

GERONTOLOGICAL NURSING®

FEATURE ARTICLES

6 Hydration Management Protocol

Chronic underhydration results in symptoms which may precipitate a preventable hospitalization. This protocol offers nurses information on older adults likely to be at risk for hydration management problems, assessment tips, and strategies for interventions.

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16 Assessing the Educational Needs and Concerns of Nursing Home Staff Regarding End-of-Life Care



Approximately 17% of deaths in the United States occur in nursing homes. As the population of older adults grows, nursing homes will be responsible for increasingly more end-of-life care. The findings from this study can be used to guide the design of educational programs aimed at assisting nursing home staff in providing quality end-of-life care.

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27 Advance Directives and Dementia

As prevalence of dementia increases among older adults, more individuals with dementia will make advance decisions about their end-of-life care. A nurse's knowledge about the stages of dementia is essential to help these individuals and their loved ones through the advance directives decision-making process.

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36 The Effects of Bathing and Skin Care Practices on Skin Quality and Satisfaction With an Innovative Product

While hygienic care to patients is regarded as a necessary and therapeutic daily nursing intervention, the traditional bed bath may have unfavorable effects on elderly individuals' skin. A new type of bathing product may maintain or improve skin quality and possibly prevent further complications of alterations in skin integrity.

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Providing hygienic care to patients has long been regarded as a necessary and therapeutic daily nursing intervention. The traditional bed bath (i.e., using a basin, soap, water, washcloths, and towels) may have some unfavorable effects on the skin. Skin dryness may be one such effect that can negatively impact the skin quality of elderly individuals. A large percentage, 59% to 85%, of the elderly population experience dry skin (Hardy, 1996). Skin that is dry is less protective. This places the body at risk for developing serious

bathing system claims to "cleanse, nourish and moisturize skin...while providing both maximum convenience and excellent skin care" (Patterson, 1996). These claims suggest that the use of the product would maintain or improve skin quality and perhaps prevent further complications of alterations in skin integrity. The aims of this research project were to independently evaluate the use of the Bag Bath/Travel Bath in an elderly population and determine its effect on the level of skin dryness as well as client and staff satisfaction.

mentation. The basement membrane flattens allowing the epidermis to slide over the dermis thus altering circulation and fluid transmission. Dermal cells are replaced less frequently, elastin fibers are lost, and collagen fibers become stiffer. Sensory receptors, sweat, and sebaceous glands decrease in number and activity. A redistribution of subcutaneous fat occurs and gradually disappears. Consequently, the skin of elderly individuals is thin, dry, inelastic, and saggy, with poor ability for self-maintenance and repair (Maklebust & Sieggreen,

The Effects of Bathing and on Skin Quality and Satisfaction With

complications such as skin breakdown. An alternative product and method of bathing, the Bag Bath/Travel Bath, has been introduced and may revolutionize the traditional bathing process.

In an attempt to standardize a new skin and wound care protocol, Skewes, an innovative nurse, developed a new bathing system in 1990. An improved, prepackaged version of the handmade bathing system debuted in 1994. The trademarked, commercially available Bag Bath/Travel Bath is now a plastic bag containing eight soft cotton-blend cloths saturated in a no-rinse surfactant and emollient solution. To use, the bag can be warmed in the microwave for 30 seconds. Each cloth is designated to cleanse one particular body part before discarding, thus reducing the transmission of microorganisms. The solution evaporates quickly (within 30 seconds) eliminating the need to rinse or dry. The use of lotion is unnecessary. This

REVIEW OF LITERATURE

Skin is the largest organ in the body, making up 15% of the total body weight. It provides protection from the external environment and is the first line of defense against external injury and infection. Sebum, secreted via the hair follicles from sebaceous glands, provides an acidic coating leaving the skin with a pH between 4 and 6.8. This acid mantle forms a protective barrier against penetration from chemicals and microorganisms. It also minimizes loss of water and plasma proteins. Other functions of the skin include thermoregulation, vitamin synthesis, sensory perception, excretion, processing of antigenic substances, and cosmetic adornment (Porth & Kapke, 1983).

Dramatic physiological changes in the skin occur with aging. The epidermis becomes thin and fragile giving the skin a shiny and flat appearance. Melanocytes decrease in number but increase in size causing uneven pig-

mentation (Porth & Kapke, 1983). These changes place older adults as a population at risk for developing alterations in skin integrity.

