

Sun-Safety Education in Female Adolescents: Exploring Relationships between Education and  
Future Sun-Safe Practices

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### Abstract

Skin cancer is the most common occurring form of cancer in the United States; 1 in 5 develop skin cancer by the age of 70 (Centers for Disease Control, [CDC] 2017). The American Cancer Society (2017) states exposure to ultraviolet (UV) radiation from sunlight and tanning bed lamps increase the risk of skin cancer development. UV exposure is a modifiable lifestyle behavior; the problem is the need for health curriculum aimed at skin cancer prevention behaviors and sun-safe guidelines for the school-aged child. The quasi-experimental pre and post-test design explored how a nurse-led *SunWise* safety presentation effected adolescence girls age 16-17 on sun-safe behaviors. Developed by the Environmental Protection Agency (2016), the *SunWise* program included avoidance of sunburns and tanning beds, wearing sun protective clothing, and checking the UV outdoor index for increased risk of harm to minimize UV exposure. Pender's health promotion model conceptually aligned the study, focusing on the adolescent's future ability to apply sun-safety to personal behavior changes. The two-tailed *t*-test analysis ( $n = 8$ ) calculated a statistically significant *t*-score at the alpha level of  $.05 = 6.148$ . Study recommendations include expanding the sun-safe education to reach children much younger within school health curriculums. Future research recommendations include longitudinal studies on the effectiveness of sun-safe educational practices on the development of skin cancer over a patient's life-time.

*Keywords:* adolescent sun-safety, skin cancer, ultraviolet (UV) exposure

## Sun Safety Education in Female Adolescents: Exploring Relationships between Education and Future Sun Safe Practices

Skin cancer is becoming an increasingly common occurrence in society today. According to the Centers for Disease Control and Prevention [CDC], (2017), skin cancer is the most common form of cancer in the United States. There are different types of skin cancer, and certain skin cancers have the potential to metastasize becoming very difficult to treat, and unfortunately often times proving fatal (CDC, 2017). Ultraviolet (UV) exposure is a modifiable lifestyle choice, and when practiced on a daily basis can lead to healthy living and longevity. Currently, there is no required school health curriculum aimed at skin cancer prevention in the school-aged child. Sun-safe guidelines that play an important role in achieving the national Healthy People 2020 Objectives can be utilized in childcare facilities and other organizations that provide opportunities for learning (Office of Disease Prevention and Health Promotion, 2018). Promoting and actively engaging in sun-safe practices at a young age can help to decrease the risk of developing a skin cancer over a person's lifetime through limiting exposure to harmful UV rays. Health care providers, including nurses and nurse practitioners, are in a unique position to promote healthy, sun-safe practices, and must take every opportunity to educate patients on healthy sun exposure and skin cancer prevention.

### **Background**

The American Cancer Society [ACS] (2017) states exposure to UV radiation from sunlight and tanning bed lamps are major risk factors for the development of most skin cancers. UV rays damage the DNA of genes that control skin cell growth, resulting in the development of abnormal skin cells and skin cancer (ACS, 2017). The ACS identifies three main types of skin cancer including basal cell carcinoma, squamous cell carcinoma, and melanoma. In addition to

causing sunburn, the CDC (2017) states too much UV exposure can cause skin texture changes and premature aging, including dark spots and wrinkles, precancerous lesions, and eye conditions such as cataracts.

According to the ACS (2017), basal and squamous cell carcinomas are the most common types of skin cancer; mainly found on sun-exposed areas of the body such as the head and neck. Basal and squamous cell carcinomas have the potential to continue to increase in size, invading other body organs and tissues; which, in turn increases the risk for deformity, scarring, loss of function, and death (ACS, 2017). Melanoma, while not as common, can be much more dangerous as it has the potential for metastasizing, or spreading, to other areas of the body where treatment can be very challenging, complex, and fatal (ACS, 2017).

