


# Comparison of Menstrual Care Skills Training Programs Provided to Girls with Intellectual Disabilities By a Healthcare Professional and Caregivers: A Randomized Controlled Trial

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## Abstract

**Objective:** To compare the effectiveness of the training provided by the professional and caregivers in developing menstrual care skills of girls with intellectual disabilities. **Methods:** A randomized controlled trial was conducted with 22 moderate girls with intellectual disabilities randomly assigned to G-I and G-II. Both groups received training program using chaining technique and modeling on a doll and on itself for 8 weeks. Assessments were made on the 1, 15, 30 and 60 days. **Results:** The girls' median age was 15 (14–18) years. Scores skill of menstrual care were significantly increased in both groups ( $p < .05$ ; effect size = 0.61). G-I's a pad placement and changing dirty pad skill scores were higher than G-II ( $p = 0.05$ ; effect size = 0.44). **Conclusion:** The training process performing by caregivers can be affected by the complexity of the menstrual self-care skills. School-parents cooperation-based reproductive health programs may be facilitated the teaching of complex menstrual care skills of girls with intellectual disabilities.

## Keywords

changing pad, chaining technique, girls with intellectual disabilities, menstrual hygiene skills, menstrual self-care

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## Introduction

Intellectual disability, occurs during developmental stages and brings along limitations in adaptive functionalities, as well as lifelong disabilities (McKenzie et al., 2016). With the gender-specific pubertal changes, girls with intellectual disabilities are likely to require an elaborate and gradual process for learning specific self-care skills including menstruation, due to their limitations in reasoning, abstract thinking, learning from experiences, as well as a weak memory, difficulties in communication, and insufficient fine motor development (Kang and Chang, 2019; Lee and Lee, 2014).

During puberty, girls with intellectual disabilities often have problems in understanding menstruation and its symptoms, seeing blood, changing hygienic pads, and mood changes (Klein et al., 2015; Nurkhairulnisa et al., 2018). Some families are concerned about their children in terms of menstrual hygiene, changing their pads in public areas, changing mood, as well as sexual harassment (Flavin et al., 2019; Gönenç et al., 2020; Nurkhairulnisa et al., 2018). The inequality in accessing sexual education brings along additional problems such as embarrassment, social exclusion, and being alienated from education for girls with intellectual disabilities. Therefore, teaching girls with intellectual disabilities about menstrual self-care is important to ensure their healthy sexual development, social recognition, and protect them from sexual abuse (Klein et al., 2015; Quint and O'Brien, 2016).

The skill of changing hygienic pads during menstruation can be easily performed in daily life. However, it is a complex issue that consists of multiple steps for girls with intellectual disabilities (Akdoğan, 2019). The learning process could be facilitated by teaching each step of the target behavior separately and combining them all through the chaining teaching technique (Akdoğan, 2019; Cummins et al., 2020; Wilbur et al., 2019a).

The learning ability of young girls with intellectual disabilities may vary according to their mental skills. The International Classification of Diseases (2011) classified intellectual disability as low, moderate, severe and profound according to the level of intellectual function. It is seen that students with moderate intellectual disability can acquire menstrual self-care skills if they are supported educationally. Researchers tried various models for teaching menstrual skills to girls with intellectual disabilities, such as changing pads on a doll, showing on themselves, social stories-video modeling, and modeling oneself through video; however, there are few studies on chain teaching technique in the literature (Altundağ and Çalbayram, 2016; Ersoy et al., 2009; Girimaji and Pradeep, 2018; Gönenç et al., 2020; Öncül and Yücesoy, 2010; Veazey et al., 2016).

Studies on gaining menstrual hygiene skills as well as who should provide this training are required. Unavailability of education or health services in developing countries may leave families alone with the menstrual hygiene problems of the intellectually disabled teenagers (Flavin et al., 2019; Gönenç et al., 2020; Nurkhairulnisa et al., 2018). While schools in developed countries play a significant role in supporting girls with intellectual disabilities, educators report that schools require more support for individualized menstrual management for all girls (Altundağ and Çalbayram, 2016; Boyacıoğlu et al., 2018; Cummins et al., 2020; Tracy et al., 2016; Wilbur et al., 2019a; Zacharin et al., 2010). Although caregivers have a better position to teach menstrual self-care to their children when it is needed naturally, there is limited literature on familial intervention (Gönenç et al., 2020; Veazey et al., 2016; Wilbur et al., 2019a).

