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## Evaluation of an Educational Intervention Regarding the Importance of Practicing Sun Protective Behaviors Among Racially Diverse College Students: A Quality Improvement Project

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**Evaluation of an Educational Intervention Regarding the Importance of Practicing Sun  
Protective Behaviors Among Racially Diverse College Students: A Quality Improvement  
Project**

A Scholarly Project Presented to the Faculty of the Nicole Wertheim College of Nursing and  
Health Sciences

Florida International University

In partial fulfillment of the requirements For the Degree of Doctor of Nursing Practice

By

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### **Abstract**

Any sun exposure one receives is considered a future risk related to the development of skin cancer. The color of one's skin and an individual's race are two key factors that can greatly contribute to one's potential risk. Young adults have been shown to participate in risky behaviors. Racially diverse individuals are noted to have decreased knowledge related to sun safety and practicing protective behaviors. This quality improvement (QI) project was implemented in a virtual setting within a majority minority serving urban university. Participants included Florida International University's (FIU) students.

A comprehensive literature search was completed and it revealed a total of 67 articles. After considering the inclusion and exclusion criteria, eight articles were selected. The studies emphasized the importance of increasing primary prevention strategies in young adult racially diverse individuals. The findings of the literature review were utilized to create a QI project with the goal to raise awareness regarding sun exposure risk and to promote sun protective behaviors within a racially diverse young adult population. An evidenced based educational intervention was developed through Screencast-O-Matic, an interactive video program. A pre-test survey and a post-test survey were implemented to assess current knowledge, behaviors and beliefs compared to knowledge advancement and willingness to spread awareness. Overall, the results of the QI project concluded that there is a vast knowledge deficiency regarding sun safety inclusive to gender, race and age. Moreover, with the support of a targeted educational intervention, knowledge development and primary prevention strategies were significantly increased.

*Keywords:* sun safety, skin cancer, racially diverse, skin type, melanoma, screening, primary prevention, knowledge deficiency, young adults

## **Introduction**

Sun exposure can cause both acute and chronic effects with the main focuses related to photoaging and photocarcinogenesis. The color of an individual's skin is primarily defined by the presence of melanin, a pigment that is created from a process called melanogenesis. Without proper sun protection, ultraviolet radiation (UVR) passing through the earth's ozone layer can penetrate an individual's skin with harmful rays of light causing one's pigment to change color or darken. Prolonged sun exposure and lack of practicing protective behaviors against ultraviolet rays (UVRs) can cause an individual to become sunburned with damaging effects at a cellular level. Sunburn is defined as a radiation burn to the skin which can cause inflammatory skin changes and skin cell death, creating future potential risk for developing skin cancer. In fact, an increase in the number of sunburns someone obtains is directly associated to an increase in the risk of skin cancer (Guerra et al., 2020). The biggest risk factors are the duration of time of sun exposure and the intensity (Guerra et al., 2020). Past research has shown that darker skin types have more melanin which is known to absorb and deflect UVRs more efficiently producing greater protection. However, this does not mean that an individual with increased melanin is not at risk for sunburns or skin cancer. In recent years melanoma incidence rates have risen on an average of 1.4% each year over the last decade prompting a need for further exploration into pigmentation and photoprotection (Gupta et al. 2016).

Guerra et al., (2020) state various factors such as time of day, ozone depletion, medications, clear skies, high altitude, and skin phototypes influence sunburns. The Fitzpatrick Skin Phototype Classification (FSPC) is a risk assessment screening tool utilized to identify a variety of skin types based on the degree of melanin an individual has and calculates how one's skin will react when exposed to sunlight (Fors et al., 2020). Based on the self-reported scale, the

fairer or lighter the skin type, the lower the score an individual will have and the darker or more color one's skin has, the greater score is estimated. Present research demonstrates some factors that could potentially be leading to the substantial delay in diagnosis which has given rise to melanoma incidence rates include inadequate education on skin cancer recognition and decreased suspicion for skin cancer in patients with darker skin and those higher Fitzpatrick Scale Scores IV-VI (Viola et al., 2016). This decrease in risk with people of color is commonly known but misconstrued as having no risk Gupta et al., 2016).

### **Problem Statement**

For many years educational campaigns have focused on targeting the non-Hispanic white race as research shows a greater risk to this population in the development of skin cancer due to their lighter skin type. However, there is a common misperception that darker skin types or people of color (POC) are not at risk for developing damaging effects from sun exposure when in fact they are at a greater risk for developing more severe cases and research shows higher mortality rates (Calderon et al., 2019). Many recent studies concentrate on the fact that due to the increase of skin cancer cases there is a need for further assessment of sun safety behaviors to promote primary prevention. It is also of high importance to assess the perceptions and significance of the development of skin cancer in POC as this population is also of upmost concern due to various essential risk factors (Calderon et al., 2019). This misconception needs to be thoroughly addressed with further research to appropriately protect all young adults and racially diverse individuals from future diagnosis of skin cancer.

By evaluating current sun protective practices and establishing preventative measures related to sun exposure within this population, thousands of lives can be safeguarded from the harmful effects of sun exposure annually (CDC, 2020). Research shows that young adults



especially college students, are exposed to an environment that commonly places their health at risk as they display a greater vulnerability to health-related problems and risky behaviors (Kim and Kim, 2018). Kim and Kim (2018) further state that health-related habits are a major variable that influences well-being, especially those habits that are established during college can continue to affect health after early adulthood. There is a noticeable demand for further education, health promotion and reinforcement regarding both behavioral and lifestyle changes to protect against the damaging effects of sun exposure especially within the racially diverse

Skin cancer affects more than 3.5 million people annually and continues to be the most commonly diagnosed cancer in the United States (Calderón et al., 2018). Skin cancer rates are also increasingly alarming in recent years among darker-skinned populations especially in New York, New Mexico, California, Nevada, Texas, Arizona, Georgia, and Florida (Mann, 2016). Specifically, in the state of Florida, the melanoma incidence rate is 9.1 cases in 100,000 (Miami Matters, 2021). Skin cancer incidence rates continue to dramatically increase in recent years and rates of melanoma and non-melanoma skin cancer are highest among non-Hispanic Whites (Calderón et al., 2018). Furthermore, Calderón et al., (2019) found that people of color (POC) often are found to present with atypical, more advanced stages of disease and are more likely to experience worsened health outcomes compared to Caucasians. In addition, the Hispanic and African American populations have higher probability of delayed skin cancer diagnosis and have decreased survival rates (Calderón et al., 2019).

The undesirable effects that occur due to sun exposure can be prevented by practicing simple sun protective behaviors and utilizing preventative measures. Various protective measures can minimize sunburn risk such as, seeking out shade, wearing and regularly applying appropriate sun protective factor (SPF), avoiding sun during the times of 10:00 am to 2:00 PM,

avoiding tanning beds and wearing protective clothing like wide-brimmed hats and sunglasses. The SPF is a grading system established to measure the degree of protection provided by a topical sunscreen against cutaneous erythema caused by UVB radiation (Andreola et al., 2018). Therefore, the greater the SPF, the longer the time it will take to develop erythema or sunburn. Andreola et al., (2018) concluded in their study on photoprotection in adolescents that this age group comprehends the risk of sun exposure however they still choose to implement inappropriate photoprotection practices. The main reasons for not practicing photoprotection was due to forgetfulness, preference and knowledge deficit (Andreola et al., 2018). Andreola et al., (2018) also state that in their study more than half of the young student females considered having a tan as attractive. Therefore, this finding supports the demand for the elaboration of campaigns that reinforce the concept that tanning safely does not exist (Andreola et al., 2018). Further assessment within this population is warranted to determine current knowledge, beliefs and behaviors. Additional education is required to discuss the benefits of practicing photoprotective behaviors for various races and skin types to protect against the harmful effects of the sun. Therefore, the importance to raise awareness and assess current knowledge within the young adult population is of the utmost importance.