The most prevalent skin disorder in the older population is xerosis or dry skin. The main source of skin hydration is moisture diffusing from the vasculature of underlying tissues. Moisture from sweat glands contributes only minimal amounts. Sebum maintains skin hydration by providing a protective lipid layer that minimizes fluid loss through the epidermis. Hydration of the skin is determined by the rate of moisture evaporation from the epidermal surface. Dry skin then is lack of moisture in the outer stratum corneum layer resulting in a less mechanically pliable epidermis. This decrease in pliability contributes to the physical characteristics of dry skin including roughness, flaking, and chapping (Dotz & Berman, 1984). If the water content is severely depleted, the skin may crack,

bleed (Thompson, 1994), and become inflamed. As a result, redness (erythema), pruritis, and discomfort are usually present. Dry skin appears most prominently on the anterior surfaces of the lower legs, knees, elbows, and backs of hands (Villarreal & Rosen, 1986) but the trunk and face may also be affected.

Many factors have been purported as contributing to the occurrence of dry skin. The most common causes are generally thought to include:

- Age-related physiologic changes of decreased vascularity, sebum

secretion, and perspiration. Analysis demonstrated no significant difference in sebum levels by age or among participants with and without dry skin. However, a significant association was found between severity of skin dryness and age, with the worst skin dryness reported by participants older than age 80. Severity increased in the winter. The occurrence of dry skin was associated with frequent lifetime sun exposure but not with the frequency of bathing, adequacy of fluid intake, nor the use of diuretics. Effective treatment of dry skin lies not in limiting

secretion, and perspiration. The sample consisted of 5,193 individuals ages 55 to 75 at the time of their baseline examination. An incidence of pressure sores was 2.2% overall with the greatest frequency of 49% occurring in the oldest population, those ages 70 to 75 at baseline. The risk factors of poor self-assessed health and dry or scaling skin had the highest odds ratios. The findings of this landmark study indicated dry or scaling skin may lead to an increase in the incidence of pressure ulcer development.

Skin Care Practices an Innovative Product



secretion, and perspiration.

- Systemic dehydration.
- Vitamin A deficiency (Hogstel, 1983).
- Sun exposure.
- Smoking.
- Stress.
- Hormones.
- Familial tendencies (Thompson, 1994).
- Low atmospheric humidity.
- Excessive bathing (Dotz & Berman, 1984).
- Bathing with the use of harsh detergent soaps (Dotz & Berman, 1983).

In a comparative, descriptive study conducted by Frantz and Kinney (1986), some of these external variables were measured. The sample consisted of 76 individuals ages 65 to 97 years, residing in retirement homes. Findings indicated a 59% incidence of dry skin in this popula-

tion. frequency of bathing, because water is absorbed during bathing, but in the use of moisturizers afterward. Continued research is needed to identify the complex interactions responsible for dry skin.

One risk of dry skin may be the predisposition to skin breakdown and pressure ulcers. In an exploratory, longitudinal study conducted during 10 years nationwide, Guralnik, Harris, White and Cornoni-Huntley (1988) collected data to determine predisposing factors in the develop-

Bathing is a hygienic practice used to remove sweat, oil, dirt, and microorganisms from the skin. Other benefits include eliminating body odor, reducing the potential for infection, stimulating circulation, providing a refreshed and relaxed feeling, improving self-image (Timby, 1996), and maintaining skin integrity (Rader, 1994). The bath has a long tradition of being a significant part of nursing care. Nightingale (1859/1969) discussed the necessity of providing personal cleanliness for both the patient and nurse to provide comfort, promote

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healing, and control the spread of infection. The bath remains a nursing ritual that can be individualized to maximize effect.

Care should reflect the particular needs of each person. Rader, Lavelle, Hoeffer, and McKenzie (1996) encourage nurses to look thoughtfully at the "three Fs of bathing (function, form, frequency)" (p. 33) when planning individualized care. The functions of bathing are for health, social reasons, and pleasure. The many forms of bathing include:

- Showering.
- Tub bath.
- Towel bed bath (Wright, 1990).
- Sponge bath at the sink.
- Basin bath.
- The Bag Bath/Travel Bath—the newest technique (Skewes, 1994).

The issue of frequency of bathing must take into account function and form while also addressing the issue of individual desire. Many bathing possibilities exist that can meet patient's need for comfort and cleanliness. Choosing the most acceptable option while maintaining function is a nursing decision considering patient preferences.

Nurses have a primary role in the assessment and treatment of dry skin. In a quasi-experimental study with a sample of 122 participants ages 55 to 102 years, Hardy (1996) tested a bathing intervention designed to treat dry skin. Frequency and mode of bathing were also tested for independent and interactive effect, as well as other external factors that could impact the effectiveness of the intervention. Results were measured using the Skin Condition Data Form (SCDF) with a 94% interrater reliability. The SCDF measures the four defining characteristics of the dryness construct: redness, flaking, scaling, and cracking. Humidity greater than 60% and fluid intake greater than 2000 cc per day had favorable impacts on the effectiveness of the intervention. The authors concluded that a combination of factors is optimal for effectively treating dry skin.

