

# Exploring the Role of the Nurse in Skin Cancer Prevention

Victoria Siegel

*In this quasi-experimental study, the use of ultraviolet-filtered photography as an effective methodology for teaching student nurses about skin cancer was explored. This education method demonstrates and personalizes the sun damage and thus alters the students' behavior and perception of tanning and skin cancer.*

The most common form of cancer in the United States is skin cancer (Centers for Disease Control and Prevention [CDC], 2008a). More than 1 million cases are diagnosed each year in this country (American Academy of Dermatology [AAD], 2008; Lillis, 2006), and it is estimated that one in five Americans will develop skin cancer in their lifetime (AAD, 2008). An estimate of the number of persons diagnosed with melanoma (the deadliest form of skin cancer) in 2008 is 116,500 (AAD, 2008). Further, it is estimated that 8,420 people died from melanoma in 2008 (AAD, 2008). The

CDC categorizes skin cancer as an epidemic (Hatmaker, 2003).

There are three types of skin cancer: basal cell, squamous cell, and melanoma (CDC, 2008a). The percentage of people who are diagnosed with melanoma has doubled in the past 30 years (CDC, 2008a). Melanoma is the deadliest skin cancer and is preventable, since 90% of melanomas are caused by ultraviolet (UV) light or sunlight (CDC, 2008a). UV light is a known carcinogen (Melanoma Education Foundation, 2008).

Patient education plays a key role in preventing skin cancer (Guill & Orengo, 2001). To detect skin cancer in its early, treatable stages, patients need to learn prevention and detection methods, including protecting skin from UV rays and screening for cancer. An analogy put forth by the Melanoma Education Foundation (2008) is that tanning lamps are to skin cancer as cigarettes are to lung cancer. In addition to avoiding intentional tanning, either by solar radiation or indoor tanning using UV radiation, patients need to take an active role in monitoring their skin for changes. They need to learn to do a full skin self-exam every month, be checked annually by a health care provider, and have suspicious lesions evaluated (Guill & Orengo, 2001). In addition, patients must know to avoid exposure to the sun between 10 a.m. and 4 p.m., use sunscreen with a minimum sun protection factor of 15, and wear protective clothing and sunglasses (Guill & Orengo, 2001).

Several factors have contributed to the increase in skin cancer, including the depletion of the ozone layer, change in leisure activities, and the perception of a tanned look as attractive (Schober-Flores, 2001). Having a tan is considered desirable, beautiful, and healthy (Bozarth, 2000). This is especially true among young women, who think having a tan looks attractive and healthy (Lamanna, 2003). In a study conducted by Lamanna, 224 college students were surveyed regarding their perceived risk of developing skin cancer. Three factors were involved in the subjects' sunbathing practices: gender, perceived risk, and perceived susceptibility. Women were more knowledgeable, yet they engaged in more high-risk behaviors because they perceived acquiring suntans made them look more attractive and athletic. Therefore, the desire for attractiveness outweighed the perceived risks. The recommendations of this research were that interventions should focus on education about the dangers of sun tanning to health (Lamanna, 2003).

A nurse educator must understand the perception of different racial and ethnic groups in relation to skin cancer, and this information needs to be included in the education of student nurses. The incidence of skin cancer in Caucasians is 20%, Hispanics 4.3%, and 1% in Black persons (Hu, Soza-Vento, Parker, & Kirsner, 2006). Everyone can get skin cancer; no one is exempt. People of all races and colors can get skin cancer and knowing what it

Victoria Siegel, EdD, MSN, RN, CNS, is an Associate Professor of Nursing, Suffolk County Community College, Brentwood, NY.

looks like could save your life (AAD, 2008). Skin cancer can develop in people of African, Asian, Latino, and Native American descent. Since skin cancer occurs less frequently in people of color, they tend not to seek evaluation of changes in moles or skin lesions and therefore have a higher incidence of mortality than White people (Hu et al., 2006). Dermatologists agree that people of color need to learn to protect their skin (AAD, 2008).