### **Scope of the Problem**

As previously mentioned, skin cancer affects millions of Americans annually and diagnosis has also increased among racially diverse individuals and people of color (POC) (Calderón et al., 2018). Vasicek et al., (2018) explain that despite various well-established interventions to decrease transmission of the harmful UVR, the incidence of skin cancer has continued to rise for numerous decades, while the incidence of many other cancers has been steadily declining. Garcia-Romero et al., (2015) state that in the United States alone

approximately 70,000 cases of melanoma and 3.5 million cases of non-melanoma skin cancer are diagnosed annually. Garcia-Romero et al., (2015) also argue that even with the multiple interventions that have been implemented to raise awareness over the past decades, the incidence rate of skin cancer continues to rise throughout the United States and Europe. People of color often are found to present with atypical, more advanced stages of disease and are more likely to experience worsened health outcomes compared to Caucasians which results with increased morbidity and mortality among these groups (Calderón et al., 2018).

In addition, the Hispanic and African American populations have higher probability of delayed skin cancer diagnosis and have decreased survival rates (Calderón et al., 2018). A study by Viola et al., (2016) determined that common misconceptions and myths regarding sun protection and skin cancer are prevalent within Hispanic populations in New York and Florida. There is a clear concern regarding the lack of education regarding the importance of practicing consistent photoprotective behaviors within these racially diverse young adult populations. Various studies have found that minority populations including Blacks and Hispanics inconsistently adhere to the recommended skin cancer prevention strategies (Calderón et al., 2018). Viola et al., (2016) imply that a need for further education on the dangers of sun exposure is necessary for the prevention of skin cancer within the Hispanic population as their study found lack of participation in sun protection behaviors and decreased risk awareness within this population.

Henrickson et al., (2018) state in their systematic review on behavioral counseling for skin cancer prevention that sun protective behaviors fall short of the Healthy People 2020 objective, which has set an aim for 73.7 percent of adults aged 18 and older to practice sun protective measures. The most recent National survey conducted approximated that about 30

percent of U.S. adults routinely practice sun-protective behaviors (Henrickson et al., 2018). Henrickson et al., (2018) also found that greater acculturation was correlated with higher reported sunburn and less sun protection behaviors. Furthermore, in a sample of uninsured, minority, or immigrant individuals in Florida, sun protection behaviors and skin self-exams were noted to be reduced as were measures of skin cancer awareness (Henrickson et al., 2018).

Calderón et al. (2018) also discuss that people of color compared to non-Hispanic Whites tend to exhibit reduced knowledge about skin cancer prevention and risks, which may contribute to poor adherence to prevention strategies. Therefore, evidence shows that there is a demand for reinforcement and education on sun protective behaviors within the minority population. This QI project was conducted at FIU's campus which primarily consists of 60% Hispanic students. FIU is an international university and a minority majority serving urban university. FIU's greatly diverse student body creates the ideal location for an educational intervention on sun safety.

### **Consequences of the Problem**

The lack of knowledge within the minority population regarding skin cancer risk and prevention is a contributing factor and supports the need for further implementation of a quality improvement initiative. Melanoma is the most serious type of skin cancer and is the most common cancer diagnosed for young adults ages 25-29 years old (Miami Matters, 2021). Every day in the U.S., more than 9,500 people are diagnosed with skin cancer and greater than two people die of the disease every hour (American Cancer Society, 2021). Vasicek et al., (2018) explain that skin cancer diagnosis places a significant burden on health care resources. The U.S. spends an estimated \$8.1 billion annually for the treatment of skin cancers which is approximately \$4.8 billion for nonmelanoma skin cancers and \$3.3 billion for melanoma (American Cancer Society, 2021). Annually in the state of Florida 6,794 people and in Miami

Dade county 283 people are newly diagnosed with melanoma (Miami Matters, 2021). It is important to also note that it will cost less to take preventative measures than to reverse the damage that has been formed overtime due to repetitive sun exposure, failure to practice sun safety and decreased risk awareness. It is imperative to recognize that the effectiveness of sunscreen use in primary prevention with skin cancer compared with the current cost and morbidity of skin cancer argues the importance of patient education and emphasis of photoprotective behaviors (Vasicek et al., (2018).

### **Significance of the Problem**

Skin cancer is the most commonly diagnosed cancer in the United States (U.S.) and roughly 90% of the cases are preventable (American Cancer Society, 2021). Practicing photoprotection safeguards individuals from cumulative and dangerous effects of the sun (Govindarajulu et al., 2020). Without addressing this phenomenon, the current statistics related to melanoma and costs of treatment will continue to increase annually. Melanoma is the deadliest form of skin cancer, the advanced stages are difficult to treat, and diagnosis carries very poor health outcomes (Vasicek et al., 2018). The consequences of this phenomenon will continue if quality improvement does not occur as its incidence has doubled over the last 30 years (Vasicek et al., 2018). It is important to reinforce that investing in preventive measures is the safest and most cost-efficient approach to protect against sun damage and future skin cancer diagnosis.

### **Knowledge Gaps**

There is an evident knowledge gap within the young adult population ages 18- 35, as the cases of melanoma and non-melanoma skin cancer continue to increase. The knowledge deficit reflects comprehension of how UVR produces increased risk for various skin types and the need for further education on utilization of appropriate protection against sun exposure. Education

discussing the Fitzpatrick skin types and how an individual's specific skin type can place them at greater risk can benefit future protection and skin cancer prevention. Calderón et al. (2018) also argue that public health education efforts and interventions typically promote photoprotective behaviors mainly focusing on the non-Hispanic and White populations. Reinforcing components of photoprotection by providers can improve the patient's compliance and future health outcomes (Govindarajulu et al., 2020). Andreola et al., (2018) found that schools and the individuals' parents were the main source of education and factors that interfered in the level of knowledge regarding photoprotection behaviors. A further assessment of the individual's knowledge, beliefs and behaviors related to sun protection can efficiently address a need for lifestyle changes to prevent further and potential damage.

### **Summary of the Literature**

An extensive search was conducted in a methodological manner in order to thoroughly assess the current literature regarding this clinical focus. This study will further assess various articles in order to evaluate evidenced based practice regarding efforts to increase sun safety awareness and implement change through an educational intervention. This literature review utilized databases which include CINAHL, PubMed (Medline) and an advanced search through FIU's online library. Search terms included *sun safety, knowledge, behaviors, awareness, people of color, sun exposure, skin cancer, and protective measures*. Search inclusion criteria included articles published within five years, full text, English and peer-reviewed articles. Exclusion criteria included duplicates and abstracts. The search revealed a total of 67 articles. The number of articles that addressed the current clinical topic on promoting sun safety promotion included eight.

### **International Research**

Janjani et al., (2019) evaluated sun safety practices in 31 governmental and private high schools in Saveh, Iran. A survey was implemented with a population size of 504 students which found inadequate sun protection related to student perception (Janjani et al., 2019). The study concluded that behaviors are influenced by cultural aspects and greater student awareness is needed related to sun protection. Ugurlu et al., (2016) completed a descriptive cross-sectional study of 404 university students in Ankara, Turkey. Study results also showed a lack of knowledge related to prevention and early detection of skin cancer suggesting the need for educational interventions to raise awareness within this target population (Ugurlu et al., 2016).