This study offers some practical and important options to consider relative to patients experiencing dry skin. Some of these treatment recommendations were adopted by the Agency for Health Care Policy and Research (AHCPR) in the development of skin care guidelines.

The U.S. Department of Health and Human Services (DHHS) Panel for the Prediction and Prevention of Pressure Ulcers (1992) recommends:

Skin cleansing should occur at the time of soiling and at routine intervals. The frequency of skin cleansing should be individualized according to need and/or patient preference. Avoid hot water, and use a mild cleansing agent that minimizes irritation and dryness of the skin. During the cleansing process, care should be used to minimize the force and friction applied to the skin. Minimize environmental factors leading to skin drying, such as low humidity (less than 40%) and exposure to cold. Dry skin should be treated with moisturizers (p. 18)

These guidelines, based on research and expert advice, were developed to prevent and treat pressure ulcers. The basin/sink bath, with its hot water, soap, and vigorous rubbing, is discouraged. Caregivers are urged to develop a creative plan of skin care that meets individual personal needs and promotes skin quality.

The ingredients of the Bag Bath/Travel Bath were examined to determine the cleansing agent and moisturizer that may impact skin care results. In the Incline Technology product report (1995), Pluronic F-68 is the no-rinse surfactant named as the primary cleanser. It also contains an unnamed humectant to attract and trap moisture. Humectants are highly hygroscopic and act as transfer agents, extracting water from the atmosphere, sweat, and bathing fluid, making it available to the epidermis (Dotz & Berman, 1983). Vitamin E is the identified emollient. Emollients form an occlusive film that coats the skin surface to reduce evaporation, thus building up the moisture directly

beneath. These agents mask the signs of dry skin by lubricating the skin and making it appear smooth (Dotz & Berman, 1983). In addition to the choice of a cleansing agent and moisturizer, the developers of the Bag Bath/Travel Bath selected premoistened cloths made of a soft, non-woven cotton and polyester intended to reduce friction. Because the evolution of this product incorporates scientific principles and expert recommendations in its design, the decision was made to evaluate it as a way to control for extraneous variables inherent in the use of handmade versions.

Two studies regarding the technique of bag bathing using a handmade version have been described in the literature. Skewes (1994), the inventor of the technique and the Bag Bath/Travel Bath product, conducted a small quasi-experimental study. It focused on three specific aspects of the technique:

- Amount of time taken to complete a bag bath.
- Patient and nurse satisfaction.
- Patient skin condition.

In the sample of 30 patients and 21 nurses, it took an average of 12 minutes to administer a bag bath. Nurses responded favorably to time savings, patient cleanliness, and resident satisfaction with this bathing technique. Patients also responded positively about the ease of the technique, lack of compromise of their privacy, and softer skin. Favorable results were also reported regarding assessed skin integrity. Rigor, bias, and validity of the study are indiscernible from this brief article. Therefore, further research is necessary for thorough product evaluation—particularly its effects on skin, and patient and nurse satisfaction.

A cost analysis conducted by Carruth, Ricks, and Pullen (1995) calculated a cost savings of \$1.58 per bath at a skilled nursing facility and an annual savings of \$42,752.20 at a hospital using a handmade bag bath procedure. The savings were due to reductions in time to give the bath,

reduced towel and washcloth laundry, laundry personnel reductions, and equipment savings. The overall findings indicated that a savings could be realized using this technique. The study also indicated that some other benefits were realized including improved skin integument, decreased perineal odor, improved staff morale, and high patient and nurse satisfaction with the bag bath technique. Specific data were not presented to support these statements of benefits nor were the specific methods of measurement discussed.

Support is found in both the theoretical and empirical literature for the need for alternative methods of bathing and skin care practices to optimize patient outcomes. Providing individualized care to meet physical and psychosocial needs in specific environments encourages creative planning and departure from the use of only traditional methods. Maintaining and promoting skin integrity is an important nursing goal as the skin is the body's first line of defense. Research suggests a possible association between dry skin and pressure ulcer development thus, prevention and treatment of dry skin is an important goal identified in the AHCPR Pressure Ulcer Prediction and Prevention guidelines (USDHHS, 1992). Dry skin can be effectively prevented and treated with appropriate skin care techniques.

