Skin Self-Examination in Patients at High Risk for Melanoma: A Pilot Study

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Purpose/Objectives: To compare the effect of providing high-risk patients with standard brochures versus personalized photo books as part of a comprehensive nursing intervention on knowledge, awareness, and confidence with skin self-examination (SSE) performance, as well as compliance in performing SSE.

Design: Randomized intervention design.

Setting: The Lawrence E. Rockefeller Ambulatory Outpatient Cancer Center at Memorial Sloan-Kettering Cancer Center in New York, NY.

Sample: 100 patients at high risk for melanoma.

Methods: Patients completed a baseline questionnaire before their initial photographs were taken and at the end of a nurse-teaching intervention at the clinic.

Main Research Variables: Skin cancer knowledge, awareness, and self-confidence in SSE.

Findings: A two-way analysis of variance with repeated measures was performed to examine differences within and among groups in relation to knowledge, awareness, and confidence. The group-time interaction was not significant. In group A (nursing intervention with photo book), 10% of the patients at baseline reported performing SSE three or more times during the prior four months. Mean knowledge scores, awareness, and confidence scores all increased. In group B (nurse-teaching intervention using brochures only, without a photo book), 20% reported practicing SSE three or more times during the prior four months. Mean knowledge, awareness, and confidence scores increased.

Conclusions: The main difficulty that patients experience with self-detection of melanoma is their limited recall of skin appearance; therefore, photographic records may be the most effective aid for detecting changes at longer intervals. The use of a photo book may help to diminish that difficulty.

Implications for Nursing: This study supports the fact that education can increase knowledge, awareness, and confidence regarding SSE, which is consistent with the findings of other investigators. Therefore, nurses should incorporate teaching patients how to perform SSE into their practice and recognize that personal involvement in health care has become a dominant theme in the cancer education literature in recent years. With this new emphasis, important self-care activities, such as testicular self-examination, breast self-examination, and now SSE, are being stressed because early detection has shown favorable effects in improving the prognosis of cancer.

Key Points . . .

➤ The primary screening modality for early detection of skin cancer is an annual examination by a dermatologist.

➤ This study supports the fact that education can increase knowledge, awareness, confidence, and compliance regarding skin self-examination (SSE).

➤ Nurses should incorporate teaching patients to perform SSE into their practices.

Medical experts almost universally have accepted that overexposure to sunlight, especially when it results in sunburn and blistering, is the principal cause of melanoma. Numerous banal and dysplastic nevi are important risk markers for melanoma (Tucker et al., 1997). Repeated medical and industrial x-ray exposure and scarring from diseases or burns also are important risk factors. Understanding these risk factors has permitted the identification of a high-risk cohort to be targeted with efforts in prevention and early detection (Halpern, 2000; Tucker et al.). A system for identifying those at greatest risk allows practitioners to focus screening efforts and more effectively decrease morbidity and mortality (McEldowney, 1996).

Being examined annually by a dermatologist is the primary screening modality for early detection of skin cancer (Halpern, 2000). The examination may include whole body

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The estimated incidence and mortality of melanoma in 2003 are 54,200 and 7,600, respectively (Jemal et al., 2003). Rigel and Carucci (2000) estimated that 1 in 74 people would develop a primary malignant melanoma during his or her lifetime. The five-year survival for melanoma is determined by extent of disease: 80% for stage I or II localized, 47% for stage III regional disease, and 12% for stage IV distant metastasis (Balch et al., 2001).

photographs for follow up with high-risk patients. Derma-Graphix (Canfield Scientific, Inc., Fairfield, NJ) is a mole-mapping system that uses computerized, digital, whole body photographs to enhance diagnosis and tracking of skin lesions and currently is being used at Memorial Sloan-Kettering Cancer Center (MSKCC). Frequent skin self-examination (SSE), the systematic performance of inspecting one's own skin in a methodic manner for any changes in color, size, or shape of skin moles, is recommended for early detection of skin cancer (Berwick, Begg, Fine, Roush, & Barnhill, 1996). SSE should be performed once a month, alone or with a partner, and requires a full-length mirror, hand mirror, and brightly lit room.

