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## Basic Study

## Effectiveness of menstruation hygiene skills training for adolescents with autism

Meltem Kaydırak, Büşra Yılmaz, Merve Azak, Çiğdem Bilge

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## Abstract

## BACKGROUND

Adolescents with autism spectrum disorder (ASD) may encounter many difficulties with their menstrual cycles. Potential challenges that adolescents with ASD may face include understanding physical changes, coping with symptoms, emotional sensitivity, communication, personal care, and hygiene.

## AIM

To evaluate the effect of menstrual hygiene skills training given to adolescents with ASD on their menstrual hygiene skills.

## METHODS

The study was conducted with 15 adolescents diagnosed with ASD by the single group pre-test and post-test model in three special education centers in Türkiye. Data were collected with the Adolescent and Parent Information Form and the Adolescent-Specific Menstrual Hygiene Skill Registration Form.

## RESULTS

While the mean age of adolescents was  $16.06 \pm 0.88$  years, the mean age of individuals responsible for adolescent care was  $43.66 \pm 5.56$  years. While 60.0% of the adolescents noticed the onset of bleeding before training, this rate was 93.3% after training. The Adolescent-Specific Menstrual Hygiene Skill Registration Form showed a statistically significant increase in the application steps after the training. The difference between the menstrual hygiene skill scores of adolescents



diagnosed with ASD before and after training was significant.

## CONCLUSION

The menstrual hygiene skills training given to adolescents with ASD was beneficial in increasing their menstrual hygiene skills. These individuals must take responsibility during menstruation and independently manage their continuous care activities.

**Key Words:** Autism; Adolescent; Menstruation; Hygiene; Training

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**Core Tip:** Adolescents with autism spectrum disorder (ASD) may encounter many difficulties with their menstrual cycles. This study with 15 adolescents diagnosed with ASD by the single group pre-test and post-test model in three special education centers in Türkiye aimed to evaluate the effect of menstrual hygiene skills training given to adolescents with ASD on their menstrual hygiene skills. The menstrual hygiene skills training given to adolescents with ASD was beneficial in increasing their menstrual hygiene skills. These individuals must take responsibility during menstruation and independently manage their continuous care activities.

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## INTRODUCTION

Adolescence is a transitional stage of development between childhood and adulthood. It is characterized by rapid physical, cognitive, emotional, and social changes. Most healthy adolescents adapt to this physical and psychosocial developmental process[1]. According to the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition definition, autism spectrum disorder (ASD) is a pervasive developmental disorder characterized by disorders in social interaction and communication and limited and repetitive behaviors, and causes limitations in the individual's daily life functions with its early symptoms[2]. The challenges faced by adolescents with ASD are multifaceted and can vary from person to person. Some difficulties faced by adolescents diagnosed with ASD are social difficulties, communication challenges, restricted and repetitive behaviors, sensory sensitivities, transitioning to adulthood, and mental health concerns. The transition to puberty can be particularly challenging for individuals with ASD. However, many of the challenges and experiences faced by individuals with ASD can be changed. Supportive interventions, individualized strategies, and a multidisciplinary approach can significantly help address these challenges and promote the well-being and development of adolescents with ASD[1,3,4].

Adolescents with ASD may encounter many difficulties with their menstrual cycles. Potential challenges that adolescents with ASD may face include understanding physical changes, coping with symptoms, emotional sensitivity, communication, personal care, and hygiene. They may have difficulty dealing with newly emerging situations such as foul odor, blood flow situation/feeling, and using sanitary pads, especially during menstruation[5]. If these changes are not adequately explained to adolescents with ASD, periodic crises and coping problems may occur. Even a simple skill like changing menstrual pads can become a complex motor skill for them[6]. It is essential to approach these challenges with sensitivity, individualized support, and an understanding of the specific needs and abilities of each adolescent with ASD. Collaborating with healthcare providers, educators, and caregivers can help create tailored strategies to address these challenges effectively[3,5,7,8].

A limited number of studies were found in the literature on menstruation periods in individuals with autism. One of these studies was conducted with two mentally disabled individuals[7]. There has been no study with a well-explained methodology and sufficient sample size that evaluates the effectiveness of training on menstrual hygiene skills with only a single focus group, such as adolescents with ASD. This study was planned to evaluate the effect of menstruation hygiene skill training given to adolescents with ASD on the ability to change and wear menstrual pads.

## Research hypotheses

H<sub>1</sub>: The menstrual hygiene skill level of the adolescent with ASD who is given menstrual hygiene skill training increases.