PURPOSE OF THE STUDY

The purpose of this research project was to independently evaluate a new bathing product, the Bag Bath/Travel Bath, at a long-term care (LTC) facility. The selection of this trademarked, commercially available product was made to ensure consistency in the amount and type of cleansing agent and emollient and also for its ease of use. The company that produces this product provided sufficient quantities to allow this independent study to be conducted. The effects on skin dryness in elderly individuals, as well as satisfaction



Figure 1. Poster in employee lounge describing Bag Bath/Travel Bath study.

of clients and staff with the Bag Bath/Travel Bath were examined. The following research questions were posed:

- What are the differences between the effects of the traditional bathing methods and the Bag Bath/Travel Bath on skin redness, scaling, cracking, flaking, and overall dryness in elderly residents?
- What are the resident's and nursing staff's level of satisfaction with the Bag Bath/Travel Bath?

METHODOLOGY

Design

This study was conducted in a LTC facility with 179 beds, located in a northwest suburb of a large, mid-western city. A time series design with a non-equivalent control group was implemented. The independent variable was the use of the Bag Bath/Travel Bath and the dependent variables were skin dryness and satisfaction. Skin dryness was measured in both the treatment and control groups prior to implementing the Bag Bath/Travel Bath treatment (T1). It was measured three additional times, at 2-week intervals (i.e., T2, T3, and T4). When the final measurement was made, the treatment group and the staff were asked to complete a satisfaction survey. The

study was implemented for a total of 6 weeks as recommended by Hardy (1996). The normal skin cell moves from the basilar level to the surface in approximately 4 weeks and may be delayed for an additional 2 weeks in elderly individuals.

Sample

The sample population was drawn from the second floor of the institution where 60 adults with chronic illnesses or functional disabilities reside. An accessible population of 58 residents who met the inclusion criterion of age 65 or older was invited to participate. Some residents were responsible for their own health care decisions ($n = 11$) while the majority ($n = 47$) relied on their legal representatives. Informed consent was obtained either via personal interview with the resident ($n = 9$) or through a letter that was mailed to and returned by legal representatives ($n = 26$). In the latter group, informed assent was obtained from the majority of the residents ($n = 16$). Some residents or legal representatives declined participation due to lack of interest or skepticism of the new product. The sample size was reduced to 32 as two residents were moved to different floors during the study, thus ending their par-

TABLE 1
SAMPLE CHARACTERISTICS

Variable	Treatment Group (n = 16)		Control Group (n = 14)	
	n	%	n	%
Age				
67-79	2	13	4	29
80-89	9	56	5	36
≥90	5	31	5	36
Gender				
Male	3	19	3	21
Female	13	81	11	79
Race				
Caucasian	15	94	13	93
African American	1	6	1	7

ticipation, and one resident was excluded because of bilateral above the knee amputations. The skin assessment tool did not allow for missing data.

Residents were grouped into either the treatment or control group according to their room location to maximize staff convenience and cooperation. The residents in the treatment group ($n = 18$) agreed to use the Bag Bath/Travel Bath for all daily bathing needs. They also agreed to refrain from the use of soap and lotion, with the exception of traditional washing after toileting or incontinence episodes throughout the study. Within the first 2 weeks of the study, two of the treatment group participants declined further participation. One stated, "At 104, I just can't be bothered" and the other did not feel clean. The remaining participants ($n = 16$) in the treatment group completed the study. The residents in the non-equivalent control group ($n = 14$) continued to use traditional bathing practices and completed the study.

Satisfaction data were obtained from a convenience sample of nurs-

ing staff ($n = 11$). This group consisted of any competency evaluated nurse assistant (CENA), licensed practical nurse (LPN), or RN who assisted a resident in the treatment group with the use of the Bag Bath/Travel Bath during the study and who voluntarily completed a satisfaction questionnaire.

Instruments

Demographic data and current bathing/skin care practices were collected on participating residents. Measures of skin dryness were collected on the SCDF. This instrument measures the four defining characteristics of the dryness construct: redness, flaking, scaling, and cracking. Twenty-two different areas of the body are assessed, rated, and summed on a four-point scale ranging from absent (0) to severe (3). The range of possible scores is from 0 to 66 in each category for a total of 264. The higher the score, the more skin dryness is present. Content validity of the tool was based on a review of the literature and the expert opinions of a gerontological nurse specialist and a dermatologist as reported by

Hardy (1990). In previous studies, there had been limited convergent validity of the SCDF in the area of skin redness as the color variation may be a normal hue, undetectable in dark or olive skinned people, or the result of pressure, warmth, or capillary stimulation. Despite this limitation, the tool was designed and tested by experts and is currently the most reliable instrument available to measure skin dryness. For measurement consistency, the researcher (CMS) was the sole data collector. A bathing and skin care log was maintained by the staff on residents in both the treatment and control groups to verify bathing method, bathing product, and lotion use. At the time of each skin assessment, room temperature and relative humidity (RH) were measured with a portable electronic thermometer/hygrometer unit as these were identified as possible extraneous variables. The thermometer/hygrometer unit measures temperature in degrees Fahrenheit and RH in percent. According to the manufacturer's specifications, the thermometer is calibrated to be accurate within $\pm 2^\circ$ Fahrenheit. The hygrometer is accurate within $\pm 7\%$.