The American Academy of Dermatology recommended that individuals practice SSE to detect new or changing lesions (Koh, Geller, Miller, & Lew, 1995). Studies have not investigated the effects of interventions to increase SSE in high-risk patients (Berwick, Oliveria, Luo, Headley, & Bolognia, 2000). Berwick et al. (1996) reported that SSE is associated with a reduced risk of melanoma and has the potential to reduce mortality by 63%.

Compliance with monthly SSE may significantly improve early detection of and subsequently decrease mortality from melanoma (Kopf, Salopek, Slade, Marghoob, & Bart, 1995). The effectiveness of SSE in screening is based on patients' or their partners' knowledge and awareness of and confidence with SSE. The purpose of this study was to compare the effect of providing high-risk patients with standard brochures versus personalized photo books as part of a comprehensive nursing intervention on knowledge, awareness, and confidence with SSE performance, as well as compliance in performing SSE. This article will report on the initial results and assess the effect of a nursing intervention on knowledge, awareness, and confidence at baseline and follow-up only. Future articles will report on findings at 4 and 18 months after each patient's entry into the study.

This study was guided by Orem's (1991) self-care model. Orem believed that nursing care is needed when patients are unable to provide the amount and quality of self-care necessary to regulate their own functioning and development. She proposed three types of nursing systems that vary in terms of the degree to which patients can accomplish self-care requirements. In the supportive-educative system, nurses provide education and support for patients so that patients will be able to successfully meet self-care requirements.

Literature Review

Research evidence suggests that self-detection of melanoma depends on a person's ability to recall the initial appearance of a lesion and notice change over time (Hanrahan, Hersey, & D'Este, 1998). The main difficulty that people experience with self-detection of melanoma is a limited ability to recall the appearance of their skin (Hanrahan, Hersey, Menzies, Watson, & D'Este, 1997). In addition, people tend to significantly undercount nevi that are present on the skin (Mikkilineni & Weinstock, 2000). Investigators have evaluated the effectiveness of a number of different interventions to improve patients' abilities to recognize and notice changes in moles over time (Hanrahan et al., 1998). SSE may provide a useful and inexpensive screening method to detect melanoma at an early stage and reduce the development of advanced disease (Berwick et al., 1996).

Studies in the literature evaluating the effectiveness of specific interventions to improve SSE are limited. Hanrahan, Hersey, Watson, and Callaghan (1995) conducted a randomized trial in men over the age of 45 who presented with thicker, more advanced melanomas. This trial evaluated whether educational brochures would increase knowledge about melanoma and the ability to recognize and discriminate among pigmented skin lesions. The intervention group (n = 110) received two educational brochures about melanoma, and the control group (n = 96) received no educational brochures. The differences were evaluated at baseline and at four weeks and three months after the brochures were distributed. A significant increase was documented in knowledge and awareness related to melanoma in the intervention group (20%) at four weeks and three months. However, the educational material did not improve recognition of pigmented lesions or discrimination between benign and malignant lesions.

Berwick et al. (2000) evaluated the outcome of a nurse educational intervention. Seventy-five subjects completed the study, 60 at high risk for melanoma and 15 at low risk. A dermatology-trained RN reviewed the clinical characteristics of cutaneous melanoma with each patient, as well as the risk factors and methods for conducting SSE; then, the RN distributed written educational materials to all subjects. A pretest assessed subjects' basic knowledge, awareness, and SSE skills and determined the frequency of their SSE performance. Each subject was given a diary to record the frequency of SSE and the areas of the body examined by the individual or partner. Evaluation occurred at the subjects' next regular clinic visit 6–18 months later. Testing at that time assessed knowledge and awareness about melanoma and ascertained frequency and thoroughness of SSE. Optimal SSE was defined in the study as performing SSE every one to two months. Knowledge and awareness of the signs and symptoms of melanoma from pre- to post-test improved significantly after the intervention in patients with a personal history of melanoma (p = 0.08). This group also increased the frequency of SSE (defined in the study as optimal SSE), performing SSE every one to two months (p = 0.06). After the intervention, 57% of all subjects increased SSE frequency and the number of subjects who attained optimal SSE almost doubled.