### **Significance of the Problem**

The ACS (2017) estimates there will be 91,270 new cases of melanoma diagnosed in 2018. Of those new cases approximately 55,150 are men and approximately 36,120 are women, and nearly 9,320 people will die of melanoma (ACS, 2017). In the U.S. today, incidence of melanoma is on the rise as ozone layer depletion decreases our natural defense from the sun's harmful UV rays, compounding the need for sun-safe precautions to reduce the chance of sun-related health problems and cancer (United States Environmental Protection Agency [EPA], 2017). Adolescent UV exposure is generally higher due to a greater time spent outdoors during school supervised sports and activities, and for recreation. Cancer Research UK (2017) suggests a sunburn just once every two years can more than triple a person's risk for developing melanoma skin cancer in their lifetime.

According to the Office of Disease Prevention and Health Promotion (2018) and the Healthy People 2020 Objectives, the U.S. Preventative Services Task Force (USPSTF)

recommends counseling children, adolescents, and parents about minimizing UV exposure in children age 6 months to 24 years to reduce skin cancer risk. The Institute of Medicine [IOM] (2011) states APRNs practice across the patient care continuum, from health promotion and prevention to early diagnosis of disease to prevent and limit patient disability. The IOM's position regarding responsibility to patient safety and high-quality care aligns with the inclusion of safe sun promotion and skin cancer prevention and premature aging in the care of adolescents.

A call to action to improve sun protective behaviors, reduce exposure, and decrease skin cancer risk in adolescents and youth today is of utmost importance. Quality and Safety Education for Nurses [QSEN] (2018) states patients and guardians must be engaged as an active participant in the promotion of the patient's own health, safety, and well-being well being (QSEN Institute, 2018). Additionally, Henrikson et al. (2018) reports clinicians can play a unique role in reducing UV exposure through individualized, patient-centered counseling. Early interventions and education during adolescence on sun-safety and low UV exposure has far reaching implications for the future health and wellbeing of our children, as well as the future of healthcare as a whole.

### **Research Purpose**

Evidence supports skin cancer as a major concern in our society today. Skin cancers are caused by overexposure to UV light, which can be a modifiable practice in a person's everyday life. UV rays are a kind of invisible radiation that comes from exposure to the sun and sunlamps in tanning beds; penetrating a person's skin causing cellular changes and damage (CDC, 2018). A person is able to minimize their risk of developing skin cancer in their lifetime through sun protection and safe sun practices, especially those implemented in childhood.

The purpose of this study determined the effectiveness of implementing a nurse-led sun-safety informational presentation to adolescents in the clinic setting, and if this would affect the person personal sun-safe behaviors in the future. The formatted population, intervention, comparison, outcome and time, otherwise known as the PICOT question, for the research study was: (P) In adolescents age 16-17, (I) what is the effect a (I) nurse-led sun-safety informational presentation (C) in comparison to prior sun exposure attitudes and behaviors (O) on identifying future personal sun-safe behaviors (T) the conclusion of the presentation?

### **Review of Literature**

EBSCOhost database and CINAHL Complete searches located literature for this study. The search terms were “skin cancer,” “ultraviolet exposure,” “adolescent sun exposure,” and “skin cancer prevention.” For the databases, the search limitations included only those articles published in the English language between 2013 and 2018, from scholarly peer-reviewed journals available in full text online with references available.

A complete copy of appropriate articles was obtained and read. Additionally, research included validating the significance of the information with both local and national resources (Healthy People 2020, the Institute of Medicine, QSEN Institute, American Cancer Society, Centers for Disease Control and Prevention, and the United States Department of Health and Human Services). Primary reasons for excluding articles included a lack of evidence-based research, lack of essential details, and research methodology issues.