Two parallel versions of a satisfaction instrument were used to measure satisfaction. These were based on questionnaires originally developed by Incline Technologies (Incline Village, NV), the manufacturer of the Bag Bath/Travel Bath. The questionnaires use a five-point Likert scale from strongly agree to strongly disagree. Residents participating in the treatment group were asked to respond to five questions comprising the Resident Satisfaction Questionnaire (RSQ) regarding ease of use, opinion of the technique, skin cleanliness, skin softness, and whether it is a worthy alternative to traditional methods of bathing. Because of the uniqueness of each item, no summation was performed. The group of nursing staff who used the Bag Bath/Travel Bath product were asked

parallel questions on the Nursing Staff Satisfaction Questionnaire (NSSQ). Both questionnaires also contained a three-line comment section for open-ended responses.

Procedure

The LTC facility and the university Human Subject Review Board approved the study. After obtaining informed consent from legal representatives and assent from residents who were cognitively able to understand assent, demographic data were collected and corroborated with the staff or records whenever possible. All data collection forms were coded with an eight-character alpha/numeric identifier to ensure anonymity. The staff were oriented to the appropriate use of the Bag Bath/Travel Bath through informal orientations held on the unit. To accommodate the probability of staff turnover or temporary agency staffing, a poster describing the study and use of the product was placed in the employee lounge (Figure 1). The poster also contained a pocket that served as a communication link between the investigator and staff. A supply of Bag Baths/Travel Baths and directions for use were personally distributed every weekend to partici-

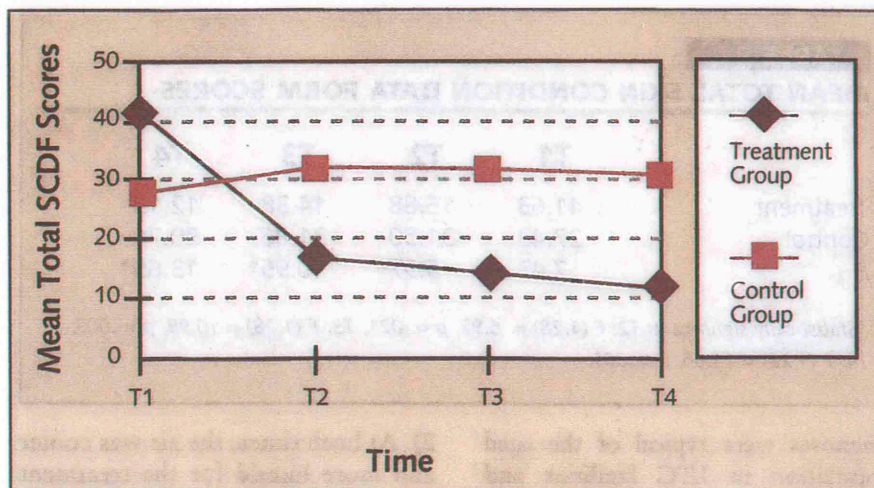


Figure 2. Mean total SCDF scores at T1, T2, T3, and T4.

pants in the treatment group. The four skin assessments (i.e., T1, T2, T3, and T4) were completed and recorded on the SCDF by the investigator. The room temperature, humidity, and season were noted at the time of each assessment. Bathing and skin care logs were collected biweekly and corroborated with the staff and residents for completeness and accuracy. On the day of the final skin assessment, the satisfaction surveys were read to residents participating in the treatment group who were cognitively able to answer questions. At this time, informed consent was obtained

from the staff group. Nursing Staff Satisfaction Questionnaires were distributed to those staff who voluntarily agreed to participate and an envelope was left on the unit to facilitate the return of anonymously completed surveys.

RESULTS

The final sample consisted of 30 residents, ages 67 to 104 years, with a mean age of 85.17 ($SD = 8.80$). Table 1 summarizes the sample characteristics. There was no significant difference between the treatment group ($n = 16$) and the control group ($n = 14$) on age, $t(28) = .548, p = .588$. Medical

TABLE 2
TEMPERATURE AND HUMIDITY MEASUREMENTS

	T1		T2		T3*		T4*	
	M	SD	M	SD	M	SD	M	SD
Temp (°F)								
Treatment	76.38	4.03	77.88	1.93	72.06	1.44	75.50	.89
Control	76.07	4.41	77.79	2.01	74.71	.73	76.71	.73
RH (%)								
Treatment	31.69	2.50	32.06	1.29	33.81	1.87	25.31	.87
Control	32.07	4.51	31.43	1.16	32.00	.39	24.14	.36

*Statistically significant: T3 Temp: $t = -6.24, df = 28, p = .000$, T3 RH: $t = 3.78, df = 16.5, p = .002$, T4 Temp: $t = -4.04, df = 28, p = .000$, T4 RH: $t = 4.90, df = 20.6, p = .000$, MANCOVA: $F = 12.85, p = .000$.