Hanrahan et al. (1997) compared differences in distinguishing changes of melanoma in older and younger patients. The study was designed to examine whether an educational brochure illustrating the changes of melanoma would increase the ability to detect changes. The sample was comprised of volunteers stratified by age: younger than 30 years (n = 52) and older than 45 years (n = 41). Subjects aged 30–45 were not eligible. All participants received an educational brochure that illustrated the typical changes of melanoma. Photographic images of pigmented skin lesions were altered using computer graphics software to approximate typical changes of melanoma. Short intervals (i.e., seconds) between viewing the original and changed lesions were included to test the ability to distinguish the changes, and longer intervals (i.e., 29 and 60 days) were used to test ability over more realistic intervals. Both age groups were able to detect early changes of melanoma at short intervals but had difficulty detecting changes in nevi at longer intervals. Repeated viewing of the original photographs of the lesions enabled participants to once more recognize the changes. The authors concluded that regardless of age, the main difficulty that people experience in self-detection of melanoma is their limited

recall of skin appearance. Hanrahan et al. (1997) suggested that photographic records may be the most effective aid for detecting changes at longer intervals.

Research related to interventions for improving self-examination in other cancers, specifically breast self-examination (BSE) and testicular self-examination (TSE), was reviewed. One study of BSE evaluated a theory-based breast cancer control program developed for less-acculturated Latinas (Mishra et al., 1998). The authors used a quasi-experimental design with random assignment of Latinas into experimental (n = 51) or control (n = 37) groups that completed one pretest and two post-test surveys. The experimental group received an educational program that involved four informal interactive educational sessions, each lasting approximately two hours and occurring twice weekly. Two weeks after the educational program, the experimental group was significantly more likely than the control group to have more medically recognized knowledge (p < 0.01) and were more adept in BSE performance. Patient education pamphlets about knowledge and awareness were distributed routinely to all patients at their first clinic visit. A telephone interview was conducted with a random sample of 50 patients at a mean of five months after their first visit. Only 29 of the 50 women reported receiving the material, but 27 of these 29 women reported reading it. The women who had received and read the material scored significantly better on a brief knowledge questionnaire (p = 0.027). Overall patient satisfaction with the pamphlets was 91%. This study concluded that cancer control programs designed for less-acculturated women such as Latinas should use informal and interactive educational methods that incorporate skill-enhancing and empowering techniques in conjunction with educational instruction using pamphlets.

Best, Davis, Vaz, and Kaiser (1996) examined different types of TSE trainers (male adults versus peers) and different methods of training (lecture or audiovisual, separately or combined, among many others). The sample included 1,286 males in the eleventh grade. Six months after training, all subjects had increased knowledge and awareness of testicular cancer and the technique of TSE, although lecture with audiovisuals was most effective (p < 0.05), particularly in the peer-trained group.

Clearly, educational interventions are effective in increasing patient knowledge. However, the effectiveness of a teaching protocol in patients at risk for melanoma that uses a book of patients' baseline photographs to enhance knowledge, awareness, confidence, or compliance in performing SSE once a month has not been investigated. Previous studies have revealed that recognition of change in existing lesions over time or the appearance of new, pigmented skin lesions can be very difficult but is assisted by whole body photography (Hanrahan et al., 1998). No studies have tested whether the addition of a photo book as a standard intervention will help patients feel more confident or increase their knowledge and awareness in monthly SSE performance.

Methods

The current study's design was quasi-experimental with randomization of patients into one of two groups. Group A received patient teaching by a nurse using a photo book. Group B, the control group, received patient teaching by a nurse using a standard "how to" mole-mapping brochure in the form of a diary. All other nursing interventions were the same for both groups. The purpose of the study was to test whether the addition of a photo book would assist and improve patients' monthly SSE performance and increase their knowledge, skills, awareness, and confidence at the same time.

Setting and Sample

Patients were enrolled from the outpatient dermatology clinic practice at MSKCC in New York, NY, a National Cancer Institute-designated comprehensive cancer center. Accrual of patients began in March 2000 and continued for two years. Participants were selected if they were 18 years or older, if this had been their first visit to MSKCC or if they had not seen a dermatologist within the last six months, if they had multiple dysplastic nevi (i.e., five or more atypical nevi or moles, placing them at high risk for melanoma), if their moles had never been photographed or if they had never received a photographic book of their moles from another institution, and if they demonstrated a willingness to give informed consent and be randomized into one of two groups.

