International Journal of Studies in Nursing; Vol. 3, No. 2; 2018
ISSN 2424-9653 E-ISSN 2529-7317
Published by July Press

Skin Cancer Risk-Lowering Behaviors and Skincare Habits of Youth Ages 18-25 Years

Elizabeth Rainous[1], Eli J. Herrmann[2] & Samuel P. Abraham[3]

[1] Circle of Caring Birthplace, Goshen Hospital, Goshen, Indiana, USA

[2] Medical 7, Parkview Regional Medical Center, Fort Wayne, Indiana USA

[3] Associate Professor of Nursing, Bethel College, Mishawaka, Indiana, USA

Correspondence: Sam Abraham, RN, MS, DHA, Associate Professor of Nursing, Bethel College School of Nursing, 1001 Bethel Circle, Mishawaka, Indiana, 46545, USA.

Received: January 29, 2018 Accepted: February 13, 2018 Online Published: February 26, 2018

doi:10.20849/ijsn.v3i2.314 URL: https://doi.org/10.20849/ijsn.v3i2.314

Abstract

Young adults are known for feeling invincible and thus engaging in risky behaviors. One such risky behavior is not protecting themselves from the sun, which can cause skin cancer. The purpose of this study was to determine the skin cancer risk-lowering behaviors and skincare habits among youth ages 18 to 25 years. The findings indicated that a high level of knowledge does not equal regular use of risk-lowering behaviors. This study was quantitative, cross-sectional, and non-experimental. The survey, consisting of 20 Likert-type scale statements, was given in a college consisting of about 2000 students of which 120 college undergraduates participated. Orem's self-care theory was used as a guide for the study. Participants tended to agree that the use of sunscreen would help protect them from getting skin cancer (M=2.88, SD=0.57), and that sunlight causes skin cancer (M=2.80, SD=0.70). Despite having an adequate level of knowledge on skin cancer risk factors, individuals did not follow through with correct risk-lowering behaviors. For risk-lowering behaviors, more than half of the participants regularly used sunscreen when exposed to the sun (M=2.50, SD=0.90), and most never used tanning beds (M=1.20, SD=0.60).

Keywords: skin cancer, skin cancer college students, skin cancer knowledge and behaviors, and skin cancer knowledge among young adults

1. Introduction

High rates of tanning before the age of 30 can lead to eight times higher incidence rate of melanoma (Hemrich, Pawlaw, Pomerantz, & Segrist, 2014). Ideally, people practice good skincare habits by their level of knowledge. A gap exists between the level of knowledge and follow-through with skincare habits. The purpose of this study was to determine the skin cancer knowledge and preventative health practices among youth ages 18 to 25 years.

This study contains information about the rising incidence rate of skin cancer and the relation between knowledge of risk-lowering and current sun protective behaviors. The literature review resulted in 10 studies pertaining to skin cancer risk, skin cancer perceptions and knowledge, and current skin cancer risk-lowering behaviors. This study includes information on the self-care theory and its importance.

2. Background

More than two million skin cancer cases are diagnosed each year, and 90% of these are related to ultraviolet exposure (Hemrich et al., 2014). Studies have been completed looking at different races, or genders approach to sun-protective behaviors, the amount of tanning, and level of knowledge regarding skin cancer. Other studies included target populations, such as farmers or collegiate athletes, who may be at increased risk for skin cancer.

3. Purpose

The purpose of this study was to examine the level of skin cancer knowledge and risk-lowering behaviors among college-aged individuals, specifically young adults ages 18 through 25 years, without narrowing the demographic pool to specific subpopulations. This age group is stereotyped to be more prone to risky behaviors; however, not much research exists relating to their level of knowledge, perceptions, or behavior, especially on

how the three areas relate. This study seeks to fill in the gap of research concerning this age group and their level of skin cancer knowledge and risk-lowering behaviors.

4. Research Questions

The research questions for this study are as follows:

RQ1: What is the level of knowledge/perceptions of skin cancer and related skincare habits of youth ages 18-25 years?

RQ2: What is the level of skincare behaviors of youth ages 18-25 years?