### **People of Color**

Calderón et al., (2019) conducted a study within various southern and northern regions across the U.S. (including the state of Florida) that examined the performance of sun protective behaviors in a multiethnic population of 1742 adults who completed an online survey. Results found that participants practiced different behaviors in regards to wearing protective clothing, sunscreen use, but similarly agreed in seeking shade (Calderón et al., 2019). Their study provided insight for further need to enhance public health education within minority populations related to implementation of sun safety measures. Buchanan Lunsford et al., (2018) conducted a study on skin cancer knowledge, awareness, beliefs and prevention behaviors specifically among Hispanic and black women and men within four U.S. cities which include Atlanta, Chicago, Miami, and Los Angeles. Their findings suggested a further need for tailored skin cancer prevention campaigns to address common misperceptions about skin cancer prevention within the black and Hispanic populations (Buchanan Lunsford et al., 2018). Buchanan Lunsford et al., (2018) also recommended a multidisciplinary educational intervention approach to target these at-risk populations. Holman et al., (2018) implemented a cross sectional study of 31,162 U.S.

adults to determine the prevalence of sun protection and sunburn as well as specific factors associated with sunburn. The findings of this study concluded that targeted prevention efforts are necessary across all demographic areas including the racially diverse populations (Holman et al., 2018).

### **Healthcare Setting**

Govindarajulu et al., (2020) studied sun exposure, protection, awareness, and behavioral patterns of medical students in Kolar, India and had similar findings to the previous studies suggesting sun protection remains inadequate. The authors also concluded the importance of primary prevention related to sun safety and that awareness campaigns are highly suggested (Govindarajulu et al., 2020). Nahar et al., (2017) also implemented a systematic search and literature review of previous studies evaluation of preventative behaviors among medical students. The review found similarities to previous studies suggesting further demand for education about skin cancer and preventative behaviors. The study also highlighted the lack of protection within this population and additional need for educational campaigns on sun safety. Basch et al., (2017) also conducted a study of 315 college students who attended a personal health course to determine their level of knowledge and attitudes related to sun safe behaviors. The study's findings proposed additional studies to focus on raising further awareness about skin cancer specifically within college aged population. Basch et al., (2017) also found that attending a university and having a health-related major did not signify better knowledge or behaviors related to sun protection.

### **Knowledge Deficiency**

Since skin cancer diagnosis can primarily be prevented by practicing sun safety, it is important to focus education on primary prevention. Kisling & Das (2021) explain that the



purpose of primary prevention is to prevent a disease from ever occurring. Healthy individuals are the target population for primary prevention which makes a collegiate setting the ideal environment consisting of majority healthy and young students. Primary prevention generally institutes activities that limit risk exposure to prevent a disease from progressing in a susceptible individual to subclinical disease (Kisling & Das, 2021). Recommendations from the literature review include reinforcement of public health education and campaigns to further implement sun protective measures. Sun safety measures include minimizing sunburn risk by moving to shade, wearing an appropriate sun protection factor (SPF), avoiding sun during the times of 10:00 am to 2:00 PM, avoiding tanning beds, and wearing protective clothing like wide-brimmed hats and sunglasses. Practicing photoprotection safeguards individuals from cumulative and dangerous effects of the sun (Govindarajulu et al., 2020). It is also recommended to apply a broad-spectrum sunscreen that has a SPF of at least 30 to unprotected skin and to reapply every two hours (American Cancer Society, 2021).

Calderón et al. (2019) argue that public health education efforts and interventions typically promote photoprotective behaviors mainly focusing on the non-Hispanic and White populations. Various studies have found that minority populations including Blacks and Hispanics inconsistently adhere to the recommended skin cancer prevention strategies (Calderón et al., 2019; Buchanan Lunsford et al., 2018). Calderón et al. (2019) also discuss that POC compared to non-Hispanic whites tend to exhibit reduced knowledge about skin cancer prevention and risks, which may contribute to poor adherence to prevention strategies. Gupta et al., (2016) also agree when explaining that they found that racially diverse individuals receive little or no education from their providers regarding the risks and prevention of skin cancer. Guy et al. (2015) also reinforce that although the highest rates of melanoma are seen among whites,

persons who identify as non-white are also at great risk and lack of awareness can result in underestimating risk. Gupta et al. (2016) have specified that it is estimated that the epidermis of lighter skin tones have an intrinsic SPF of 3.3, whereas darker skin tones like Hispanics and Blacks have an of SPF of 13.4, which remains below the recommended SPF guidelines.

Madankumar et al., (2016) further explain that in racially diverse individuals, early signs of melanoma have been observed in uncommon places such as the soles and palms, fingernails and toe nails and the inner surface of the mouth. This condition is known as acral lentiginous melanoma (ALM) and is recognized to cause increased mortality compared to other skin cancers especially within the racially diverse population (Madankumar et al., 2016). Unfortunately, due to the discrete presentation the diagnosis is missed most of the time causing greater mortality rates (Madankumar et al., 2016). Further education on ALM is necessary for people of color to become aware of the need for sun protection especially within these above-mentioned areas.

It is fundamental to create further awareness by increasing knowledge of risk, promoting the practice of sun safe behaviors, and supporting recommendations to clinicians and the general public to accelerate the efforts for skin cancer prevention (Gupta et al., 2016). Due to these increased rates of skin cancer morbidity and mortality in POC, ever-evolving demographics, and limited clinical data on adverse effects of UV exposure in this population there is a need to further assess the perception and awareness specifically at a collegiate level. As previously mentioned, the young adult population already place themselves at greater health and behavior risk for various reasons. Garcia-Romero (2015) found that young adults have the lowest protection rates out of all age groups due to their intentional and unintentional sun exposure yet signifying the highest risk for sun damage. It is also important to note that even though the

majority of this population is young and healthy, their current practiced behaviors place them at risk for present and future harm.

## **Conclusion**

After examining the current literature, a plethora of studies assessed knowledge, perception, and behavioral patterns related to skin cancer prevention within various populations. A similar pattern presented continuously in the literature signifying a substantial need to reinforce public health education and campaigns focusing on sun safety prevention measures. The studies suggest a common theme for future implications to focus on education and primary prevention as the conducted assessments clearly showed a lack of knowledge regarding this topic. There is also a clear concern regarding the need for clarification and reinforcement of knowledge, behaviors, and beliefs regarding the importance of practicing consistent photoprotective behaviors within the racially diverse young adult population. It is evident that all racially diverse individuals remain at risk with the continuous rise in incidence related to skin cancer and melanoma. Skin color is a significant contributing factor in the diagnosis of skin cancer. Skin cancer does not discriminate based on ethnicity as this has been studied in past literature. It is important to address the prior misconception that although POC have mild protection due their darker skin tones, it is apparent that they are still at risk based on the current SPF guidelines.

A further educational intervention is warranted to raise awareness regarding sun exposure risk and current sun protective behaviors at a collegiate level. College students are the future of education and serve as a great example for modifying risk behaviors and increasing awareness for further prevention. This target group also represents an ideal population for publicizing knowledge and confronting information gaps due to their motivation and receptiveness to learn

as well as their regard for social media outlets. The literature review also revealed that college students are a population at significant risk. Disseminating knowledge can efficiently address need for lifestyle changes to prevent further and potential damage. Greater education efforts are warranted to consider diversity in culture, beliefs, and ethnicity to improve awareness and knowledge regarding sun safety.

### **Quality Improvement Project**

#### **Purpose**

This QI project aims to increase awareness of practicing sun protective behaviors among racially diverse young adults at a minority majority serving urban university. The site of implementation will take place at a collegiate level, specifically in collaboration with FIU and the campuses Healthy Living Program (HLP). The purpose of the HLP is to increase wellness and healthy living (behaviors) amongst the student body through a variety of methods including primary prevention measures. The HLP offers a holistic and preventative approach to health by encouraging FIU students to engage in everyday healthy lifestyle practices (FIU, 2017). The university's mission states a commitment to state-of-the-art research and creative activity, high-quality teaching, and collaborative engagement with local and global communities (FIU, 2021).

The university located in Miami, Florida consists of an extensive racially diverse population of young adults. Miami-Dade County consists of 2,792,176 people and its growth rate continues to increase annually (World Population Review, 2021). From 2010-2021 the Miami-Dade population has increased by 11.9% and the entire state of Florida by 16.5% (Miami Matters, 2021). Within this county, roughly 68.5% of the population consists of Hispanics and 15.8% of Black or African Americans revealing the Non-Hispanic White race as a minority

population (WPR, 2021). About 35.5% of the population are between the ages of 18-44 (Miami Matters, 2021).