Procedures

Nursing intervention: Patients who met the eligibility criteria were invited by the nurse investigators and physicians to participate in the study. An explanation of the study was provided, and informed consent was obtained. Permission had been granted previously from MSKCC's institutional research board to perform the study. At this point, each patient was assigned randomly into group A or B to ensure equal distribution of patient characteristics. Two hours were scheduled for each study participant. During this appointment, patients were shown to a private dressing room and asked to remove all clothing, put on a robe, and walk directly into the photography room. A nurse performed whole body digital photography, incorporating 27 body sector photos; this process takes about 30 minutes, including photographing close-ups of patients' moles with another camera (see Figures 1–4).

The DermaGraphix system includes a digital camera that creates reproducible, standardized body sector images and a Scalar VL-7EX video loupe with a polarizing lens that creates close-up lesion images. The system features a powerful lesion-tagging feature for linking close-up images to the correct body sector image.
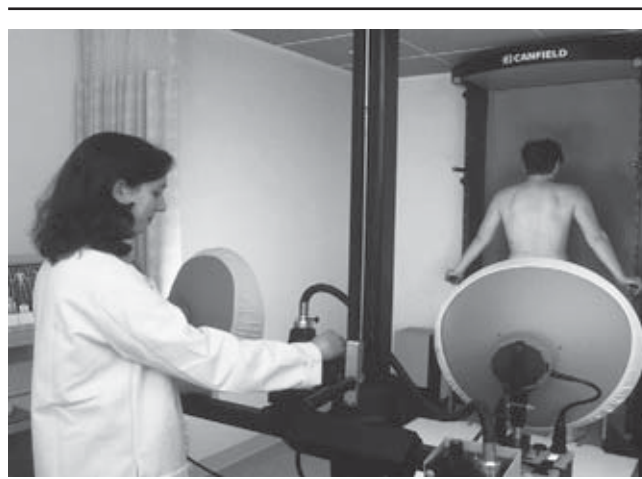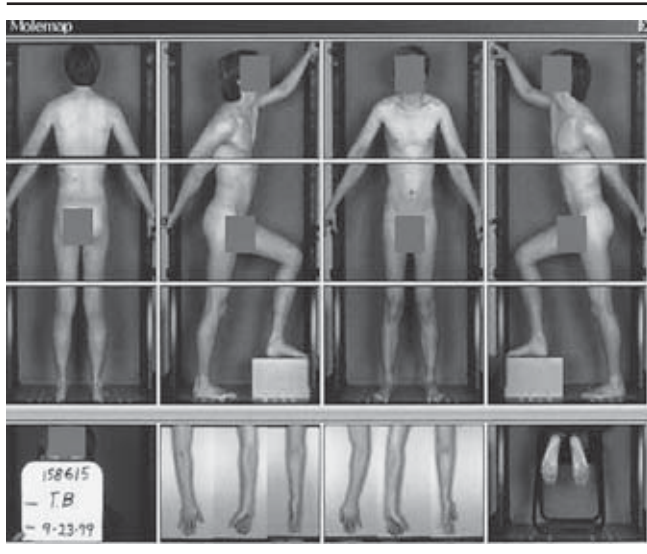

Figure 1. Body-Mapping Studio

Figure 2. Body Sector Images

After patients changed into their own clothes, a three-minute video on SSE, *Skin Cancer: Can You Spot It?* (Skin Cancer Foundation, 1992a), was shown. This was followed by guided imagery in which the nurse asked patients to close their eyes, try to relax, and visualize being at home in a well-lighted and comfortable room of the patients' choice. The nurse then took each patient systematically step by step through SSE (approximately 15–20 minutes).

Once the imagery was completed for the patients randomly selected to group A to receive a photo book, the nurse demonstrated how to use the photo book with a model book that was exactly the size patients would receive about one week later.

The nurse demonstrated how to examine all body parts in a systematic fashion. She explained how to compare photos and described what to look for: changes in color, size, and shape of their moles. Only the 27 body sector photographs of each body part were included in the patients' photo books. The close-up photos of moles were stored in each patient's personal file in the DermaGraphix computer system, along with the 27 body sector photographs that were used by the
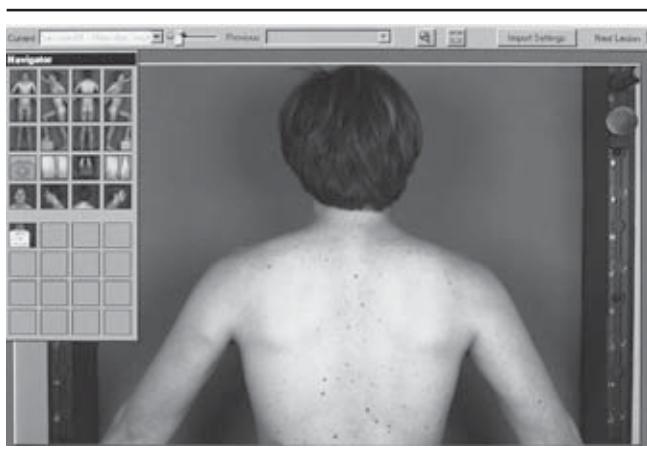