There needs to be a shift in thinking about sun tanning before one may see a decline in rate of skin cancer. A 2002 study showed college students' awareness of the risks of tanning lamps did not influence their behavior (Knight, Kirincich, Farmer, & Hood, 2002). From their questionnaire, the researchers found 47% of the students, females more often than males, used sun lamps in the preceding year. This is of great concern, since skin cancer is a result of cumulative exposure to the sun or tanning lamps. The researchers found more than 90% of those who used sun lamps were aware of the premature aging and skin cancer effects sun lamps can cause yet were unwilling to alter their behavior. These researchers concluded that in order to alter this risky behavior, a change in societal belief that tans are attractive will need to occur (Knight et al., 2002).

Some researchers have studied how the concern with attractiveness can be used to better educate college students about the risks of skin cancer. These researchers used UV-filtered photography to demonstrate to participants the negative impact sun-tanning has had on their skin. UV photos reveal the damage caused by UV exposure that is normally invisible. This experimental study examined how using UV-filtered photography can affect the use of tanning booths by college students (Gibbons, Gerrard, Lane, Mahler, & Kulik, 2005).

The researchers used the Prototype-Willingness Model as the theoretical basis for the study. The premise of this model is that health risk behavior (e.g., tanning) is a reac-

tion to social circumstances. Since one of the primary motivators for sunbathing is appearance enhancement, interventions focusing on the negative appearance consequences should be effective. The researchers found using UV-filtered photography had dramatic effects. Those viewing UV-filtered photos showing the damage to their skin caused by the sun demonstrated a significant reduction in tanning bed usage compared to those viewing non-UV photos (Gibbons et al., 2005).

This rise in the rate of skin cancer is a public health concern, and nurses could have a positive impact on skin cancer rates by educating the public. Nurses work in many settings and encounter people in all age groups. If student nurses receive appearance-based education and change their personal perceptions of acquiring skin cancer, they could have a greater impact on teaching the public about skin cancer. For the purpose of this article, the researcher is focusing on the role of nurses and their potential impact on changes in health care with regard to sun-protective behaviors and skin cancer.

### **Theoretical Underpinnings**

In the 1980s, the goals outlined by the National Cancer Institute's Melanoma Prevention Program included having nurses examine, counsel, and educate patients about the risks of melanoma. The authors addressed the importance of educating patients and their families regarding skin cancer prevention by stressing the use of sun-protective behaviors. These included avoiding the midday sun, wearing protective clothing, using sunscreen, and avoiding indoor tanning salons. Through teaching health maintenance and prevention, nurses offer the public greater control over and responsibility for their own health (Fraser & McGuire, 1984).

Lawler (1990) stressed the importance of the nurse's role in screening and educating patients about skin cancer. She asserted that nurses should query patients about their tanning and sun-protective behaviors during routine encounters,

such as when taking histories. Through this active role in public education, nurses can increase awareness and greatly impact the incidence of skin cancer.

In 1992, Krumm conducted a descriptive study of 254 oncology nurses utilizing the Health Belief Model to assess nurses' risk-reducing and patient-teaching behaviors. The participants in the study held positive beliefs related to cancer risk-reducing behaviors. Those nurses who practiced healthy eating habits were more likely to teach their patients about the relationship between diet and cancer. However, nurses in this study held an optimism bias, in that they did not perceive themselves to be susceptible to skin cancer. They affirmed limited experience in teaching cancer-reducing behaviors, including limiting exposure to the sun. Only 14% of the nurses reported teaching 50% or more of their patients about skin cancer. The teaching that took place was initiated by the patients and was related to diagnosis.

Another study noted the important role of nurses in educating the public with regard to preventing disease and maintaining health. Through the nurses' roles of assessment, advocacy, and education, nurses can have a significant impact in decreasing the epidemic of skin cancer (Marlenga, 1992).

To increase understanding of nurses' cancer prevention knowledge, attitudes, and clinical practice, a study of 101 nurse practitioners was conducted in North Carolina in 1996 (Tessaro, Herman, Shaw, & Giese, 1996). This survey study found that nurse practitioners screened most women patients over 40 for breast and cervical cancer. However, they were less likely to provide other types of cancer prevention screening or education. The nurse practitioners rated their ability to screen patients for cancer as high, yet they rated their ability to educate patients about cancer as low. This study found nurse practitioners lacked adequate educational preparation and skills to teach cancer prevention and screening effectively.

This finding is very pertinent to their educational needs, as an important component of nursing practice is health promotion and disease prevention.

In a study examining nurses and their role as health educators, it was found that more than 60% of nurses taught skin cancer screening but did not examine the patients and nearly 50% did not teach prevention behaviors (Johnson, Murphy, Fine, & Smith, 1997).