### **Healthy People 2020 Objectives**

According to the Office of Disease Prevention and Health Promotion (2018), the U.S. Preventative Services Task Force (USPSTF) recommends counseling children, adolescents, young adults, and parents about minimizing UV exposure in children age 6 months to 24 years to

reduce skin cancer risk. The USPSTF grades this as a recommended service due to the fact that substantial evidence demonstrates a strong connection between UV radiation and skin cancer resulting from exposure in childhood and adolescence (Office of Disease Prevention and Health Promotion, 2018). This specifically relates to the research study in support for sun-safe promotion and education in adolescents to prevent disease.

**Institute of Medicine [IOM] Report, *The Future of Nursing: Leading Change, Advancing Health***

Advance practice nurse practitioner's (APRNs) skillset is derived from their past nursing education and experience. IOM (2011) recommends APRNs practice across the patient care continuum, from health promotion and prevention to early diagnosis of disease to prevent and limit patient disability. The IOM's position regarding responsibility to patient safety and quality care aligns with the inclusion of safe sun promotion and skin cancer prevention and premature aging in the care of adolescents.

**Quality and Safety Education for Nurses [QSEN]**

The QSEN Institute (2018) suggests the overall goal for the QSEN project is to help prepare future nurses to develop the knowledge, skills, and attitudes to continuously promote and provide safe and quality patient care. One competency related to patient-centered care includes engaging the patient or guardian as an active participant in the promotion of the patient's own health, safety, and well being (QSEN Institute, 2018). Including the patient and their family in a partnership for health promotion promotes sun-safety at a young age, thus reducing the risk for skin cancer, and premature aging in the future.

**Intervention**

One program showing great success is the SunWise Program through the United States Environmental Protection Agency (EPA). This program teaches children age 5-15 and their guardians about sun safety and protection against excessive UV exposure in the hopes of establishing a lifetime of healthy habits, through preventative teaching on the proper use of sunscreen, avoidance of sunburns and tanning beds, wearing protective clothing, and checking the UV index developed by the EPA when outdoors to minimize UV exposure (United States Environmental Protection Agency, 2016). Successes shown by this educational program include the prevention of more than 11,000 cases of skin cancer and 50 premature deaths from its beginning in 2010 to 2015 (United States Environmental Protection Agency, 2016). This program is present in more than 34,000 schools in the U.S. and over 7,000 other areas including camps, scouts, 4-H clubs, museums, and local and state health departments (United States Environmental Protection Agency, 2016). The SunWise Program provides an opportunity for medical professionals to understand elements included in the content of the program that have proven successful or unsuccessful, and the ability to model similar approaches to sun safety education for children in the healthcare setting.

### **Ethical and Legal**

The subjects of this study are minors; therefore, they are considered a vulnerable population that must be protected against risks. Approval was gained from the Clarkson College Institutional Review Board (IRB) prior to implementation. Parental/Guardian consent was obtained prior to the subject entering the study, and the project purpose, risks/benefits, voluntary participation and ability to withdraw, and confidentiality were explained to the subject and parent. Contact information was provided to subjects and the parent was encouraged to contact the researcher with any questions or concerns. Participation in the study was completely



voluntary. There was no personal information collected. The results of pre and post-tests were kept confidential and anonymous. The director of the Y-Group was not privileged to information of who did or did not participate in the study or how each individual person scored on the pre and post-tests. The paper pre and post-tests were kept in a locked file cabinet. Results from the study were kept on a personal password protected computer where only the researcher had access. Following completion of the study, all data was deleted from the computer and paper documents were shredded.

### **Gaps in Knowledge**

Research has demonstrated great strides in providing new evidence in ways to reduce the risk of skin cancer. However, the U.S. Department of Health and Human Services (DHHS, 2014) states additional research and observation into skin cancer prevention efforts is needed to maximize success in reducing rates of skin cancer incidence in the United States. Additionally, social research is needed to understand ongoing rates of tanning bed usage and sunburns despite improvements in sun protection and evidence showing sunlamps to be cancer-causing agents (DHHS, 2014). Understanding how to successfully promote changes toward sun-safe attitudes and behaviors in adolescents can decrease the risk of skin cancer later in life. Henrikson et al. (2018) concluded behavioral interventions can increase sun-protective behavior; however, evidence is inconsistent in showing how the interventions affect skin cancer outcomes.