In 1976 FIU's President Crosby highlighted the desire for an international focus and faculty recruitment from the Caribbean and Latin America. Today FIU has positioned itself as one of South's Florida anchor institutions for over four decades (FIU, 2021). The student body consists of nearly 54,000 representing one of the top ten largest universities in the nation (FIU, 2021). FIU serves an extremely diversified community of students with the majority populations representing 61% Hispanic, 15% White Non-Hispanic and 13% Black or African American (FIU, 2021).

Residing in an environment with warmer climate, greater sunny days and increased UV radiation can place an individual at increased risk for developing skin cancer. Florida, also known as the sunshine state, has a high UV index of 29.2 per 100,000 (American Cancer Society, 2020). States that have high prevalence of outdoor activities (e.g. going to outdoor swimming pools or beaches, recreational boating, fishing, farming and outdoor exercise) also have high UV- attributable rates and insufficient sun protection (ACS, 2020). Compared to other Florida counties, Miami-Dade has an annual average daily dose of UV irradiation value of 3,877.0 joules per square meter which is in the worst 25% of the state's counties (Miami Matters, 2021). Miami-Dade also has a higher and worse annual average daily value compared to the entire state of Florida (Miami Matters, 2021).

After conducting a literature review on assessing knowledge, behaviors and beliefs within this population it is evident that there is an immense knowledge deficit and various misconception related to people of color (POC) and sun safety. Kim and Kim (2018) explain that health related habits are a major variable influencing individual well-being, especially those

developed during college and continue to affect adulthood well after graduation. College is a period of time in which students are exposed to environmental health risks and could involve peer influences to participate in risky behaviors (Kim & Kim, 2018). As such, it is vital to support health promotion activities and awareness during this impressionable time frame in college. As described by Kim and Kim (2018) health promotion is an educational, social and environmental approach aimed at enhancing wellbeing through the introduction of beneficial lifestyles behaviors, choices and habits. Hence the choice to collaborate with FIU's Healthy Living Program to assess current sun safe behaviors and knowledge in order to further promote awareness, increase knowledge and potentially change behaviors through education amongst students. Optimistically, these young adults will additionally disseminate this comprehension to family and friends. Evaluating students' knowledge pertaining to sun safety will provide guidance on how to increase risk assessment and sun safety behavior compliance.

### **Objectives**

These goals were attained within the colleges Fall semester starting August 2021. These highlighted goals and outcomes follow the acronym (SMART) Specific, Measurable, Attainable/Achievable, Relevant, and Time bound (IOM).

### **Goals**

The goals of this QI study include:

- 1) Student participants will understand the definition of sun protective behaviors.
- 2) Student participants will understand the importance of practicing sun protective behaviors.
- 3) Student participants will comprehend that skin cancer or melanoma does not discriminate based on ethnicity or skin color.
- 4) Student participants will comprehend their own sun exposure risk.

- 5) Student participants will appropriately identify prior sun exposure misconceptions.
- 6) Student participants plan to disseminate knowledge to others.

## **PICO**

The PICO question is as follow: Does a brief interactive primary prevention module (I) on sun safety change the knowledge, beliefs and behaviors (O) of racially diverse college aged adults (P)?

## **Definition of Terms**

The following definition of terms that are discussed in this QI project include UVR, melanoma, skin cancer, sun exposure, primary prevention, people of color, and racially diverse. There are various types of skin cancer including basal cell carcinoma (BCC), squamous cell carcinoma (SCC) and melanoma which is the most aggressive form. UVR is comprised of both ultraviolet A (UVA) and ultraviolet B (UVB) rays. UVA rays play a significant role in the carcinogenesis of stem cells of the skin, and UVB rays stimulate DNA damage through inflammatory responses and tumorigenesis (Gupta et al., 2016). The harmful UV radiation that reaches earth's surface can vary depending on various factors including the ozone layers thickness (Miami Matters, 2021). Overtime the ozone layer continues to thin due to the release of ozone-depleting substances caused by humankind. Therefore, the ozone's ability to absorb UV radiation has decreased which subsequently increases sun exposure and skin cancer risk (Miami Matters, 2021).

Despite various well-established interventions to decrease transmission of the harmful ultraviolet rays, the incidence of skin cancer has continued to rise for numerous decades in the United States (U.S.) and Europe, while the incidence of many other cancers has been steadily declining (Vasicek et al., 2018; Garcia-Romero et al., 2015). Vasicek et al., (2018) emphasize

that melanoma is the deadliest form of skin cancer, the advanced stages are difficult to treat, and diagnosis carries very poor health outcomes. It is also important to recognize that most skin damage from UVR occurs before the age of 20, but physical signs surface many years later (Gupta et al., 2016). People of color (POC) and racially diverse individuals are used interchangeably throughout this study to discuss various skin types and their negative effects due to sun exposure. Since the majority of skin cancer is preventable with utilizing simple sun protective practices this study also stresses the importance of primary prevention to bring awareness and education to the concept before development of negative health outcomes.

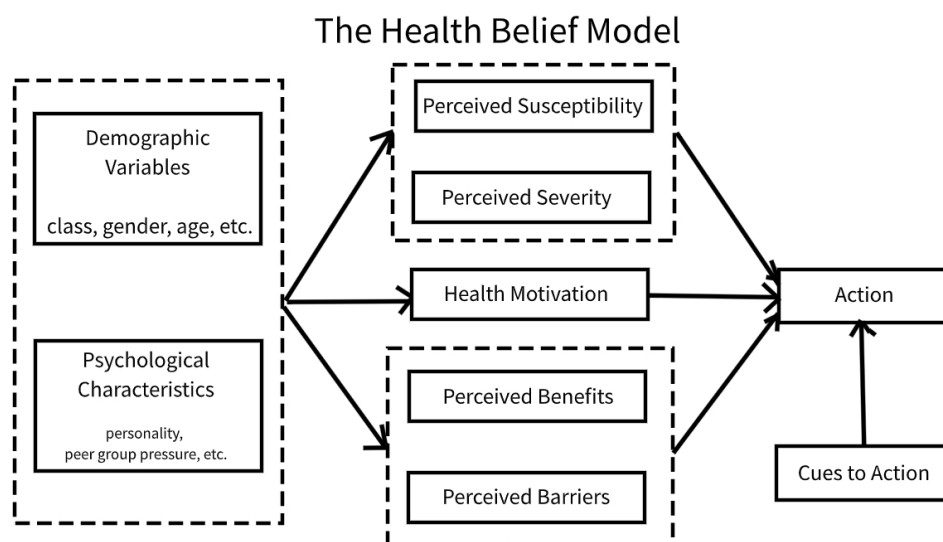
### **Theoretical Framework**

The Health Belief Model (HBM) was developed in the 1950s and is a widely utilized cognitive model of health behavior. Thompson et al., (2012) explain that at the most rudimentary level, the HBM is a value-expectancy theory, meaning that behavior is dependent on (1) the subjective value placed on the outcome and (2) the expectation that an action will lead to that outcome. In the setting of health-related behaviors, the valued outcome is typically the improvement of health or prevention of poor health; the expectation is the individual's one belief that a health action can increase the likelihood of the outcome (Thompson et al., 2012).

Whether an individual chooses to participate in health-related behaviors or primary prevention is further dependent on his/her perceptions of (1) vulnerability to the health threat, (2) severity of the health threat, (3) likelihood of reducing the threat by engaging in the behavior, and (4) costs associated with engaging in the behavior (Thompson et al., 2012). When pertaining the HBM theory to sun safety, it suggests that individuals will engage in sun protection (e.g., wear sunscreen) if they distinguish themselves to be susceptible (due to skin type or family cancer history) to a severe health threat (skin cancer or melanoma), and consider that the benefits



associated with engaging in the protective behavior (diminishing risk for skin cancer) outweigh the financial expenditures (money spent on sunscreen) (Thompson et al., 2012).