## Aims and objectives

This study aims to assess whether a menstrual self-care training to be provided to girls with moderate intellectual disabilities by their caregivers through a structured teaching program will have similar effects as the training to be provided by a healthcare professional.

## Method

### *Study design and participants*

A single-blind randomized controlled trial was conducted at two public schools providing fundamental academic education for moderate intellectually disabled students, between 11 October 2019 and 04 May 2020. Special Education Application Centers affiliated to the Ministry of National Education are institutions where individuals who cannot benefit from general and vocational education programs, who have developmental disabilities between the ages of 6 and 23, and who are diagnosed with moderate intellectual disability in terms of intellectual function level and intelligence score, receive education. The schools do not provide any sexual education or menstrual self-care training.

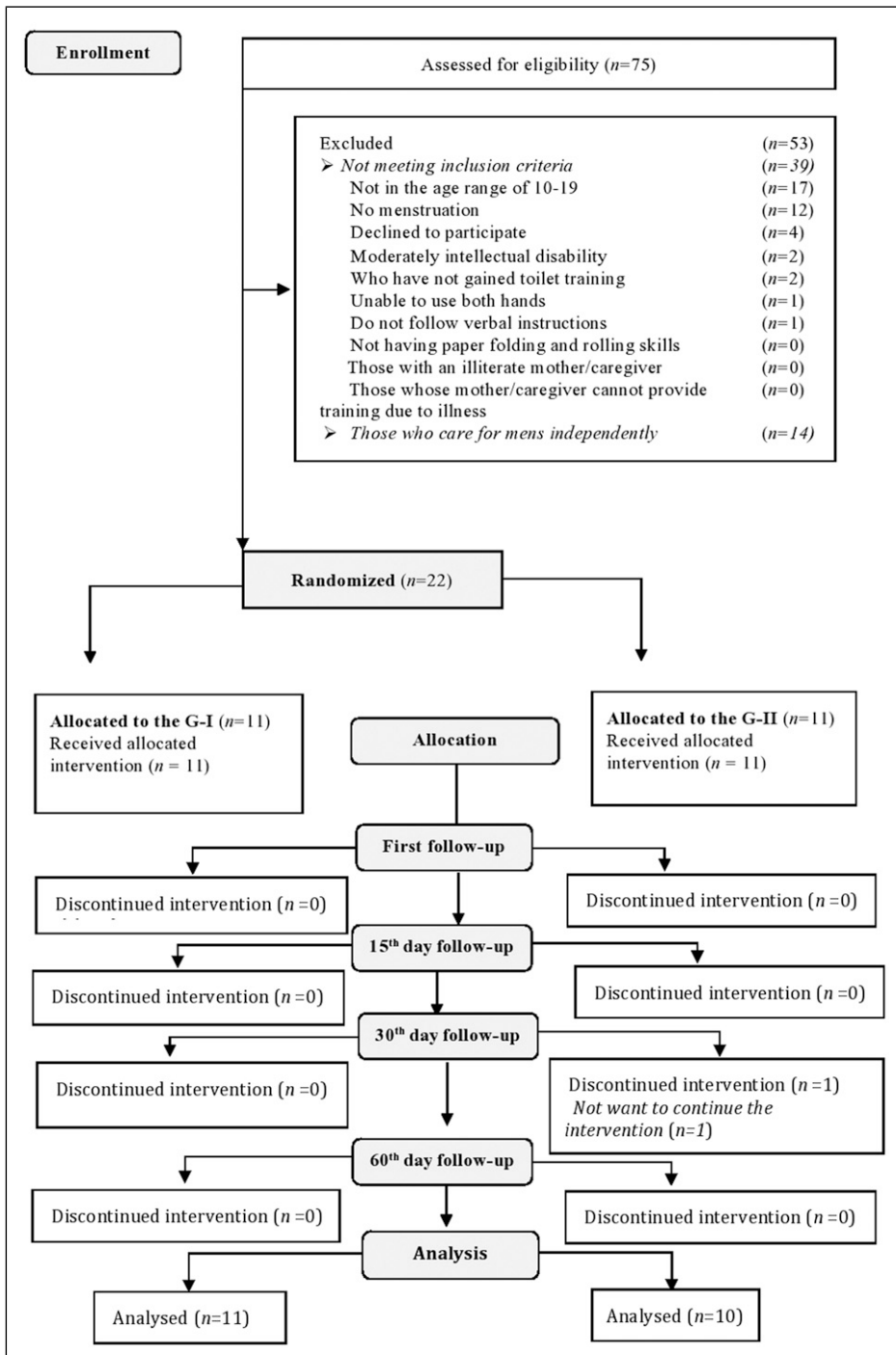
Considering the possible differences in small effect sizes in terms of the changes in skills between the groups trained by a healthcare professional and by caregivers, the number of samples in the study was set as 18 (effect size = 0.29, power = 0.80, and  $\alpha = 0.05$ ). Considering the possible leaves of 20%, a total of 22 students, 11 per group, were included in the study (G\*Power 3.1.9.2 statistical software).