A study by Williams Merten, Higgins, Rowan, and Pragle (2014) discussed adolescent attitudes, knowledge, and behaviors related to sun exposure; which shows 63% of those interviewed did not know peak hours of strongest UV exposure, nearly half planned on spending over 3 hours in the sun, females were 5 times more likely to be using tan enhancers and 2 times more likely to be wearing sunscreen with SPF of less than 15, 80% reported they believed a

suntan looked healthy, and 67% believed they were at risk of developing a skin cancer in their life. Additionally, appearance motivations rated higher than sun-safe behaviors and skin cancer concerns (Williams Merten et al., 2014). Further education on sun-safety and interventions are needed in this population, as well as social research and strategies to decrease UV exposure.

### **Consequences of the Problem**

The DHHS (2014) recognizes skin cancer greatly affects a person's quality of life, cause disability, or result in death. Failure to address and support sun-safety and prevention can be detrimental to our youth today and the future of our nation. Loss of wages due to time off work for cancer treatment, and potential for disability or loss of employment must also be considered, in addition to monetary responsibility incurred for cancer treatments. Consequences are compounded with rising healthcare costs, which can be considerable to the individual, family, and the United States as a whole (DHHS, 2014). The cost of treating skin cancer in the United States annually is approximately \$8.1 billion (Guy, Machlin, Ekwueme, & Yabroff, 2014).

Adolescents today receive much of their information from mass media, including social media, television, and the Internet. In 2006, the International Agency for Research on Cancer (IARC) and World Health Organization (WHO) released a key public health report linking indoor tanning bed use and skin cancer. A study by McWhirter and Hoffman-Goetz (2015) concluded despite a modest increase in coverage of skin cancer and tanning in the media post-International Agency on Research for Cancer (IARC) report, key messages were not fully embraced and there is a need for more effective public health messages regarding skin cancer and tanning. Social media today plays an important part in shaping attitudes on sun-safe practices and adolescents today would benefit greatly from its advocacy, both locally and nationally.

### **Proposed Solutions**

One program showing remarkable success is the *SunWise* program through the EPA. This program teaches children age 5-15 and their guardians about sun-safety and protection against excessive UV exposure. The *SunWise* program includes preventative teaching on the proper use of sunscreen, avoidance of sunburns and tanning beds, wearing protective clothing, and checking the UV index for indications of increased risk of harm when outdoors to minimize UV exposure (EPA, 2016). Successes shown by this educational program include the prevention of more than 11,000 cases of skin cancer and 50 premature deaths from its beginning in 2010 to 2015 (EPA, 2016). This program is present in more than 34,000 schools in the United States and over 7,000 other areas including camps, scouts, 4-H clubs, museums, and local and state health departments in the United States (EPA, 2016). The *SunWise* program provides an opportunity for medical professionals to understand elements included in the content of the program that have proven successful or unsuccessful, and the ability to model similar approaches to sun-safety education for children in the healthcare setting.

### **Theoretical Framework**

Nola Pender's (1982) health promotion model (HPM) was developed to help assist nurses in understanding the effects of health behaviors in patients to promote healthy living. The first version of the HPM was released in 1982 and was subsequently revised in 1996 based on evidence-based findings and changing theoretical perspectives. Key concepts of Pender's (1982) HPM include a reciprocal relationship between a person and their environment; a person is shaped by their environment while simultaneously creating their environment allowing their potential to be fully expressed. According to Pender (1982), health is a positive and ever-changing state and should be addressed in preventative terms, rather than intervening after the

development of illness. Additionally, health is influenced by goal-directed behaviors, competent self-care, and positive relationships with others (Pender, 1982). Motivation can affect whether or not a person will adopt behavior-specific life changes with regard to health promotion. Effective collaboration utilizing the HPM can emphasize positive motivational methods to achieve a healthy lifestyle and prevent disease.