## Methodology

### Study Design

This student researcher conducted a QI study remotely in collaboration with an international university's campus and a program that focuses on student's primary prevention, health and wellness. A quantitative study design with a pre-test and post-test survey was completed to compare the impact of an interactive educational intervention. The educational module included questions pertaining to sun safety knowledge, beliefs and behaviors.

### Setting and Sample

This project was implemented remotely in collaboration with FIU and the Healthy Living Program. This department strived to promote increased wellbeing amongst the diverse collegiate population through hosting various wellness events (FIU, 2017). During the Coronavirus Disease 2019 (COVID-19) pandemic, the HLP continued to promote health and wellness related

activities, such as yoga, resilience journaling and other events, through a remote modality. After further analyzing the department, various factors were taken into consideration in order to implement this QI project. The sample size of student participants for this study included (n=37). Participation by students in this QI project was voluntary. Inclusion criteria consisted of English texts, peer reviewed articles, and relevance of project study. Exclusion criteria consisted of abstracts, editorials, presentations, non-English language and articles published greater than six years.

### **Intervention**

A brief interactive primary prevention educational module focusing on sun safety was developed by this student researcher and in collaboration with the project's co-investigators. The educational module consisted of the most up-to-date literature regarding this topic concern. A quick response (QR) code found on the project's marketing flyer directed student participants to the QI project which was created through Sceencast-O-Matic, an interactive video program. The voice recorded educational video instructed students to press a call to action button which guided them to a seven-question pre-test survey where they also consented to participation. At this time the student participants created a self-identifier (e.g. four numbers and one letter) for anonymity. The student participants then were redirected back to the webinar for the educational component. A brief primary prevention educational module focusing on sun safety was reviewed by this student researcher and in collaboration with the project's co-investigators in the form of an interactive video recording for the student participants. Immediately after, the student participants were evaluated on knowledge development by a concise three questions post-test survey via Qualtrics. Demographics were also collected in the post-test survey.

## **Data Collection**

The event took place remotely due to the current coronavirus pandemic to ensure participant safety. The entire project dissemination took less than 20 minutes. Topics that were included in the survey questions addressed knowledge, beliefs and behaviors related to sun safety and sun exposure. The survey questions consisted of a multiple choice and true or false question format. The intervention took place during the campuses Fall 2021 semester. This student researcher was responsible for data collection within the utilization of the program Qualtrics with access obtained through FIU.

The HLP was responsible for participant recruitment for this QI study. The project launched on September 23<sup>rd</sup> 2021. The recruitment was open for seven weeks. The HLP assisted in marketing the QI project's recruitment flyer on campus at the Gold and Blue Centers. The recruitment flyer was also broadcasted on television monitors at the HLP department, as students had access to complete the presentation by scanning the QR code on the flyer. The recruitment flyer was also published in the October 2021 newsletter and it was posted on exam room doors to spread sun safety awareness to the student population. Topics covered in the educational intervention included assessing current sun safety knowledge, misconceptions and perceived risk from sun exposure, and sun safe behaviors. Specifically, whether the student participants understood their personalized risk and the consequences of sun exposure.

## **Data Analysis**

This student researcher analyzed the data retrieved from the Qualtrics pre and post surveys and determined if there was statistical significance related to increased knowledge, behaviors and beliefs related to sun safety. IBM SPSS Statistical software program was utilized to organize and

evaluate collected data. This QI study aimed to support that an educational intervention had a significant impact on pre and post-test designs based on mean knowledge scores.

Data was collected on a total of 37 participants. Knowledge was assessed at pre-test with six questions and five questions at post-test. In addition, the total number of items correct was calculated at pre-test and post-test. Because different questions were used at the two timepoints, it was not possible to assess whether knowledge differed significantly between the two timepoints. Individual item-level responses were analyzed for all items. Furthermore, the descriptive statistics were reported for total knowledge scores at both timepoints. Lastly, scores were compared to determine whether race and ethnicity impacted scores.

### **Protection of Human Subjects**

This student researcher and members of this DNP project team are educated on the basics of Human Subjects Research and have completed the Collaborative Institutional Training Initiative (CITI) program in the protection of human research subjects. Institutional Review Board (IRB) approval was obtained prior to project implementation to safeguard the human subjects. The student participants were informed that their participation in this QI study was voluntary and their consent was obtained at the beginning of the pre-test survey. There was very minimal risk with participation in this QI study. The student participants data was password protected on this main investigator's private home computer and will remain password protected for two years after this study's completion. The co-investigator is the only other individual to have password access to the data collection site, Qualtrics. There was a significant benefit with participation as this study aimed to enhance knowledge, behaviors and beliefs related to sun safety.

## Results

The purpose of this QI project was to evaluate knowledge development and willingness to increase primary prevention strategies related to sun safety after implementation of an educational intervention. Specifically, if an educational intervention will enhance student participants knowledge, behaviors and beliefs related to practicing sun safety. Thirty-seven student participants were interested in contributing to this QI study. Two student participants did not fill out the pre-test survey but did complete the post-test survey. There were seven participants that did not fill out the post-test survey but did fill out the pre-test survey. Therefore, demographics were unable to be assessed for those seven student participants.

**Table 1. Pretest and Posttest Scores by Race/Ethnicity, Gender and Age**

Characteristic	Pretest				Posttest			
	Min	Max	Mean	SD	Min	Max	Mean	SD
<b>Race/Ethnicity</b>								
White Non Hispanic ( <i>n</i> = 23)	2	6	4.52	0.99	3	4	3.50	0.51
Hispanic/Latino ( <i>n</i> = 4)	4	6	5.00	0.82	3	4	3.20	0.45
Asian ( <i>n</i> = 1)	3	3	3.00	-	3	3	3.00	-
<b>Gender</b>								
Male ( <i>n</i> = 9)	2	6	4.67	1.22	3	4	3.36	0.50
Female ( <i>n</i> = 19)	3	6	4.47	0.90	3	4	3.47	0.50
<b>Age</b>								
18-25 ( <i>n</i> = 6)	2	6	4.00	1.41	3	4	3.33	0.52
26-35 ( <i>n</i> = 15)	3	6	4.73	0.70	3	4	3.45	0.52
36+ ( <i>n</i> = 7)	3	6	4.57	1.13	3	4	3.44	0.53

Table 1 displays pre-test and post-test scores disaggregated by Race/Ethnicity categories, Gender, and Age categories. At the pre-test survey Hispanics, males, and people between the ages of 26 and 35 had the highest mean. At the post-test survey, Non-Hispanic Whites, females, and people between 26 and 35 had the highest mean.

Itemized question analysis was examined for each pre-test and post-test survey questions.

*Pre-test Survey Questions***Table 2.****Does having sun exposure increase your skin cancer risk?**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	True	35	94.6	100.0	100.0
Missing	System	2	5.4		
Total		37	100.0		

Every student participant answered this question correctly. Therefore, signifying that there was a comprehensive understanding that the sun causes negative effects.

**Table 3.****The darker the skin color, the less likely to develop skin cancer.**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	True	8	21.6	22.9	22.9
	False	27	73.0	77.1	100.0
	Total	35	94.6	100.0	
Missing	System	2	5.4		
Total		37	100.0		

Most student participants (77%) answered this question incorrectly. Therefore, identifying a further need to educate on risk of sun exposure in racially diverse individuals or darker skin types.

Table 4.