Figure 3. Close-Up Photograph Within Sector Image

physician and nurse for comparison at subsequent visits. Patients then returned to demonstrate SSE by describing how they would perform SSE using the model photo book. To ensure understanding, this was followed by a question-and-answer period (approximately 10–15 minutes).

If patients were randomized to group B, after the guided imagery portion of the intervention, they were given a brochure developed by the Skin Cancer Foundation (1992b), *Skin Cancer: If You Can Spot It, You Can Stop It.* This brochure is in the form of a patient diary that aids in recording and tracking moles. The nurse demonstrated in a systematic fashion how to look at all body parts and draw them on the body map in the brochure. In return, patients demonstrated SSE by recording their moles in the brochure; afterward, a question-and-answer period was conducted.

Groups A and B were instructed to take home and read a brochure developed by the Skin Cancer Foundation (1999) titled *Dysplastic Nevi and Risk of Melanoma.* Once again, this was followed by a question-and-answer period. A follow-up questionnaire was administered to all patients.

Instruments

Self-report questionnaires were used to assess knowledge, confidence, and self-awareness. They were developed by experts in the field, including clinicians, epidemiologists, and psychologists. These questions were tested in research studies and adapted for the current study. In addition, pilot testing and refining of the instrument were performed, and clinical experts reviewed the content of the questionnaires.

The baseline questionnaire (pretest) contained 56 items, and the follow-up (post-test) questionnaire contained 47 items. Questions related to patients' identifying information were not included in the follow-up questionnaires; instead, a six-digit number was used for identification. The questionnaires all contained multiple subsections: skin cancer knowledge (10%), SSE questions (25%), confidence questions (27%), and skin cancer knowledge and awareness (17%). Medical history questions made up 14%, and perception questions comprised 7% of the items asked on the questionnaires. About 20% of the questions were multiple choice (e.g., Did you use a full-length mirror, hand-held mirror, or no mirror at all?), and 30% were fill in the blank. Approximately 50% used a Likert scale ranging from 1 (not confident at all) to 4 (extremely confident).

Baseline questionnaires were administered to all patients before the initial photographs were taken. At the end of the nursing intervention, each patient was given the follow-up questionnaire to complete before leaving the clinic. Subsequent questionnaires were sent through the mail at 4 months and 18 months after participants entered the study. These results will be reported at a later time.

Data Analysis

Descriptive statistics (i.e., frequency and mean) were calculated to characterize questionnaire responses. Inferential statistics were used to measure changes in levels of confidence, awareness, and knowledge in SSE performance among and within groups from baseline to follow-up. Point estimates and confidence intervals were calculated. Chi-square analysis was used to explore differences in patients' knowledge, awareness, and confidence of SSE between groups. Stratification (by personal history of skin cancer) prior to randomization was performed to eliminate variation in the primary outcomes of interest
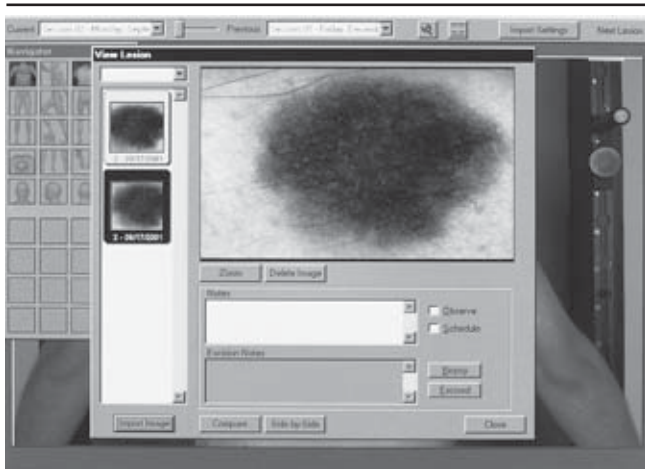
Figure 4. Close-Up View of a Lesion

and to ensure that this variable was distributed equally between the two intervention arms. McNemar's test for correlated proportions or the paired t test was used to explore the within-intervention arm effect of individual interventions (before versus after measures) on knowledge, awareness, and confidence with SSE performance. To determine between-group effects, separate repeated measures using analysis of variance (ANOVA) were performed for knowledge, awareness, and confidence.