H<sub>2</sub>: Menstrual hygiene skills training increases the independence of adolescents.

## MATERIALS AND METHODS

### Research design

This study was conducted in three special education centers in the provinces of Istanbul and Muğla between April 2022 and February 2023, using the “Single Group Pre-Test and Post-Test Model,” which is one of the semi-experimental study methods. Creswell[9] sees the preference for single-group experimental design as necessary for the nature of the research in studies where a new training module is developed and applied.

### Setting, participants, and recruitment

In calculating the sample size, studies compatible with the purpose and design of the research were examined. There is no research in the literature on the menstrual hygiene skill requirements of adolescents with ASD. Therefore, the research of Gölbasi *et al*[10] on the effectiveness of peer education on menstrual hygiene with healthy adolescents was the basis for calculating the sample. According to this research, Menstrual Health Behaviors change was used in calculating the sample. When an increase of 5.69 points in the mean Menstrual Health Behaviors score was considered significant, the minimum sample size to be reached was 15. Since only the positive change in menstrual hygiene behavior was taken as the basis in our study, the sample size for this study was calculated as 15 adolescents with ASD using the G-Power software program with a margin of error of 0.05 and 80% power.

For this research, permission to conduct the study was requested from all special education units affiliated with the National Education in Istanbul and Muğla. However, only two private education institutions in Istanbul and one private education institution in Muğla granted permission for the research. The study was conducted in three centers affiliated with national education that had granted permission.

A total of 26 females with ASD were present across the participating institutions. Six females were excluded from the study: three females diagnosed with severe autism according to the Gilliam Autism Rating Scale-2 (GARS-2) score; and three females who were older than 18 years of age. Considering the data loss in the specified date range, 20 participants were invited to the research. Sample selection was not made. Three adolescents/parents did not volunteer to participate in the study, and two participants did not perform the post-test. As a result, 15 adolescents diagnosed with ASD were included in the study.

Inclusion criteria for the study were that the adolescent was diagnosed with ASD, the adult responsible for the adolescent's care was older than 18 years, and the adolescent was between the ages of 9-18 years (determined by considering the beginning of the menstrual cycle and the age of enrollment in special education centers), the adolescent's menstrual cycle started, the adolescent's hand washing skills, the adolescent's ability to fulfill instructions that require a single action, the adolescent's ability to watch visual stimuli such as projection shows, video viewing, *etc*, the adolescent's ability to perform the movements shown, the GARS-2 score as “mild” and “moderate,” and the adolescent and the adult responsible for her care did not have hearing and visual impairment.

### Data collection

**Menstruation hygiene skills training:** The training was a menstrual hygiene skill training in which visual methods and resuscitation methods were used to teach menstrual hygiene skills to adolescents with ASD. The training was given to the adolescents for half an hour 3 d a week. In each training group, two adolescents with ASD with similar characteristics and a teacher participated. Based on GARS-2 scores, adolescents with moderate autism were placed in one training group, while those with mild autism were placed in another training group. All training was completed in the same group, with the same teacher and researcher. The same researcher and a special education teacher gave the training in each training interview to standardize education. The training frequency, duration, and the number of participants were prepared with the recommendation of a pedagogue/psychologist so that adolescents could best understand and reinforce the skill. In addition, the researchers attended a seminar titled “Autism and Sexuality.” For the visual method, a presentation consisting of only pictures prepared by the researchers was used. A pedagogue and special education teacher checked the suitability of the pictures in the presentation. A doll the size of an adolescent was used in the demonstration. With the help of this doll, the menstrual pad change skill was explained practically, and the adolescents were asked to repeat this skill (Table 1).

In addition to the training given to adolescents with ASD, video-assisted “Menstrual Hygiene Training: For Adults” was shown to the adults responsible for their care. Thus, individual differences in menstrual hygiene habits were minimized.