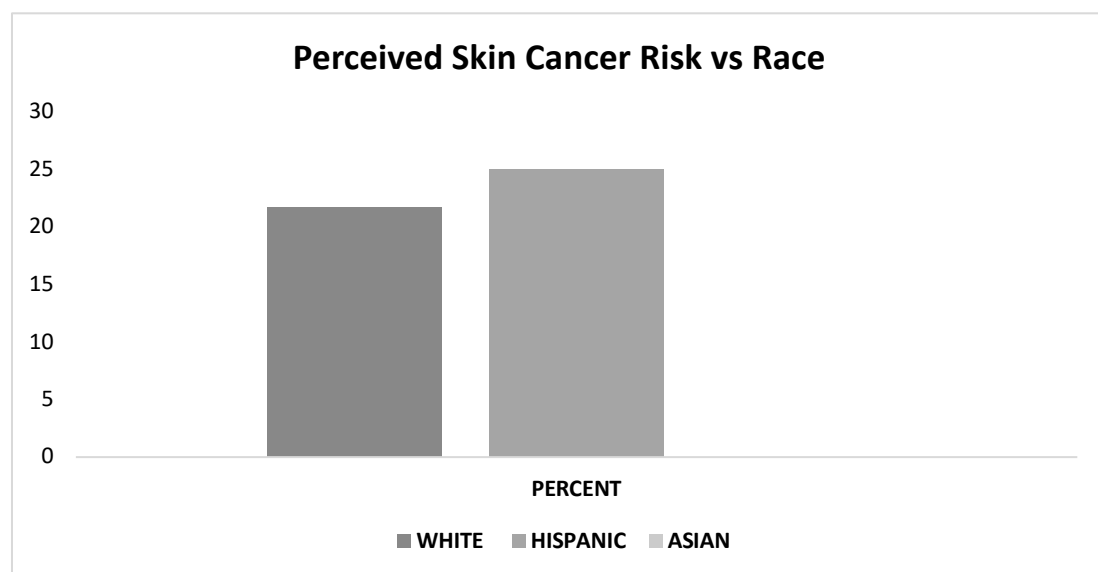
**What ways can you screen yourself for skin cancer?**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	B. Routine skin checks with a provider	2	5.4	5.7	5.7
	F. Answers A-D	33	89.2	94.3	100.0
	Total	35	94.6	100.0	
Missing	System	2	5.4		
Total		37	100.0		

The majority of the student participants (89%) answered that they would use the melanoma ABCDE self-assessment screening tool, complete routine skin checks with a provider, understood their skin type and knew their family history when asked what ways to screen themselves for skin cancer. All the participants understood that skin cancer is preventable and there are behaviors that can be practiced for sun safety.

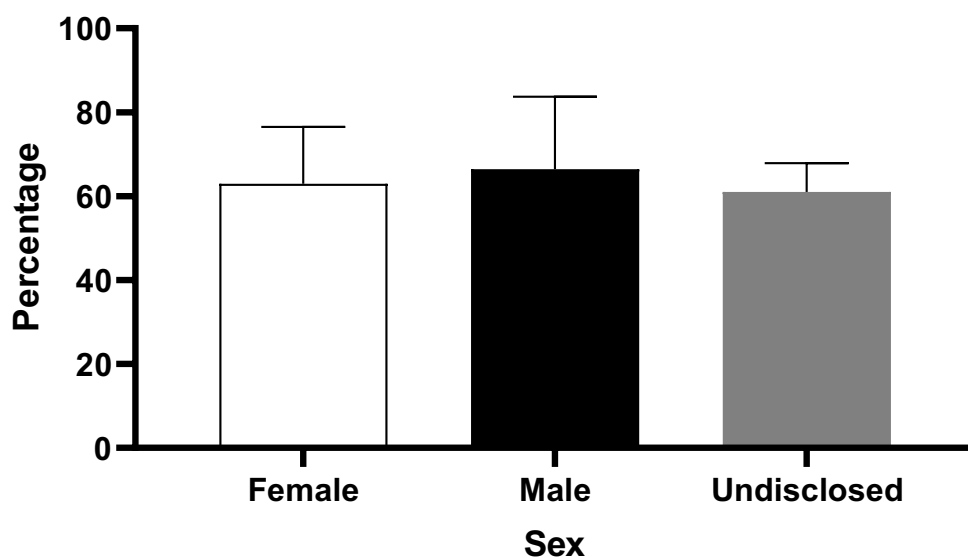
*Demographic Post-test Survey Questions*

Graph 1.



This graph specifically represents the second pre-test question assessing knowledge when asked whether if the darker the skin the less likely they were to develop skin cancer, 77% said false. Perceived skin cancer risk based on skin color compared between races was analyzed. Roughly 25% of Hispanics answered correctly and about 22% of Whites answered this question correctly. The only Asian participant answered this question incorrectly. This data showed that more of the Hispanic student participants understood that their skin had greater protection compared to lighter skin types. However, these results showed a significant comprehensive knowledge deficit and a need for further education.

**Graph 2.**

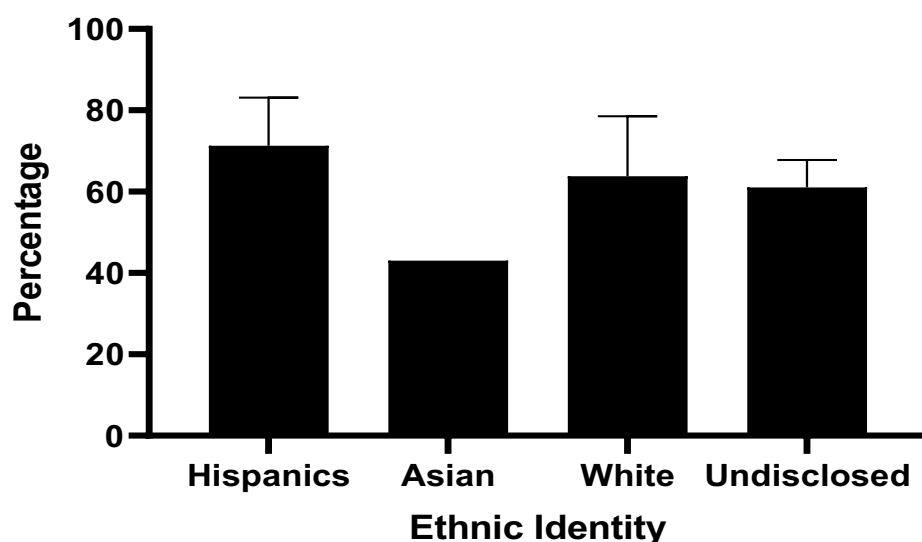


This graph discusses the percent of correct responses in correlation with gender. From the participants, 19 identified as females, 11 identified as males and seven individuals did not disclose or answer the post-test survey for a total of 30 student participants. Individuals identifying as females scored 63% on average (13% SD) or 4.4 correct answers out of 7.



Males scored 66% (16% SD) or 4.7 correct answers out of seven and the undisclosed group 61% (6% SD) which is 4.2 correct answers out of 7. There was no statistical significance between the averages among the groups. The data showed that all racially diverse groups answered 4 out of 7 questions correct. Signifying that amongst all sexes there was no difference of knowledge assessment from the pre-test survey. The results of this graph signify that everyone needs an educational intervention regardless of sex.

**Graph 3.**



This graph discusses the percent of correct responses in comparison with student race. Five participants identified as Hispanic, one participant identified as Asian, 24 participants identified as White and seven participants did not disclose. The groups responded to the pre-test questions very similarly with an average of five questions correct in the group identifying as Hispanic ( $71 \pm 10\%$  correct), the participant identified as Asian had a score of 42% correct, while the group identifying as White answered 4.5 questions correct ( $64 \pm 14$ ). In the group that did not disclose their race, there was an average of 4.3 questions correct ( $61 \pm 6$ ). The groups were

underpowered for comparison signifying further data collection is warranted and that there is a comprehensive knowledge deficit amongst all racial diverse groups.

### **Discussion**

The findings of this QI project are similar to the findings of Holman et al., (2018) which concluded that targeted prevention efforts are necessary across all demographic areas including the racially diverse populations.