Results

Sample

A total of 105 patients were approached to join the study, and 100 enrolled. Five patients did not join the study because of scheduling conflicts and fears about traveling into New York City after the events of September 11. Table 1 describes the baseline characteristics of the sample. The mean age was approximately 40 years; 63% were women, and 61% were married or living with a partner. Forty-nine percent of the patients had a previous history of melanoma. No statistically significant differences were found between groups using an independent samples t test.

A two-way ANOVA with repeated measures was performed to examine differences within and between groups in relation to knowledge, awareness, and confidence. The group-time interaction and main effect for group were not significant. Both groups had a significant increase in knowledge, awareness, and confidence from baseline to follow-up 1.

Figures 5–7 illustrate the mean knowledge, awareness, and confidence scores for both groups at baseline and follow-up 1. In group A, 10% of the patients at baseline reported performing SSE three or more times during the prior four months. In group B, 20% reported performing SSE three or more times during the prior four months. Significant differences were found within groups from baseline to follow-up 1 using two-way ANOVA ($p < 0.0001$), but no differences were discovered between groups.

Discussion

This study supports the fact that education can increase knowledge, awareness, and confidence regarding SSE in the short term. This seems to be consistent with findings of other investigators. Data analysis at 4 and 18 months will determine whether an increase in knowledge, awareness, and confidence persists over time and whether the intervention increases compliance with SSE.

The intervention may not have worked as well as initially believed because patients were told which group they were randomized to after they had changed into their clothes just before the video. High anxiety levels about being randomized into group B (the group that agreed to wait four months before receiving the photo book) may have affected participants' abilities to listen and learn. The entire intervention was carefully planned, but the information presented may have been too overwhelming for some patients to comprehend in the allocated time. Researchers found it difficult to measure whether the photo book enhanced knowledge or memory in two hours because group A only had a 15-minute introduction to the photo book.

To replicate this intervention in clinical practice or another research study, some type of photographic equipment is needed. A smaller, private dermatology practice may start body mapping with an inexpensive point-and-shoot camera (e.g., Nikon Coolpix® 995) and a DermaGraphix software system for much less than the equipment used as MSKCC. At New York University, a professional photographer performs full-body photography at the same cost to the patient as MSKCC. However, in addition to patients receiving their own photo books, MSKCC places their photographs in a confidential DermaGraphix database for comparison at follow-up visits, eliminating the need for patients to bring their photo books to every visit.

After a photo session is completed, it is copied onto a CD and sent to Canfield Imaging Systems, a state-of-the-art image management software company specializing in body-mapping software for image processing and the creation of patient photo books. Patients agreed to donate two hours initially for the photography and intervention and agreed to

Table 1. Baseline Characteristics of Sample

Variable	Group A (n = 49)		Group B (n = 51)	
Age (years)				
$\overline{X}$	40.3		39.4	
SD	10.9		11.5	
Variable	**n**	**%**	**n**	**%**
Sex				
Male	20	41	17	33
Female	29	59	34	67
Marital status				
Single	12	25	19	37
Married or living with partner	31	63	30	59
Divorced or separated	4	8	2	4
Widowed	2	4	–	–
Previous diagnosis of melanoma				
Yes	25	51	24	47
No	24	49	27	53
Practice one or more skin self-examination in past four months				
Yes	14	29	13	25
No	35	71	38	75