### Procedure

Data were collected with the Adolescent and Parent Information Form and Adolescent-Specific Menstrual Hygiene Skill Registration Form, which the researchers created in line with the literature. First, training groups consisting of two participants with common characteristics were determined according to the adolescent's score and learning ability from the GARS-2. While determining the training groups, a consultation was received from the expert pedagogue and special education teacher. The pre-test and post-test of the study were performed by the individual responsible for the care of the adolescent. The aim of the research and how to use the data collection tools were explained to the individuals responsible for the care of the adolescents included in the study. A training video on menstrual hygiene was watched and then sent to the individual for viewing. In the first interview, the Adolescent and Parent Information Form and the Adolescent-Specific Menstrual Hygiene Skill Registration Form were administered to the participants included in the study through the individual responsible. In the post-test, only the Menstrual Hygiene Skills Registration Form was used. The individuals responsible for the care of the adolescents completed the post-test at home during the adolescent's first

**Table 1 Application steps of changing sanitary pads**

No	Steps
1	She noticed that she had started bleeding
2	She informed me about it
3	She either took off her clothes on her own or I helped her
4	She either removed her underwear on her own or I assisted her
5	She washed her hands
6	She retrieved a fresh pair of underwear
7	She opened the bag and took out a sanitary pad
8	She placed the sanitary pad onto her underwear without touching it directly, either by herself or with my assistance
9	She put on her underwear, either independently or with my help
10	She put on her pants, either by herself or with my assistance
11	She washed her hands and dried them using a towel
12	She realized that she needed to change her pad when the menstrual pad was dirty
13	She successfully removed the soiled pad
14	She either independently wrapped the dirty pad in her bag or I assisted her in doing so
15	She disposed of the dirty pad in the trash
16	She used toilet paper to wipe her perineum from front to back and discarded the used toilet paper in the trash
17	She took the clean, sanitary pad out of its bag and positioned it in her underwear
18	She put on her underwear and pants, either on her own or with my assistance
19	She washed her hands

menstrual cycle after training.

### Data collection tools

**Adolescent and parent information form:** This form, which the researchers prepared, consisted of 11 questions to evaluate the sociodemographic characteristics of adolescents and parents, such as age, education status, income status, and menstrual pattern of adolescents (how many days they have menstrual bleeding and duration). The researchers filled this form with the face-to-face interview technique with the individuals responsible for the care of the adolescents.

**GARS-2:** The scale was used to determine inclusion criteria and training groups. The Turkish adaptation and validity and reliability studies of the scale were performed by Diken *et al*[11]. GARS-2 is a rating scale that aims to evaluate individuals aged 3–23 years who exhibit behaviors that characterize the autistic disorder. The GARS-2 is a Likert-type scale scored with an opinion-based four-point rating. GARS-2 consists of three subscales: stereotypical behaviors; communication; and social interaction. The scale consists of 42 items in total, with 14 items in each subscale. The highest score that can be obtained from the scale is 153, while the lowest score is 55. A high score indicates a high level of autistic disorder, while a low score indicates a low level of autistic disorder[11].

**Adolescent-specific menstrual hygiene skill registration form:** This form was created by researchers in parallel with Menstrual Hygiene Skills Training. This form was developed since no scale or form evaluates menstrual hygiene skills in the literature. Expert opinions from 10 individuals (academics in women's health and gynecologic nursing and pediatric nursing, psychologist, pedagogue, and special education teacher) were taken in developing and creating the form. The applicability and comprehensibility of the form were evaluated in a pilot study with five adolescent caregivers before the research data was collected. Incomprehensible items were renewed again. The adolescent was expected to complete 19 skill items in the form. Next to each skill item were “applied” and “not applied” options. In the form, “applied” was scored as 1 point and “did not apply” as 0 points. This scoring compared the pre-test and post-test. A minimum of 0 and a maximum of 19 points were taken.

### Statistical analysis

Data were analyzed using the SPSS Statistics program (version 22; IBM Corp., Armonk, NY, United States). Descriptive statistics, mean, and standard deviation were used for continuous variables. Categorical variables were calculated as numbers and percentages. The normality of the distribution of the data was evaluated with the Shapiro-Wilks test, and it was found that the data were not normally distributed. Data were calculated as numbers and percentages before and after training and analyzed using the Wilcoxon signed-rank test. A statistical significance value of  $P < 0.05$  was adopted.



**Table 2** Descriptive characteristics of the adolescents

Descriptive characteristics	mean $\pm$ SD	Min-max
Age in yr	16.06 $\pm$ 0.88	15-17
Parent's age in yr	43.66 $\pm$ 5.56	36-52
Age of menarche	13.73 $\pm$ 1.09	11-15
Menstruation frequency in d	38.60 $\pm$ 39.25	21-180
Period of menstruation in d	5.13 $\pm$ 0.99	4-7
	<i>n</i>	%
Is the menstrual cycle regular?		
Yes	13	86.7
No	2	13.3
Adult caregiver		
Mother	14	93.3
Other	1	6.7
Adult education level		
Literate	1	6.7
Primary education	6	40.0
High school	8	53.3

SD: Standard deviation.