5. Literature Review

5.1 Database

The online databases searched to find peer-reviewed journal studies were Cumulative Index to Nursing and Allied Health Literature (CINAHL) and EBSCOhost. These databases were used through the college library website search engine. Phrases used to search for these studies were *skin cancer*, *skin cancer among college students*, *skin cancer knowledge and behaviors*, and *skin cancer knowledge among young adults*. Studies used ranged from the year 2013 to 2015, with a few sources from earlier publications. All journal studies used are peer-reviewed.

5.2 Using Sunscreen

Bertolin et al. (2015) found, most of the population does not practice optimal sun protection behaviors. Using sunscreen regularly decreases one's risk for melanoma, and sunscreen is the most common sun protection behavior. Bertolin et al. found that 86.7% of those who participated in the study had "adequate knowledge," meaning that the participant had answered greater than 80% of the knowledge questions correctly. Despite this level of knowledge, the majority did not practice sun protection behaviors. Few participants were using minor prevention practices, such as wearing a hat or tightly woven clothing. Some were using high sun protection factor (SPF) sunscreens as their method of prevention. It was also found that although patients with high-risk for skin cancer were exposed to more information regarding these prevention practices, usually through education given by their doctor, these same high-risk patients had the poorest preventative behaviors (Bertolin et al., 2015).

Hobbs, Nahar, Ford, Bass, and Brodell (2014) compared the level of knowledge concerning skin cancer risk-lowering behaviors to actual practices in collegiate athletes. This study compared the demographic information with the level of knowledge and level of protective behaviors. Given that the most modifiable risk factor for skin cancer is controlling the amount of exposure to ultraviolet radiation (UVR), effective methods for lowering UVR are as follows: limiting exposure during midday, wearing sunglasses, wearing protective clothing and hats, seeking shade during midday, and wearing sunscreens with SPF 30 or more (Hobbs et al., 2014). Through this study, it was found that most collegiate athletes were not protecting themselves against the sun. However, most collegiate athletes also lacked basic knowledge in this area. Less than 50% knew to reapply sunscreen while in the sun or to apply 15-30 minutes prior to going out in the sun (Hobbs et al., 2014). Many people chose not to wear protective clothing or apply sunscreen when out in the sun. It was also shown that most collegiate athletes did not see a doctor to check potential cancerous moles or spots. Regular screenings of moles or spots can lead to early detection of melanoma. Early detection is key to effective treatment. Many participants did not apply sunscreen when they went outdoors, even though this is possibly the best option for athletes who wear athletic gear and do not have the option of wearing protective clothing (Hobbs et al., 2014).

Looking at the athlete's attitude responses was very telling. Many felt that a tan was more attractive, made one look healthier, or that it was healthy to go tanning. When comparing the data with the demographics, it was found that the participant's age did not influence the sun protective behaviors, knowledge, or attitude. Those with a darker pigmentation knew less about skin cancer risk factors than Caucasians (Hobbs et al., 2014). It was found that race did not influence sun protective behaviors or attitude toward skin cancer. Gender did influence sun protection behaviors, with females scoring higher in the knowledge questions on skin cancer, risk factors, and prevention measures (Hobbs et al., 2014).

Blashill, Williams, Grogan, and Clark-Carter (2015) stated that the greatest cause of skin cancer was UVR. Exposure to UVR either comes from exposure to sunlight, sunbeds, and poor sunscreen use while in the sun or a history of sunburns. It was also found that motives for tanning and against sun protection were usually appearance-related. For both men and women, if the individual had a negative view of their personal appearance, they increased their level of risk for skin cancer-causing behaviors (Blashill et al., 2015).

Day, Oxlad, and Roberts (2013) warned, skin cancer incidence rates continue to raise despite major public health campaigns advocating a reduction in sun exposure and promoting sun-protective behaviors. Young adults, especially young women, spent the most time in the sun and most often attempted to develop a tan. Peoples' belief that tanned skin increases attractiveness led to a decrease in sun-protective behaviors. Sun-protective behaviors were associated with higher education levels and family history of skin cancer (Day et al., 2013).

