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## **An Educational Intervention in Hispanic Patients to Increase Awareness of Skin Cancer Risks and to Improve Their Sun Protective Behaviors**

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An Educational Intervention in Hispanic Patients to Increase Awareness of Skin Cancer Risks  
and to Improve Their Sun Protective Behaviors.

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

**Background.** Skin cancer is the most common cancer diagnosed in the United States. Malignant melanoma is the least common skin cancer type but the deadliest form causing the vast majority of skin cancer deaths. Its incidence has increased dramatically worldwide, being the sixth most commonly diagnosed cancer in the USA in both genders in 2018. Fair-skinned patients have the highest incidence of melanoma and, for this reason, receive more education than other groups. Minority groups are more likely to have melanomas that metastasize and have poorer outcomes than Non-Hispanic Whites. Blacks and Hispanics do not use daily skin cancer protective strategies and are less knowledgeable about skin cancer risks and prevention methods than Non-Hispanic Whites (NHW). A lack of public education efforts tailored toward minorities, socioeconomic status, access to care, and a lack of early diagnosis is thought to contribute to the disparity in survival rates between minorities and NHW.

**Method:** A Quality Improvement Project with a Quasi-Experimental Design was developed to increase Hispanic patients' knowledge about skin cancer risks and protective behaviors. A convenience sample of 30 Hispanic patients aged 20-65 who attended a Dermatology Clinic to receive medical attention for skin conditions different from skin cancer was recruited between June 19th and September 4th, 2020. Local advertisements posted in the waiting and exam rooms and medical assistants' help were very useful in recruiting the participants. The whole implementation of the QIP was online using a telemedicine platform DermConnect Doxy. me, and Qualtrics. After completing a pre-intervention survey, the participants received an educational intervention that encompassed a PowerPoint Presentation and a practical demonstration of how to perform a self-skin examination and to apply the sun protector effectively. Immediately after the implementation of the educational intervention, the patients

completed the post-intervention survey. The data was collected, processed, and analyzed using Qualtrics.

**Results:** After the Educational Intervention, there was an overall group knowledge average improvement of 58.3%. Although 63.3% of participants were able to identify the association between tanning salon use and skin cancer, and 70% were capable of recognizing melanoma as a type of skin cancer previous to the intervention, some areas of knowledge deficit were identified. These areas were: the association between blistering sunburn occurrence during childhood and adolescence and the increased melanoma incidence in adulthood, the skin cancer types, the alarming melanoma signs, the typical sites where melanoma appears in Hispanics, and the right frequency to perform the self-skin examination and to visit the dermatologist. Most participants did not recognize the use of sunglasses and sun exposure avoidance between 10:00 AM to 4:00 PM as sun-protective methods in the pre-intervention surveys. Melanomas could also appear from the retinal pigment cells, and sunglasses' use is an appropriate strategy to prevent them in this localization.

**Conclusions:** This cultural-sensitive Educational Intervention effectively raised Hispanic participants' knowledge about skin cancer risks and protective behaviors. Primary prevention through education is decisive to reduce the incidence of the different types of Skin Cancers and specifically melanoma, not only among Hispanics but also in any other ethnic group. It is crucial to start educating Hispanics as earlier as in childhood and adolescence due to the strong association between sunburns occurring during these early years of life and Malignant Melanoma's appearance later in adulthood.

*Keywords:* Skin, cancer, Hispanic, Latino, people of color, and sun-protective behaviors

## INTRODUCTION

### **Problem statement**

Overall, the lifetime risk of getting melanoma is about 2.6% (1 in 38) for whites, 0.1% (1 in 1,000) for Blacks, and 0.6% (1 in 167) for Hispanics (American Cancer Society). Although malignant melanoma incidence rates among Hispanics (4.5 per 100,000) are lower than among Non-Hispanic Whites (NHWs) (21.6 per 100,000), the stage at diagnosis and the prognosis are less favorable for Hispanic patients (Horner et al., 2009). Hispanics are more likely to have delayed skin cancer diagnoses and lower survival rates than NHW. Hispanics have 5- year disease-specific survival rates ranging from 69.7 to 86.5%, lower than those of NHWs, ranging from 79.3 to 90.2% (Garnett et al., 2016).

Melanoma incidence among Hispanics has been increasing at a rate of 2.9% yearly in the last thirty years (Reis et al., 2005). Acral Lentiginous Melanoma is the most common melanoma type in Hispanics and African-Americans. Hispanics diagnosed with this condition are younger and have more aggressive features, including thicker tumors (more than 1 mm in 25% to 35 %), with regional involvement (8% to 12%), and distant metastasis (4% to 7%) when compared with their NHWs counterparts (Garnett et al., 2016; Hu, 2010 & Rouhani et al., 2010)

More than 55% of Hispanics in the U.S. live in areas with high U.V. radiation: Florida, Texas, and California (U.S. Census Bureau, 2010). Hispanics perform 25% or more of the U.S.' farming and landscaping jobs, having additional occupational exposure to these nocive sun rayons (U.S. Bureau of Labor Statistics, 2014). Seventy percent of Hispanic gardeners and farmworkers state that they never wear sun-protective clothing or devices such as handkerchief or bandana, wide-brimmed hats, or sunglasses when they are performing outdoor works (Kearny et al., 2014).

Hispanics do not use daily skin cancer protective strategies and are less knowledgeable about skin cancer risks and prevention methods than NHW. Hispanics do not have skin surveillance behaviors and experience rates of sunburn comparable with non-Hispanic whites.

Buchanan Lunsford et al. (2018) conducted formative research with 18 focus groups of Hispanic and African-American women and men in four cities of the U.S. in 2017. Researchers were interested in understanding the awareness, knowledge, beliefs, and behaviors about skin cancer risks and sun-protective strategies of Hispanics and African-Americans. Most of the participants perceived themselves to be at low risk for skin cancer due to their lack of family history of skin cancer and darker skin tones and, for these reasons, also reported low sun-protective behaviors. Few of these participants who used sun-protective strategies like sunscreen also wore sun-protective clothing and had a perception of high risk for skin cancer due to their high skin sensitivity to sun exposure. Most of them elicited that their families encouraged them (during their youth) to use sunscreen to prevent skin-aging or further skin darkening, but never for the benefit of preventing sunburns and skin cancers.

Despite the lack of awareness of skin cancer risks and preventive behaviors among Hispanics, few educational interventions have been implemented targeting the Hispanic population countrywide. It is possible to reduce the incidence of melanoma skin cancer among Hispanics and, in the longer-term to prevent it through the implementation of primary and secondary prevention strategies. The primary prevention would consist of avoiding excessive exposure to ultraviolet radiation after proper education. The secondary prevention would be the earlier detection (through a monthly self-skin screening or surveillance) and Melanomas treatment in stages when the prognosis and survival rates are much better.

Although Hispanics are considered only one compact group, Hispanics are very diverse taking into account their countries of origin, their cultures, their level of education and acculturation, their skin type and skin sensitivity to sun exposure, their beliefs and attitudes regarding skin cancer risks, and skin cancer preventive behaviors, and their socioeconomic background. Only by analyzing the country of origin of Hispanic patients is it possible to know their diversity. Around 36 million Hispanics who reside in the U.S. have a Mexican origin (which represents 63.3 % of the whole population of Hispanics in the States), 9.5% are Puerto Rican, 3.7 % are Cuban, 3.7% are Salvadoran, 3.3% are Dominican, and 2.4% are from Guatemala (Flores, 2017).

Another important factor that could influence how Hispanic patients behave regarding skin cancer risks and protective behaviors is their acculturation level. Acculturation is the process through which immigrants adopt the behaviors, values, beliefs, customs, and attitudes of the new culture they are exposed. Acculturation could have positive or negative effects on the health of Hispanics. Coups et al. (2013) demonstrated in a study conducted in the Southern and Western areas of the U.S. that sun-safety behaviors decline when Hispanic immigrants experience the process of acculturation. The study conducted by Ma et al. in 2007 also supports these findings.

Primary prevention of skin cancers among U.S. Hispanics is suboptimal, and the United States Preventive Services Task Force (USPSTF) recommendations of 2018 regarding skin cancer counseling do not target Hispanics, which is a very heterogeneous group where there are people with very fair skin, and people with darker skin tones. The USPSTF (2018) recommends (with a Grade B) "counseling young adults, adolescents, children, and parents of young children about minimizing exposure to ultraviolet (U.V.) radiation for persons aged six months to 24



years with fair skin types to reduce their risks of skin cancer". The USPSTF (2018) recommends (with a Grade C) "that clinicians selectively offer counseling to adults older than 24 years with fair skin types about minimizing their exposure to U.V. radiation to reduce risk of skin cancer". Health Care Providers do not consider Hispanics to be fair-skinned and fail to provide adequate counseling to protect against skin cancer to fair-skinned Hispanics (Agbai et al., 2014). Another factor that makes the problem worse is that Hispanic patients believe that only Non-Hispanic Whites are susceptible to skin cancer. Hispanics believe that their darker skin tones protect them against ultraviolet rays. Besides, Hispanics also have fatalistic beliefs about skin cancers and consider them not preventable (Buster et al., 2012; Coups et al., 2014). The USPSTF (2018) concludes (with Grade I) "that the current evidence is insufficient to assess the balance of benefits and harms of counseling adults about skin self-examination to prevent skin cancer".

