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Original Article

Determination of pediatric nurses' knowledge of and attitudes towards childhood autism and CT recommendations

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ABSTRACT

Objective: The study aimed to determine the knowledge levels and attitudes of nurses working in pediatric clinics on childhood autism and which complementary therapies (CT) methods they recommend to support children with autism

Methods: The study was designed as a descriptive research and the data were collected online. This study was conducted with 135 pediatric nurses. Research data were collected through the Sociodemographic Information Form, the Societal Attitudes Toward Autism (SATA) Scale, and the Knowledge about Childhood Autism among Health Workers (KCAHW) Questionnaire.

Results: While the mean score for the SATA scale of the nurses participating in the study was 48.46±9.84, the mean score of the KCAHW questionnaire was 8.13±3.81. The mean scores for the subdimensions of the SATA scale was 7.93±2.49 at the lowest and 28.33±6.11 at the highest. In this study, nurses suggested six different CT practices in total, with exercise being the most frequently recommended one.

Conclusion: The level of knowledge on childhood autism among our participants was found to be above average. In addition, in this study, the knowledge level of pediatric nurses was related to their attitudes towards individuals with autism at a very high level. Therefore, it is recommended to prepare a guide on autism and CT suggested by the nurses. It is recommended to plan the necessary interventions to improve the knowledge and attitudes of pediatric nurses about autism and to prepare a guide about CT to be used by nurses.

Keywords: Attitude, autism, complementary therapies, knowledge, pediatric nursing

INTRODUCTION

Autism is a developmental disorder characterized by disorders in speech and social interaction skills that begin early, vary with age and developmental level, and have lasting effects throughout life.[1-3] Nurses working in pediatric clinics may provide care for children with autism, along with other children, throughout their professional lives. Hospital environments can be a more significant source of stress for children with autism. Diagnostic and therapeutic interventions, painful procedures, and environmental stimuli in the hospital can cause crises for these children. Therefore, nurses with no adequate knowledge of childhood autism may face specific challenges when providing care to children with autism. The knowledge, attitudes, and behaviors of nurses working in pediatric clinics towards autism are essential in terms of quality of care.[4-11]

Nurses' level of knowledge of autism affects not only nursing behaviors but also the attitudes of nurses.[12-16] However, a systematic review showed that healthcare workers have a

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moderate level of knowledge of autism, and they generally lack training.[17] Another study conducted with pediatric nurses revealed that 41% of nurses attributed the development of autism to supernatural causes.[18] It is apparent that such misconceptions will adversely affect pediatric nurses' approach toward children with autism.

Besides, pediatric nurses play an active role in the diagnosis and treatment of children with autism. In line with their knowledge of autism, they provide training and advice to children and parents with autism. One of these suggestions is the use of complementary therapy practices for children with autism. In studies on the use of CT in autism in the literature, the rate of use varies between 31% and 92%.[19,20] The most common alternative therapies include special diets (e.g., gluten- and casein-free) and biologically based therapies such as vitamin/mineral supplementation. In particular, gluten-free/casein-free diet, secretin, omega-3 fatty acid supplements, probiotics, glutathione, specific carbohydrate diet, SAM-E (S-adenosylmethionine), and melatonin are reported to be the most used ones.[21] There is a need for further studies in the literature about which CT methods are most frequently recommended by nurses working in pediatric clinics and why they recommend them.

This study, therefore, aimed to determine the knowledge levels and attitudes of nurses working in pediatric clinics about childhood autism and which CT methods they recommend to support children with autism.

METHODS

Study design and sampling

The study was descriptive research. Nurses working in pediatric clinics and using social media who were literate in Turkish comprised our study sample. Nurses working in the hospitals but not taking an active role in patient care and working in adult clinics were excluded. Relevant information and explanations about the study were added to the first part of the questionnaire, and the inclusion criteria were explained in detail. A total of 135 nurses who met the inclusion criteria and volunteered to participate in the study were included in the sample. Since all questions in the questionnaire had to be answered, there was no data loss. The research sample was completed two weeks after the number of filled questionnaires remained the same. The study was completed with the all individuals who could be reached on the dates when the research was continuing by not going to the sampling. According to the power analysis conducted considering the results obtained from 135 nurses in the research, the effect size of the study was found to be 0.30 (d=0.30) and the statistical power of the study was calculated as 95% at a 95% confidence interval.