## RESULTS

While the mean age of adolescents was  $16.06 \pm 0.88$  years, the mean age of adults responsible for adolescent care was  $43.66 \pm 5.56$  years. The mean age of menarche in adolescents was  $13.73 \pm 1.09$  years, the frequency of menstruation was every  $38.60 \pm 39.25$  d, the mean duration of menstruation was  $5.13 \pm 0.99$  d, and the menstrual cycle of 86.7% of the adolescents was regular. The mothers of 93.3% of the adolescents were responsible for their care, and 53.3% of the adults were high school graduates (Table 2).

Table 3 shows the distribution of adolescents' menstrual hygiene skills before and after the training. While 60.0% of the adolescents noticed the onset of bleeding before the training, this rate was 93.3% after the training. Informing the adult about the application steps (80.0%), removing clothes/getting help (60.0%), removing underwear/getting help (66.7%), washing hands (73.3%), receiving clean underwear (66.7%), and removing the sanitary pad out of its bag (60.0%) reached 100% after the training. While the rate of placing the sanitary pad in underwear without touching anything or doing it with help was 60.0% before the training, it was 93.3% after the training. The steps of putting on underwear/getting help (60.0%), putting on pants/getting help (73.3%), and washing hands and drying with a towel (73.3%) reached 100% after the training. Before the training, 66.7% of the adolescents understood that the pad should be changed when it gets soil, while 73.3% understood it after the training. Being able to remove the soiled pad (60.0%), wrap the soiled pad in a bag or do it with help (66.7%), throw it in the trash (66.7%), wipe the perineum from front to back with toilet paper, throw the toilet paper in the trash (60.0%), removing the sanitary pad from its bag and placing it in the underwear (60.0%), putting on the underwear and trousers or doing it with help (86.7%), and washing hands (93.3%) reached 100%. The differences in the following steps of the menstrual hygiene training given to adolescents with ASD were statistically significant before and after the training: took off her clothes/did it with help ( $P = 0.014$ ); took off her underwear/did it with help ( $P = 0.025$ ); washed her hands ( $P = 0.046$ ); took clean underwear ( $P = 0.025$ ); took the menstrual pad and took it out of its bag ( $P = 0.014$ ); put on the underwear/did it with help ( $P = 0.014$ ); put on the pants/do it with help ( $P = 0.046$ ); washed her hands and dried them with a towel ( $P = 0.046$ ); took out the dirty pad ( $P = 0.014$ ); wrapped the soiled pad in her bag/did it with help ( $P = 0.025$ ); threw the pad in the trash ( $P = 0.025$ ); wiped her perineum with toilet paper from front to back and threw the toilet paper in the trash ( $P = 0.014$ ); and removed the sanitary pad out of its bag and placed it in her underwear ( $P = 0.014$ ) (Table 3).

The difference between the menstrual hygiene skill scores of adolescents diagnosed with ASD before and after training was statistically significant ( $P < 0.005$ ) (Table 4).

**Table 3** Distribution of adolescents' menstrual hygiene skills before and after training

Application steps	Before training				After training			
	Applied		Not applied		Applied		Not applied	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
She noticed that she had started bleeding	9	60.0	6	40.0	14	93.3	1	6.7
She informed me about it	12	80.0	3	20.0	15	100	-	-
She either took off her clothes on her own or I helped her	9	60.0	6	40.0	15	100	-	-
She either removed her underwear on her own or I assisted her	10	66.7	5	33.3	15	100	-	-
She washed her hands	11	73.3	4	26.7	15	100	-	-
She retrieved a fresh pair of underwear	10	66.7	5	33.3	15	100	-	-
She opened the bag and took out a sanitary pad	9	60.0	6	40.0	15	100	-	-
She placed the sanitary pad onto her underwear without touching it directly, either by herself or with my assistance	9	60.0	6	40.0	14	93.3	1	6.7
She put on her underwear, either independently or with my help	9	60.0	6	40.0	15	100	-	-
She put on her pants, either by herself or with my assistance	11	73.3	4	26.7	15	100	-	-
She washed her hands and dried them using a towel	11	73.3	4	26.7	15	100	-	-
She realized that she needed to change her pad	10	66.7	5	33.3	11	73.3	4	26.7
When the menstrual pad was dirty								
She successfully removed the soiled pad	9	60.0	6	40.0	15	100	-	-
She either independently wrapped the dirty pad in her bag or I assisted her in doing so	10	66.7	5	33.3	15	100	-	-
She disposed of the dirty pad in the trash	10	66.7	5	33.3	15	100	-	-
She used toilet paper to wipe her perineum from front to back and discarded the used toilet paper in the trash	9	60.0	6	40.0	15	100	-	-
She took the clean sanitary pad out of its bag and positioned it in her underwear	9	60.0	6	40.0	15	100	-	-
She put on her underwear and pants, either on her own or with my assistance	13	86.7	2	13.3	15	100	-	-
She washed her hands	14	93.3	1	6.7	15	100	-	-