Hemrich et al. (2014) found that more than 30 million Americans used tanning salons at least once each year. Seventy percent of those who did were women between the ages of 16-49 years. Salon tanners focused on enhancing physical appearance. However, outdoor tanners often focused on recreational pursuits, such as swimming or hiking. More than 2 million cases of skin cancer are diagnosed each year, and 90% of these cases are related to ultraviolet exposure. There is a correlation between use of tanning beds and incidence of malignant melanoma. Hemrich et al. (2014) found that majority of salon tanners were aware of their increased risk for skin cancer, yet they continued this behavior. Many people who had family members diagnosed with a deadly form of skin cancer continued to tan. This was considered a tanning version of substance dependence. Forty percent of Caucasian and Hispanic women in their twenties had used a tanning bed at least three times a day (Hemrich et al., 2014).

A majority of frequent and infrequent tanners of all skin tones desired a skin tone several shades darker than their current skin tone (Hemrich et al., 2014). Sixty-two percent of women between the ages of 18 and 26 endorsed going to a tanning salon at least once a week with an average of two and a half times a week. These high rates of tanning before the age of 30 can lead to eight times higher incidence rate of melanoma. Hemrich et al. (2014) observed knowledge of the harmful effects of tanning did not deter young women from tanning. Interventions for those that regularly tan should focus on building confidence in one's current appearance rather than attempting to scare out of tanning.

Skin cancer is the most common type of cancer (Kelly, Miller, Ahn, & Haley, 2014). Women exposed to ultraviolet radiation before and in their twenties were linked more closely to developing melanoma than exposure after the age of 30. Kelly et al. (2014) found that farmers, African-Americans, and outdoor athletes were groups at higher risk for developing skin cancer related to lack of awareness of preventative skin care. Although the negative effects of sun exposure were prevalent in media, tanning was still considered fashionable in the American culture (Kelly et al., 2014). If people did not realize the risk of developing skin cancer, they were unlikely to seek information regarding preventative behaviors. Most people ignored information about skin cancer until it became relevant to their daily life (Kelly et al., 2014).

Kiviniemi and Ellis (2014) found that men and persons of darker pigmentation were less likely to use sunscreen. However, they found that an increased level of education paralleled an increased use of sunscreen. This is important to know so that nurses can continue to educate, knowing that it does indeed mean a difference in the sun protective behaviors of individuals.

Thirty million Americans continue to use indoor tanning annually despite research finding a link between ultraviolet radiation and skin cancer (Leong & Palos, 2014). Skin cancer incidence rates continue to rise, and it is one of the most common malignancies. Leong and Palos found that tanning bed users are 2.5 times more likely to develop basal and squamous cell carcinoma. Skin cancer is more easily prevented if people understand the risk factors and preventative action. A blockage of light in frequent tanners can produce symptoms similar to opiate withdrawals. This addiction to tanning is referred to as *tanorexia*. The tanning industry is not federally regulated, which increases the risks related to indoor tanning. A longitudinal study of more than 70,000 female nurses over 20 years found an 11%-15% increased risk of skin cancer among those who used indoor tanning (Leong & Palos, 2014).

In another study, Morris, Cooper, Goldenberg, Arndt, and Gibbons (2014) examined motivators that affected intention to use sun-protective behaviors. In this study, it was found that drawing attention to the risk of poor health or even the individuals' mortality was not a primary motivator to change behavior. Reminders of mortality increased intentions to tan and decreased intentions for sun protection, especially when tanning was put in such an attractive light (Morris et al., 2014). However, this proved true only if mortality was the only motivator present. If negative appearance and mortality were presented together as motivators, intentions of sun-protective behaviors increased (Morris et al., 2014).

Kuritzky and Beecker (2015) offered simple, quick education on the topic of sunscreen use to prevent skin cancer. First, most SPF products protect mostly from ultraviolet B rays (UVB); however, skin cancer comes from both ultraviolet A rays (UVA) and UVB rays. Additionally, sunscreens with an SPF of 30 or greater and that is labeled for broad-spectrum offer the best protection against sun damage. Sunscreen should be applied

15-30 minutes before going outside, reapplied within the first hour, as well as after profuse sweating, swimming, and toweling off. It is still recommended to keep reapplying throughout the day, especially within the previously stated guidelines (Kuritzky & Beecker, 2015). More than half of those using sunscreen were not using enough. Nine teaspoons or 45mL or one-shot glass-full of sunscreen is recommended for use over the whole body. Although sunscreen was the focus of this study, it was also noted that both sunscreen and sun protective clothing were safe options for sun protection (Kuritzky & Beecker, 2015).