The HPM applies directly to promoting sun-safety and disease prevention in the adolescent population. Understanding and teaching the effects of over-exposure to UV rays in childhood, while promoting sun-safe practices can help decrease the risk of developing cancer and disease later in life. Specifically, the HPM encourages providers to identify and address variables that are predictive of certain health behaviors- such as sun-safe practices in adolescents, their motivation, and follow-through for promoting healthy sun behaviors.

### **Conclusion of Literature Review**

When addressing skin cancer and sun-safety in adolescents, the literature review began by identifying the definition of skin cancer and prevalence in the United States, along with gaps in knowledge (Henrikson et al., 2018; U. S. Department of Health and Human Services, 2014; Williams Merten et al., 2014). Next, relational studies and statistics addressing the consequences of overexposure to UV rays and skin cancer were presented (DHHS, 2014; Guy et al., 2014; McWhirter & Hoffman-Goetz, 2015). The researcher also wanted to explore any proposed solutions to the research question, in adolescents what is the effect of receiving a nurse-led sun-safety informational presentation on future personal sun-safe behaviors, compared to prior sun exposure attitudes and behaviors. The researcher concluded the literature review with a summary of the theoretical framework of Nola Pender's (1982) HPM, discussing its alignment with the current research proposal and providing a context for guiding the study (Pender, 1982).

### **Methodology**

The research study provided an evidence-based approach to educating adolescents about sun-safety and implications on future sun-safety practices. The study aimed to study whether a brief, sun-safe educational intervention would positively impact adolescent's knowledge, attitudes, and future intentions to practice sun-safe behaviors. The study was based on a pre-test/post-test design after a formal sun-safety educational intervention.

The study design was quasi-experimental, with a basic pretest-posttest design. This design supports the research question because the researcher was an active agent influencing the subject by giving a sun-safety informational presentation, not being a passive observer (Polit & Beck, 2017). The pretest-posttest design allowed for the researcher's ability to assess the effectiveness of the sun-safety informational presentation on future sun-safe behaviors and attitudes. Past studies incorporated similar concepts in their research design, including Geller, Rutsch, Kenausis, & Zhang (2003), in which a pretest-posttest design was also utilized.

The study began after approval by the Clarkson College Institutional Review Board (IRB), and written approval from the contact person for the Y Disciple Youth Group (see appendix A) was obtained. Female adolescents who are participants of the Y Disciple youth group voluntarily participated, with written parental consent and adolescent consent, prior to the research study. Potential subjects were sent a letter of invitation and were notified of the study in person by the researcher at the meeting one month prior to the actual presentation (Appendix B). The Parental and Adolescent Consent forms, and the Clarkson College Rights of Research Participants document along with envelopes addressed to be returned to the Y Disciple Director were distributed. The Y Disciple Director provided the returned Consent envelopes to the researcher to document each parent/Adolescent approvals, and disapprovals on the tracking tool. The non-returned or non-signed Parental and Adolescent Consent forms for the Y Disciple

members designated the members ineligible for the study. However, these members were still invited to be present for the presentation. The researcher's documentation of hard copy Parental Consent Forms and Adolescent Consent Forms as well as no responses ensured that the pre and post-surveys were not distributed to those who are not participating in the study.

On the scheduled date of the presentation, the researcher explained the study at the Y Disciple monthly meeting. The researcher explained the approximate time commitment for the participant to attend the researcher-led presentation, and the completion of the questionnaires, approximately a total of 45 – 60 minutes. The researcher explained the study was voluntary, and consent occurred with the completion of the consent forms. The researcher allowed for the opportunity for participants to ask questions about the study at this time. The Y-Disciple members were informed they may leave at any time before, during, or after the researcher-led presentation.