Acral Lentiginous Melanoma is the most common melanoma type in Hispanics and African-Americans, and it is not clear the role of U.V. radiation exposure in the causation of this specific type of melanoma. Opposing to this USPSTF's recommendation, there is a fact: the best method to diagnose earlier the Acral Lentiginous Melanoma is through a self-skin examination because it appears mainly in areas of the skin non-exposed to the sun (like mucosae, palms and soles, and subungual areas) that are hidden to the patients' sight. Consequently, it is crucial to teach Hispanic patients how to perform the self-skin examination to promptly recognize any suspicious lesion (with alarming signs or ABCDE) to diagnose melanoma in the early stages, improving the prognosis and the survival rates. The implementation of melanoma education among Hispanic patients could contribute to an earlier diagnosis and treatment, leading to higher survival rates.

## **Background**

Skin cancer is the most common cancer diagnosed in the United States, affecting more than 3.5 million people (Holman et al., 2018). Skin cancer is the out-of-control and abnormal growth of specific cells in the skin's epidermis or outer layer. Mutations on the DNA of these cells triggered by ultraviolet rays are the cause of this uncontrolled growth. There are two main types of skin cancers: melanocytic skin cancers and nonmelanocytic skin cancers, depending on the type of cells they proceed with. Malignant melanoma stems from melanocytes, and nonmelanoma skin cancers (NMSCs) stem from other skin layers. Basal cell carcinoma (BCC), the most common nonmelanoma skin cancer, making up about 75% to 80% of all skin cancers, derives from round basal cells found in the epidermis. Squamous cell carcinoma (SCC) arises from the epidermis' outer layer's flat squamous cells and makes up about 20% of all cutaneous cancers. Other rarer types of NMSCs are cutaneous T-cell lymphoma and Merkel cell carcinoma. BCC and SCC affect photo-exposed areas of the skin, and their main etiological factor is the chronic exposure to ultraviolet sun rays with length 290-320 nm (Dessinioti et al., 2010). Ultraviolet sun rays activate proto-oncogenes in the skin cells' DNA and inactivate tumor-suppressive genes. Secondly, the combination of the degenerative process caused by free oxygen radicals and the reduced antioxidant system's protection results in carcinogenesis.

The depletion of the ozone layer, an increase in the amount of time spent outdoors, and the perception of tanned skin as healthy, attractive, and beautiful all contribute to skin cancer development (Merten et al.; 2014). Tanning beds and sun exposure during outdoor recreational activities are already recognized as skin cancers' causative factors (Jemal et al., 2011). Yoo and Hur (2014) found that female college students exposed themselves to the sun to look tanned and attractive, despite their knowledge about the association between sun tanning and skin cancer.

Playforth, Larkin and Schwartz (2014) reported that 80 % of college students consider that having a tan was very important for them, and 68 % of these students reported using a tanning salon at some point in their lives.

Malignant melanoma is the least common skin cancer, accounting for 1% of all cases but represents the vast majority of skin cancer deaths. Its annual incidence has increased dramatically worldwide. In the United States of America, 65,000 individuals are diagnosed with malignant melanoma every year, and around 9,000 patients die from this condition each year (American Cancer Society, 2018). The American Cancer Society estimates that 100,350 new melanomas will be diagnosed (about 60,190 in men and 40,160 in women), and about 6,850 people are expected to die of melanoma (about 4,610 men and 2,240 women) in 2020.

The incidence rate of melanoma is highest in lighter-skinned patients and is much rarer in darker-skinned individuals. Hispanics are a very diverse group with different national origins, cultures, and genetics. Incidence rates for melanoma are lower among Hispanic and black populations when compared with the non-Hispanic white population in the USA. For this reason, the group of fair-skinned patients receives more education about this condition and its prevention. However, the incidence of melanoma in the Hispanic population in the U.S. has increased in the last decade, and these minority groups are more likely to have melanomas that metastasize and have poorer outcomes (Holman et al., 2018 & Wu et al., 2017). Agbai et al. showed in a study conducted in 2014 how Blacks and Hispanics are more likely to have delayed skin cancer diagnoses and lower survival rates than Non-Hispanic Whites.

Pollitt et al. (2011) collected and analyzed the incidence data of melanoma in all Hispanics and non-Hispanic white patients diagnosed with invasive cutaneous melanoma in California,

from 1988 to 2007, in one of the largest analysis of melanoma incidence in Hispanics in the U.S. These researchers found that Hispanic patients are diagnosed in later stages of this condition when the prognosis is worse because they do not have access on a timely manner to the health care system due to their lower socioeconomic status (SES). Also, Pollitt and collaborators (2011) concluded, based on their study's results, that Hispanics of lower SES have limited or no access to educational, cultural, social, or work-related benefits, which could determine the later stage at their melanomas' diagnosis compared with NHWs of lower socioeconomic status. Then, when the health care providers have to educate this population regarding skin cancer risks and preventive behaviors, these researchers recommended communicating messages that could be accessible to Hispanic patients who do not speak English, who do not know about the U.S.' Health Care System, have limited education and recently immigrated to the United States (Pollitt et al., 2011).

The annual cost of treating nonmelanoma skin cancer in the U.S. is estimated at \$4.8 billion, while the average annual cost of treating melanoma is estimated at \$3.3 billion (Guy et al., 2015). Guy et al. (2015) gauged that the annual expenses to treat patients with a new diagnosis of melanoma would increase from \$457 million in 2011 to \$1.6 billion in 2030. Guy et al. (2015) emphasized the importance of implementing a holistic program to prevent skin cancer and determined that 230,000 new melanoma cases could be prevented, and \$2.7 billion could be saved from 2020 to 2030 as a consequence of this implementation.

Tsao et al. (1998) found that more than half of the total annual budget to treat patients with melanoma had to be allocated to treat patients with Stage-IV disease, and close to one-third of the total budget had to be used to treat patients with end-stage of melanoma. Yabroff et al.

(2008) found that the health cost to treat patients with late stages of the disease double the cost of treating patients diagnosed only with local disease.

### **Summary of Literature Review.**

Despite the lack of awareness of skin cancer risks and preventive behaviors among Hispanics, few educational interventions have been implemented targeting the Hispanic population countrywide. There is an exiguous etiologic and epidemiological research about skin cancer risks and protective behaviors in Hispanics which is vital to discover their beliefs, knowledge, awareness, and behaviors regarding these important topics.

A systematic review was performed following the PRISMA guidelines to identify the most effective educational or self-management interventions to instruct Hispanic patients about skin cancer risks and preventative behaviors. Nine articles were selected after eliminating the nonrelated or duplicated articles. The most effective educational interventions consisted of videos, an interactive educative program, pamphlets, or books showing photos of melanoma and nonmelanoma skin cancers but in patients with ethnic skin. The main message in any of these successful interventions was to let Hispanic patients know that people of any skin type could suffer from melanoma, increasing their perception of their susceptibility to this condition. Another important point was to teach Hispanic patients the best method to perform a self-skin examination, insisting on the areas where more frequently appear melanoma in Hispanic patients, like subungual, acral, and mucosal surfaces.

**Summary of the researches where an educational intervention was implemented among Hispanic patients or patients with ethnic skin.**

Chao et al. (2017) conducted a randomized control trial between May and July 2015 in a dermatology clinic at an academic hospital in Chicago, Illinois. One hundred consecutive eligible patients who received care in this center were recruited immediately after visiting the dermatologist. The eligibility criteria were: adults aged 18 years or more who self-identified as Hispanic, Asian/Pacific Islander, African American or American Indian, and who had English proficiency. From the whole pool of 100 patients, 78 patients were African American, 11 patients were Hispanics, and also 11 patients were Asian.

These researchers considered the recommendations that Robinson, Joshi, Ortiz, and Kundu (2011) made regarding education about skin cancer risks and protective behaviors in people with ethnic skin to design the educational intervention. Among these recommendations, people of color suggested using the term "melanoma skin cancer" in the educational material and to explain that people with any skin type, independently of their ethnicity or race, could suffer from melanoma. Other suggestions that they used from previous studies were to show depictions of melanoma in ethnic skin, to let the patients know the areas of their body where melanoma could typically appear in people of color: subungual, acral, and mucosal surfaces; and to teach them how to perform a self-skin examination.

Chao et al. (2017) evaluated an educational intervention tailored specifically for patients with ethnic skin to raise awareness and increase knowledge about melanoma skin cancer risks and protective behaviors in patients of color. The recruited patients were assigned alternately to two groups: comparison intervention and targeted intervention groups. The intervention in the

comparison or control group consisted of an educational intervention using only a conventional brochure with the 'ABCDEs' signs of melanoma. The targeted intervention group received a modified pamphlet with the title: "For All Races and Skin Colors," which also included the term "melanoma skin cancer" and the "ABCDEs' signs of melanoma. This pamphlet was divided into several sections. In the skin of color section, texts were informing about the most frequent sites of the appearance of melanoma in patients with skin of color like mucosal, subungual, and acral areas; and also showed photos of melanoma skin cancers in patients with ethnic skin (Chao et al., 2017). The images showed people of ethnic skin with melanomas on their lips, nails, and soles. In the last section of the pamphlet, a patient appeared performing the self-skin examination on an acral site with the aid of a friend or a family member (Chao et al., 2017).