A study examining nurses' and other health care students' education and their behaviors and attitudes toward sunbathing was conducted (Treharne-Davies, 1998). The survey of 176 health care professional students found a lack of evidence that nurses viewed their role of teaching the public about sun-protective behaviors to be important. This finding is a concern and reinforces the need to educate the nurses so they can be effective health educators. She conducted this research using the Health Belief Model and found the health care students used optimistic bias to underestimate their personal risk of acquiring skin cancer. Attitudes toward tanning played a key role in the tanning behavior of the students. A conclusion reached by the researcher in this study was that the education of the students did not alter their sunbathing practices. The researcher also concluded that before these students could be effective in educating others about skin cancer and tanning behaviors, their educational preparation needed to be improved. She further stated focusing on the aging effects of the sun may help to personalize the risks of skin cancer and assist in the educational process. This supports the proposed research of using UV-filtered photography as an educational adjunct to personalize the risks of sun exposure.

Other researchers have stated skin cancer rates could improve through education of physicians, nurses, and medical and nursing students (Boiko, 1998). There is a great need for health care practitioners other than dermatologists to be trained in screening for skin cancer

and educating the public regarding prevention. Physicians and nurses should counsel all patients, children, and families on sun-protective behaviors as part of standard practice. It is prudent to have health care professionals take advantage of the teachable moments when in contact with patients. Gynecologists, obstetricians, and nurses working in these specialty areas could be an important source of information to this particular population, as melanoma is the most frequent cancer in women aged 25-29. Health care professionals who care for men could also have an impact, as the melanoma death rate of men increased by 48% from 1973 to 1992. It is especially important to teach men when they seek health care, as they seek health care less often than women. Pediatricians and pediatric nurses could inspect infants' and children's skin for congenital nevi (moles) and educate parents of young children to protect them from the sun. Having nurses screen for skin cancer is important, easy to conduct, and inexpensive. Screening is appropriate, as melanoma and squamous cell skin cancers are potentially fatal. The goal is to have greater involvement by nurses and physicians, improving early detection and offering skin cancer prevention counseling.

Nurses work in many settings in which they can educate parents including emergency rooms, doctor's offices, maternity units, clinics, pediatric units, and schools. Nurses are in a unique position to educate parents of young children, and this can decrease the skin cancer rates of these children later in life (Stone, Parker, Quarterman, & Lee, 1999). After conducting their survey study, the researchers concluded there was a gap between knowledge and preventive behaviors and that future research needs to determine how best to educate parents and health care workers so that a change in behavior can take place.

### **Research Question**

How do pretest results compare to posttest results within the control group and two treatment groups on

knowledge of skin cancer, sun-protective behaviors, perceptions of acquiring skin cancer, role of the nurse, and health promotion in skin cancer prevention?

### **Methodology**

The purpose of this study was to compare first-year student nurses' knowledge of skin cancer, sun-protective behaviors, perceptions of acquiring skin cancer, and the role of the nurse in skin cancer prevention in a pre and post-instructional intervention process. The student nurses were divided into one control group and two treatment groups. This was decided by random assignment; the pre tests of the three groups were analyzed and there were no statistical differences between the three groups. The control group received the pretest and posttest. Instructional group 1 received the skin cancer lecture. Instructional group 2, also referred to as the intervention group, received the skin cancer lecture and the UV-filtered photography treatment. Since nurses can have such an important impact on the health of the public, it was desirable to determine the best teaching methodologies to use when educating student nurses.

### **Selection of Subjects**

The population was a convenience sample of 90 freshman student nurses from a community college on Long Island, New York. The students self-registered for three different sections of a nursing course, health assessment. Each of the three sections was taught by the same professor.

