

Teaching Feminine Hygiene Skills to Young females with Autism Spectrum Disorder and Intellectual Disability

Sarah E. Veazey¹ · Amber L. Valentino¹ · Adeline I. Low¹ · Alyssa R. McElroy¹ · Linda A. LeBlanc¹

© Association for Behavior Analysis International 2015

Abstract Little applied research focuses on teaching feminine hygiene skills to females with disabilities, yet this is a common clinical concern. The current study demonstrates the use of chaining to teach two young females with autism spectrum disorder feminine hygiene skills. A nonconcurrent multiple baseline across participants was utilized, and the results indicate that both participants acquired the skill. Generalization probes with one participant indicated the skill generalized to novel stimuli.

Keywords Chaining · Feminine care · Hygiene · Menarche · Menses

Young women with disabilities who can effectively manage their own feminine care needs can potentially have greater privacy and independence, heightened community access, and less illness and unnecessary medical intervention (e.g., infections, birth control medication, hysterectomy; Demetral et al. 1983). The need to teach feminine care to females with developmental delays now occurs at younger ages than ever before. It is estimated that the average age of menarche in the USA is 12.5 years, a stark contrast to the estimate that with

excellent diet and nutrition, menarche should occur between ages 15 and 18 (McDowell et al. 2007). All females with autism spectrum disorder (ASD) and disabilities will experience menarche, which means all behavior analysts working with females with disabilities will need to prepare to successfully teach this skill, likely at a younger age than the practitioner or family expect. Menarche is often the first significant indicator of maturity that a family encounters and parents may need support and encouragement to proactively address it.

Despite the ubiquity of need for these skills, little published literature addresses programming in this area. A few descriptions of educational programs were published decades ago (Demetral et al. 1983; Hamilton et al. 1969); however, only one published study describes and evaluates teaching procedures for this valuable skill (Richman et al. 1984). Richman et al. evaluated the effectiveness of chaining to teach five adult females with intellectual disability specific feminine care skills (e.g., changing stained underwear, changing a sanitary napkin). Task analyses were created, and initial probes were used to determine how many steps each participant could complete without training. Next, forward chaining was used to teach each skill. All participants learned all of the skills in the routines and performance maintained during the menstrual cycle 5 months post-evaluation.

The chaining procedures described above in the Richman study and used in the science of applied behavior analysis (ABA) involve breaking a task down into smaller units via a task analysis and teaching those units through differential reinforcement. There are three types of chaining, forward, backward, and total task, and each of these types of chaining and the use of task analyses have been demonstrated in the literature to establish various repertoires in individuals with disabilities such as echoics (Tarbox et al. 2009) and tooth brushing (Horner and Keilitz 1975).

Utility for Clinicians

- Learn effective strategies for teaching feminine hygiene skills
- Obtain strategies for evaluating generalization of acquired skills
- Obtain a task analysis of critical steps in feminine care routines
- Learn strategies for implementing procedures during a consumer's menstrual cycle

✉ Amber L. Valentino
avalentino@tbh.com

¹ Trumpet Behavioral Health, 1401 Parkmoor Ave. Suite 208, San Jose, CA 95126, USA

Given the simplicity of the procedures, the substantial progress of the participants in Richman et al. (1984), the strong empirical support for the use of chaining in teaching other self-help skills, and the need for younger females to learn these critical life skills, a current publication with these procedures is warranted. Practitioners of applied behavior analysis need an updated demonstration of the utility of chaining procedures for teaching these skills and access to task analyses to use with their own consumers. The current study demonstrates the use of chaining procedures with two young females with ASD, one also diagnosed with Down syndrome.

Method

Participants, Setting, and Materials

Shelia was a 9-year-old female diagnosed with ASD. She received 15 h of ABA intervention per week in the home. Her verbal behavior repertoire consisted of two to three word independent mands and emerging one to two word tact and intraverbal phrases. Shelia was toilet trained and completed the following self-help routines independently: washing hands, brushing teeth, showering, bathing, and taking medication. Shelia participated in a special day class in the local school district classroom. Her education was administered by a special education teacher in a classroom of approximately ten children.