Data collection tools

Research data were collected through the Sociodemographic Information Form, the Societal Attitudes Toward Autism (SATA) Scale, and the Knowledge about Childhood Autism among Health Workers (KCAHW) Questionnaire.

Sociodemographic Information Form: It contains questions about the socio-demographic data of the nurses.

Societal Attitudes Toward Autism Scale: Developed by Flood, Bulgrin, and Morgan (2013), the scale is used to measure social attitudes towards individuals with autism. The factor analysis detected three subdimensions that are *Social Attitudes* (16 items), *Knowledge* (5 items), and *Personal Distance* (5 items). The Cronbach's alpha value of the scale was calculated to be 0.86.[22] The Turkish language version of the scale was adapted by Batum and Aydın.[23] The Cronbach α value for the validity and reliability of the Turkish version was calculated to be0.87.

Knowledge about Childhood Autism among Health Workers Questionnaire: Originally developed by Bakare et al. in the English language, this questionnaire consists of 19 items evaluating the information on four domains of autism.[24] The first domain consists of eight items and deals with inadequate social interactions among children. The second includes a single item on a symptom related to communication and language development. The third domain contains four items focusing on obsessive-compulsive, repetitive, and stereotypical behaviors that are characteristic of autism. The fourth domain consists of six items designed to assess nurses' knowledge of the neurodevelopmental nature of autism, possible comorbid conditions, and the prediction of its occurrence. The total scores in this questionnaire range from 0 to 19. Each item has three response options: Yes, No, and I don't know. Correct answers score1 point, while the other two answers score0 points. The last item, which evaluates the age of onset of autism, is scored as 0. Higher scores indicate a higher level of knowledge of autism. The Turkish version of the KCAHW questionnaire was adapted by Ozdemir et al.[25] The Cronbach α value of this questionnaire is 0.97 in the English version and 0.70 in the Turkish language version.

Data collection

Research data were collected between August and October 2021. Data collection forms were transferred to Google Forms and a link was created to share the surveys. The created link was shared by the researchers on social media websites, including Facebook and Instagram, and the participants were invited to participate in the research.

Prior to data collection, a pilot application was conducted to test the comprehensibility of the questionnaires. Ten nurses were included in the pilot application and they answered all the questions in 10 to 20 minutes. After the pilot application, the nurses did not make any suggestions and no changes were made in the survey questions. Nurses who were included in the pilot application were excluded from the sample.

Ethical considerations

A written approval from the ethics committee (E-60116787-020-90165) and written permissions from the authors for the use of the scales were obtained before starting the research. In addition, before displaying the questionnaire on the website, we presented some information on the subject and purpose of the study, as well as the time required to fill out the questionnaire so that we could educate the candidates on the process. In addition, the consent to participate was obtained by adding a section that stated "I agree to participate in this research of my own free will without any pressure or coercion: ( ) Yes, ( ) No". After selecting this option, the participants were able to move on to the next sections and send their answers.

Data analysis

The research data were analyzed using the SPSS software package (version 21). The mean, standard deviation, number, and percentage values were calculated for the questions on the forms. When the parametric test assumptions were met, the Test of Significance of the Difference Between Two Means was used to compare independent group differences. When parametric test assumptions were not met, the Mann-Whitney U test was used to compare independent group differences. One-way ANOVA or Kruskal-Wallis H test was used when there were more than two groups. In addition, the relationships between continuous variables were examined by Spearman or Pearson correlation analyses. The Cronbach's alpha values were calculated for the scales used in the study. The power of the study was calculated using the statistical analysis software package Gpower v3.1.9.2. The results were evaluated at the 95% confidence interval, and a p-value lower than 0.05 ($p<0.05$) was considered significant.