### **Instrumentation**

The survey instrument used a five-point Likert scale and was developed by adapting questions from the following surveys: College Student Suntanning Inventory, adapted from Lamanna (2003); Young (1995); Perception Survey, adapted from Mahler, Kulik, Gibbons, Gerrard, and Harrell (2003); The Cancer Beliefs and Behaviors Questionnaire, adapted from Krumm (1992); and "Rays Your Grade Survey," adapted

**Table 1.**  
**Means and Standard Deviations for Pre-Tests and Posttests by Group and Paired Samples *t* Test**

Group	Pairs*	Variables	Mean Difference	SD	<i>t</i>	df	Sig. 2-Tailed
Control	Pair 1	Perception pre Perception post	1.44	5.25	1.42	26	0.165
	Pair 2	Role pre Role post	0.55	4.32	0.66	26	0.510
	Pair 3	Behavior pre Behavior post	-5.66	10.1	-2.90	26	0.007
	Pair 4	Knowledge pre Knowledge post	-0.29	4.93	-0.31	26	0.758
	Pair 5	Health prom pre Health prom post	-0.14	2.61	-0.29	26	0.771
Lecture	Pair 1	Perception pre Perception post	-1.13	5.33	-1.14	28	0.261
	Pair 2	Role pre Role post	-1.30	3.81	-1.8	29	0.072
	Pair 3	Behavior pre Behavior post	-13.06	9.99	-7.04	28	0.000
	Pair 4	Knowledge pre Knowledge post	-3.10	3.93	-4.25	28	0.000
	Pair 5	Health prom pre Health prom post	-5.00	2.44	-1.12	29	0.272
Intervention	Pair 1	Perception pre Perception post	-3.03	6.06	-2.69	28	0.012
	Pair 2	Role pre Role post	-0.14	6.04	-0.12	27	0.901
	Pair 3	Behavior pre Behavior post	-13.61	10.8	-6.38	25	0.000
	Pair 4	Knowledge pre Knowledge post	-3.32	4.47	-3.93	27	0.001
	Pair 5	Health prom pre Health prom post	0.03	3.47	-0.53	28	0.958

\*A paired samples *t* test compares the means of two variables, so it compares pre and posttests of each variable in each group.

from the AAD (2008) (see Table 1).

The responses for the control group on the scales of perception, role, knowledge, and health promotion did not differ significantly from pretest to posttest. However, responses for the control group based on the behavior scale showed a significant mean difference (-5.66,  $p < 0.001$ ), which is represented by an increase in the mean total score, from 32.88-38.55. The researcher suggests this may be due to testing effect and recognizes the wording in the posttest for the behavior variable was written in the future tense, which could have influenced the student responses (Anastasi, 1982).

The responses for the lecture

group on the scales of perception, role, and health promotion did not differ significantly from pretest to posttest. However, responses for the lecture groups showed a significant *t* value for behavior (-7.04,  $p < 0.001$ ) and knowledge (-4.25,  $p < 0.001$ ). It appears the lecture influenced the responses of the students on two of the variables, behavior and knowledge.

The responses for the instructional group 2, the intervention group, which is the group which received the lecture and photography, the scales of role and health promotion did not differ significantly from pretest to posttest. However, responses for the intervention group

showed a significant *t* value for the following variables: perception (-2.69,  $p < 0.005$ ), behavior (-6.38,  $p < 0.001$ ), and knowledge (-3.93,  $p = 0.001$ ). It appears the intervention influenced the responses of the students on three out of the five variables, perception, behavior, and knowledge.

This change in perception is very necessary to have an alteration in behavior and can have a positive impact on the students' perception of their role of the nurse as well (the importance of their role as educators of the public).

## Conclusions

The use of UV photography and lecture in this study increased the perception of the student nurses and this is supported in previous studies (Mahler et al., 2005; Mahler, Kulik, Gerrard, & Gibbons, 2007). This significant difference in perception, in addition to behavior and knowledge in the intervention group, is important and will assist in reinforcing the importance of educating the public.

## Recommendations

It is recommended nursing faculty teach student nurses about sun-protective behaviors and skin cancer, as skin cancer has increased dramatically in recent years and is a public health concern.

- Nursing faculty should actively engage students in the teaching-learning process with regard to skin cancer, as many people do not follow sun-protective behaviors.
- UV-filtered photography should be used in teaching student nurses about the dangers of tanning and skin cancer to assist in altering their perceptions, knowledge, and behavior.
- Nursing faculty should emphasize to future nurses the importance of teaching the public about skin cancer prevention and performing screenings for cancer, thereby reducing the incidence of skin cancer.
- Nursing faculty, student nurses, and registered nurses should be role models for proper sun-protective behavior.
- Nurses should take the initiative in teaching patients of all age groups and races about sun-protective behaviors, the dangers of tanning, and how to recognize signs and symptoms of skin cancer. ❖

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