Following criteria were determined for the students to be included in the research: having a moderate intellectually disabled, being at the age of between 10- 19, experiencing menstruation at least once, having acquired toilet habits, being ambidextrous, having the capabilities of dressing, undressing, and washing hands independently, complying with the instructions given, having the skills of folding and rolling papers, and being approved by their mothers to take part in the research. Those who could perform their menstrual self-care independently according to the families' statements were excluded from the research. On the other hand, the following inclusion criteria were determined for the mothers: having no problem in speaking, writing, and understanding the Turkish language, and having a daughter with the above-mentioned characteristics. The students were assigned to groups of G-I and G-II based on randomization conducted using MS Excel. The consort guidelines were followed for randomized controlled trials (Figure 1).

The training program was provided to the students in the G-I group by a nurse (the author of the article) and by the caregivers of the students in the G-II group. The researcher has 8 years of nursing experience and has an Adolescent Development Support Program certificate for the Special Education Program. All of the caregivers were the mothers of the girls with intellectual disabilities. The parents were not informed in which group they were included, however, they were stated that menstruation training would be provided (single-blind). One of the mothers in the G-II group left the study, as she believed that she would not be able to complete the training of her child during the study.

### *Measurements*

The data of the study were collected using the "Readiness to Training Form", "Demographic Form", "Caregiver's Level of Readiness Form", "Training Directive", and "Skill Assessment Form", which were prepared in line with the literature and (Altundağ and Çalbayram, 2016; Çakmak and Çakmak, 2014; Öncü and Yücesoy, 2010). A psychology specialist, two special education professionals, and three specialist pediatric nurses were asked for their opinions regarding the assessment of the content validity rate (CVR) of the "Training Directive" and "Skill Assessment Form" by using Lawshe's method. Since the number of experts is six, the smallest content validity rate is specified as 0.62 at a significance level of 0.05. Nine items were eliminated from the form because their CVR



**Figure 1.** Flow diagram of the study population.

was below 0.62. The content validity index is the average of the content validity rate for each item taken. Accordingly, it is desired that the content validity index be greater than 0.67. In this study, the content validity index for the remaining 23 items was found to be 0.82 and it was determined to be statistically significant (Alpar 2016).

*Readiness to Training Form (for students)* included sections to assess the skills of following verbal instructions, dressing and undressing, washing hands, and folding/rolling papers.

*The Demographic Form* consisted of thirty-one questions about demographic and disability details and menstrual characteristics of the adolescent girls.

*Caregiver's Level of Readiness Form* was used after the group training given to mothers by the researcher to determine their level of readiness to teach menstrual care skills. The form had six items (Knowing how to introduce the clothes to be used during the menstruation period, knowing how to introduce intimate areas, etc.).

*Training Directive* listed the stages to be followed by caregivers when teaching menstrual care to girls, and it covers the subjects of "getting to know the body, getting to know the clothing and materials used, pad folding/rolling skills, demonstration of how to change pads on a doll, and demonstration of how to change pads on herself". Pictures that can be used while introducing intimate areas to children were also added to the form.

*Skill Assessment Form* was prepared as a skill analysis form for caregivers to control the competence of their daughters and follow the chaining steps in the curriculum. The form included the menstrual self-care skills section in line with the stages, training schedule, and evaluation section. The progressive skill analysis and scoring were performed as follows:

Stage 1: Training on *getting to know intimate areas in the body* consisted of two sections: vulva-butt and breasts. The correct answer was scored by "1" while the wrong answer by "0".