The participants had to complete a self-reported pre-intervention questionnaire where the researchers gathered crucial information regarding their demographics, general knowledge about melanoma, attitudes respecting melanoma risks, their intentions to visit a health care provider for alarming moles, and their habits of performing skin self-assessment (Chao et al., 2017). Immediately after the intervention and two months after the intervention, the participants had to complete the same survey. There was attrition in the number of participants because only 70 participants from the 100 recruited patients completed the two-months-post-intervention questionnaire (Chao et al., 2017).

The participants in both groups: the conventional intervention and the targeted intervention groups, showed improvement in their knowledge about melanoma immediately after and 2-months after the intervention. However, in the targeted intervention group, the participants perceived more the personal risk for suffering from melanoma immediately after the educational

intervention than the conventional intervention group members. The patients who received the targeted intervention showed increased skin self-examination practices and knowledge of suspicious lesions while performing their skin self-assessment. The researchers concluded that the targeted intervention group's educational material could promote earlier identification of melanoma among people of color (Chao et al., 2017).

Among the limitations found in this study, the most significant is the small sample size and the attrition rate two months after the intervention. This small sample size limits the statistical significance of this study's results (Chao et al., 2017). Another limitation is the method used by these researchers to recruit the participants. They recruited patients from a dermatology clinic who may be more receptive to melanoma educative interventions and skin self-examination than patients from other health care centers. Another limitation is that most of the patients were females, reducing the possibility of generalizing the results to male patients. Besides, most participants had college degrees or higher, which could influence their understanding of melanoma information, 'ABCDEs' of moles, and skin self-examination (Chao et al., 2017).

Chung, Brown and Gibson (2015) developed a community-based project in a rural Hispanic community located in North San Diego, California. During a Health and Fitness Fair held on November 16th, 2013, bilingual lay health workers implemented this intervention at the Fallbrook Community. These volunteers' health workers received previous training delivered for 8 hours by a dermatology Nurse Practitioner. During this expedite training, they learned about melanoma skin cancer, melanoma risk factors, the signs of alarm that could show the moles (ABCDE rule), and how to perform a self-full-body skin-examination.



The intervention included a session of ten to fifteen minutes of melanoma information that encompassed melanoma skin cancer and risk factors and skin self-examination strategies. The educational intervention consisted of a lecture, a session to discuss any concern or to answer any question, and finally, a hands-on demonstration. This intervention aimed to increase the awareness of melanoma risk factors among the participants, who would have to identify melanomas and atypical moles using photo images and the ABCDE rule and perform their self-skin-screenings.

A total of 34 participants were recruited, and 70.6 % of them were at moderate to high risk of suffering from melanoma. Most of the participants' annual income (76.5%) was \$30,000 or less, much less than the average household income for Californian Hispanics. Only half of the participants had health medical insurance, and 41.2% had occupational exposure to the sun.

The participants completed pre-and-post-intervention surveys, which measured their knowledge about melanoma and melanoma risk awareness and their self-efficacy to perform a skin self-examination. The results were outstanding, showing an improvement in these participants' knowledge and risk awareness about melanoma. Participants also showed self-efficacy while conducting their skin self-examination. The results indicated that Hispanics of lower socioeconomic status have a moderate to high risk for suffering from melanoma due to their occupational exposition to the sun, lower education level, lower annual income, and lack of health insurance. The lack of health insurance and the low annual income usually dissuade Hispanics from seeking health care, contributing to a delayed diagnosis and treatment of melanoma in this population.

This educational intervention had several strengths. The researchers used community resources and a local health fair to implement the intervention, which was the perfect setting for this intervention. This community-based intervention removed the cultural barriers that could appear while educating Hispanic patients regarding skin cancer risks and protective behaviors because the lay health workers were bilingual. Also, the pre-and post-questionnaires were in Spanish or English. Effective collaboration between the dermatology nurse practitioner and the lay health workers occurred during this pilot project's performance. It was a cost-effective project where the total cost was \$72.44, and the expenses were related to the purchase of sunscreens, educational materials, water bottles, and incentive gifts. Chung, Brown and Gibson (2015) suggested using social media like Twitter, Facebook, or YouTube to reach younger Hispanic patients, most at risk for melanoma skin cancer. This way, the spatial and temporal limitations could be overcome.

Guevara et al. (2015) conducted qualitative research among non-Hispanic White (NHW), Hispanic, and non-Hispanic Black kidney transplant recipients (KTRs) who were at risk of developing skin cancers due to their pharmacologic immunosuppression. The researchers' objective was to improve KTRs' skin cancer knowledge and sun-protective behaviors using an educative workbook. The purpose of these researchers was to increase the awareness of KTRs of their likelihood of developing skin cancer and consequently increase their sun-protective behaviors, but without provoking unnecessary anxiety with skin cancer images. Skin cancer images could generate fear in patients who were already afraid of losing their kidney transplants. The images displayed by the book emphasized the adoption of sun-protective behaviors like wearing sunscreen, long sleeves, and broad-brimmed hats. The researchers also planned the presentation of sun protection strategies but taking into account each patient's preferences.

Twenty-four participants were recruited from a registry of 700 KTRs, 12 were men, and 12 were women with an average age of 52. Usually, KTRs with ethnic skin do not believe that they are at risk of suffering from skin cancer, and many of them have the misperception that sun protection is only to avoid the darkening of their skin. During two-hour cognitive interviews, the researchers invited the participants to express their opinion about the sun protection educative book, about the barriers and facilitators they found to wear sunscreen, and about the degree of cultural sensitivity that the text displayed. While performing the interviews with Hispanic and African American patients, 16 patients requested the researchers to see skin cancer images but in patients with skin of color to really know how skin cancers look in skin types like theirs. After this suggestion, the book was modified, incorporating depictions of squamous cell carcinoma in patients with different skin types but always emphasizing sun protection. The remaining eight individuals received the educational intervention after the book's modifications and found the images of skin cancers in the skin of different tones very educative, appropriate, and necessary. Thanks to this educational intervention, KTRs could realize how severe the skin cancers could be in their skin types and personalized their skin cancer risks. KTRs exposed to this educational intervention progressed from having a fundamental knowledge of skin cancers to perceiving their particular vulnerability to develop skin cancer. Consequently, they would increase their sun-protective behaviors.

Hernandez et al. (2014) performed semi-structured interviews with Hispanic women who expressed their concern with photoaging caused by sun exposure and developed two short (3 minutes) Spanish language films. These researchers took advantage of the effectiveness of educational videos to promote healthy behaviors. In the first film, the emphasis was placed on the importance of sun protection to avoid the photoaging effect of ultraviolet radiation, and in the

second film, the accent was placed on the benefits of sun protection to prevent skin cancer. Among the photoaging signs, these researchers mentioned in the first video the premature aging of the skin with the appearance of sunspots, wrinkles, and the increased laxity of the skin. Researchers considered sun-protective behaviors using sunscreen, seeking shade, wearing protective clothing and sunglasses. In the second video, the researchers emphasized (with the use of images showing skin cancers in people of color) that people with ethnic skin could also develop skin cancer. In the second video, the researchers focused on sun-protective behaviors like sunscreen use, seeking shade, and wearing protective clothing and sunglasses.

These researchers hypothesized that Hispanic women would be more effectively convinced to use sunscreen to avoid photoaging than to prevent skin cancer. Eighty Hispanic women, whose ages ranged from 19 to 75, were recruited from beauty salons of Hispanic neighborhoods in Chicago. The participants completed a pre-intervention and a post-intervention questionnaire. The questionnaires measured these women's general knowledge regarding sun exposure risks and the use of sunscreen. The researchers' hypothesis was rejected because most of the participants (74 out of 80) found the video explaining the importance of sunscreen use to prevent skin cancers more persuasive than the other video, which focused on using sunscreen to avoid photoaging. The post-video survey showed a definite increase in UV-related knowledge and positive attitudes and behaviors toward sun protection among participants. Most of these Hispanic women recognized that Hispanics are at risk for skin cancer and showed their willingness to start using sunscreen. Hernandez et al. (2015) concluded that a Spanish-language video could be an effective educational intervention among Hispanics to facilitate positive changes in attitudes and sun-protective behaviors.

As per these researchers, the ideal video would combine messages of photoaging avoidance and skin cancer prevention at the same time because the photoaging effect of sun exposure would first capture Hispanic women's attention. Then, gradually these women's attention would be directed toward the skin cancer prevention message. Women can also influence their partners' behaviors regarding sun protection, and for this reason, men would also be indirectly benefitted through these interventions. Although there are many ways of delivering health messages like face-to-face counseling, brochures or pamphlets, and web-based interventions, the use of video has many advantages. The video is an amazing means to transmit educational messages to a big audience in a standardized form, eliminating educators' inconsistencies. In the case of persons with low health literacy levels, the video is an attractive way to disseminate educative messages.

There are several limitations in this study. First of all, the researchers only used women's opinions to create the educational video and excluded men's opinions. Besides that, the male sample size was extremely limited in the intervention group. Another limitation was that researchers did not measure if the participants really changed their sun-protective behaviors after implementing the intervention. Additionally, the participants did not have the opportunity to watch the videos again or clarify any doubt before completing the post-intervention questionnaire.

The researchers explained that sunscreen use should be promoted and other sun-protective methods (protective clothing, sunglasses, and hats) because Hispanics who work as landscapers or in agriculture could consider it difficult to use sunscreen for different reasons. One of the reason is that their heavy perspiration while working outdoors make very challenging the reapplication of sunscreens, and the second one is that they could have financial difficulties to purchase sunscreens due to their minimal budget.