TABLE 3

MEAN TOTAL SKIN CONDITION DATA FORM SCORES

	T1	T2	T3	T4
Treatment	41.63	16.88	14.38	12.13
Control	27.43	31.50	31.86	30.71
F	2.43	5.97*	10.95*	13.65*

*Statistically significant: T2: $F(1,28) = 5.97, p = .021$, T3: $F(1,28) = 10.95, p = .003$, T4: $F(1,28) = 13.65, p = .001$.

diagnoses were typical of the aged population in LTC facilities and included dementia, neuromuscular diseases, orthopedic insults, respiratory complications, and metabolic disorders. The metabolic disorders of diabetes and thyroid disease may have contributed to dry skin. However, the occurrences of these diagnoses were few ($n = 6$) and were equally distributed between the groups.

The majority of residents (90%) reported showering twice weekly and of those, 94% used soap and had either a sink or bed bath on the remaining days of the week. These findings were consistent with the agency's protocol. There was no significant difference in any of the sink bathing options between the groups.

Mean lotion use varied by body area. The monthly mean for lotion use of the face ($M = 12.27, SD = 12.78$, range 0 to 28) was the highest and the monthly mean for lotion use on the trunk ($M = 8.30, SD = 10.68$, range 0 to 28) was the lowest. The independent t tests reveal no significance difference between the groups in terms of frequencies of lotion use for any of the nine body areas.

Maintenance of ambient environmental conditions (e.g., temperature and RH) is a recommendation based on expert opinion and the AHCPR panel consensus to facilitate stratum corneum hydration and minimize the incidence of dry skin (USDHHS, 1992). Measurements revealed significant differences between the groups in both temperature and RH at T3 and T4 (Table

2). At both times, the air was cooler and more humid for the treatment group. The RH was lower for both groups at T4 coinciding with the rapid onset of winter and heightened indoor heating. Covariance analysis ($F = 12.85, p = .000$) indicates that when the effects of temperature and humidity are removed, there is a significant difference in skin condition between treatment and control groups.

To answer the first research question, a MANOVA analysis was conducted. The MANOVA results indicate a significant difference (Pillai's trace statistic $(1, 28) = .64, p = .000$) between the groups in total skin condition with the difference attributable to T2, T3, and T4 as summarized in Table 3. In the control group, total mean scores on the SCDF remained relatively constant for the 6-week study (Figure 2). In the treatment group, there was a continuous improvement in the total SCDF scores with the largest change between T1 and T2, representing a 2-week interval, $t(15) = 4.27, p = .001$.

The overall measure of skin dryness represents a summation of the four conceptually dependent defining characteristics of redness, flaking, scaling, and cracking, so a MANOVA analysis was conducted. The MANOVA results indicate significant differences between the groups in flaking (Pillai's trace statistic $(1, 28) = .65, p = .000$) and scaling (Pillai's trace statistic $(1, 28) = .52, p = .001$). As is evident in Table 4, flaking and scaling were the two depen-

dent subconcepts contributing to overall skin dryness.

To answer the second research question, the responses to the RSQ and the NSSQ were analyzed. On the RSQ, of the seven residents who were cognitively able to respond, all strongly agreed or agreed that the product was easy to use (100%) and that they liked this bathing technique (100%). Most of them also reported that they felt clean (86%), had softer skin (86%), and thought it was a worthy alternative (71%). Open-ended comments were recorded regarding a pleasant aroma, a desire to use soap in certain areas, a desire to continue use of the Bag Bath, and an appreciation of the convenience. The NSSQ was completed by 11 of approximately 14 staff members. Most strongly agreed or agreed the bath was easy to administer (91%) and that residents were satisfied (91%). There was less agreement regarding whether the product was better for the resident's skin (73%), cleanliness (70%), and the worth of the product as an alternative (73%). Open ended comments included noticeable decreases in skin dryness, less perineal redness, and less irritation. Respondents also noted softness of the cloths, convenience of use for pericare with incontinent residents, the time saving factor, and that it was helpful to residents. Results are summarized in Table 5.