RESULTS

Introductory information about the participants is presented in Table 1. The age of the nurses participating in the study ranged between 24 and 51, and the mean age was 28.53±12.06. About 65.9% of the participants were women, 62.9% had a bachelor's

Table 1. Descriptive characteristics of nurses

Socio-demographic Characteristics	Mean		SD	
Age	28.53		12.06	
	Number	**Percentage**	**SATA**	**KCAHW**
Gender				
Female	89	65.9	t=0.550	t=0.149
Male	46	34.1	p=.592	p=.884
Marital Status				
Married	63	46.6	t=1.430	t=1.523
Single	72	53.4	p=.176	p=.152
Education				
High school	10	7.4		
Associate degree	2	1.5	F=2.076	F=2.157
Bachelor's degree	85	62.9	p=0.168	p=0.158
Postgraduate/PhD	38	28.2		
Clinic				
Pediatric inpatient service	91	67.4		
Pediatric surgery clinic	17	12.5	F=1.241	F=1.574
Pediatric ICU	7	5.1	p=0.311	p=0.342
Pediatric policlinic	20	15		

Table 1. Continued				
Socio-demographic Characteristics	**Mean**		**SD**	
	Number	**Percentage**	**SATA**	**KCAHW**
Work experience as nurse				
Less than 1 year	21	15.5		
1-5 years	38	28.1	F=2.235	F=2.041
5-10 years	42	31.1	p=0.142	p=0.174
More than 10 years	34	25.3		
Work experience aspediatric nurse				
Less than 1 year	44	32.5		
1-5 years	32	23.7	F=2.712	F=2.421
5-10 years	38	28.1	p=0.118	p=0.124
More than 10 years	21	15,7		
Has provided care for child with autism				
Never	29	21.4	F=2.076	F=2.157
Occasionally	68	50.3	p=0.168	p=0.158
Often	33	28.3		
Has recommended CT practice for children with autism				
Yes	59	43.7	t=1.872	t=1.946
No	76	56.3	p=.084	p=.074
TOTAL	135	100		

degree, and 67.4% worked in pediatric clinics. We found that 50.3% of the nurses occasionally provided care for a child with autism, and 43.7% recommended CT for the treatment of children with autism.

While the mean score of the SATA scale of the nurses participating in the study was 48.46±9.84, the mean score of the KCAHW questionnaire was 8.13±3.81. The mean scores of the subdimensions of the SATA scale was 7.93±2.49 at the lowest and 28.33±6.11 at the highest. The mean scores for the subdimensions included in the KCAHW questionnaire ranged between 1.73±0.96 and 3.86±1.95 (Table 2). There was a statistically significant relationship between the mean total scale scores of the nurses participating in the study (r=-0.924; p=0.000).

The data on CT practices recommended by the nurses participating in the study for children with autism are presented in Table 3. Exercise, special diets, and vitamin/mineral supplements ranked first among all CT practices.

Table 2. Mean scale scores of nurses		
		Mean±SD
Scales	SATA	48.46±9.84
	KCAHW	8.13±3.81
KCAHW subdimensions	Relatively easy clinical observations	3.86±1.95
	The signs which require a longer observation time and detailed anamnesis	1.73±0.96
	The signs	2.53±1.06
SATA subdimensions	Societal attitude	28.33±6.11
	Knowledge	12.2±2.88
	Personal distance	7.93±2.49

Table 3. CT practices recommended by nurses		
CT practices	**Incidence of CT recommendation by nurses**	
	n	**%**
Special diets	55	40.7
Exercise/Physical activity	57	42.2
Probiotic foods and drinks	12	8.8
Vitamin/mineral supplements	31	22.9
Meditation	13	10
Yoga	10	7.4
* Nurses were able to mark more than one option.		

DISCUSSION

Our study investigated the knowledge of nurses working in pediatric clinics about childhood autism, their attitudes toward the condition, and the CT methods they employed to support children with autism. We determined that half of the nurses participating in the study occasionally provided care for children with autism, and nearly half of them recommended CT practices. It was found that nurses most frequently recommended exercise, special diets, and vitamin/mineral supplements. The nurses' knowledge of childhood autism was above average, and the level of negative attitudes toward autism was low among our participants. We can suggest that the level of knowledge about childhood autism significantly affects the social attitudes towards autism, and as the level of knowledge increases, the negative attitudes decrease.