Robinson, Friedewald, Desai, and Gordon conducted a randomized controlled pilot trial in 2015 with 170 kidney transplant recipients. Among these 170 participants, 62 were non-Hispanic white, 60 were non-Hispanic black, and 48 were Hispanic/Latino. A culturally sensitive sun-protection program (SunProtect) was developed in English and Spanish with the option of audio narration to be used during the intervention. Two theoretical models guided the elaboration of this educational program: the Transtheoretical Model and the Transportation Theory. In the Transtheoretical Model, the individual who can perceive the personal risks and vulnerability to a health condition, the seriousness of this illness, and the benefits that the acquisition of a protective behavior would provide, will also be able to make a favorable decision and change (Robinson et al., 2015). In the Transportation Theory, the individuals are only persuaded to change their preconceived beliefs and knowledge biases through a convincing narrative. Researchers expected that once the participants received this educational program, they would change their skin cancer beliefs and sun protection. They expect that this educative program rich in narrated and practical information (patients' testimonials, graphics, texts, and images of various skin types' patients with skin cancer) will persuade participants to change their sun-protective behaviors (Robinson et al., 2015).

The program was delivered through a touch-screen tablet computer (Samsung Galaxy), being the participant table-use self-directed. The intervention consisted of explaining the skin cancer risks, the necessary use of sunscreen and other protective behaviors to reduce these risks, and offering different customized sun-protective options. The surveys were performed before the intervention and two weeks after the educational intervention. The participants with different ethnic/racial origins were able to see patients of different skin types with skin cancer. The length of the intervention varied among the different ethnic/racial groups. Hispanic participants used the

educational program for an average of 42 minutes; nevertheless, the non-Hispanic whites had the shortest use of the program with only 23 minutes. African-American participants showed an intermediate use of the program between these two lengths of program use. All the intervention groups' participants showed an improvement in the skin cancer risks' awareness and disposition to modify their sun protective habits and behaviors compared with the non-intervention groups (Robinson et al., 2015). The use of sun protection increased in all the intervention ethnic/racial groups from baseline to 2 weeks after implementing the program compared with the control groups (Robinson et al., 2015). Hispanic participants who showed an initial deficit of knowledge about skin cancer risk and sun-protective behaviors increased their understanding of these topics more than black and non-Hispanic white patients with adequate health literacy (Robinson et al., 2015). Sun protective behaviors after two weeks of this program implementation diverged in the different ethnic/racial groups. Hispanics tried to avoid outdoor activities, African-American participants sought shade and wore protective clothing, and non-Hispanic whites used more sunscreen (Robinson et al., 2015). The researchers concluded that this educational intervention about skin cancer risks and protective behaviors delivered through a tablet computer showed to be very useful among kidney transplant recipients of different ethnic/racial origins (Robinson et al., 2015). All the intervention groups' participants increased their awareness of skin cancer risks and protective behaviors after this educational intervention. This intervention did not require the participation of any provider (being self-directed). The participants could complete it while waiting to be seen by their nephrologists in the 6- or 12-months follow-up visits.

Robinson et al. (2015) identified several limitations. Among these limitations, it is essential to mention the short period of only two weeks to answer the post-intervention survey. This short follow-up period does not inform about the long-term adherence of the participants to the sun-

protective behaviors. Another limitation would be the impossibility of generalizing the findings to other cities with prolonged sunny weather because the research was performed in a city with a moderate climate. Also, the researchers were not able to determine the capability of each participant to perform sun-protective actions. Besides, the pre-and-post surveys were not delivered in the same way because the first one was delivered through the tablet, and the second one was performed through a telephonic interview, which could introduce the observer's influence. Also, three interventional groups were not balanced because the number of Hispanic participants did not reach 60 participants, like the other ethnic/racial groups (Robinson et al., 2015).

Kundu et al. (2010) developed an educational intervention to train patients with ethnic skin to perform a skin self-examination using the ABCDE rule. The sample was a convenience sample recruited from a Center for Ethnic Skin in Chicago. Ninety-three consecutive patients who went to this center seeking care for skin problems were recruited. The enrolled participants were older than 18 years, capable of reading English, with no history of skin cancer, and from the following ethnic/racial groups: African American, Hispanic, Asian/Pacific Islander, or mixed ethnicity.

The participants had to complete an initial survey previous to the intervention. Then, 20 minutes of educational intervention was provided. Immediately after the subjects completed the post-intervention survey and three months after the intervention, they were contacted through the phone and completed the last survey. The questionnaires showed depictions of atypical moles and melanomas where the participants had to identify the alarming signs or ABCDE: asymmetry, borders irregularity, change in color or color variegation, diameter greater than 6 mm, and the evolution of the mole. The parameters measured in the surveys and practical skin self-



examination were the knowledge, the attitudes, and behavioral measures like the thoroughness performing the self-skin examination.

The intervention consisted of a teaching session where the participants were informed about melanoma skin cancer, melanoma risks, and skin self-examination. The patients knew about the severity and aggressiveness of melanoma skin cancer which metastasizes very soon, being one of the deadliest cancers. The participants learned that although melanoma had a higher incidence among Caucasians than on people of color, people with ethnic skin could also develop melanoma. Besides that, the researchers taught them how important it was to diagnose and treat melanoma as earlier as possible to avoid a poorer prognosis or death. The instructors showed photographs of Caucasian patients with acral lentiginous melanoma on the soles, fingers, subungual areas, and toes. No depictions of melanoma in the skin of color were available to show. The researcher in charge of the educational intervention also explained to the patients when and how to perform the skin self-examination: after taking a shower and examining their skin head-to-toes but emphasizing the mucosae, soles, palms, and periungual areas. Showing a step-by-step picture, the researcher demonstrated how to perform the skin self-assessment and encouraged them to perform it once a month. All the patients' information regarding the skin type, history of sunburns and sun tanning, and blistering sunburns were collected. The researchers also included in their explanation the association between sun exposure and melanoma skin cancer and the importance of seeking help if any changing mole is noticed.

African American women were the predominant number of subjects, and attrition occurred before the last survey being the number of participants reduced from 93 to 71. An improvement in all the measured parameters occurred and was retained up to 3 months after the intervention. The knowledge about melanoma and melanoma risks was increased among the participants, the

perception of being at risk for melanoma, and the skills to perform skin self-examination. The researchers concluded that people of color would benefit from this educational intervention tailored to patients with ethnic skin.

Robinson, Friedewald, Desai & Gordon (2016) developed another research using the same culturally sensitive and interactive educational program SunProtect. The Theory of Reasoned Action and Planned Behavior was the theoretical framework used by these researchers. This theory proposes that the behavior depends on an intention, being the intention of the extent to which somebody would like to engage in a specific behavior. The intention to perform a behavior is based on people's beliefs about this behavior and their skills to perform this particular behavior. Beliefs guide the intention that people have to perform a specific behavior. The intentions are influenced by subjective norms, volitional and behavioral controls, and attitudes (Yzer, 2017).

In this study, 170 participants were chosen from an available pool of 552 patients who had received a kidney transplant from 2 months to 2 years previous the research. Sixty-two non-Hispanic white patients, forty-eight Hispanic patients, and sixty African-American patients were randomized to the intervention or control groups. The SunProtect electronic program was delivered to all the participants in the intervention group during the spring season in two urban ambulatory offices and using tablet personal computers. A control group only received regular education about skin cancer risks and preventive behaviors, usually delivered in dermatology offices. This customary education consisted of two or three sentences explaining the importance of sun-protective behaviors to avoid skin cancer and verbal reminders from clinicians to wear sunscreen during the summer. After the intervention and during the summer season, the patients received messages every two weeks, reminding them of the importance of skin cancer preventive

behaviors. The messages were delivered through text messages, email, or phone calls taking into account the participants' preferences. Self-reported surveys and skin pigmentation measurements were performed before the intervention and six weeks after.

Participants with skin types sensitive to sun exposure: skin that burns or becomes tanned, irritated, or darker after sun exposure showed the best post-intervention results. These participants experienced a statistically significant increment in their recognition of personal skin cancer risk, self-reported knowledge, confidence in skin cancer protective behaviors, and sun-protective behaviors compared with the control group participants. Regarding the measurement of pigmentation at the 6-week follow-up, the intervention group members with skin sensitive to sun exposure showed less darkening of the forearm's exposed areas than participants in the control group. This study's interventions, including the SunProtect Program and the post-SunProtect Program text reminders, were successful among Kidney Transplant Recipients with a skin type that irritates or burns.

Robinson, Friedewald & Gordon (2016) involved thirty Kidney-Transplant Recipients (KTRs) in a study where they had to evaluate three different versions of an interactive web-based electronic sun protection program. KTRs who need lifelong immunosuppression to avoid kidney transplant rejection are at increased risk of skin cancer, being squamous cell carcinoma the most frequent skin cancer. The participants were stratified among Hispanic-Latinos (10), non-Hispanic Blacks (10), and non-Hispanic whites (10). SunProtect was an interactive and electronic educational program, English or Spanish culturally sensitive, to illustrate patients' skin cancer risks and protective behaviors. The program was organized in chapters. The first chapters were about the benefits of sun protection, skin cancers, and risks of developing skin cancer. The following chapters included frequent outdoor activities, sun-protective options, and personal

recommendations about sun protection, taking into account each participant's skin type, preferences, and usual outdoor activities. The participants were exposed to three different iterations of the program. The opinion of each group of participants was collected through a series of cognitive interviews. The researchers found that it was more productive to start the program presenting the benefits of sun protection, followed by presenting the pictures and testimonials of patients of all skin types with skin cancers. This sequence in the intervention presentation was decisive for this educational intervention's success, being the message credible, accurate, and relevant. Consequently, all the participants increased their awareness of their susceptibility to suffering from skin cancers and were able to identify their particular risks for skin cancer. Combining the knowledge about the importance of sun protection to prevent skin cancers with the personal risk of suffering from this condition enhances Kidney Transplant Recipients' self-efficacy to protect themselves from U.V. light rays (Robinson, Friedewald & Gordon, 2016).