### **Demographics**

Demographic variables were collected at post-test survey. The majority of respondents were female (63%). Roughly 20% were between 18 and 25 years old, 50% were between 26 and 35, and 30% were 36 and older.

### **Pre-test Survey**

A total of 35 respondents completed the pre-test survey. When asked whether sun exposure increased their risk for skin cancer, all respondents indicated that it was true. When asked whether the darker the skin the less likely they were to develop skin cancer, 77% said false. When asked for ways to screen for skin cancer, 94% knew the correct answer. When asked the minimum SPF recommended, 23% said SPF 15, 60% said SPF 30, and 17% said SPF 50. When asked about behaviors that could help prevent skin cancer, 92% correctly selected all of the right answers. Lastly, when asked whether it was important to get sun to increase their Vitamin D levels 63% of the sample said true. Overall, when adding up the correct scores on the pre-test survey, scores ranged from 2 to 6 with a mean = 4.49 ( $SD = 0.92$ ).

## **Post-test Survey**

It should be noted that only 30 respondents completed the pre-test survey. All of participants stated that they learned something new as a result of the intervention, that they would practice sun safety behaviors after viewing the presentation, and that they would share the information learned with others. When asked about specific behaviors, 24 said they would wear SPF 15 or higher, 19 said they would wear protective clothing with long sleeves, 22 said they would talk to others about their risk, 20 said they would avoid sun tanning, and 19 said they would seek shade. Only two participants answered that they did not plan on doing anything different. Overall, scores on the post-test survey ranged from 3 to 4 with a mean = 3.43 ( $SD = 0.50$ ).

## **Limitations**

Several limitations were identified that may have influenced the study's findings. The QI project consisted of a small sample of 30 student participants. The target number was  $n=50$ . This could be due to 1) The ongoing COVID-19 pandemic; 2) Lack of interest in participation in online or virtual projects; 3) Lack of interest in the topic; 4) Decreased participant volume on campus (the QI project's advertisement flyer was marketed on campus); 5) The broadcasting screens in the HLP Gold and Blue center intermittently displayed the flyer through a rotation; 6) The survey demographic did not include a mixed-race option; 7) The post-test survey interactive button could have been placed on a separate slide for better clarity (seven student participants did not complete the post-test survey); 8) In person recruitment was limited; 9) The educational intervention time was limited; 10) The project required an amendment to the advertisement flyer.

### **Implications for Advanced Practice Nursing**

The sharing of knowledge and research findings allows awareness and future research implications to become evident. Eight articles supported this QI projects intention and suggested that an educational module or increased prevention efforts were needed to spread further knowledge on sun safety (Ugurlu et al., 2016; Calderón et al., 2019; Buchanan Lunsford et al., 2018; Govindarajulu et al., 2020; Holman et al., 2018; Nahar et al., 2017; Basch et al., 2017). It is essential for practitioners to raise further awareness on sun safety. Dissemination of this project's research findings is fundamental to promote primary prevention and reduce skin cancer prevalence.

This project was conducted at a majority minority serving urban university over a seven-week timespan. Potential growth opportunities and project expansion efforts were assessed to maximize future implications related to sun safety to foster prevention. This QI project found that White Caucasians, ages 26-35 were most interested in this topic. This signifies that prevention efforts are in great demand. It is crucial to highlight the importance of practicing sun safety at younger ages as this older population might have already sustained the damaging effects from the sun. It is suggested and encouraged that primary prevention strategies be discussed at early ages with children in middle school and continuously stressed at each age group. It is also important to note that Holman et al., (2018) concluded from their study that targeted prevention efforts are necessary across all demographic areas including racially diverse populations. Comprehensive prevention efforts are needed to decrease the negative effects of the sun and inhibit future risk.

This student researcher's plan is to publish these results in various journal articles and present at conferences to promote primary prevention and spread awareness. This QI study's

results are appropriate for various settings which include health care settings that focus on primary care, dermatology, pediatrics and student health clinics. This QI project can also target providers in order to assess their own knowledge, behaviors and beliefs related to sun safety in expectations to promote education and primary prevention universally. In addition, this current QI project was broadcasted at the 2021 Annual South Region FNA Symposium and Awards Ceremony. The plan for sustaining this QI project's results is to continue to disseminate the findings and evidenced based research.

### **Conclusions**

The negative effects of sun exposure and the populations risk continues to grow each year. Improved prevention methods are needed to provide protection against future sun related damage. Knowledge expansion on personal risk including all demographics is necessary as this QI project's results prove so. There were numerous key limitations that affected the recruitment phase of this project including the ongoing COVID-19 pandemic. Mitigation of various limitations could have increased the target population and the significance of this project's QI results. The majority of the student participants were White Caucasian (non-Hispanic/ Latino), ages 26-35 which is the age group when melanoma is most commonly diagnosed (Miami Matters, 2021). After analyzing the results, knowledge development was accomplished within all demographics. All student participants stated that they intend to practice sun safety behaviors after viewing the QI project and that they will disseminate the acquired knowledge with others. Thus, the aims of this project were met and the promotion of primary prevention strategies was efficacious. Furthermore, a greater multidisciplinary approach including an educational intervention is needed for all demographics to improve knowledge and prevention strategies related to sun safety.

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## Appendices

### Appendix A

#### *Recruitment Flyer*

**ARE YOU TIRED OF  
USING FILTERS?**

You don't need a filter when you have

**HEALTHY SKIN**

**BE SUN SMART  
PREVENT PHOTOAGING**



*Scan-in to learn  
how to protect  
your skin while  
staying sun safe*

**LAUNCHING SEP 23**



The flyer features a pink and white color scheme. The text is in a clean, sans-serif font. The QR code is a diamond shape. The background image shows a woman with a white towel on her head, looking at a smartphone, with a pink fabric draped over her shoulder.

## Appendix B

### *Recruitment Letter*

Dear Florida International University Student Participants,

My name is Alexandra Palumbo, and I am a student from the Graduate Nursing Department at Florida International University. I am writing to invite you to participate in my quality improvement project.

The goal of this project is to raise awareness regarding sun exposure risk and understand the definition of sun protective behaviors and the importance of practicing them.

You are eligible to take part in this project because you are currently enrolled as a Florida International University (FIU) student. I am contacting you with the permission from the Healthy Living Department and FIU.

If you decide to participate in this project, you will be asked to complete and sign a consent form for participation. You will complete a pretest questionnaire followed by a brief educational explanation which is expected to take approximately 10-15 minutes. Then, you will be asked to complete a post-test survey to assess knowledge development which is expected to take approximately 10-15 minutes. The total quality improvement project participation will last less than 30 minutes. Incentive *will be provided* and will consist of a sample of lip balm with Sun Protection Factor (SPF).

Remember, this is completely voluntary. You can choose to be in the study or not. If you'd like to participate please click on the link provided to join the Zoom webinar. By clicking on this above link, you agree to participate in this QI project. If you have any questions about the study, please email me at apalu006@fiu.edu.

Thank you and I look forward to your participation.

Sincerely,



**Alexandra Palumbo, MSN, APRN, FNP-C**  
*Doctoral Family Nurse Practitioner Student*  
Florida International University

## Appendix C

### Data Collection Documents

#### *Pre-Test Survey Questions*

Hello, my name is Alexandra Palumbo. I am a doctor of nursing practice student at Florida International University conducting a quality improvement project on sun safety. The purpose of this study is to raise awareness regarding sun exposure risk, in addition to promoting sun protective behaviors. If you decide to participate, you will be one of the 50 people in this study. Participation in this study will take about 15 minutes of your time. If you agree to be in the study, I will ask you to do the following things:

1. Consent to participation by selecting yes below
  2. Complete a pre-test survey
  3. Active listening during a brief educational component
  4. Complete a post-test survey
- 
- 1) I agree to the abovementioned and consent to voluntarily participate in this quality improvement project:
    - a. Yes, I agree.
    - b. No, I do not agree.
  