**Table 4** Menstrual hygiene skills analysis and average scores of adolescents before and after training

Before training, mean $\pm$ SD (min-max)	After training, mean $\pm$ SD (min-max)	<i>P</i> (test value)
12.93 $\pm$ 5.52 (2-19)	18.60 $\pm$ 0.73 (17-19)	0.002 (-3.065)

SD: Standard deviation.

## DISCUSSION

In this study, menstruation hygiene skill training was given to adolescents with ASD, video-based menstruation hygiene training was given to the individuals responsible for their care, and the hygiene skills of adolescents with ASD were revealed for the first time. The menstruation process in ASD-diagnosed adolescents was the same as in their healthy peers. These young people may have difficulty coping with emerging situations such as foul odor, blood flow situations/feelings, and using menstrual pads during menstruation. If ASD-diagnosed adolescents are not educated about these changes, periodic crises and coping problems can be seen in adolescents. When we look at the literature, the importance of training young people and their parents about the menstruation process is emphasized. However, young people with ASD remain in the background of this training process.

In many societies, the general viewpoint towards adolescents with ASD may cause the problems, especially during the menstrual period, to be ignored. Menstruation management of adolescents with ASD is complex and requires great patience. Menstruation hygiene skills are one of the biggest problems of adolescents with ASD and their caregivers. Communicating with adolescents with ASD is very important in terms of menstruation management. These young people face many complications during the menstruation process. In order to manage this process in the best way, adolescents and their caregivers should be taught to explain menstruation, physical changes, and especially hygiene

skills. One of the hygiene skills is noticing the start of menstrual bleeding. The current study applied menstrual hygiene skill training to adolescents with ASD. Most adolescents (93.3%) noticed the onset of menstrual bleeding after the training. In addition, all of the adolescents informed their caregivers that menstrual bleeding occurred after the training. In addition to the limited number of studies on this subject in the literature, the current study was consistent with the cross-sectional study of Rodgers *et al*[12] and the mixed-method study of adolescents with mental retardation[12,13].

Adolescents with ASD must be able to perform their daily routine and self-care skills to exist in society and continue their lives like healthy adolescents. For adolescents with ASD to continue their daily routines effectively in their communities, they must first have the ability to provide self-care and general hygiene and be able to dress independently. In particular, they should be able to change menstrual pads independently, which is an important aspect of self-care and menstruation management. Adolescents with ASD should be trained to develop skills and behaviors to acquire self-care skills. In the current study, it was observed that after the menstrual hygiene skill training, all of the adolescents took off their clothes and underwear by themselves or got help and were able to remove the menstrual pad from the bag before changing the menstrual pad. In addition, all the adolescents took out the soiled pad, wrapped it in their bags, and disposed of it properly after the training. In addition, after the training, it was determined that all adolescents with ASD completed the perineum cleaning properly by wiping their perineum with toilet paper from front to back. Another striking study result was that all participants washed their hands before and after changing the soiled pads after the training. In addition, while 60.0% of the adolescents could take the clean menstrual pad out of its bag and place it in their underwear before the training, it was observed that this rate was 100% after the training. According to the study results, adolescents' menstrual hygiene skill analysis scores before and after training increased significantly. In another practical study on dolls in Türkiye, pad-changing training was given to mentally retarded adolescents. It was observed that the training increased the pad-changing skills of adolescents[8]. In addition, the study results aligned with the limited study emphasizing the importance of menstruation training given to adolescents with special needs[14-17]. Further research must reveal the positive results of menstrual hygiene skills training given to adolescents with ASD.

## CONCLUSION

In this study, menstruation hygiene skill training was given to adolescents diagnosed with ASD, and the effect of this training on the menstrual hygiene behavior of adolescents was evaluated. As a result of the study, it was observed that the self-care skills, such as hand washing and perineal cleaning especially in changing hygienic pads, of adolescents diagnosed with ASD increased after the training. With the successful results of this study, the importance of dividing the menstruation hygiene skill training into more than one step in adolescents with ASD and conducting this training in small groups became evident. Future research should focus on identifying developmentally sensitive pathways to reveal the voices of adolescents with ASD on their menstruation and puberty experiences. In addition, this study was one of the rare studies that increased the menstrual hygiene skills of adolescents with ASD by training groups of two participants with visual methods and demonstration methods.