The researchers used the Health Belief Model (HBM) and the Precaution Adoption Process Model (PAPM) as frameworks for this study. The Health Belief Model was developed in the 1950s by Godfrey Hochbaum, Irwin Rosenstock, and colleagues at the U.S. Public Health Service. The authors tried to explain the rationales behind the behaviors that an individual displays after the perception of a threat. This model's components are perceived threat, perceived benefits, perceived barriers, cues to action, other modifying variables, and self-efficacy. These components work together, influencing this individual's choice to take or not to take action (Boslaugh, 2019). The PAPM attempts to explain how individuals decide to take action and translate that decision into action. In both models, the patients' perception about their particular

risks of suffering from a specific condition could make them take action to reduce these risks (Weinstein et al., 2008).

Tsai, Frank, & Bordeaux (2018) developed a randomized control trial in an academic outpatient dermatology clinic. Their purpose was to evaluate the effectiveness of two different interventions designed to increase the knowledge and self-efficacy regarding melanoma skin cancer and sun-protective behaviors among African American patients. A total of 143 patients were randomized to two groups: the brochure-intervention group (n=72) and the video-intervention group (n=71). The melanoma brochure published by the National Cancer Institute targeted darker-skinned individuals. The title of the brochure was: "Anyone can get skin cancer." The patients randomized to the video-intervention group also received the same brochure as the patients in the brochure-intervention group and additionally watched a melanoma tutorial online. Pre-And-Post-Intervention surveys showed an improvement in both groups regarding knowledge about melanoma skin cancer, self-efficacy, and sun-protective behaviors. The researchers concluded that the same educational interventions that have been previously successful in Hispanics and Caucasians also showed to be successful among African-Americans.

### **Summary of the Evidence.**

There was no uniformity across these studies regarding their design, the size of the samples, the type of randomization in the randomized control trials, the sites from which the participants were recruited, and the type of intervention. The majority of the selected studies (7 out of 9) were quantitative studies. Three of these seven quantitative studies were randomized controlled trials, and one of the studies had a quasi-experimental design. There was one mixed study that combined qualitative and quantitative research methods and two qualitative studies.

Chao et al. (2017) recruited a consecutive convenience sample of 100 African-American, Asian or Hispanic adults, visiting a Dermatology Clinic in Chicago. Similarly, Kundu et al. (2010) decided to work also with a consecutive convenience sample of 71 patients who went seeking care for dermatological disorders to the Northwestern Center for Ethnic Skin in Chicago. Tsai, Frank, and Bordeaux (2017) recruited 143 patients from an academic outpatient dermatology clinic in Cleveland.

Chung, Brown & Gibson (2015) recruited only 34 Hispanic participants from a local community health fair in North San Diego County, California, while Hernandez et al. (2014) recruited their 80 Hispanic participants from five beauty salons in the neighborhood of Pilsen, Chicago.

Other researchers enrolled only KTRs such as Guevara et al.; Robinson, Friedewald and Gordon; and Robinson, Friedewald, Desai & Gordon. Guevara et al. (2015) recruited 24 kidney transplant recipients from a pool of 700 KTRs. Robinson, Friedewald, and Gordon (2015) enrolled 30 KTRs in one of their studies and 170 KTRs in the other two studies from a pool of 552 eligible kidney transplant recipients.

Robinson et al. developed progressive studies, which started with evaluating an educative booklet about skin cancer and preventive behaviors by KTRs, which continued with the pilot evaluation of the interactive program SunProtect delivered through personal computer tablets. Consecutively, it was followed by the implementation of the SunProtect Program delivered through the same tablets and finished with the implementation of the same educative program SunProtect plus the use of verbal reminders to wear sunscreen, which was sent every two weeks after the intervention, through text messages, phone calls or emails. Robinson et al. always

recruited the participants in these four studies from three different ethnic-racial groups: Hispanics, African Americans, and Non-Hispanic whites.

Lack of knowledge about the real importance of avoiding exposure to ultraviolet light and implementing sun-protective behaviors was remarkable in most studies. An example supporting this statement is how participants with a skin of color in the study conducted by Guevara et al. considered that sun protection was only important to avoid becoming darker instead of preventing skin cancers. Hispanics' or African Americans' normative or cultural belief regarding skin cancer is that they do not need sun protectors because they have natural protection: their pigmented skin. Hispanics and African-Americans have the misconception that their skin's dark pigmentation is enough to block the sun's ultraviolet rays. Hernandez et al. (2014) also found that most Hispanic participants enrolled in their research did not use sun protectors daily, and among those who used sunscreens, the majority did not apply them in the necessary frequency and amount throughout the day. These researchers believed that one of the causes of this problem is that sunscreens' labels were written in English, and Hispanics who did not speak English could not access this crucial information.

Nevertheless, in the study conducted by Kundu et al. in the pre-intervention survey, a high percentage of the participants knew that melanoma was a type of skin cancer associated with sun exposure and was willing to look for medical care the case they noticed a changing nevus. The researchers offered for this high pre-intervention melanoma awareness among the participants the following explanation. They had been recruited from a dermatology office where they went to seek medical attention, having more inclination to perform the self-skin examination and to be more attentive to their skin conditions (Kundu et al., 2010). Although most participants had the

above-mentioned pre-intervention knowledge, they were not aware of the melanoma's warning signs and did not know that people with ethnic skin could also suffer from melanoma.

In the qualitative research developed by Guevara et al., dark-skinned participants, when evaluating a workbook designed to educate kidney transplant recipients regarding sun-protective behaviors, recommended adding pictures of patients with ethnic skin suffering from skin cancer. The rationale behind this requisition is that people need to perceive the risks they are exposed to, to change their beliefs and their health behaviors positively. The pictures of dark skin tone patients suffering from skin cancers made participants increase their risk perception of suffering from skin cancers if they would not adopt sun-protective behaviors; making the probability of skin cancer more real. Chao et al. (2017) also modified the brochure of the ABCDEs of Melanoma skin cancer from the Skin Cancer Foundation taking into account the recommendations that Robinson, Joshi, Ortiz, and Kundu made developing research with patients from ethnic minorities in Chicago. One of the most important modifications they made to the brochure was to include pictures of patients with ethnic skin suffering from skin cancer, but also these researchers included the expression "melanoma skin cancer" and a new session where the participants in the intervention group could see a patient performing a self-skin examination. However, Kundu et al. (2010) did not include photos of acral melanomas in patients with ethnic skin because they were not available in the pictures' source they used: a dermatology textbook used to teach dermatology's residents. Instead, these researchers showed photos of Caucasian patients with ALM and demonstrated step-by-step how to perform a Self-Skin Examination using a picture guide. Kundu et al. (2010) emphasized the importance of examining acral sites and mucous membranes of the lips during the Self-Skin Examination and recommended performing it at least once a month while taking a shower. Knowing that mucosal



and acral sites which are not exposed to the sun; such as inner lips mucosa, subungual areas, palm, and soles; are the most frequent sites affected by melanoma in Hispanics and African-Americans, the self-skin examination is of tremendous importance to detect earlier the melanoma skin cancer in these groups of patients.

Short videos have proved to be a very effective method to increase cancer knowledge, encourage participation in cancer screening campaigns, and promote healthier behaviors among patients (Frosch et al., 2001; Gimeno-Garcia et al., 2009; Yancey et al., 1995). On the one hand, patients' satisfaction rates with this educational method are high, as found by the above-mentioned researchers. On the other hand, if the patients would like to review the video again because they need to clarify certain information, they could do it easily and later (Gimeno-Garcia et al., 2009). Besides, educational videos are inexpensive ways of education that do not require any health provider's assistance, placing a minimal burden on any practice resources (Gimeno-Garcia et al., 2009). Besides that, educational videos could help disseminate educational topics to a broader audience in clinical and non-clinical environments and eliminate educators' inconsistencies being a more standardized educational method (Gagliano, 1988; Krouse, 2003; Sweat, C. O'Donnell & L. O'Donnell, 2001). Educational videos could reach people with low health literacy, being an instrumental means of education in this population (Sobel et al., 2009).

The high effectiveness of using videos and testimonials delivered through a tablet format was demonstrated in the intervention conducted by Robinson et al. in 2015. The randomized controlled trial developed by Armstrong, Idriss, and Kim in 2011 and the systematic review performed by Tuong, Larsen & Armstrong in 2014 support this finding. These researchers found that using a video-based educative intervention is more effective in increasing

knowledge about sunscreen use and modifying health behaviors among participants than using written literature like pamphlets.

An interactive educational program like SunProtect provides a suitable way to educate patients with limited health literacy, as shown by Robinson et al. These researchers found that if patients with limited health literacy can listen to the program in their preferred language and can see the images of patients with skin cancer repeatedly, they are capable of learning and assimilating the educative message. Another important advantage of using the interactive SunProtect program delivered by tablets as an educational intervention is that participants could complete the program in 30 minutes that is the average time the patients wait to be seen by their health care providers. Another advantage of using this interactive educative program is that providers would not need to educate their patients regarding skin cancer risks and protective behaviors if the patients had received the education while waiting to meet their providers.