  - 2) Please create an unique identifier (e.g. 4 numbers and 2 letters) Write down your unique identifier at this time for future use.  
Unique Identifier: \_\_\_\_\_
  
  - 3) Does having sun exposure increase your skin cancer risk?
    - a. True
    - b. False
  
  - 4) The darker the skin color, the less likely to develop skin cancer.
    - a. True
    - b. False
  
  - 5) What ways can you screen yourself for skin cancer?
    - a. Using the melanoma ABCDE self-assessment screening tool

- b. Routine skin checks with a provider
  - c. Understanding your skin type
  - d. Knowing your family history
  - e. Nothing, skin cancer is not preventable
  - f. Answers A-D
- 6) What is the minimum sun protection factor (SPF) recommended to wear?
- a. SPF 15
  - b. SPF 30
  - c. SPF 70
  - d. SPF 50
- 7) I should wear sunscreen to protect myself:
- a. Only on sunny days
  - b. Between the hours of 8:00 AM – 5:00 PM
  - c. Only in the Summer
  - d. Only when I participate in outdoor activities
  - e. Every day
- 8) Skin cancer is 90% preventable. Select all the behaviors that can help prevent it.
- a. Wearing protective clothing like wide-brimmed hats and sunglasses
  - b. Using sunscreen
  - c. Seeking shade
  - d. Avoiding sun between the hours of 10:00 AM - 4:00 PM
  - e. Avoiding tanning beds
  - f. All the above

9) It is important that I get sun exposure to increase my Vitamin D levels.

- a. True
- b. False

*Post-Test Survey Question*

1) Please enter the unique identifier (e.g. 4 numbers and 2 letters) created in the pre-test survey.

Unique Identifier \_\_\_\_\_

2) Did you learn something new?

- a. Yes
- b. No

3) Will you practice sun safety behaviors after viewing today's presentation?

- a. Yes
- b. No

4) Will you share the information that you learned today with others?

- a. Yes
- b. No

5) What are some ways I will now use to protect my skin from the sun? Select all which apply.

- a. Wear SPF 15 or higher
- b. Wear protective clothing with long sleeves
- c. Tell others about their risk
- d. Avoid sun tanning
- e. Seek shade
- f. I do not plan on doing anything different

6) Gender:

- a. Male
- b. Female
- c. Non-binary
- d. Prefer not to say

7) Age:

- a. 18-25
- b. 26-35
- c. 36+
- d. Prefer not to answer

8) Please select your ethnicity:

- a. White (non-Hispanic/Latino)
- b. Black or African American (non-Hispanic/Latino)
- c. Hispanic/ Latino
- d. Asian (non-Hispanic/Latino)
- e. Native Hawaiian or Pacific Islander (non-Hispanic/Latino)
- f. Prefer not to answer



## Appendix D

### *Support Letter*

**11200 SW 8th Street AHC3 Rm 521A  
Miami, FL 33199  
Office: 305-348-7230  
Fax: 305-348-7051  
Email: cframil@fiu.edu**



June 2, 2021

C. Victoria Framil, DNP, ARNP, ANP-BC  
Clinical Assistant Professor  
Nicole Wertheim College of Nursing & Health Sciences  
Graduate Nursing Program  
Florida International University

Dear Dr. Framil,

I would like to express my appreciation for inviting the Healthy Living Program (HLP) to participate in the Doctor in Nursing Practice (DNP) program Quality Improvement (QI) project of Ms. Alexandra J. Palumbo. I understand that this student will be conducting this project as part of the requirements for the DNP program at Florida International University (FIU). After reviewing the proposal of the project titled "Evaluation of an Educational Intervention Regarding the Importance of Practicing Sun Protective Behaviors Among Racially Diverse College Students: A Quality Improvement Project", I have warranted her permission to conduct the project in this company.

We understand that the project will be developed in collaboration with our program and will be conducted remotely. The quality improvement project will occur as a concise educational session during late summer 2021 and will be implemented subsequently as needed to obtain the target population. This project intends to increase awareness of practicing sun protective behaviors among racially diverse young adults at a minority majority serving urban university.

The project will be conducted with the consent of potential student participants receiving information from our facility. Prior to the implementation of this project, the FIU Institutional Review Board will evaluate and approve the procedures to conduct this project. Student participants will be provided with an electronic Zoom webinar link leading them to complete an interactive pre-test poll survey followed by educational explanations to assess their knowledge, behaviors and beliefs regarding sun safety. Then, student participants will be asked to complete a post-test survey to assess knowledge development which is expected to take approximately 10-15 minutes. The total QI project participation will last less than 30 minutes. Any data collected by

Ms. Alexandra J. Palumbo will be kept confidential and will be stored in a password protected computer for six months.

We are excited to implement Ms. Palumbo's project during our Summer Wellness Events. I am confident that her QI project idea matched with her professionalism and eagerness to accomplish knowledge enhancement will ensure project success. This QI projects goal to raise awareness on the harmful effects of sun exposure in addition to emphasizing the importance of sun protective behaviors, will greatly benefit the university's student body and it also encompasses the mission of the HLP. As the Associate Director of Health Promotion Services, Division of Academic and Student Affairs at Florida International University, I support the participation in this project and look forward to working together.

Sincerely,

A handwritten signature in black ink, appearing to read 'Mariela V. Gabaroni', with a stylized, flowing script.

**Mariela V. Gabaroni, MS, MCHES**  
*Associate Director Health Promotion Services*

## Appendix E

### *IRB Approval Letter*



Office of Research Integrity  
Research Compliance, MARC 414

## MEMORANDUM

**To:** Dr. Deana Goldin

**CC:** Alexandra Palumbo

**From:** Elizabeth Juhasz, Ph.D., IRB Coordinator *EJ*

**Date:** August 26, 2021

**Protocol Title:** "Evaluation of an Educational Intervention Regarding the Importance of Practicing Sun Protective Behaviors Among Racially Diverse College Students: A Quality Improvement Project"

The Florida International University Office of Research Integrity has reviewed your research study for the use of human subjects and deemed it Exempt via the Exempt Review process.

**IRB Protocol Exemption #:** IRB-21-0382      **IRB Exemption Date:** 08/26/21  
**TOPAZ Reference #:** 110580

As a requirement of IRB Exemption you are required to:

- 1) Submit an IRB Exempt Amendment Form for all proposed additions or changes in the procedures involving human subjects. All additions and changes must be reviewed and approved prior to implementation.
- 2) Promptly submit an IRB Exempt Event Report Form for every serious or unusual or unanticipated adverse event, problems with the rights or welfare of the human subjects, and/or deviations from the approved protocol.
- 3) Submit an IRB Exempt Project Completion Report Form when the study is finished or discontinued.

**Special Conditions:** N/A

For further information, you may visit the IRB website at <http://research.fiu.edu/irb>.

EJ

## Appendix F

### *IRB Addendum*



## MEMORANDUM

**To:** Dr. Deana Goldin  
**CC:** Alexandra Palumbo  
**From:** Elizabeth Juhasz, Ph.D., IRB Coordinator *EJ*  
**Date:** October 19, 2021  
**Proposal Title:** "Evaluation of an Educational Intervention Regarding the Importance of Practicing Sun Protective Behaviors Among Racially Diverse College Students: A Quality Improvement Project"  
**Approval #** IRB-21-0382-AM01  
**Reference #** 110580

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The Florida International University Office of Research Integrity has approved the following modification(s):

- Updated recruitment flyer. Graphic was only updated. The verbiage remains the same. The change was needed, because the orientation of the flyer did not fit on the TV screens to market the flyer on campus.

There are no additional requirements in regards to your study. However, if there are further changes in the protocol after you commence your study, then you are required to resubmit your proposal for review. For further information, you may visit the FIU IRB website at <http://research.fiu.edu/irb>.