DISCUSSION

This LTC facility implements some of the recommendations in the AHCPR guideline regarding skin care on elderly residents. These include skin cleansing at the time of soiling and at routine intervals, minimizing exposure to cold, and treating dry skin with moisturizers. Despite these interventions all of the study participants had at least one characteristic of dry skin as determined by their score on the SCDF. This finding is higher than that reported by Hardy (1996) who stated that 59% to 85% of the elderly population expe-

rience dry skin as measured by various methods including subjective and objective reports. The clinical significance of the score on the SCDF is closely related to the distribution of various body area subscores because summation was used in scoring. For example, a score of 15 may be clinically significant if all points scored are on the lower extremities, but is less significant if the total score is distributed over multiple body areas. Although the maximum possible score on the SCDF is 264, the maximum score of 107 measured during this study indicated severely dry skin overall. A high incidence of dry skin requires additional nursing interventions for effective prevention and treatment of integumentary complications.

The first research question examines the differences between the effects of traditional bathing methods and the Bag Bath/Travel Bath on skin redness, scaling, cracking, flaking,

and overall dryness in elderly residents. Continuous improvement in the total scores on the SCDF in the treatment group and the statistically significant differences between the groups after the first skin assessment related to total skin dryness suggests use of the Bag Bath/Travel Bath had a positive effect on the overall construct of skin dryness in elderly patients. The most significant improvements occurred in the reduction of the characteristics of skin flaking and scaling. No significant differences were found with redness or cracking. As stated previously, differences in redness were not anticipated due to measurement difficulties associated with this subconcept. Although differences were detected in skin condition between groups in T3 and T4, the most significant difference in skin condition occurred between T1 and T2. It is not possible to address why there was an improvement in overall skin condition that

occurred in the control group between T3 and T4. Although there was a significant difference in temperature and humidity at T3 and T4, it is unlikely to be of clinical relevance. Based on the manufacturer's specifications of the thermometer/hygrometer unit, the temperature and RH measurements were both within one standard deviation for accuracy. The consistency of the rest of the scores suggest that traditional bathing and skin care practices may contribute to both a higher incidence of and severity of dry skin.

The second research question examines the level of satisfaction of the residents and nursing staff with the Bag Bath/Travel Bath. When considering the adoption of a new product for use, it is helpful to consider the opinion of those potentially affected. The majority of both residents and nursing staff expressed favorable opinions with the use and results of the Bag Bath/Travel Bath

TABLE 4
SKIN CONDITION DATA FORM SUBSCALES BETWEEN GROUPS

	T1		T2*		T3*		T4*	
	M	SD	M	SD	M	SD	M	SD
Redness								
Treatment	.38	1.50	.50	2.00	.00	.00	.00	.00
Control	.29	.83	.14	.53	.00	.00	.007	.27
Flaking								
Treatment	23.88	14.29	10.69	7.94	8.56	5.10	7.69	3.98
Control	17.14	8.65	19.07	9.14	16.79	7.56	16.89	7.46
Scaling								
Treatment	16.94	16.40	5.69	7.97	4.25	6.37	3.50	6.22
Control	9.36	7.52	11.86	9.09	12.21	8.98	11.43	8.86
Cracking								
Treatment	.44	.89	.00	.00	.00	.00	.006	.25
Control	.64	1.15	.43	1.09	.29	.83	.14	.53

*Statistically significant: T2 Flaking: $F(1, 28) = 7.23, p = .012$, T3 Flaking: $F(1, 28) = 12.49, p = .001$, Scaling: $F(1, 18) = 8.00, p = .009$, T4 Flaking: $F(1, 28) = 10.29, p = .000$, Scaling: $F(1, 28) = 8.21, p = .008$.

TABLE 5

SUMMARY OF SATISFACTION QUESTIONNAIRES

Summary of Resident Satisfaction Questionnaires n = 7

	% Strongly Agree or Agree
1. The bath was easy to do.	100
2. I like this bathing technique.	100
3. I felt clean after my bath.	86
4. My skin felt softer after my bath.	86
5. I think the Bag Bath/Travel Bath is a worthy alternative to the traditional bed bath.	71

Summary of Nursing Staff Satisfaction Questionnaires n = 11

1. The bath was easy to administer.	91
2. I think this bathing technique is better for residents' skin.	73
3. I feel the resident was satisfied with this bathing option.	91
4. I believe the resident was clean after using Bag Bath.	70
5. I think the Bag Bath/Travel Bath is a worthy alternative to the traditional bed bath.	73

on skin condition. Most residents and staff considered it to be an easy and effective bathing means while promoting convenience and improved skin quality. This high level of staff and resident satisfaction suggests that introduction of this new product may be met with minimal resistance. The use of a poster was an effective tool in educating staff about the study and product. Its use is recommended with product adoption to serve as a continuous information resource in efforts to enhance cooperation and appropriate product use.