Rachel was an 11-year-old female diagnosed with Down syndrome and pervasive developmental disorder—not otherwise specified (PDD-NOS). She received 6 h of ABA intervention each week in the home. Her verbal behavior repertoire consisted of one to three word independent mands and tact phrases. She independently followed simple, one-step instructions related to her daily living routine. Rachel was toilet trained, independently washed her hands, and dressed herself semi-independently. At the time of this study, her other adaptive skill sets were relatively limited due to poor gross and fine motor skills. Rachel participated in an educational curriculum outlined by the school district and administered by her mother in the home setting.

Sessions took place in each participant's home, and the mother was present for sessions. Materials consisted of data sheets, a laminated copy of the task analyses, pens, plastic gloves, preferred edibles, and the feminine care supplies. The feminine care supplies consisted of sanitary napkins, underwear, and materials to make them seem "soiled" (e.g., red food dye, red markers) for training trials.

Response Measurement

The dependent variable was defined as the percentage of steps in the task analysis completed correctly and independently. Three task analyses (TAs) were created for (1) changing

underwear (Appendix Table 1), (2) changing a sanitary napkin (Appendix Table 2), and (3) changing both underwear and a sanitary napkin (Appendix Table 3). Data were also collected during Rachel's naturally occurring menstrual cycle. The teaching procedures outlined in the protocol remained consistent regardless of whether the trial was contrived or conducted during actual menses. The task analyses were modified from the study of Richman et al. to accommodate changes in feminine care products over the past 30 years and use of the bathroom in the family home. The changes made included the following: storing items in a box located in a restroom cabinet instead of the participants' bedrooms, slight modifications to the application of the sanitary napkin due to the addition of an outer covering on the napkin, and placing the soiled undergarments directly into the individual participants' hampers instead of into a laundry bag. Finally, only one task analysis was implemented with Shelia (soiled sanitary napkin only). Shelia had just started menstruating but her cycle was very irregular. Rachel was taught all three task analyses because her cycle was consistent.

Procedure

Baseline During baseline, the participant was directed to stand near the entrance of her bathroom and instructed to "go check." Data were collected on the number of steps completed independently. For Shelia, no other instructions were provided after the initial instruction to "go check." There were no differential consequences based on correct vs. incorrect responding.

Chaining Two types of chaining procedures were implemented to teach the steps of the three task analyses.

Total Task Chaining During total task chaining, the participant was given the opportunity to complete each step in the chain independently during each trial. If the participant did not complete a step within 3 s of completion of the prior step, a verbal (e.g., "pull down your underwear"), verbal+gestural (e.g., "pull down your underwear" while gesturing to the participants' underwear), and verbal+physical (e.g., "pull down your underwear" while providing hand over hand physical prompts) prompting hierarchy was used to complete that step in the chain. Contingent upon correct and independent completion of a step, reinforcement was provided in the form of social praise. At the end of the entire behavior chain, social praise plus a tangible item was provided.

Total Task Chaining with Added Steps After frequent participation in the forward chaining procedure, Rachel's chaining technique was modified to include total task chaining. Additional steps were added to the chaining procedure after it was noticed that Rachel frequently placed the

sanitary napkin on her underwear with the adhesive material facing upward. We conducted additional trials with that one step outside of the chaining procedure. These trials were conducted by providing a verbal instruction for her to “sit” on a chair fully clothed and to pull her underwear over up to her knees. Next, an opened sanitary napkin was delivered with the instruction “Put it on.” Most to least prompting was utilized and tangible plus social reinforcement was delivered for independent responses or responses at the controlling prompt. These data are not depicted in the current manuscript but are available upon request.