N = 100
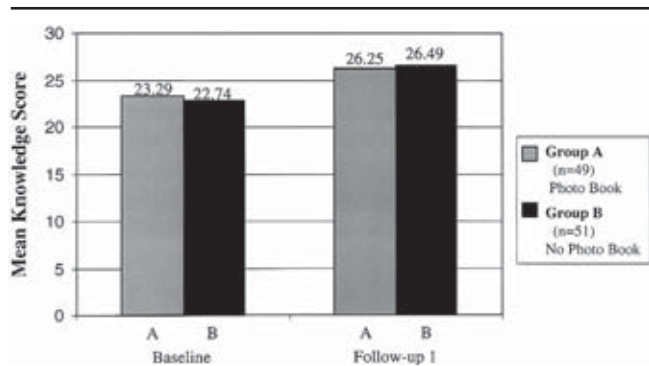
Significant difference within groups from baseline to follow-up 1 using two-way analysis of variance, p < 0.0001
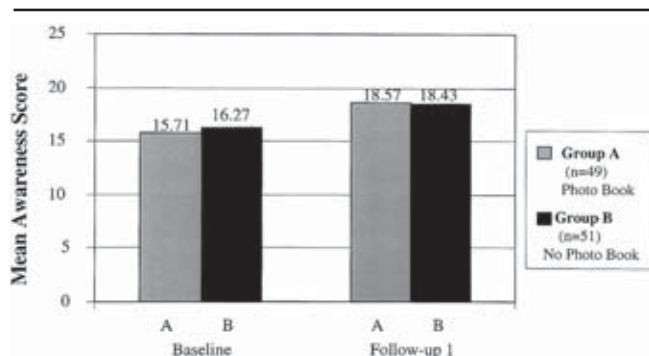
The knowledge score is a composite score based on the responses to three questions. Scores can range from 0–30.

Figure 5. Mean Knowledge Score

complete four questionnaires. Most insurance companies do not cover the cost of the photo book; however, one patient's insurance company paid for the entire cost of the visit. Four other participants reported that at least $100 of the cost for the photo book was paid by their insurance, and patients paid the remaining amount.

To further reduce costs, a Polaroid camera with grids appearing on the camera lens may be used. When the photo is taken, these grids appear on the photo, which may aid in measuring a lesion. The major drawback with using a Polaroid photo is that it may fade or be lost with time, whereas a digital photo can be stored indefinitely.

Robinson, Rigel, and Amonette (1998) found that SSE performance correlates with physician and nurse discussions about its importance. However, nurses must understand that patients may not always accurately report and may differ in their ability to complete SSE; therefore, tailoring the procedure for each individual may be necessary. Addressing patient beliefs may increase the frequency and proficiency of SSE performance. When individualizing teaching, perceived barriers must be addressed. Patients may need to believe that they are susceptible to skin cancer before they are motivated to ac-

tion. Individual risk for skin cancer, especially melanoma, should be reviewed with each patient. Even if additional risk factors do not exist, patients must understand that skin cancer has occurred in patients who have no risk factors. Helping patients develop an optimal set of beliefs about SSE may improve frequency and proficiency.

Limitations

This study was expensive to implement. A camera and computer equipment that had never been used outside of Canfield Clinical Systems had to be purchased, and a dermatology nurse had to be available to teach patients about melanoma, about SSE, and how to use a photo book. The study also was limited by the select study group comprised of patients at high risk for melanoma based on the presence of five or more dysplastic nevi. The sample size was fairly small; the study was conducted in an experimental, highly controlled situation; and the results may not be representative of what may occur in a population-based setting. These initial results are likely to represent the best-case scenario because the study population is highly motivated based on the rising rate in those at increased risk and development of skin cancer.

Research needs to be conducted about SSE behavior and educational requirements. Particular attention must be given to consistent and specific SSE training so that the effect of SSE on the survival of patients with melanoma and dysplastic nevi can be determined definitively. Comprehensive research studies will provide information that will be used to better educate patients and improve their health care.

Nursing Implications

The current intervention study corroborates with Orem's (1991) theories of self-care and supportive education. A central concept of Orem's supportive-educative system is defined as the degree of confidence that individuals have in their ability to perform specific activities successfully. Using this principle, specific knowledge and awareness of the importance of monthly SSE and the knowledge and awareness of how to perform SSE correctly empower patients to participate in their own health care and motivate them to take positive action to influence their health.