Regarding the studies' cultural sensitivity, Robinson et al. implemented a sun-protection education program among KTRs using tablets, the participants could select their language of preference (Spanish or English), and the researchers chose a culturally appropriate language. Examples of this culturally adequate language were the use of the expression "skin irritation" instead of using the expression "sunburn" and the use of the expression "getting darker" instead of using the word "tanning."

Another important point to remark in these studies is how Robinson et al. were able to elaborate tailored sun-protection recommendations for each participant, using information they collected previously in the educational program's interactive section. In this interactive segment of the program, the participants could select their preferred daily outdoor activities, their sun-

protective behaviors, and their skin color in an area of their bodies protected from the sun (Robinson, Friedewald, Desai & Gordon; 2015).

Written material with color pictures of skin cancers was requested by 80% of the participants enrolled in the study conducted by Robinson, Friedewald, Desai, and Gordon in 2015.

Nevertheless, only 20% or less of these participants requested their personal sun-protective suggestions (Robinson, Friedewald, Desai & Gordon, 2015).

The researchers used different theoretical frameworks in their studies like the Theory of Reasoned Action and Planned Behavior, the Transtheoretical Model, the Transportation Theory, the Health Belief Model, and the Precaution Adoption Process Model. Guevara et al. (2015) decided to use the Theory of Reasoned Action and Planned Behavior because this theory states that attitudes toward a given behavior, perceptions about this behavior, and the extent to which one perceives control over this behavior are moderators of a person's intentions to engage in the behavior. In this case, the desired behavior that Guevara et al. wanted to encourage among the participants is the sun-protective behavior. Nevertheless, Robinson et al. (2015) preferred to use the Transtheoretical Model as a framework because this model posits that the perception an individual has about his/her vulnerability to a health threat, the severity of the health condition he/she could suffer, and the benefit a health behavior could have to avoid the threat could make him/her adopt this healthy behavior. Robinson et al. (2015) also used the Transportation Theory in the research conducted among KTR using the SunProtect Program delivered through tablets. This theory states that narrative has a persuasive effect on overcoming cognitive biases and preconceived beliefs if the narrative provides convincing information, claims, and depictions about certain topics or events, including testimonials. People who receive the message and can identify themselves with the characters who are narrating the story will be more likely to take

action once they realize how severe this health problem could be. Robinson et al. (2015) also used the Health Belief Model and Precaution Adoption Process Model. These Models explain that if individuals consider they are at risk of developing a health condition like skin cancer and understand that certain actions (sun-protective behaviors) could reduce this probability, they would be more prone to adopt these actions.

### **Limitations**

In four of the nine selected studies, the participants were kidney transplant recipients who could limit these researches' external validity. Some of the studies had small samples size, like the study conducted by Chung, Brown & Gibson, where there were only 34 participants, and the study was guided by Guevara et al. with only 24 participants. Robinson, Friedewald & Gordon (2016) also performed a study with only 30 KTRs. Besides that, some of the studies which already had small sample sizes suffered attrition at the end of the studies, like in the studies conducted by Chao et al.; Kundu et al.; and Tsai, Frank, & Bordeaux. Another limitation in some of the studies is that the ethnic group that predominated among the participants was an ethnic group different from Hispanics. In the study conducted by Chao et al. (2017), 78% of the participants were African-American, and only 11% were Hispanics. In the study developed by Robinson, Friedewald, Desai, & Gordon with KTRs in 2015, only 48 patients were Hispanics, while 60 patients were NWHs, and 60 were African-American. An identified limitation of the research conducted by Hernandez et al. is that the male sample size was small; only 13 out of 80 participants were males, but the researchers also considered only the women's opinions to develop the educative videos. In the study by Chao et al., most of the patients were females, reducing the possibility of generalizing the results to male patients. Another limitation of some of these studies is that the researchers did not measure the behavioral changes regarding sun

protection after the intervention, or if they did it, it was for a concise period of time. Robinson et al. (2015) performed the post-intervention follow-up only two weeks after the educational intervention. This short follow-up period does not inform about the long-term adherence of the participants to the sun-protective behaviors. Hernandez et al. (2014) did not measure if the participants really changed their sun-protective behaviors after implementing the intervention. It would be interesting to know if there is a long-lasting adherence of these participants to sunscreen use and other sun-protective strategies.

On the one hand, Tsai, Frank, & Bordeaux (2018) were not able to determine if the improvement of the knowledge, the sun-protective behaviors, or the participants' self-efficacy were caused by the educational intervention per se or by the education provided by the physician. The absence of a standard practice control group was the origin of this limitation. On the other hand, Robinson et al. developed their educational interventions in a city with temperate weather, and maybe it is not possible to generalize their findings to educational interventions developed in cities with sunny weather like Miami, Florida. Robinson et al., in one of their studies, completed the post-intervention survey through telephonic interviews while the pre-intervention survey had been completed directly by the participant on the tablets. Then, an observer effect could have had some influence on the participants' answers.

No risk of bias was reported in any selected studies except in the article: Response across the health-literacy spectrum of kidney transplant recipients to a sun-protection education program delivered on tablet computers: Randomized controlled trial. In this case, Dr. Robinson owns the trademark of the software used in the sun protection education program delivered on tablet computers.

**PICO and Clinical Question.**

**Population:** Hispanic patients in a dermatology clinic.

**Intervention:** An educational intervention about skin cancer awareness and prevention.

**Comparison:** Pre/Post Test.

**Outcomes:** Increased knowledge of skin cancer and sun-protective behaviors.

**Clinical Question**

Can a health educational intervention improve knowledge of skin cancer and sun-protective behaviors of adults in a dermatology clinic?

**Theoretical Framework.**

The Health Belief Model (HBM) and the Precaution Adoption Process Model (PAPM) will be the frameworks for this Quality Improvement Project because both models encourage the individuals to make positive changes in their health behaviors once they have perceived certain risks for their health.

It is complex the process through which an individual can finally adopt a skin cancer preventive behavior. Backward and forwards decisions and actions characterize this process. The individual needs to weigh the pros and cons of this desired behavior. In the case of sun-protective behaviors, the individuals should know the risks they have of suffering skin cancers if they go frequently unprotected under the ultraviolet rays' exposition and how lethal the skin cancer could be. At the same time, the individual would consider how inconvenient or expensive it is to use a sun protector and what he or she could gain using this sun protector or any other protective device. Then, after the individual realizes how probable it is that he or she

could have lethal skin cancer and how important are the strategies to reduce this probability, this individual could move to action to reduce these risks. Also, the increased perception of these risks could keep the individual adhered to this healthier behavior for a long period of time. In most of these studies, the sense of vulnerability the participants had of suffering from skin cancers was increased once they watched the testimonials or depictions of patients with skin of color suffering from skin cancers. Consequently, they felt motivated to implement and to keep the sun-protective strategies.

The first element of the HBM is the perceived susceptibility to developing a health problem. Applying this construct to this Quality Improvement Project: Hispanics participating in this project after receiving the Educational Intervention would increase their perception of susceptibility to developing skin cancers and specific melanoma along with their lives, which could prompt them to change their sun-related behaviors.

The second construct of the HBM is the severity perception. In this QIP, the researchers tried to convince Hispanic participants of how severe skin cancers and specific melanoma could be showing photos of Hispanic patients or patients with ethnic skin undergoing extensive and disfiguring surgeries to excise skin cancers. In the Educational Intervention, the researchers illustrated participants with the figures showing the high incidence and mortality of Malignant Melanoma in the United States of America. Researchers wanted to increase the participants' perception of how severe skin cancers could be to invite them to change their sun habits positively. Perceived benefits are the third construct of the HBM, and this QIP's researchers emphasized the importance of avoiding any exposure to ultraviolet sun rays to prevent skin cancers and the photoaging or premature aging of the skin.

The fourth construct of the HBM is the barriers perception. Really, the researchers did not inquire about the barriers' perception of participants regarding the implementation of sun-protective strategies, the performance of the Self-Skin-Examination, or the annual visit to the dermatologist. Although the researchers did not determine these possible barriers, the recruited participants were already patients of this dermatology clinic having medical insurance and access to the health system. Consequently, participants at least could have their annual skin check-up with a dermatologist. Another positive point is that the average income of participants was moderate to high, and for this reason, it is supposed that the purchasing of an appropriate sun protector would not be a barrier among these participants. Other barriers participants could find to the sun protector application could be the sun protector's texture (greasy or thick), color, etc. These barrier identifications could be one of the purposes of future studies.

The modifying variables are the fifth construct of the HBM. The family history of skin cancer and ethnicity could be two of these variables which could influence the participants' skin cancer susceptibility and severity perception. Most participants did not have a family history of skin cancer, reducing participants' skin cancer risks perception. Also, Hispanics sometimes have a fatalistic perception of skin cancer and do not follow skin cancer prevention recommendations, as shown by Jacobsen et al. In addition, Hispanics of darker skin tones think they are not susceptible to develop skin cancer due to the protection that melanin confers.