In summary, although many people have an adequate level of knowledge, most are not practicing optimal sun-protective behaviors. Warnings about poor health or mortality have not proved to work, primarily because people are more influenced by what is considered an attractive appearance. Even if people are not going out in the sun, they are using tanning beds, regardless of their knowledgeable of the risk factors. Many Americans are still participating in activities that increase their risk for skin cancer. Hopefully, through more research, evidence-based practices and education can be put in place to decrease the number of Americans developing skin cancer related to their lack of preventative behaviors.

6. Theoretical Framework

Orem's nursing theory of self-care was used to guide the study. Self-care is behavior aimed at affecting one's own environment or self, with the goal of increasing health, well-being and protection from environmental and self-imposed hazards. Self-care agency is the capability of adults to manage their functioning and perform measures that meet their self-care requisites. Self-care demands are the measures of self-care required by individuals to meet self-care requisites by using specific methods or technologies. Nursing agency is exercised when nurses help others determine their self-care demands and develop their own self-care agency (Orem, Taylor, & Renpenning, 2001).

In this study, the attempt was to analyze if college students age 18-25 have a deficit between their self-care demands and their self-care agency related to lack of knowledge, or lack of applying said knowledge, about skin cancer risk-lowering behaviors. Through using the self-care theory, a survey was designed to measure students' knowledge and behaviors of skin cancer risk and to determine if they have a self-care deficit in relation to skin cancer prevention.

7. Definition of Terms

7.1 Conceptual Definitions

Self-care requisites are an understanding about measures that are required for human functioning and development. These include needs, such as water, food, and living conditions that support life (Orem et al., 2001). *Self-care agency* is a person's ability to meet their own self-care requisites. *Self-care* is the action of people who have developed the ability to take care of themselves in their environment (Orem et al., 2001). The *nursing agency* is when nurses help others meet their self-care demands and develop their self-care agency (Orem et al., 2001).

7.2 Operational Definitions

Perception is defined as the attitude, personal belief, thoughts, or feelings toward skin cancer and related skincare behaviors. *Behavior* in this study is defined as a definite action a person takes to either protect them from the sun or expose them to the sun, whichever the case may be. A *risk-lowering behavior*, sun protective behavior, skincare behavior and preventative behavior is defined as a definite action a person takes to protect themselves against the sun either through the use of sunscreen, wearing protective clothing, or avoiding sun exposure during midday. *Protective clothing* in this study is defined as a wide-brimmed hat, long sleeve shirt, or long pants, made of a tightly woven material to not let sun pass through. *Knowledge* is defined in this study as what the individual knows to be true regarding facts from the medical community concerning skin cancer, what increases one's risk for skin cancer, and the aspects of tanning. *Adults ages 18 to 25 years* and young adults are defined as persons whose chronological age is 18 years old through 25 years old. *Midday* is the time of day between 10 am and 4 pm; this is also the time of day with the highest risk of exposure to UVA and UVB rays. *UVA rays* are ultraviolet-A rays from the sun that can lead to greater risk of skin cancer. *UVB rays* are ultraviolet-B rays from the sun that can lead to greater risk of skin cancer (Kuritzky & Beecker, 2015).

8. Methodology

8.1 Design

The research method used was quantitative, descriptive, non-experimental, with a cross-sectional sampling. Using this method allowed for a wide variety of participants from different demographics to be surveyed. The

survey comprised of demographics and closed-ended items. This survey instrument was administered to participants in the same context and setting, with the same instructions, for all participants. This method allowed comparing the participant's answers of their knowledge directly to their answers of behaviors, as well as places a value on the trend. The researchers were certified by the National Institute of Health.

8.2 Setting

Surveys were distributed at the entrance to the cafeteria as well as in the lobby at the snack shop. The surveys were given during lunchtime at these locations. The researchers had permission from the food services managers for distribution of the survey. Participants were encouraged to finish the survey in its entirety.

8.3 Sample

The sample size was 120 college undergraduate students who were ages 18 to 25 years. It included both male and female subjects. Incomplete surveys were not taken into account. The surveys did not contain the participant's name. The signed informed consents were kept separate from the completed surveys.