Teaching about melanoma and effective SSE should be an integral component of nursing care. Because time management during a clinic examination is essential, effective methods of teaching in limited periods of time must be identified. Much can be accomplished in a seven-minute skin assessment. A nurse performing a skin examination can start with the scalp and teach the patient how, when, and where to perform monthly SSE. Patients begin to relax during the scalp examination and typically ask questions when the nurse examines the skin on the rest of the body. The nurse can note specific areas or a particular mole to examine closely once a month. In addition, using a patient's photo book at a follow-up appointment, the nurse can answer any questions and emphasize key points for performing SSE. Nurses should encourage patients to purchase a magnifying glass to examine lesions closely; with this tool, patients will be able to more readily identify changes in lesion color, size, or shape. Nurses also should encourage patients to arrange the photos in their book
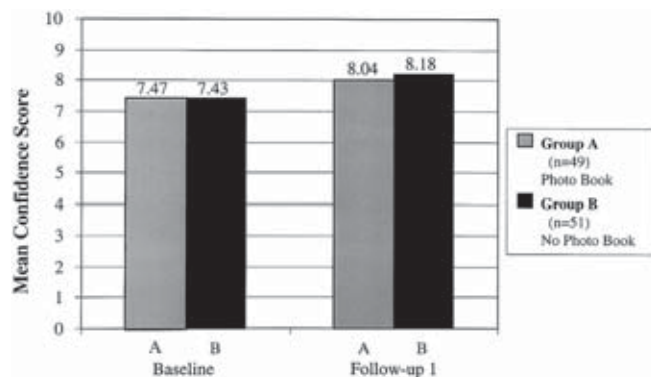
Significant difference within groups from baseline to follow-up 1 using two-way analysis of variance, p < 0.0001

The awareness score is a composite score based on the responses to two questions. Scores can range from 0–20.

Figure 6. Mean Awareness Score

Significant difference within groups from baseline to follow-up 1 using two-way analysis of variance, p < 0.0001

The confidence score is a composite score based on the responses to two questions. Scores can range from 2–10.

Figure 7. Mean Confidence Score

according to a system that is most comfortable for patients' personal use. Many patients are hesitant to remove photos from the plastic covering or do not want to write on the photos. Remind patients to coordinate monthly SSE with another monthly task and choose a well-lighted room. This seems to have a positive effect on patients.

Identify tools that enhance patients' ability to perform SSE effectively. Data analysis thus far has not indicated that providing patients with a personalized photo book is more effective than a standardized written brochure in improving patient knowledge, awareness, and confidence over a short period of time. Therefore, nurses may be able to use easily accessible and inexpensive materials without relying on expensive technology for teaching. The effect of instant photography as a method for melanoma screening during routine health examinations was assessed in a study by Edmondson et al. (1999). Photographs were given to each patient for examination of any changes in lesions of interest. Results showed that patients' possession of these photographs led to a diagnosis of melanoma in two instances even though the goal of the study was not to study the effect of providing photographs to each patient. Patient acceptance of the photographs was high, and the authors concluded that the use of photographs as an aid to melanoma diagnosis is warranted. However, further research is needed to determine the effect of a personalized photo book on compliance in SSE performance over time.

Conclusion

To date, a study of this magnitude that uses digital photography with an educational intervention and a photo book has not been presented. Over a short duration, patients responded enthusiastically to having a personal set of photographs in a photo book and were open to learning how to use it. The study results indicate that the delivery of a nurse education intervention was effective in increasing patient knowledge, awareness, and confidence in SSE performance. The study also was enhanced by the use of digital photographs.

The authors concluded that, regardless of age, the main difficulty that people experience with self-detection of melanoma is their limited recall of their skin's appearance; therefore, photographic records may be the most effective aid for detecting changes at longer intervals (Hanrahan et al., 1997). Patients in this study now have the ability for repeated viewing of their original photographs each month, which can aid in recognizing changes over time.

Hopefully, many questions about SSE will be answered as a result of this research; nurses can use this data in their practices to aid in SSE performance. This is just the beginning of the use of high-tech digital photography in dermatology practices. As computer technology continues to improve, so will the use of computerized photo-imaging technology from the simple use of a Polaroid camera to a personalized photo book or CD for home SSE performance.

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For more information . . .

➤ Federal Citizen Information Center: Monthly Skin Self-Examination
www.pueblo.gsa.gov/cic_text/health/7stpsun/selfexam.pdf

➤ Loyola University: Skin Cancer and Skin Self-Examination
www.luhs.org/health/topics/skin/exam.htm

➤ Oregon Health and Science University: Skin Cancer
www.ohsuhealth.com/skin/exam.asp

Links can be found at www.ons.org.