Forward Chaining Each component of the task analysis was targeted for entry into the chain in sequential order. Any components that were not targeted within a session or had not been previously mastered were completed by the therapist using the minimal required physical prompting. Contingent upon correct and independent responding of the targeted step and all previously mastered steps, reinforcement was provided in the form of social praise and a small edible item. As each step was mastered, the next step was introduced in the chain. We began with forward chaining with Rachel because although she could emit some steps in baseline, her repertoire was limited. Once she acquired more steps in the chain, we switched to total task chaining. As suggested by Cooper et al. (2007), though there is no sound evidence to support the use of one chaining method over another, total task chaining might be used when a learner can perform some tasks in the chain but needs to learn them in sequence. Once more steps were acquired by Rachel using forward chaining; it was believed total task chaining would be a more efficient method to master the remaining steps in the chain. Due to Shelia’s relatively quick acquisition with the use of total task chaining first, this was the only chaining procedure utilized.

Mastery Criteria When forward chaining was utilized, the mastery criteria for the individual steps in each chain were two probe sessions with independent responding for the targeted step, in addition to correct responding to the previously mastered steps in the task analysis. For both total task and forward chaining procedures, the mastery criterion for the entire behavior chain was 100 % independent responding.

Generalization Probes For Rachel, other related but untaught task analyses were occasionally probed to determine generalization of the teaching procedure to similar stimuli. For example, Rachel was initially taught to initiate the feminine care task analysis in response to soiled underwear and, occasionally, data were collected on response to a “soiled” sanitary napkin placed on the underwear, although this specific task analysis had not yet been taught. During these generalization probes, no error correction was implemented for incorrect responding.

Results

During baseline with a contrived soiled sanitary napkin, Shelia did not emit any steps in the chain correctly (Fig. 1, panel 1). Upon implementation of total task chaining, the percentage of steps completed independently increased and after only 19 sessions, she completed over 90 % of steps correctly and independently. A 1-month follow-up revealed consistent correct responding with 90 % of steps in the chain completed correctly.

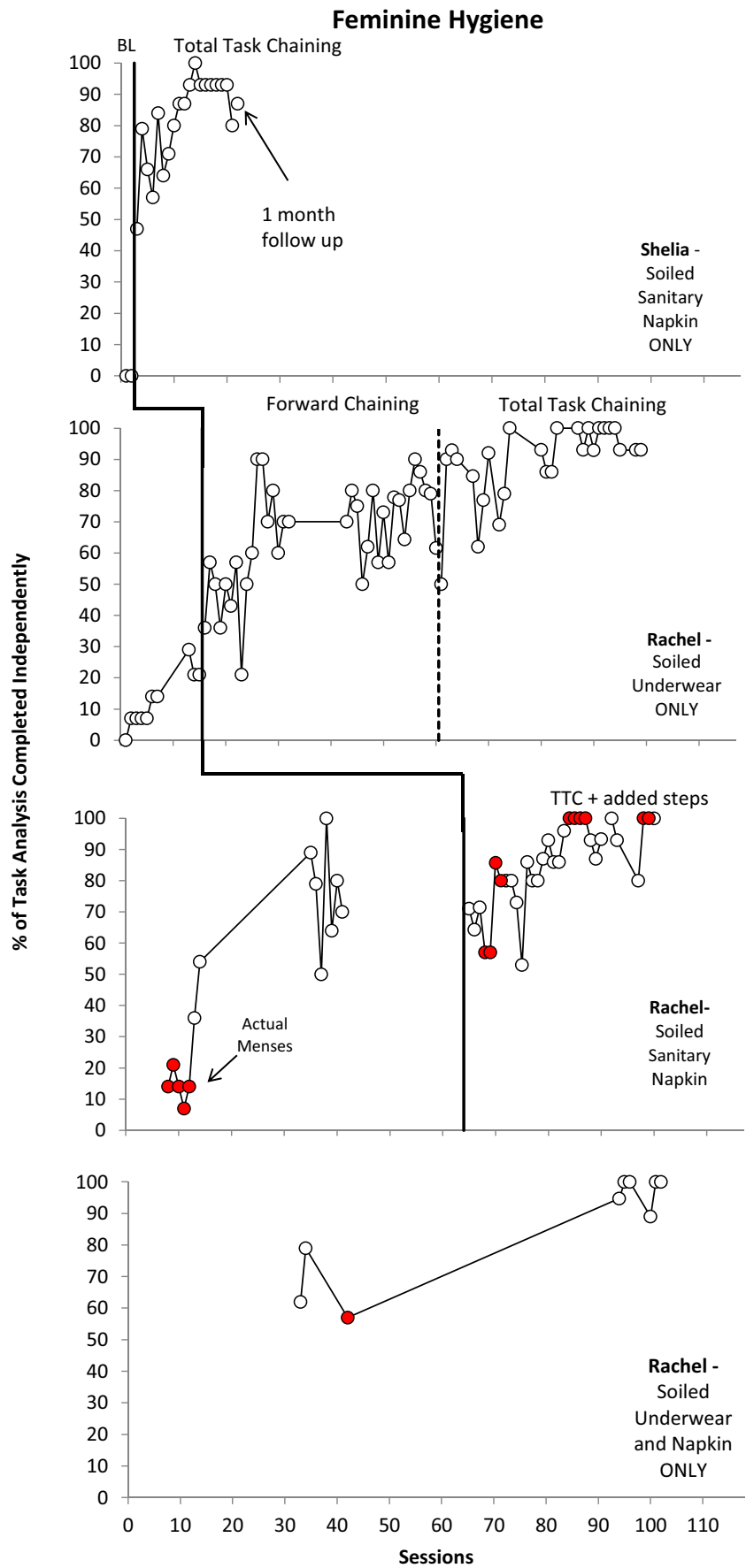
During baseline with contrived soiled underwear only (see Fig. 1, panel 2), Rachel completed 0–30 % of steps correctly. Upon implementation of forward chaining, Rachel’s correct responding increased to between 70 and 90 % after 33 sessions. At that point, total task chaining was implemented which facilitated a larger increase in correct responding and Rachel consistently completed all steps of the chain 100 % correctly with soiled underwear only. During the baseline and forward chaining phases with Rachel, probes of the task analyses for the soiled sanitary napkin (Fig. 1, panel 3) only and the soiled underwear and napkin (Fig. 1, panel 4) were conducted. Rachel correctly emitted between 0 and 100 % of steps correctly; however, responding was variable. Therefore, total task chaining was used to teach the sanitary napkin TA (see Fig. 1, panel 3), resulting in mastery of all steps in this chain. Continued probes were conducted for the soiled underwear and napkin TA. Without formal targeting of this TA, Rachel responded with 100 % accuracy upon mastery of the soiled sanitary napkin TA.