8.4 Statistical Analysis

After all surveys were collected, the data was analyzed. The frequency and percentage were calculated for each demographic item. Each of the knowledge, perception, and behavior items were analyzed by calculating the mean and standard deviation. Items with the highest mean have been described in detail.

8.5 Survey Instrument

Face-validity was obtained through two peer reviews and reviews by two college nursing faculty. This survey was new and has not been used before. The statements within the survey are closed-ended.

The survey statements within the knowledge/perceptions section use a Likert-type scale, with only four options for response. The responses consisted of strongly disagree (negative response, a value of 1), disagree (negative response, a value of 2), agree (positive response, a value of 3), and strongly agree (positive response, a value of 4). The first 14 statements of this section were to gauge the participant's perceptions and knowledge level and address the first research question of this study.

The statements of the behavior section were used to address the second research question of this study. The responses listed in the behavior section were never (a negative response, a value of 1), rarely (a negative response, a value of 2), usually (a positive response, a value of 3), and every time (a positive response, a value of 4). The first five statements of the behavior section are to gauge the participants' level of sun-protective behaviors. Ideally, the participant would be practicing all of these. The sixth behavior statement is concerning a negative behavior or behavior that ideally the participant would not be practicing.

9. Informed Consent and Confidentiality

Approval from the Institutional Review Board (IRB) was obtained before surveying participants. Each participant was given an informed consent describing the purpose of the research and how the surveys will not be used for any other purpose. Information of the researchers was included for the participants to contact if they had any questions. The consent was signed by the participants prior to completing the survey and given back to the researchers. All collected data were submitted to the School of Nursing to be stored electronically for three years, and then destroyed.

10. Results

Overall, participants have somewhat adequate knowledge/perceptions regarding skin cancer risk factors. This can be seen in Table 2, where the mean of 10 of the statements trended in the correct direction, with items 6 and 7 trending in the middle with a M=2.5, SD=0.6 and SD=0.8 (respectively) and items 5 and 11 trending opposite of the desired direction. However, the majority did not practice correct skin cancer risk-lowering behaviors, despite having correct knowledge on the subject (see Table 3).

10.1 Demographic Characteristics

A total of 130 surveys were collected, with 10 being discarded for incompleteness. This makes the total number of surveys used for data collection and analysis 120 (see Table 1). Of the surveys collected, there were 78 females and 42 males. One hundred and eight participants were between ages 18-21, with 96 participants claiming to be white in ethnicity. There is an almost even distribution between freshman, sophomores, and juniors, with only 19 seniors participating in the study. Of the participants, 96 had never seen a medical professional in the past to check for cancerous spots on their skin.

Table 1. Demographics

Variables	f	%
Gender:		
Male	42	35
Female	78	65
Age:		
18-19	47	39.2
20-21	61	50.8
22-23	11	9.1
24-25	1	0.8
Ethnicity:		
White	96	80.0
Hispanic	10	8.3
Black/African-American	6	5.0
Asian	4	3.3
Other	4	3.3
Year in School:		
First/Freshman	37	30.8
Second/Sophomore	31	25.8
Third/Junior	33	27.5
Fourth/Senior	19	15.8
Seen a medical professional for cancerous spots		
Yes	24	20.0
No	96	80.0

Note. N=120

10.2 Research Question 1

In the survey, there were 14 items concerning knowledge and perceptions. For variables 5, 6, 8-10, and 12-14, the mean should trend toward 1 if the participants have correct knowledge/perceptions regarding skin cancer risk factors. For variables 1-4, 7, and 11, the means should trend toward 4 if the participants have correct knowledge/perceptions regarding skin cancer risk factors. In Table 2, participants tended to agree that the use of sunscreen would help protect them from getting skin cancer (M=2.88, SD=0.57), sunlight causes skin cancer (M=2.80, SD=0.70), the recommended time to apply sunscreen before going outdoors is 15-30 minutes (M=2.78, SD=0.48), and it is correct to reapply sunscreen every hour when outside in the sun (M=2.77, SD=0.64). This means the participants have fairly correct knowledge/perceptions, which was not a surprise. Participants also tended to agree that high-SPF sunscreens allowed for longer sun exposure (M=2.60, SD=0.60), which is an incorrect knowledge/perception.