Stage 2: The training on *getting to know the materials* consisted of five steps including "the skills of showing the pad accurately, saying the term for the pad, distinguishing between dirty and clean pads, showing the place of the pad, and folding and rolling the pad".

Stage 3: During the analysis of *the skills of folding and rolling the pad*, not doing it properly or not being able to do it was scored by "0", doing it with the help of verbal or physical cues was scored by "1", doing it independently was scored by "2". On the other hand, correct answers were scored by "1", and wrong answers were scored by "0" for other sections (min 0- max 6 points).

Stages 4 and 5: The procedure of *placing a pad on a doll* and *placing a pad on herself* included 11 steps (min 0- max 22 points). The procedures performed on the doll were not scored as they were considered preparatory procedures for placing a pad on herself.

Stage 6: "*Replacing the dirty pad with a clean one*" consists of 14 steps (min 0-max 28 points) (Figure 2). Students who could do their menstrual hygiene independently are expected to have completed six stages and 14 steps according to the chaining technique.

## Intervention

The families of the students were contacted through their teachers, and they were informed about the research before receiving their informed consent.

**Procedures on group 1.** Before beginning the study, an orientation period was spent with the students in their own classrooms once a week for 2 weeks to improve their orientation to the training.

The participating students were provided with a one-on-one "menstrual self-care skills training" for 15–20 min a day for 4 days a week for a period of 8 weeks. A soft doll with a length of 60 cm was used in the training. After completing the doll phase, the researcher demonstrated how to place and

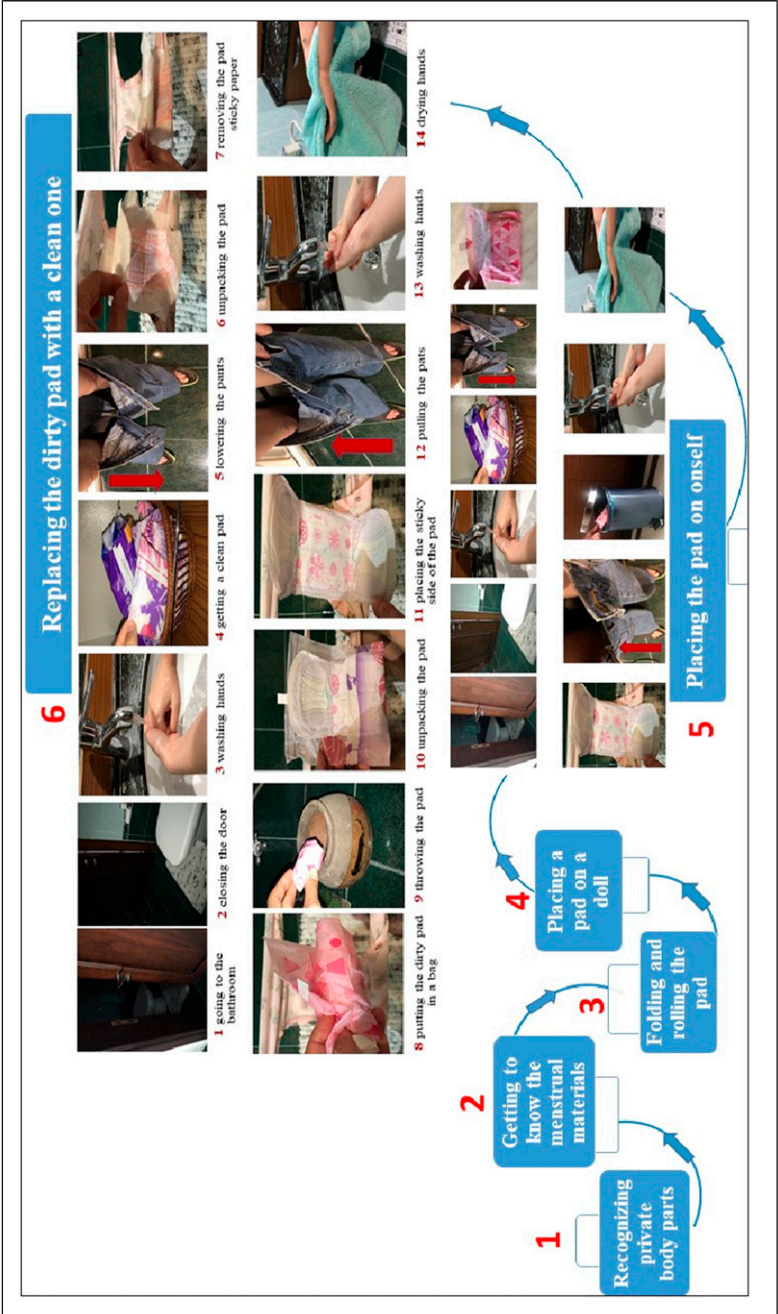


Figure 2. Stages of menstrual hygiene education via the chain teaching technique.