Corsano et al.[4] investigated the knowledge and experiences of pediatric nurses about autism, reporting that six out of ten nurses who participated in their study had previous experience with an individual with autism. However, in our study, this rate was slightly higher. There are studies in the literature reporting that having experience with an individual with autism has some effect on the nurses' level of knowledge about autism.[4,26] In contrast, others report that it does not affect the level of knowledge.[27,28] In our study, we found that having experience of nursing care for children with autism in the clinics had no significant effect on nurses' level of knowledge about the condition. There are many factors affecting an individual's acquisition of information. In addition to encountering individuals with autism, factors such as the amount of time nurses spend with them, their interest in autism, and their learning styles can be effective. It is thought that encountering people with autism may not be enough to learn the necessary information about autism.

Previous research on this matter has reported that the knowledge level of pediatric nurses about autism is determined by variables such as age and professional experience. A study reported that nurses' prior knowledge of autism CT from their experiences in the care they provided to children with autism during their professional life.[4] In this case, this studies show that it is inevitable for nurses and other healthcare professionals to hold now-abandoned or false beliefs about autism.[4,18] In this study, contrary to the literature, we found that work experience and the length of service in pediatric clinics had no effect on their knowledge, which could help raise awareness among nurses and abandon traditional fallacies about autism.

The level of knowledge about childhood autism among our participants was found to be above average. A detailed review of previous research conducted with health workers and nurses indicated that nurses generally had false beliefs about autism and their level of knowledge varied from low to moderate.[13,18,29] Similarly, previous studies in Türkiye reported that the level of knowledge of health workers varied according to occupational groups.[30,31] There are studies in the literature that clearly indicate that the level of knowledge about autism affects individuals' attitudes toward autism.[12-16] The correlation analysis performed in this study determined that the knowledge level of pediatric nurses was related to their attitudes toward individuals with autism at a very high level. Having accurate information about children with autism may affect their attitudes toward individuals with autism and their caregiving consultations. For this reason, it is essential to determine the level of knowledge of pediatric nurses, as well as all other health professionals, to eliminate deficiencies and correct their mistakes.

Almost half of the nurses participating in the study recommended CT practices for children with autism. It is frequently stated in the literature that parents use CT practices for their children with autism. However, there is no study on what pediatric nurses think about this issue and what they recommend. However, as reported in this study, the majority of pediatric nurses occasionally or frequently work with children with autism in their clinics. In this process, it is extremely important to determine what suggestions they make to families and children to the best of their knowledge. In our study, we found that nurses suggested six different CT practices in total, with exercise being the most frequently recommended one. Tarr et al.[32] reported that physical activity or exercise has a moderate effect as a potential treatment for stereotypic behaviors in children with autism. He also presented data on exercise in autism in many studies. This suggests that exercise can be used in autism. However, it is very important for nurses to follow the literature on this subject and to guide them in light of the information they obtain from publications with high levels of evidence. A study published in Türkiye in 2021 examined the CT practices preferred by families for their children with autism and reported that there were twelve practices in total. The most frequently preferred practices by parents were spiritual relaxation techniques (prayers) (69.8%), followed by probiotic supplements (49.3%), and vitamin supplements (38.4%). Parents reported that these practices had positive effects on their children's communication, behavior, learning and health.[33] CT practices can be effective in providing positive development in children with autism. Therefore, it is imperative for pediatric nurses to obtain the necessary information on such practices as well as on autism in general.

CONCLUSION

The level of knowledge on childhood autism among our participants was found to be above average. In addition, in this study, the knowledge level of pediatric nurses was related to their attitudes towards individuals with autism at a very high level. So, it is recommended to prepare a guide regarding autism and CT suggested by nurses. It is recommended to plan the necessary interventions to improve the knowledge and attitudes of pediatric nurses about autism and to prepare a guide about CT to be used by nurses.

Limitations

Since the data were collected through social media, information about the hospital and service, such as bed capacity and number of patients, could not be reached. This is the most important limitation of the study. Another limitation of the study is its descriptive design.

Ethical approval

This study has been approved by the Pamukkale University Non-Invasive Clinical Research Ethics Committee (approval date 17.08.2021, number E-60116787-020-90165). Informed consent was not required because of the retrospective design.

Author contribution

Concept: ÇE, TT; Design: ÇE; Data Collection or Processing: ÇE, TT; Analysis or Interpretation: ÇE, TT; Literature Search: ÇE; Writing: ÇE, TT. All authors reviewed the results and approved the final version of the article.

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Conflict of interest

The authors declare that there is no conflict of interest.

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