The researcher distributed the pre-test. The purpose of the pre-test was to identify the participant's prior knowledge on sun-safety behaviors, and skin cancer. Before the adolescent began the pre-test, the Researcher read the instructions to the Y Disciple members and answered any questions about completing the pre-test. Assent was discussed and the members were informed that because their parent gave approval, and they signed an Adolescent Consent form, they could still choose not to participate in the study at any time by not completing the survey questionnaire. The researcher called out names of consented participants to ensure only those complete the survey. The Y Disciple director and researcher will stay in the room; however, the director will not receive the results.

The subjects were asked to label the pre-test with the initials of their maternal grandmother. This allows for matching test questions and evaluating participant changes in pre and post-test scores. No names are to be written on tests. When the participants voluntarily

completed the pre-test, they placed their pre-test in the business-size white envelope provided and sealed it securely. Next, they placed it in a large manila envelope marked pre-test, and gave it to the researcher who keeps it in her possession throughout the program.

Next any member not consenting to the study was invited back to view the presentation. Then participants viewed a PowerPoint presentation led by the nurse graduate student on how to detect skin cancer, and skin cancer prevention including no tanning bed usage. Included in the power point presentation was a short video segment on a college student's real story on her diagnosis of skin cancer.

Finally, a short post-test was given to identify participants' future personal sun-safe behaviors. The researcher informed the participants the post-test took approximately 5 minutes to complete. Members ineligible for the study were excused from the room during this period. Each participant received one post-test and one envelope. The researcher explained to the participants: completion of the post-test implied participation in the study. The participants could choose not to fill out the post-test and leave at any time.

The participant was asked to place the initials of their maternal grandmother (the same code used on the pre-test) on the post-test. The participants were advised not to share this code. This allowed for matching test questions and evaluating individual changes in pre and post-test scores. When the subjects had voluntarily completed the post-test, they placed the post-test in the business-size white envelope provided and sealed it securely. Next, they place it in a large manila envelope marked post-test, and gave it to the researcher who kept it in her possession securely. The setting of the study was at the leader of the group's home, located in the living room with comfortable seating for all participants.

## **Sample**

The method of subject recruitment and selection was via non-probability sampling, namely a convenience sampling plan. According to Polit and Beck (2017), convenience sampling uses the most conveniently available persons as participants in a study. Convenience sampling is commonly used, as it is relatively easy and economical; however, it is subject to bias because those persons available may be atypical of the population with regard to critical variables (Polit & Beck, 2017).

Inclusion criteria included:

- 1) A female,
- 2) A member of the Y Disciple Youth Group,
- 3) Between the ages of 16-17 years of age,
- 4) Able to read, write, and understand the English Language as demonstrated by completion of the Assent form, and
- 5) Parental consent provided.

Exclusion criteria:

- 1) A male,
- 2) A non-member of the Y Disciple Youth Group,
- 3) Under the age of 16, and over the age of 17,
- 4) Unable to read, write, and understand the English Language as demonstrated by needing the Assent form read to the potential participant, and
- 5) Parental consent not given.

The number anticipated for the study was unknown as the number of members participating in Y Disciple varies from meeting to meeting. However, the number anticipated was not over 12 members. Those wishing to participate must have informed consent from their parent/guardian and attend the educational session on the assigned date.



The sample consisted of eight (N = 8) female adolescents, age 16-17. All had previously given written consent both by the participant and their guardian due to their minor status. All 8 participants completed the pre-test, participated in the intervention, and completed the post-test. The pre- and post-test were adapted from a previous tool measuring sun-safety knowledge, behavior, and attitudes with similar research designs.