change pads on herself. Then, the students were asked to repeat the procedure on themselves. To protect the privacy of the students, the procedure was performed over their tights. In each phase, it was ensured that the phase was completed properly by repeating the steps that were not performed accurately or could not be performed at all.

**Procedures on group II.** The expectations were specified at the first meeting, which was held at the school, with the caregivers of the girls in the G-II group. Caregivers were provided with two phases of 40-minute training to improve their teaching skills, as well as describing how to fill the forms. In the initial phase, young girls with special requirements were given information regarding the adolescence period, menstrual cycle, problems experienced, and relevant solutions. Subsequently, a slide presentation was given along with a demonstration to show how the mothers could train their children on “getting to know their intimate areas, getting to know the materials, distinguishing between the dirty and clean pads, and changing pads on a doll”. In the second phase of the training, the mothers, whose children completed the first phase successfully, were trained on the demonstration of “placing a clean pad and replacing a dirty pad” on themselves and on their children, and the assessment of the procedure as described for the group of G-I. Throughout the training program, the mothers were sent reminder messages 3 days a week (Monday, Wednesday, Friday), and they were called once a week to get information about their stage at the training.

**Assessment of the menstrual self-care skills.** The assessment was carried out by the researcher using the “Skill Assessment Form”, on days 1, 15, 30, and 60 of the training. When the student was ready, the skill directive was presented, which was followed by a waiting period of 5–8 s depending on their developmental characteristics. Their correct answers were reinforced by saying “well done”, and it was observed whether they began the next step. Depending on the requirements of the students, “verbal cues” were provided during the phases of getting to know the body parts and materials. Also “cues of modeling, as well as verbal and physical cues” were used for the phases of placing and replacing a pad. The procedures of placing and replacing a pad were carried out in the counselor’s room at the school, while skill analyses were conducted in the toilet used by the students at the school.

### **Data analysis**

The data were analyzed using the Friedman Test, Wilcoxon-Signed Rank Test, and Mann-Whitney U Test by a statistical package program. The assessments made on days 30 and 60 for a student, whose mother did not wish to continue the training, in Group-II were excluded from the research. The effect size was calculated to assess the effectiveness of the intervention.

### **Ethical considerations**

Prior to the study, approval (dated 19/09/2019 and numbered 2019/390) and institutional consent was obtained from the Clinical Research Ethics Committee of the Mersin University. Necessary permissions were obtained from the institutions where the study was to be conducted. Written consents of the families were obtained.

### **Results**

The median age of the students was 18 (14- 19) years in G-I, and 15 (14- 15) years in G-II. The groups have similar sociodemographic characteristics (Table 1). The students had speech disorders



**Table 1.** Descriptive and menstrual properties of intervention groups.

Descriptive properties		G-I	G-II Median (25%–75%)	p
Age of the students		18 (14–19)	15 (14–15)	0.056
Age of menarche		13.00 (12.00–14.00)	13.00 (12.00–14.00)	0.797
Maternal age		40.00 (37.00–49.00)	40.00 (39.00–45.00)	0.797
—		<i>n</i>	<i>n</i>	—
Reason of disability	Congenital	9	9	1.000
	Acquired	2	2	
Education of mother	Primary school	10	8	0.218
	Secondary school	0	3	
	High school	1	0	
Working status of mother	Working	1	3	0.269
	Not working	10	0	
Family income	Income = expenses	5	3	0.334
	Income < expenses	5	8	
	Income > expenses	1	0	

(G-I, 2 girls; G-II, 3 girls) social adaptation problems (G-I, 2 girls; G-II, 1 girl), and fine motor disorders (G-I, 3 girls, 2; G-II, 2 girls). Of the 22 mothers participating in the research, 11 were found to be capable of partially teaching their children. However, 14 mothers reported that they were worried that their children would fail to change pads, and 10 mothers stated that their children would take their underwear off in public, and nine stated that they would be abused (Figure 3).