### Limitations

The present study had some limitations, and future researchers may consider addressing these as they explore this topic. First, this study focused only on ASD adolescents enrolled in special education centers. On the other hand, some adolescents diagnosed with ASD may be unable to access special education centers and face different difficulties. In addition, since the research data were collected from the people responsible for the care of adolescents with ASD, the information obtained may lead to positive or negative biases. The other limitation affecting the generalization of these results was the relatively small sample size. Nonetheless, the data obtained will serve as a valuable foundation for guiding future randomized controlled studies with a larger number of patients.

## ARTICLE HIGHLIGHTS

### Research background

Adolescents with autism spectrum disorder (ASD) may encounter many difficulties with their menstrual cycles. Potential challenges that adolescents with ASD may face include understanding physical changes, coping with symptoms, emotional sensitivity, communication, personal care, and hygiene. They may have difficulty dealing with newly emerging situations such as foul odor, blood flow situation/feeling, and using sanitary pads, especially during menstruation.

### Research motivation

One of the important problems faced by adolescents with ASD during the menstrual period is to practice menstrual hygiene skills. This study was carried out in order to teach this skill to adolescents with ASD and to support their independence.

### Research objectives

This study was planned to evaluate the effect of menstruation hygiene skill training given to adolescents with ASD on the

ability to change and wear menstrual pads.

### Research methods

This study was conducted in three special education centers in the provinces of Istanbul and Muğla between April 2022 and February 2023, using the “Single Group Pre-Test and Post-Test Model,” which is one of the semi-experimental study methods. Before the training, the Adolescent and Parent Information Form and the Adolescent-Specific Menstrual Hygiene Skill Registration Form were administered to the participants included in the study through the individual responsible. In the post-test, only the Menstrual Hygiene Skills Registration Form was used. The individuals responsible for the care of the adolescents completed the post-test at home during the adolescent’s first menstrual cycle after training.

### Research results

The mean age of adolescents was  $16.06 \pm 0.88$  years. The mean age of menarche in adolescents was  $13.73 \pm 1.09$  years, the frequency of menstruation was every  $38.60 \pm 39.25$  d, the mean duration of menstruation was  $5.13 \pm 0.99$  d, and the menstrual cycle of 86.7% of the adolescents was regular. The mothers of 93.3% of the adolescents were responsible for their care, and 53.3% of the adults were high school graduates. The difference between the menstrual hygiene skill scores of adolescents diagnosed with ASD before and after training was statistically significant ( $P < 0.005$ ).

### Research conclusions

It was observed that the self-care skills, such as hand washing and perineal cleaning especially in changing hygienic pads, of adolescents diagnosed with ASD increased after the training.

### Research perspectives

With the successful results of this study, the importance of dividing the menstruation hygiene skill training into more than one step in adolescents with ASD and conducting this training in small groups became evident. In addition, this study was one of the rare studies that increased the menstrual hygiene skills of adolescents with ASD by training groups of two participants with visual methods and demonstration methods.

## FOOTNOTES

**Author contributions:** Kaydırak M, Yılmaz B, Azak M, and Bilge Ç contributed to study design; Kaydırak M, Yılmaz B, Azak M, and Bilge Ç contributed to data collection; Yılmaz B contributed to data analysis; Kaydırak M contributed to study supervision; Kaydırak M, Yılmaz B, Azak M, and Bilge Ç contributed to manuscript writing; Kaydırak M, Yılmaz B, Azak M, and Bilge Ç contributed to critical revisions for important intellectual content; All authors read and approved the final manuscript.

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**Institutional review board statement:** Approval was obtained from the Muğla Sıtkı Koçman University Health Sciences Ethics Committee for the study (Protocol No. 200179/Decision No. 6). Permission was obtained from the special education centers where the research was conducted. The aim and method of the study were explained and informed to the individuals responsible for the adolescent’s care, parents, and special education center staff. The purpose of the study, how the study would be carried out, that they could quickly leave the study whenever they wanted, and that the information received would be kept confidential was explained to the individuals responsible for the adolescent’s care. The study was conducted in accordance with the Principles of the Declaration of Helsinki.

**Informed consent statement:** Written and verbal consent was obtained.

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