The study suggests that the Bag Bath/Travel Bath may have added moisture to the skin or prevented its loss. This moisture helped to maintain the pliability of the epidermis and reduce skin dryness. The use of the Bag Bath/Travel Bath incorporates additional AHCPR skin care recommendations. This product

avoids the use of hot water while using a mild cleansing agent to minimize irritation and dryness of the skin. It minimizes the force and friction applied to the skin by preventing the need to rinse or towel dry and treat the skin with moisturizers. The Bag Bath/Travel Bath did not totally eliminate dry skin in this population, but severity was decreased. Some residents in the treatment group reported periodic use of lotion on their hands despite the agreement to refrain from use. This may have occurred as a result of the high frequency of hand washing necessary after toileting and before meals thus removing the Bag Bath/Travel Bath emollient. As part of a comprehensive skin care program within this agency, specific recommendations to promote healthy skin would include the adoption of the use of the Bag Bath/Travel Bath for all bathing

needs, optional concurrent use of lotion in frequently washed areas, and an increased humidity level to a minimum level of 40%.

Limitations of this study include the small sample size, use of convenience sampling, calibration/accuracy of the thermometer/hygrometer unit, and periodic use of hand lotion in the treatment group. Recommendations for future research include replication of this study with a larger sample and with different age populations. Because a significant difference was noted between the groups after 2 weeks, a shorter period of time, perhaps 4 weeks, for data collection may be sufficient.

Thorough assessment generally includes both objective and subjective sources of data. The residents in the treatment group who used hand lotion anecdotally described a feeling of tightness in the skin of their hands, although objective signs of flaking, scaling, redness, or cracking were undetectable. The subjective symptoms were relieved with lotion use. In future studies, the systematic collection of subjective data may be useful. It would be interesting to evaluate if subjective sensations correlate with subsequent objective changes. Additionally, because flaking and scaling were the only two subconcepts contributing to significant differences, consideration should be given to modifying the SCDF by deleting the measurements of redness and cracking. A shorter version of the tool may encourage staff to perform the skin assessment as a standard of practice. With this modified version, the assessment process would be more expedient and a consequential time saving would occur in terms of scoring the tool. Further studies to correlate the incidence of dry skin to pressure ulcer development are also necessary, as prevention can be a cost-effective measure. Additional recommendations include cost analyses that review actual costs and potential savings via prevention in various settings.

NURSING PRACTICE IMPLICATIONS

As the population ages, new products or specific interventions that could benefit this population need to be explored. The aging process impacts all body systems including the skin. The effects on skin condition can be dramatic. The findings from this project identify outcomes that may be beneficial to the skin quality of this population. The commercially available bathing system evaluated in this study promoted skin integrity in this population and was easy and convenient to use. The Bag Bath/Travel Bath was used for all bathing needs of participating residents, including perineal care with incontinent episodes. Although nursing staff commented positively on the product, procedure, and outcomes, most comments were related to less perineal redness and convenience. For patient comfort, the bags may be warmed in the microwave. However, bathing is effective if used at room temperature. If warming, care must be taken not to overheat the bag to prevent accidental burns. Institutional policies should be followed regarding the use of a microwave to heat any product that comes in contact with patient's skin.

Findings from this study can enhance nurses' abilities to decrease skin complications by effectively preventing and treating dry skin. Rigorous and independent product evaluation facilitates informed selection of new products based on objective data. The Bag Bath/Travel Bath offers an exciting evidence-based option to meet the skin care needs of the elderly population.

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KEYPOINTS

BATHING AND SKIN CARE PRACTICES

Sheppard, C.M., & Brenner, P.S. The Effects of Bathing and Skin Care Practices on Skin Quality and Satisfaction With an Innovative Product. *Journal of Gerontological Nursing*, 2000, 26(10): 36-45.

- 1 Dry skin, the most common skin disorder of the elderly population, can be effectively prevented and treated with appropriate bathing and skin care practices.
- 2 The use of the commercially available Bag Bath/Travel Bath in its design and procedure, incorporates many recommendations from the Agency for Health Care Policy and Research guideline for the prevention of pressure ulcers.
- 3 The use of the Bag Bath/Travel Bath reduced overall skin dryness, more so in the areas of skin flaking and scaling, and less so the areas of redness and cracking.
- 4 Both residents and nursing staff considered the Bag Bath/Travel Bath an easy, convenient, and effective bathing means that improved skin quality.

- associated with skin dryness in the elderly. *Nursing Research*, 35(2), 98-100.
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