Cues to action are the sixth component of the HBM. After receiving the Educational Intervention, the participants of this QIP would increase their skin cancer susceptibility and severity perceptions, which would promote their engagement in sun-protective behaviors. As the participants would also learn about the premature aging of the skin secondary to exposure to natural and/or artificial ultraviolet light sources, this would help them modify their sun-related



behaviors positively and enhance their adherence to sun protective strategies. Additionally, the Educational Intervention would prompt the participants to perform the Self-Skin-Examination monthly and have a Full Skin Examination by a dermatologist annually.

Finally, the seventh and last construct of the HBM is Self-Efficacy. Participants of this QIP should feel capable of performing an effective Self-Skin –Examination, identifying the Melanoma's alarming signs or a pink and rough lesion that does not heal and bleeds after the Educational Intervention. Besides, the participants should also feel confident applying the sun protector in the right amount and frequency and performing the Self Skin Examination because at the end of the Educational Intervention each participant demonstrated how to apply the sun protector and to perform the Self Skin Examination under the supervision of the DNP student.

The Precaution Adoption Process Model (PAPM) is a dynamic theoretical framework that describes the six stages an individual has to traverse to arrive first at a decision, then turn the decision into action, and finally maintain this action. The first stage in this QIP would be when participants respond to the Pre-Educational Intervention Survey and have not learned about skin cancer risks and sun-protective behaviors yet. The second stage would be when participants are receiving the Educational Intervention. In this second stage, the participants became aware of the skin cancer risks, the probability of suffering skin cancer, the severity of skin cancers, and the strategies to diagnose these cancers earlier or avoid them through appropriate strategies. Then, in the third stage, the participants decide if they are going to change their sun behaviors if they are going to avoid the tanning salons, if they are going to implement all the learned sun-protective strategies, if they are going to start making their monthly skin check and if they are going to visit a dermatologist yearly or not. Participants who entered the fourth stage are those who decided not to change their sun-protective behaviors. When the participants have decided to

avoid exposure to U.V. light rays, protect their skin using different methods, check their skin monthly, look for alarming melanoma signs, and visit the dermatologist on an annual basis, they have entered the fifth stage. The sixth stage is when participants incorporate all these new positive sun-protective behaviors, the monthly skin check-up, and the annual Full Body Skin Examination into their lifestyle. The last stage, the seventh stage or maintenance stage, is when the participants can keep all these positive behavior over time which would be the ideal goal, but the researcher does not measure the long-term adherence to these ideal behaviors.

### **Objective(s) of the quality improvement project.**

This Quality Improvement Project (QIP) 's primary aim is to positively impact the quality of care we provide to our Hispanic patients, increasing their awareness and knowledge about skin cancer and sun-protective strategies.

The purpose of this Quality Improvement Project is to change not only the level of knowledge about this topic but also the behavior of our Hispanic patients regarding skin cancer risks and sun-protective behaviors. If this educational intervention is effective, then the DNP resident could spread this experience to other RiverChase Dermatology offices. The long-term goals would be to reduce the morbidity and mortality rates for skin cancer in the Hispanic population in the U.S. Consequently, we could reduce the health disparity among Hispanics and non-Hispanic whites regarding the malignant melanoma survival rates.

### **Definitions of terms.**

Skin cancer is the out-of-control and abnormal growth of specific cells in the epidermis or outer layer of the skin.

Melanoma is the type of skin cancer that originates from the melanocytes that are the cells that produce the melanin, the pigment of the skin.

Hispanics encompass a very diverse group of individuals from different origins who speaks Spanish as a native language.

A health educational intervention is a combination of strategies designed to cause behavior changes or positively influence an individual's health status, a community, or an entire population (Steckler, 1995). Educational interventions work through intermediate outcomes. Interventions could include different types of activities: an educational program, a new health policy, or a health promotion campaign. Generally, the interventions encompass several strategies to produce more effective and long-lasting changes (Steckler et al., 1995).

### **The rationale for conducting this Quality Improvement Project**

Skin cancer being preventable in most cases, could be disfiguring or even deadly in others, and its treatment very expensive. Its incidence has been increasing geometrically in the U.S. in the last decades up to the degree that the Surgeon General's office released a Call to Action to Prevent Skin Cancer in July 2014. Skin Cancer is considered a major public health problem, placing the Skin Cancer Prevention as a high priority in the U.S.' Health System.

Although NMSCs are more frequent than melanoma skin cancers among Hispanics in the United States (U.S.), the rapid occurrence of Melanoma in Hispanics has become a concern among healthcare providers. As per the American Cancer Society (2015), the number of melanoma diagnosed among Hispanics in the U.S. has increased by 19% in the last 20 years.

According to Apalla et al. (2017), exposure to ultraviolet radiation from tanning beds and the sun is the leading cause of the different types of skin cancer in all racial and ethnic groups. Effective skin cancer preventive behaviors include the use of sunscreen, wearing clothing with sun protective characteristics, and avoiding direct exposure to the sun during critical hours when the number of ultraviolet sun rays is higher. Hispanics do not follow skin cancer prevention guidelines and are not aware of the symptoms and signs of the different types of skin cancer (Jacobsen et al., 2016). Weiss, Kirsner, and Hu (2012) conducted a systematic review of the trends in primary skin cancer prevention among U.S. Hispanics and concluded that primary prevention of skin cancers among U.S. Hispanics is deficient. These authors found that Hispanics are less likely to protect their skin using sun protectors than NHWs. Hispanics do not perceive the risks they have for skin cancer because of a lack of knowledge about the condition and protective behaviors (Cheng et al., 2010 & Ma et al., 2007).

The U.S. Hispanic population merits increased attention in this battle against the different types of skin cancers for different reasons. One of the reasons is that Hispanics perform 25% or more of the U.S.' farming and landscaping jobs and construction jobs, having additional occupational exposure to these nocive sun rays. Another reason is that the Hispanic population, being the most significant ethnic minority in the United States and the principal driver of its demographic growth, is rarely the focus of educational interventions or skin cancer screening research. This fast demographic growth accentuates the public health relevance of conducting researches to reduce the considerable human and economic burden that skin cancers and specifical melanoma could represent for this community in the future.

Cultural competency and proficiency are essential skills to provide high-quality care to multicultural patients' populations. It is essential to learn about patients' health-related beliefs, attitudes, and health preventive behaviors to be culturally proficient. Health care practitioners have the critical role of modifying the wrong attitudes and health behaviors of patients. Hispanics share the misbelief that they are already protected against sun rayon due to their natural skin color. Health care providers have to dispel this myth and provide culturally appropriate education about skin cancer risk factors and methods to prevent it. It is vital to learn more about Hispanics' beliefs and attitudes related to skin cancer risks and preventive behaviors, as well as the barriers they find to implement these sun-protective strategies. It is crucial to identify the best culturally and tailored interventions to educate the Hispanic population regarding skin cancer risks and protective behaviors. This is how to fill the existing gap in skin cancer primary prevention in Hispanics, reducing the health disparity among Hispanics and non-Hispanic whites regarding the malignant melanoma survival rates.

Considering all these facts, the idea of conducting a Quality Improvement Project to educate Hispanic patients regarding skin cancer risks and sun-protective behaviors emerged. The most effective strategies employed before educating Hispanic patients or patients with ethnic skin regarding skin cancer risks and sun-protective behaviors were identified and carefully reviewed to elaborate the most appropriate educational intervention.

**Goals and Outcomes (SMART): Specific, Measurable, Attainable/Achievable, Relevant, and Time-bound (IOM).**

In this QIP, there are short-term and long-term goals. The short-term goals consist of increasing the knowledge about skin cancer risks and sun-protective behaviors of the Hispanic patients enrolled in this QIP. Another short-term goal is that the enrolled patients perform a self-

skin examination effectively and recognize the alarming signs of the moles leading to earlier identification of melanomas. These short-term goals could be measured through the pre-and post-intervention tests and the practical demonstration that will be held after the PPP, where each participant will perform a self-skin examination under the researcher's observation.

The long-term goals would be to reduce skin cancers among Hispanic patients consecutive to the increment of their knowledge about skin cancer, their better adherence to sun-protective behaviors, and their polished skills to perform self-skin examinations and to discover changing nevi or first stages' melanomas. With an earlier diagnosis of melanoma, this condition's prognosis would be more favorable for Hispanic patients. Consequently, the survival rate from melanoma among Hispanics would improve, and the health disparity regarding the survival rate between Hispanics and NHWs would be reduced. The measurement of these long-term goals goes beyond the performance of this QIP and could be done in a subsequent study after the completeness of this QIP, where the researchers could measure the degree of adherence of participants to the already learned sun-protective strategies and the monthly self-skin examination.

## **METHODOLOGY**

The first step to start the QIP was to prepare a QIP Proposal and submit it to the Florida International University Office of Research Integrity (through TOPAZ FIU IRB) with the filled Exemption Form for revision and approval. The IRB Protocol number: IRB-20-0136 was deemed exempt via the Exempt Review Process on April 10<sup>th</sup>, 2020, with a TOPAZ Reference number: 108944. Posteriorly, the participants' sample had to be reduced from 50 to 30 Hispanic

patients to make the QIP more feasible in the middle of the COVID19 pandemic. Another critical step was to change the modality of the educational intervention implementation: from in-person to online using a telemedicine platform (DermConnect, Doxy. me pro platform) due to the epidemiological precautions of the COVID19's pandemic. This way, the participants would receive the educative session from the safeness of their homes. Consequently, the amended QIP required a second submission to the FIU IRB for another revision and approval. The QIP's amendments were approved on June 18<sup>th</sup>, 2020, by the Florida International University Office of Research Integrity, which assigned a new number to the protocol: IRB-20-0136-AM01.