Discussion and Implications for Practice

The procedures described here can immediately be adopted by practitioners to teach females with intellectual disability and ASD the skills for successful and independent feminine hygiene in a relatively short period of time. Rachel mastered the first chain in 4 months, the second chain in 3 weeks, and no direct teaching was needed for the third chain in which generalization occurred. From start to finish, for Rachel, the entire length of baseline and treatment was 8 months. For Shelia, only 1 month was required for her to master the skill. Practitioners should consider the use of these task analyses combined with total task chaining and forward chaining to target feminine hygiene in individuals with ASD and other intellectual disabilities.

It is also important for practitioners to recognize the need to plan for menarche, so the family has resources and a plan to teach this critical skill when menarche occurs since the timing is unpredictable. Speaking with the family about the process and the procedures can help reduce any stigma or fear about

Fig. 1 Percentage of steps completed independently by Shelia and Rachel. *Filled in circles* indicate the times that Rachel experienced actual menses



puberty. This may be one of the first less threatening discussions that can be followed by other discussions about addressing sexuality and their maturing offspring's needs. It is critical to start early to ensure that important prerequisite learning skills are in place when a child is 8–10 years old before tackling these specific skills. For example, a practitioner may begin analyzing and teaching prerequisite skills that would ensure success with feminine hygiene (e.g., toileting, following receptive instructions during daily routines, dressing skills, fine motor abilities, following a visual schedule for chains) at ages 8–10. This will facilitate more rapid acquisition of various important hygiene repertoires over the course of the next several years of puberty.