The skill of “placing clean pads” could not be acquired completely in neither group on the first day. However, the skill of “removing the cover of the clean pad and placing the sticky part inside the underwear” was observed to be mostly performed with help on day 15. The assessment on day 60 showed that there was an increase in the numbers of those completely performing it in both groups (Table 2).

It was observed that one student in each group had slower progress compared to others in terms of placing the clean pad on their underwear. However, the assessment on day 60 showed that 11 students from the G-I group and 8 students from the G-II group scored 20 or above (Figure 4).

In both groups, statistically significant differences were observed with large effect sizes between the median scores obtained at the beginning and later stages of the training program. Considering the relationship between the skill scores and duration of the training for the groups, it was observed that the median scores of G-I and G-II differed on the day 1, 15, 30, and 60 for the skills of “getting to know the intimate areas”, and “getting to know the hygiene materials”. The median scores of G-I and G-II were found to significantly differ on days 15 and 30 in terms of the skill of “placing a clean pad on oneself”, and “replacing a dirty pad with a clean one” on day 60 (Table 3).

## Discussion

The research was conducted by following the chaining stages to develop menstrual self-care in moderately intellectually disabled adolescents by using dolls and by modeling. It is one of the limited numbers of intervention studies that examine the effectiveness of an individualized teaching program in acquiring, generalizing, and maintaining the skills of placing and replacing pads.

The age of menarche of the students participating in the present study was found to be 13. It was reported that menarche ranged between 11 and 13 in intellectually disabled adolescents in Malaysia, India, Australia, and Poland (Cummins et al., 2020; Wilbur et al., 2019a, 2019b). As menstruation



Going to school while menstruating	Don't attend to school during mens (n=15)				Don't attend to school first day of mens (n=4)		Goes to school all times (n=3)											
Wanting to learn methods of stopping menstruation	Yes (n=5)		No (n=16)															
Problems experienced by adolescents with their menstrual period*	Abdominal pain (n=18)		Nervous (n=12)		Susceptibility (n=11)		Prediction (n=11)		Backache (n=9)		Crowing pain (n=9)		Crying/leads (n=7)		(n=3)			
Reasons of anxiety for girl's menstruation*	Not know how to change pads (n=14)			Taking off underwear in public (n=10)			Worried being harassed (n=9)			Leaving pads in inappropriate places (n=8)			Being more nervous on ordinary days (n=4)			Not realizing menstruation (n=6)		
Get help persons menstrual issues*	School nurse (n=11)				Doctor (n=4)		Nurse (n=3)		Internet (n=6)		Book (n=4)		Friends (n=2)					
Meeting the information needs of menstrual education	Fully welcomed (n=4)			Partially welcomed (n=10)										Wellcome (n=3)				
Understanding of education by children	No (n=11)						Partially (n=6)						Completely (n=5)					
Teaching menstrual care	No (n=1)		Partially (n=11)						Completely (n=10)									
Education to daughter for menstruation	Yes (n=18)												No (n=4)					

**Figure 3.** Intellectually disabled girls' menstrual problems and menstrual education characteristics according to parents

\*: More than one answer was given.

requires high levels of self-care skills, it is recommended that the training should be provided 2–3 years before menarche, at the age of 9–10 and that it be repeated at certain intervals to prepare girls with intellectual disabilities for this situation.

The present study revealed that only one out of three students managed to understand the menstrual self-care as their mothers did not know about the proper method of approach, even though they made efforts to provide menstrual training. This study revealed that girls with intellectual disabilities may frequently experience problems during menstruation. Two out of three intellectually disabled students participating in the study did not go to school during their menstrual cycles/periods due to insufficient menstrual management (Clatos and Asare, 2016; Kang and Chang, 2019). By providing sufficient information to the parents of girls with intellectual disabilities, the least restraint approach could be realized for the girls with intellectual disabilities (Chuah et al., 2017).

In this study, the students with insufficient fine motor skills or inability to adapt to society were observed to have slower progress. These differences of adaptation between the students indicate the necessity of individualized teaching on this subject (Wandresen et al., 2019). Reinforcement of training with individualized care by families in addition to the menstrual skill development training to be provided at schools is considered to be more effective in terms of maintaining the target behavior for girls with intellectual disabilities with adaptation problems.