### Results

All of the survey respondents were female age 16-17, and all were members of a local youth group in rural Nebraska, and attended the local Catholic high school. An inferential statistics *t*-test was run to determine whether there is a significant difference between the means of the pre-test group and post-test group (See Table 1 and Table 2). The null hypothesis was as follows: In adolescents age 16-18, there will be no difference in pre-test to post-test scores after a nurse-led sun-safety informational presentation relating to sun-safety knowledge and behaviors. The absolute value of the calculated *t*-score at alpha level of .05 = 6.148, which is greater than the critical value of 2.365; therefore, the researcher rejected the null hypothesis as the findings are statistically significant.

Table 1: Pre-test and Post-test Scores

Subject	SCORE 1	SCORE 2	X-Y	(X-Y) <sup>2</sup>
LF	2	5	-3	9
DD	2	5	-3	9
DV	2	4	-2	4
BS	3	5	-2	4
MK	1	5	-4	16
LG	2	4	-2	4
LB	2	3	-1	1
DS	4	5	-1	1
		SUM:	-18	48

Table 2: Formula Used to Determine T-Value

$$t = \frac{(\sum D)/N}{\sqrt{\frac{\sum D^2 - \frac{(\sum D)^2}{N}}{(N-1)(N)}}$$

Results from the study showed that in adolescents age 16-17, the effect a nurse-led sun-safety informational presentation, in comparison to prior sun exposure attitudes and behaviors on identifying future personal sun-safe behaviors, is that it can increase knowledge, and positively affected attitudes for future sun-safe behavior. The efforts by healthcare professionals such as nurses and nurse practitioners on encouraging sun-safe practices can help to promote healthy, disease-free futures of adolescents with regard to sun exposure.

### **Strengths and Limitations of the Project**

The study recognized several strengths and limitations. Strengths included the approval of the IRB prior to initiation, and that proper consents were obtained from participants and guardians. Additionally, given the small-group setting that was intended for the intervention, a good number of participants completed the project. Limitations include only one gender and a specific age group represented, which limits generalizability to other genders and age groups. Overall, the group of participants demonstrate high motivation and enthusiasm to learn, which was reassuring when presenting the intervention; however, not all adolescents may be so enthusiastic and active in the learning process.

### **Overall Implications**

Implications for this age group and demographic include potential for increased sun-safe knowledge, which can in-turn, lead to future sun-safe practices and lifestyles. This has the potential to decrease the risk for skin cancer and sun damage, which can lead to disease in the

future. Medical professionals, including nurses and nurse practitioners in general are in the unique position to positively influence a person's life through patient education and knowledge sharing, which in turn, can lead to longevity and disease-free living in the future. Future research is needed in this area of sun-safety and protection education to promote healthy living and lifestyles in the future.

This study exemplified a number of opportunities for future research, both in sun-safe knowledge interventions, as well as intervention development and teaching validation. More research is needed to continue development of future best practices.

### **Conclusion**

Health care providers today are in a unique position to promote healthy, sun-safe practices to adolescent patients and their families, educating them on the benefits of minimizing harmful UV exposure in childhood to prevent future skin cancers and disease. Understanding the background and effects of harmful UV exposure and increased risk of skin cancer development, significance of the problem, research purpose, review of literature, gaps in knowledge, consequences of the problem, proposed solutions, theoretical framework, and conclusion clearly outlines a need for further research and support of sun-safe promotion and disease prevention. Additionally, alignment with the goals of Healthy People 2020 Objectives, The IOM report, *The Future of Nursing: Leading Change, Advancing Health*, and the QSEN Institute further illustrates and exemplifies the need for promotion of sun-safety in the adolescent population.

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Appendix A

Copy of Site Approval

November 21, 2018

Dear Mrs. Bilek,

As a representative of Y Disciple, I would like to thank you for your recent inquiry regarding your master's research project. You have permission to present your Sun-safety in Adolescents presentation to the students in one of our spring semester meetings. We look forward to speaking with you soon, and please let me know if you have any further questions or concerns.

Sincerely,

Jen Kreikemeier

Y Disciple

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