Table 2. Knowledge/Perceptions of skin cancer

Variable	Mean	SD
The use of sunscreen will help protect me from getting skin cancer	2.88	0.57
I believe that excess sunlight causes skin cancer	2.80	0.70
The recommended amount of time to apply sunscreen before going outdoors is 15-30 minutes	2.78	0.48
I should reapply sunscreen every hour when outside in the sun	2.77	0.64
High-SPF sunscreens allow longer sun exposure	2.60	0.60
Applying high-sun protective factor (SPF) sunscreens is enough to prevent my skin from damage during summer sun exposure at midday	2.50	0.60
I need sunscreen on cloudy days	2.50	0.80
When using sunscreen, I can tan without any negative effects	2.40	0.70
Sun tanned people look healthier	2.30	0.60
There is too much worry about skin damage related to sun exposure	2.20	0.60
A tan is a sign that one's skin is damaged	2.10	0.54
A good tan is worth the increased risk of skin cancer	1.90	0.80
Only fair-skinned people need to be worried about sun exposure	1.77	0.60
Tanning beds improve one's overall health	1.50	0.60

Note. N = 120. On a 4-point Likert-type agreement scale, the responses consists of strongly disagree (negative response, a value of 1), disagree (negative response, a value of 2), agree (positive response, a value of 3), and strongly agree (positive response, a value of 4).

10.3 Research Question 2

There were six statements regarding participants' skin cancer risk-lowering behaviors. For variables 1-5, the means should trend toward 4, meaning that the participant is regularly practicing skin cancer risk-lowering behaviors. For variable 6, the mean should trend toward 1, meaning that the participant does not practice a skin cancer-causing activity. Per the survey data, many participants did not regularly practice correct skin cancer risk-lowering behaviors, as can be seen through variables 1-5 in Table 3. Variable 6 (M=1.20, SD=0.60), however, shows that participants are overall not adhering to the skin cancer-causing activity of using tanning beds.

Table 3. Skin cancer risk-lowering behaviors

Variable	Mean	SD
I regularly use sunscreens when exposed to the sun	2.50	0.90
I regularly use a sunscreen with a SPF of 30 or higher	2.40	1.00
I reapply sunscreen after being in the water	2.20	0.90
I try to avoid the sun between the hours of 10 a.m. to 4 p.m.	1.60	0.60
I attempt to cover up with tightly woven clothes and hats to avoid the sun	1.60	0.70
I use tanning beds	1.20	0.60

Note. N=120. On a 4-point Likert-type frequency scale, the responses are never (a negative response, a value of 1), rarely (a negative response, a value of 2), usually (a positive response, a value of 3), and every time (a positive response, a value of 4).

11. Discussion

11.1 Research Question 1

From this survey, it can be gathered that most people of this age group have correct knowledge/ perceptions of skin cancer risk factors (Figure 1). All but four of the knowledge/perception items trended toward the desired direction, whether that be toward 4 (which agrees with the statement) or toward 1 (which disagrees with the statement). This means that there is not a lack of knowledge regarding skin cancer risk factors, which one would think should translate into correct behaviors.