This study examines the teaching of menstrual skills to students by using a prospective chaining technique. Similar to other studies in the literature, students with low adaptive skills could easily learn the single-step skills such as getting to know the body parts or the materials while the behaviors requiring multiple skills, such as placing a clean pad or replacing a dirty pad with a clean one, could be learned gradually and in a longer period (Cummins et al., 2020). At these stages, slower skill development could be achieved in the caregivers' group. It could be possible to manage the process in a more flexible manner by providing more support to caregivers in teaching these



**Table 3.** Intra-group and intergroup comparisons of the median scores for acquiring the menstrual hygiene skills by days in intervention groups.

Characteristics (min- max points)	Skill assessment diaries					Intra-group comparison by days				
	1 <sup>st</sup> day	15 <sup>th</sup> day	30 <sup>th</sup> day	60 <sup>th</sup> day		1–15 <sup>th</sup> day	15–30 <sup>th</sup> day	30–60 <sup>th</sup> day	1–60 <sup>th</sup> day	
	Groups	Median (25%–75%)				<i>p</i>				<i>p</i> <sub>effect size</sub>
Definition of special area (0- 2)	GI ( <i>n</i> = 11)	0.00 (0.00–2.00)	2.00 (1.00–2.00)	2.00 (2.00–2.00)	2.00 (2.00–2.00)	.015	.157	.317	0.008 <sup>r</sup> = 0.563	
	GII ( <i>n</i> = 11)	1.00 (0.00–2.00)	2.00 (2.00–2.00)	2.00 <sup>†</sup> (2.00–2.00)	2.00 <sup>†</sup> (2.00–2.00)	.030	.317	.317	0.015 <sup>r</sup> = 0.529	
Recognition the hygienic materials (0- 6)	<i>p</i>	0.365	0.478	0.973	1.000			—		
	GI ( <i>n</i> = 11)	1.00 (0.00–3.00)	5.00 (3.00–6.00)	6.00 (5.00–6.00)	6.00 (6.00–6.00)	.005	.016	.317	0.003 <sup>r</sup> = 0.628	
Intergroup comparison	GII ( <i>n</i> = 11)	2.00 (1.00–4.00)	4.00 (4.00–5.00)	5.00 <sup>†</sup> (5.00–6.00)	6.00 <sup>†</sup> (5.00–6.00)	.005	.016	.083	0.001 <sup>r</sup> = 0.615	
Placing a clean pad (0-22)	<i>p</i>	0.365	0.438	0.173	0.426			—		
	GI ( <i>n</i> = 11)	9.00 (6.00–3.00)	18.00 (16.00–20.00)	20.00 (19.00–21.00)	21.00 (20.00–22.00)	.003	.007	.054	0.003 <sup>r</sup> = 0.626	
Intergroup comparison	GII ( <i>n</i> = 11)	7.00 (5.00–14.00)	12.00 (10.00–19.00)	19.00 <sup>†</sup> (17.25–19.50)	20.00 <sup>†</sup> (19.50–22.00)	.003	.020	.010	0.005 <sup>r</sup> = 0.613	
Replacing the dirty pad with a clean one (0–28)	<i>p</i> <sub>effect size</sub>	0.606	0.047 <sup>r</sup> = 0.421	0.043 <sup>r</sup> = 0.457	0.197			—		
	GI ( <i>n</i> = 11)	11.00 (4.00–11.00)	17.00 (15.00–21.00)	22.00 (21.00–24.00)	22.00 (22.00–24.00)	.003	.005	.042	0.003 <sup>r</sup> = 0.626	
Intergroup comparison	GII ( <i>n</i> = 11)	7.00 (4.00–13.00)	15.00 (11.00–19.00)	21.50 <sup>†</sup> (20.5–22.00)	21.00 <sup>†</sup> (19.75–23.25)	.003	.008	.495	0.005 <sup>r</sup> = 0.612	
	<i>p</i> <sub>effect size</sub>	0.478	0.133	0.314	0.051 <sup>r</sup> = 0.436			—		

<sup>†</sup>n = 10; <sup>†</sup> = Effect size (Z/√ n (observation number)).



complex behaviors. Dividing the tasks related to the target behavior into smaller steps can facilitate the caregivers' teaching process. It was observed that the caregivers' training led to improvement in the skill performance even though the students had difficulties in phases, such as taking the dirty pad off and replacing it with a new one, which were complex behaviors.