There are some limitations to the current study, and future researchers might consider addressing them when investigating this topic. First, a combination of forward chaining and total task chaining was utilized with one participant and total task chaining with another. Future research may wish to do a more precise analysis of the chaining procedures that would be most effective to teach this particular skill and of the participant characteristics and repertoires that might make one more effective than another. Additionally, the current study taught the repertoire to two females with particular skill sets and had limited maintenance and generalization. Future research should replicate the effects of chaining with participants of varied ages and skill sets and more systematically investigate long-term maintenance of these skills and generalization to novel stimuli and places.

Appendix

Table 1 Task analysis for soiled underwear

1	Walks into the bathroom
2	Pulls down underwear below knees and sits on toilet
3	Removes soiled underwear
4	Wipes vaginal area at least twice with toilet paper to remove residual blood and drops paper in toilet
5	Removes clean underwear from basket
6	Puts on clean underwear
7	Removes sanitary napkin
8	Opens clean sanitary napkin
9	Disposes of outer covering in the trash can
10	Fastens sticky side of sanitary napkin lengthwise in underwear and presses into place
11	Pulls up underwear and outer clothes
12	Flushes toilet
13	Washes hands as in step 5
14	Holds soiled underwear by the waist band and puts in washing machine

Table 2 Task analysis for soiled sanitary napkin

1	Walks into the bathroom
2	Pulls down underwear below knees and sits on toilet
3	Removes soiled sanitary napkin from underwear
4	Wraps soiled sanitary napkin in toilet paper
5	Disposes of sanitary napkin in the garbage can
6	Wipes vaginal area at least once with toilet paper to remove residual blood and drops paper in toilet
7	Opens clean sanitary napkin from basket near the toilet
8	Disposes of outer covering in the trash can
9	Fastens sticky side of sanitary napkin lengthwise in underwear and presses into place
10	Pulls up underwear and outer clothes
11	Flushes toilet
12	Washes hands
13	Exits bathroom

Table 3 Task analysis for soiled underwear and sanitary napkin

1	Walks into the bathroom
2	Pulls down underwear below knees and sits on toilet
3	Removes soiled sanitary napkin from underwear
4	Wraps soiled sanitary napkin in toilet paper
5	Disposes of sanitary napkin in the garbage can
6	Removes soiled underwear
7	Wipes vaginal area at least once with toilet paper to remove residual blood and drops paper in toilet
8	Removes clean underwear from basket near the toilet
9	Puts underwear on and pulls up to her knees
10	Opens clean sanitary napkin from basket near the toilet
11	Disposes of outer covering in the trashcan
12	Fastens sticky side of sanitary napkin lengthwise in underwear and presses into place
13	Pulls up underwear and outer clothes
14	Flushes toilet
15	Washes hands
16	Grabs underwear by the waistband and places it into the washing machine

References

- Cooper, J. O., Heron, T. E., & Heward, W. L. (2007). *Applied behavior analysis* (2nd ed.). Upper Saddle River: Pearson.
- Demetral, G., Driessen, J., & Goff, G. (1983). A proactive training approach designed to assist developmentally disabled adolescents deal effectively with their menarche. *Sexuality and Disability, 6*, 36–46.
- Hamilton, J., Allen, P., Stephens, L., & Davall, E. (1969). Training mentally retarded females to use sanitary napkins. *Mental Retardation, 7*, 40–43.

-
- Horner, R., & Keilitz, I. (1975). Teaching mentally retarded adolescents to brush their teeth. *Journal of Applied Behavior Analysis, 8*, 301–309.
- McDowell, M. A., Brody, D. J., & Hughes, J. P. (2007). Has age at menarche changed? Results from the National Health and Nutrition Examination Survey (NHANES) 1999–2004. *Journal of Adolescent Health, 40*, 227–231.
- Richman, G., Reiss, M., Bauman, K., & Bailey, J. (1984). Teaching menstrual care to mentally retarded women: acquisition, generalization, and maintenance. *Journal of Applied Behavior Analysis, 17*, 441–451.
- Tarbox, J., Madrid, W., Aguilar, B., Jacobo, W., & Schiff, A. (2009). Use of chaining to increase complexity of echoes in children with autism. *Journal of Applied Behavior Analysis, 42*, 901–906.