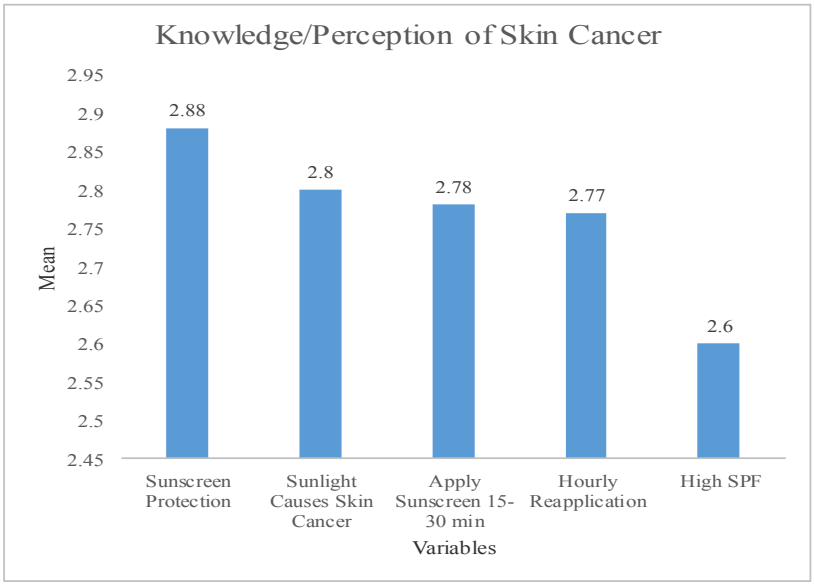

Figure 1.Young adults knowledge/perceptions of skin cancer

11.2 Research Question 2

Although most participants showed that they had correct knowledge/perceptions about skin cancer risk factors, there is a gap between the level of knowledge and the risk-lowering behaviors of participants. Most participants

showed that they do not regularly practice correct risk-lowering behaviors, as seen in variables 1 through 5 in Figure 2. These variables should be trending toward a mean of 4; however, each has a mean at or below the median value of 2.5. In contrast, variable 6 should trend toward a mean of 1. With a mean of 1.2, this variable indicates one behavior that participants are correctly practicing.

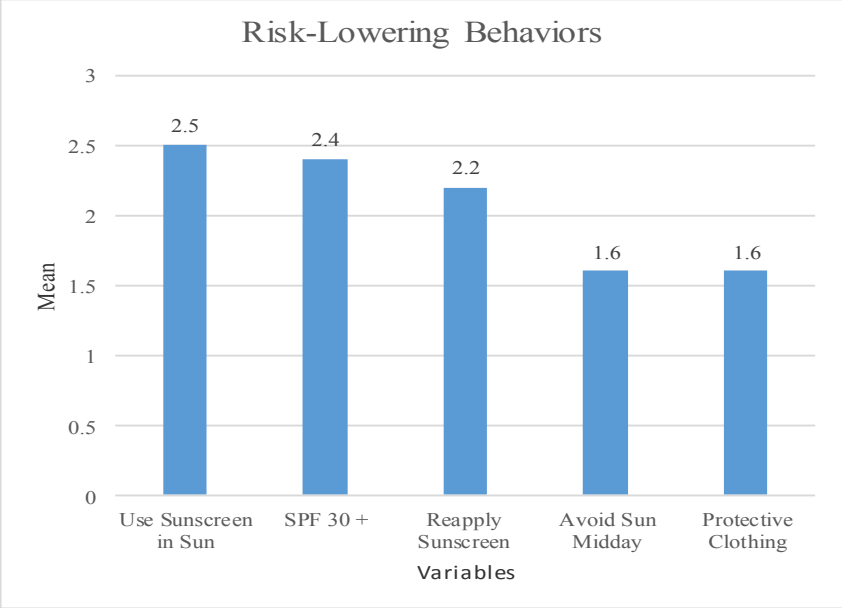

Figure 2. Skin cancer risk-lowering behaviors

12. Discussion

The results from this study are congruent with the findings in previous research studies. Looking at variable 1 and 6 of risk-lowering behaviors, more than half of the participants regularly use sunscreen when exposed to the sun (M=2.50, SD=0.90), and most never use tanning beds (M=1.20, SD=0.60). However, all other risk-lowering behaviors were not used regularly, including reapplying sunscreen or using a high enough SPF, which parallels Kuritzky and Beecker's (2015) finding that more than half of those who use sunscreen do not use enough. Just as Bertolin et al. (2015) found, most participants in this study have an adequate level of knowledge but do not practice sun-protective behaviors.

In the current study, 71% of participants answered the knowledge/perception items correctly. This is similar to statistics found in the literature. However, 67% of participants do not regularly practice correct risk-lowering behaviors. As predicted, there is a weak association between the level of knowledge of skin cancer risk factors and correct risk-lowering behaviors.

13. Limitations

One limitation of this study is only surveying a single college students limits the diversity of answers; for instance, 80% of the participants were white, and 65% of participants were female. This study was also conducted in a place of higher education, which may or may not affect the individuals' level of knowledge concerning their own health. It was also a small sample size of 120 students, which gives a less accurate representation. Another limitation of this study is that the researchers used a new survey tool without testing for validity or reliability. Additionally, the participants interpreted their own definition of "never," "rarely," "usually," and "always," which could have resulted in an inaccurate representation of true behaviors.