In the present study, all students were observed to complete the training of going to the bathroom to place/change their pads. The fact that these skills were acquired by the students showed that the unexpected behaviors of not coping with menstrual hygiene or taking the pad off at inappropriate places, which were among the most common concerns of the families, could be changed.

Throughout the process of teaching intellectually disabled individuals about the self-care-specific target behaviors, a total of four phases were experienced, which were "acquisition, generalization, fluency, and permanence". Physical assistance, verbal cues, and modeling cues were used to show the target behavior at the acquisition level for enabling the intellectually disabled individual. It was aimed to ensure the acquisition of behavior gradually by decreasing the number of cues (Gönenç et al., 2020). In the generalization sessions, on the other hand, the demonstration performed on a doll was shifted to the demonstration made by the researcher/caregivers on themselves. Then the students were asked to demonstrate the skill on themselves by using hygienic pads of different colors and different brands. The students were tested during the training to see if they could generalize the skills that they learned using various tools, settings, and individuals. The generalization phase was successfully completed in both groups.

The use of a doll could help caregivers, who do not know how to communicate with their daughters during this period, start communication with them. Also, it facilitated gaining the targeted behavior (Altundağ and Çalbayram, 2016; Gönenç et al., 2020; Wilbur et al., 2019a). Although some students easily managed to place and replace pads on a doll, they were observed to have difficulties in demonstrating the process on themselves. Unlike the studies conducted by Gönenç et al. (2020), and Altundağ and Çalbayram (2016), it was considered that it would be necessary to test the generalization phase of the desired skill through a demonstration on oneself, in addition to the demonstration on a doll (Altundağ and Çalbayram, 2016; Gönenç et al., 2020). The "permanence", one of the learning phases of the relevant skill, was assessed by asking the student to perform the previous step, before teaching them each phase. Nonetheless, it is believed that it would be necessary to carry out long-term monitoring processes as to whether the relevant skill has been preserved in the course of time in girls with intellectual disabilities educated by caregivers.

Upon the analysis of the studies on the development of the menstrual skills in girls with intellectual disabilities, it was observed that these training programs were provided mostly by nurses or special education professionals in institutions, whereas a study was conducted at the homes of three autistic students accompanied by their mothers (Altundağ and Çalbayram, 2016; Gönenç et al., 2020; Klett and Turan, 2012; Öncül and Yücesoy, 2010).

Further involvement of the families in these studies can facilitate the training programs provided at institutions. Giving the training at homes in an individualized manner improves the effectiveness of training programs by ensuring that the process involves the parents, who do not know how to cope with the problems experienced in adolescence and who are not able to communicate with their children (Cummins et al., 2020; Nurkhairulnisa et al., 2018; Tracy et al., 2016).

## Conclusion

Girls with intellectual disabilities are likely to require an elaborate and gradual process for learning menstrual self-care skills. The interventions are likely to be more successful if these skills are broken

down into smaller steps and taught individually. The use of a doll and modeling on oneself could help the generalization of the behavior learned.

Girls with intellectual disabilities can improve their menstrual self-care skills through observation, rehearsal, and reinforcement by watching their parents in their natural environment. Parents, who follow a structured teaching program, are likely to develop the menstrual self-care skills of their children. The collaboration between teachers/healthcare professionals and parents may improve the effectiveness of menstrual self-care training. Thus, more girls with intellectual disabilities can develop menstrual self-care skills through the group training programs provided by fewer professionals and caregivers in a shorter period, where institutional services are not sufficient.

It is recommended to make an assessment of the effectiveness of the programs conducted by primary care nurses in developing the self-care skills of girls with intellectual disabilities, where institutional services are not sufficient.

### *Limitations of the study*

Due to insufficient records, the descriptive characteristics and menstrual cycle-specific problems of the intellectually disabled adolescents were collected based on verbal statements. It is recommended that the burnout status of the caregivers should also be assessed, as the burnout of the mothers/caregivers with intellectually disabled children may affect the study results. The research was conducted with the participation of a group that was taking academic training. There is a need for the assessment of the results of the studies to be conducted using similar methods on more disadvantaged groups that cannot receive any training and that are more likely to have menstrual problems.

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### **ORCID iDs**

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