling (3, 20, 21). It was also reported that if 'a lack of social smile' existed among the parental 'first concerns'; autism could be diagnosed earlier (22). Therefore, in our study, the first contact disciplines' knowing this feature with a high percentage of 75.6 can be interpreted to be important in their identifying the social interaction signs of a child with autism, and referring him/her to related health authorities.

"A child with autism can be talented in music, math, computer science and arts" and "a child with autism can have a strong memory" were the outstanding talents better known by the nonsurgical and first contact disciplines in our study, with statistically significant differences as compared to the surgical disciplines ($p<0.05$). Outstanding skills, such as mathematics, calendar calculating, good memory and perceptual peaks are reported to appear among the features of autism (23-25). These talents can be recommended to be presented to the parents, encouraging them for further development of the skills, correcting their hopeless mood and strengthening them to reduce the stigmatization of autism in the community.

It is presented by the American Academy of Paediatrics, that currently accepted strategies are not only improving the overall functional status of the child by enrolling him/her in intensive early intervention programs, but also helping the family manage the stress associated with raising a child with autism (15). Dealing with these talents might also be important in decreasing the stress of families.

In our study, childhood autism awareness scores were calculated. The first-contact disciplines and the nonsurgical disciplines were more in the high-scoring group as compared to the surgical disciplines ($p<0.05$). In a study where the surgical specialties had less knowledge about autism than their counterparts, this was explained by their lesser likeliness of seeing cases of autism (26).

In the Kaduna State study, the consultation by an otolaryngologist was emphasized, as the evaluation of an otolaryngologist is important both in autism management and management of impairments in communication (26).

A child with autism can have sensory over/under responsiveness (10). At this point, the role of an otorhinolaryngologist becomes more important as to which sounds/voices/noises a child having autism is giving an over/under response. This sensitivity might be the underlying cause of some behavioural problems in these children. After detection of these sounds and interventions such as desensitization/isolation/use of personal protectors, these behavioural problems might be solved. Over responsiveness to specific sounds may also be used as stimuli in teaching verbal language to a child with autism. To this end, in our study, first-contact physicians, also including otorhinolaryngology residents, found as being more knowledgeable, is a pleasing finding.

In our study, resident pediatricians were also included in the first-contact disciplines, and they were found to be in the high-scoring group, with a higher percentage than the residents of the surgical disciplines. However, in another study carried out in Turkey, the pediatricians' knowledge, attitude, and behaviour about childhood autism were found to be lacking (27).

In the Kaduna State study in Nigeria, the pediatricians were found to be more knowledgeable on childhood autism than general practitioners (26). Similarly, in the studies carried out in Pakistan and in Singapore, general practitioners were found to lack important knowledge about autism (4, 28).

In our study, residents of Family Medicine, included in the first-contact disciplines, were pleasingly found to be more knowledgeable than the residents of the surgical disciplines. In Turkey, Family Medicine physicians serve as primary health care providers (29), and they are expected to detect children having neurodevelopmental disorders, refer them to the related specialists and give health monitoring to them (29).

Opposite to our study, in Sabuncuoğlu's study in Turkey, Family Medicine residents were found to be lacking in knowledge about childhood autism (29). Likewise, in a study carried out in Florida, primary health care providers declared that they felt less comfortable in diagnosing children with autism (10). Furthermore, in some studies, it is reported that primary care physicians could possess outdated beliefs and misconceptions regarding childhood autism (3, 10, 20). In another study, carried out in Minnesota, the pediatricians and primary care physicians reported a lack of self-perceived competency on childhood autism (30).

In some studies, the physicians can even lose the trust of the parents because of dismissing parental concerns of misdiagnosis (31, 32). In a study carried out in UK, many of the actively concerned parents had been reported to be prematurely reassured by their health care provider that there was nothing wrong (14). In the Latino study, parents reported the diagnostic process as being slow, inconvenient, confusing and uncomfortable for the child (31). These factors were reported to lead many parents to normalize their child's early behaviours, deny that a problem existed and lose trust in the medical system (31).

It is advised by Harrington et al, that the physicians should inquire about parental beliefs concerning etiology (32) because the families can have myths about autism (33). Physicians should also learn what treatments the children are receiving, perform a screening at the 18 month visit and make referrals for further evaluation as soon as a child begins to exhibit signs suggestive of autism (32).

De Ocampo et al also advise that a primary care physician should be knowledgeable about the medical issues a child with autism might encounter, such as identification of seizures, sleep problems, chronic constipation, as well as timely referral for preventive dental care (13); furthermore, that there needs to be a close collaboration between the family, the specialist and the primary care physician (13).

Limitations of the study

Since it is a cross-sectional study, we can observe awareness at the time of study; we cannot have a clear idea about any cause and effect relationship. This can be a limitation.

CONCLUSION

In this study, the physicians undergoing residency training in the first-contact disciplines, namely Family Medicine+ Pediatrics+ Otorhinolaryngology, were found to be more knowledgeable on childhood autism as compared to the ones undergoing residency training in the surgical disciplines. This was considered as a pleasing finding since the first-contact disciplines are most likely to be in an initial position to detect a child having autism in the community, refer him/her to health authorities and continue monitoring him/her from thereon. However, the limitation of our study was that we did not analyze the residents of Family Medicine+ Pediatrics+ Otorhinolaryngology separately, since they were small in number. Studies focusing on each of the above-mentioned 3 disciplines separately and carried out on larger number of participants will be more valuable in the early detection of childhood autism, preferably in different cultures. Another limitation of our study was that we did not inquire the misconceptions of the residents about childhood autism. Studies examining misconceptions or misbeliefs of

the physicians of the above-mentioned 3 disciplines on childhood autism could also be recommended.

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