14. Implications

The findings from this survey have given an indicator as to whether person's age 18 to 25 years are practicing sun-protective behaviors. By comparing the level of knowledge and level of preventative behaviors, there is a deficit in the level of knowledge and a lack of follow-through of current knowledge. With this information, there is a greater need for education on what needs to occur to protect oneself from skin cancer. There also needs to be education on the importance of following through on protecting one's skin from the sun.

15. Conclusion

After a review of the literature, it was determined that although much information concerning specific subpopulations risk for skin cancer exists, there was a gap in the literature regarding the young adult age group. It was found that despite having an adequate level of knowledge on skin cancer risk factors, individuals do not follow through with correct risk-lowering behaviors. A gap continues to exist between one's level of knowledge of skin cancer risk factors and the regular use of risk-lowering behaviors. This study contributes to the existing body of knowledge concerning this age group. Through this study, the community, family members, healthcare professionals and educators can better visualize the needs of this group and give pertinent education regarding safe sun-protective behaviors and the consequences of disregarding such self-care behaviors as detailed in Orem's theory.

Acknowledgment

The authors wish to acknowledge Dr. Deborah Gillum, Dean of Nursing, Bethel College, Indiana, for offering valuable comments during the early stages of the study. We also like to thank Bethel College administrators for giving us the opportunity to conduct this study.

References

Bertolin, M., Cercatto, M.C., Requena, C., Serra-Guillen, C., Llombart, B., Sanmartin, O., ... Nagore, E. (2015). Awareness, attitude, and adherence to preventive measures in patients at high risk of melanoma. A cross-sectional study on 185 patients. *Journal of Cancer Education*, *30*(3), 552-566. https://doi.org/10.1007/s13187-014-0766-z

Blashill, A.J., Williams, A., Grogan, S., & Clark-Carter, D. (2015). Negative appearance evaluation is associated with skin cancer risk behaviors among American men and women. *Health Psychology*, *34*(1), 93-96. https://doi.org/10.1037/hea0000100

Day, A.K., Oxlad, M., & Roberts, R.M. (2013). Predictors of sun-related behaviors among young women: Comparisons between outdoor tanners, fake tanners, and tan avoiders. *Journal of American College Health*, *61*(6), 315-322. https://doi.org/10.1080/07448481.2013.806926

Hemrich, A., Pawlaw, L., Pomerantz, H., & Segrist, D. (2014). Current versus ideal skin tones and tanning behaviors in Caucasian college women. *Journal of American College Health*, *62*(8), 588-591. https://doi.org/10.1080/07448481.2014.936440

Hobbs, C., Nahar, V.K., Ford, M.A., Bass, M.A., & Brodell, R.T. (2014). Skin cancer knowledge, attitudes, and behaviors in collegiate athletes. *Journal of Skin Cancer*, *2014*(2014), 7. https://doi.org/10.1155/2014/248198

Kelly, S., Miller, L.E., Ahn, H.Y., & Haley, J.E. (2014). Perceptions and portrayals of skin cancer among cultural subgroups. *ISRN Dermatology*. http://doi.org/10.1155/2014/325281

Kiviniemi, M., & Ellis, E. (2014). Worry about skin cancer mediates the relation of perceived cancer risk and sunscreen use. *Journal of Behavioral Medicine*, *37*(6), 1069-1074. https://doi.org/10.1007/s10865-013-9538-1

Kuritzky, L.A., & Beecker, J. (2015). Sunscreens. *CMAJ: Canadian Medical Association Journal*, *187*(13), 419. https://doi.org/10.1503/cmaj.150258

Leong, C.M., & Palos, G.R. (2014). Oncology nurses and indoor tanning: Stylish or risky behavior?. *Clinical Journal of Oncology Nursing*, *18*(3), 363-365. https://doi.org/10.1188/14.CJON.363-365

Morris, K.L., Cooper, D.P., Goldenberg, J.L., Arndt, J., & Gibbons, F.X. (2014). Improving the efficacy of appearance-based sun exposure interventions with the terror management health model. *Psychology & Health*, *29*(11), 1245-1264. https://doi.org/10.1080/08870446.2014.922184

Orem, D.E., Taylor, S.G., & Renpenning, K.M. (2001). *Nursing: Concepts of practice*. St. Louis, MO: Mosby.