### **Design, Setting, Sampling Frame**

This QIP is a pilot study with a Quasi-Experimental Design, which was developed in a dermatology clinic. Participants' age ranged from 20 to 65, and one of the requirements to participate was to have no personal history of skin cancer. Participants were recruited when they came to be seen medically, using local advertisements placed in the waiting room and each examining room. The recruitment started on June 19<sup>th</sup>, 2020, and finished on September 4<sup>th</sup>, 2020.

### **Procedure: Description of the QIP Implementation**

Instead of implementing the QIP in person, and due to the social distancing recommendation from the COVID19 pandemic's epidemiological regulations, the implementation was online using a telehealth platform DermConnect, Doxy. me pro platform. This platform had been routinely used during the pandemic to perform virtual consultations in the dermatology clinic, becoming a valuable tool to achieve communication between providers and patients. This platform follows all necessary rules and regulations associated with HIPAA, and it is not only

HIPAA compliant; but also GDPR, PHIPA/PIPEDA, & HITECH compliant, meeting worldwide security requirements. This telehealth platform does not permanently store Protected Health Information and operates according to the Privacy and Security Rules. During the implementation of the educational intervention, the sessions were not recorded, and the communication took place through the camera and the audio of the devices.

The whole implementation took from 50 to 60 minutes. First: the participants completed the pre-educational intervention survey in 8 to 10 minutes in Qualtrics. The participants gained access to the pre-and-post educational intervention surveys through an anonymous link embedded in the Qualtrics system received via email. Second: participants received the 25 minutes PowerPoint presentation with the educational intervention, and consecutively participants had a 15 minutes' session to ask any question about the PPP to the DNP student and demonstrate how to perform the self-skin examination and to apply the sun protector. Third: Participants answered all the post-intervention survey questions. Once the participants finished completing the post-intervention survey, a pamphlet with the main messages from the PowerPoint Presentation was sent via email to each participant to remind them of what they learned during the intervention.

### **Approach and Description of the Educational Intervention.**

The PowerPoint Presentation (PPP) was created in Spanish and had three different sections. In the first section of the PPP, the main objective was to explain the skin cancers' causes, origin (layers of the skin), severity, and risk factors. The second section of the PPP focused on the risk factors for melanoma, the particular characteristics of melanoma skin cancer, and its unique characteristics in Hispanic patients. This section also contained photos of melanomas in patients with ethnic skin and photos of patients who required extensive excisions of skin cancers. Besides, this section included the alarming signs of the moles or ABCDEs: A for Asymmetry, B



for Irregularity of the Borders, C for Change in Color or Color Variegation, D for Diameter, and E for Evolving characteristics. Also, this section illustrated the appropriate method to carry out a self- skin examination (SSE), showing a patient with ethnic skin performing the SSE. The third and last PPP section encompassed skin cancer preventive behaviors, including a good sun protector's characteristics and how effectively the patients should use it and apply it. The educative intervention explained to participants when and why they should visit a dermatologist at least once a year. Through all the PPP, a positive message appeared: skin cancers are preventable, and sun-protective behaviors effectively avoid skin cancers. Finally, participants answered the post-intervention survey.

### **Measures**

The tool used to collect all the data was the pre-and-post intervention surveys. Both surveys were created in the Spanish language in Qualtrics (which uses SSL encryption) and are very similar except that in the pre-intervention survey, participants would provide a piece of additional information: the demographics. The first section of the pre-intervention survey or demographic section encompassed the age, sex, employment, and marital status, the annual income, the achieved level of education, the place of residence, and the ownership status of their place of residence. In the second section of the pre-intervention survey and the post-intervention survey's unique section, the participants would answer questions regarding skin cancers, skin cancer risks and alarming signs, and sun-protective behaviors. There are items with single or with multiple answers in the surveys, which are specified on each question heading.

## **Evaluation**

A Mitigation Plan was conceived in case that possible risks and problems could appear during the performance of this QIP. If the personal computer where the PPP is stored would experience any technical problem, the PowerPoint Presentation would also be saved in another auxiliary computer. Periodically, the evaluation of the progress of the QIP was performed to identify promptly any risk or barriers to the project to deploy the mitigation plan on time, but it was not necessary.

## **Analytics**

Qualtrics XM was the system designed to collect and analyze the data. Descriptive statistics were used to describe the demographic data such as age, gender, race/ethnicity, education, and income level. During the analysis, each question's answer to the pre-intervention surveys was scored individually with a percentage, and the average group percentage was calculated. The same was done with the post-intervention surveys. Finally, a comparison of each item's percentages and the group averages between the pre-and post-intervention tests was performed to determine the effectiveness of the educational intervention as a whole and specifically on each item.

## **Results**

### **Demographics**

Most of the participants were white Hispanic (80%), married (64%), women (77%) older than 41 and younger than 65, with a high level of education (60%) and a high socioeconomic status

(67%). More than 60% of participants had finished college (or university), and 30% had finished High school. Most of the participants who completed the university had a Master's degree (32%) or a Bachelor's degree (42%). Seventy seven percent of participants shared a high Socioeconomic Status, earning annually from \$50,000 to \$99,999 (44%) or more than \$100,000 (23%). Seventy percent (70%) of our participants lived in their own houses and were currently employed.

### **Skin cancer risks**

Most of the participants had no family history of skin cancer or melanoma (83.3%), and none of them had a history of skin cancer (one of the requirements to participate). Sixteen participants (representing 53.3% of our sample) had a history of sunburns in their childhood and/or adolescence. Before the educational intervention, twenty-six of our participants (83.3%) were not aware of the association between sunburns occurrence during childhood and/or adolescence and the posterior increased melanoma incidence in adulthood. Between the pre-and-post intervention surveys, there was a remarkable knowledge improvement of 79.9%. See Table 1 below.

**Table 1**

*Pre-and-Post Intervention Scores: Awareness of Association between sunburns occurrence in childhood and adolescence and Melanoma incidence later in life. Correct option \**

	Aware of Association between sunburns in Childhood and Adolescence & Melanoma later in life *	Not Aware of Association between sunburns in Childhood and Adolescence & Melanoma later in life
Before de Intervention	4 (13.4%)	26 (86.6%)
After the Intervention	28 (93.3%)	2 (6.7%)

Note: This data was collected between June 18<sup>th</sup>, 2020 and September 4<sup>th</sup>, 2020. Retrieved from Qualtrics.

Ninety percent (27) of patients classified themselves as Skin Type from II to IV: Skin type II 6 participants (20%), Skin Type III 15 participants (50%), and Skin Type IV 6 participants (20%). Only 1 participant selected Skin Type I (3.3%), and 2 of them (6.7%) chose Skin Type VI among all the options.

Eight participants (27%) had visited Tanning Salons. Although most of the participants (19-63.3%) considered Tanning Salons dangerous and associated with skin cancers since the pre-intervention survey, six patients (20%) evaluated Tanning Salons as prodigious to achieve fast and effective tanning. Also, four patients (13.3%) thought Tanning Salons make the skin look healthier and sensual, and one patient (3.4%) appreciated Tanning Salon because it helped the skin to look less pale. There was a 36.7% of knowledge improvement respecting the appropriate Tanning Salons' evaluation between the pre-and- post-intervention surveys with 100% of participants aware of all the danger that Tanning Salons represent for the skin's health after the educational intervention as shown in Table 2 below.

**Table 2**

*Perception of participants about Tanning Salon. Correct option \**

Perception of participants about Tanning Salons				
	Marvelous to make the skin look healthier & Sensual	Help to reduce paleness	They are dangerous causing Skin Cancer *	Prodigious to produce a fast and effective tanning
Before Educational Intervention	4 (13.3%)	1 (3.4%)	19 (63.3%)	6 (20%)
After Educational Intervention	0	0	30 (100%)	0

Note: This data was collected between June 18<sup>th</sup>, 2020 and September 4<sup>th</sup>, 2020. Retrieved from Qualtrics

### Types of Skin Cancers

Most participants (27-90%) had no idea of the different skin cancer types when completing the pre-intervention survey. There was 86.7% of knowledge improvement between the pre-and-post-intervention surveys respecting the different types of skin cancer. Analyzing each type of skin cancer, the improvement in the knowledge the participants experienced between the pre-and-post-intervention surveys were: Basal Cell Carcinoma 60% (from 8-26.7% to 26-86.7%); Squamous Cell Carcinoma 56.7% (from 8-26.7% to 25-83.4%); and Melanoma 30% (from 21-70% to 30-100%). Seventeen participants (56.7%) in the pre-intervention survey and six (20%) in the post-intervention survey considered wrongly that Compound Nevus is a type of skin cancer, as Table 3 shows.

**Table 3**

*Recognition of the different types of Skin Cancer. Correct answers\**

	Nevus Spitz	*BCC	Seborrheic Keratosis	*SCC	Actinic Keratosis	Compound Nevus	*Melanoma
Before the Intervention	2	8 (26.7%)	7	8 (26.7%)	7	17	21 (70%)
After the Intervention	0	26 (86.7%)	0	25 (83.4%)	3	6	30(100%)
Percentage of Improvement		60%		56.7%			30%

Note: This data was collected between June 18<sup>th</sup>, 2020 and September 4<sup>th</sup>, 2020. Retrieved from Qualtrics

**Melanoma’s or Moles’ Alarming Signs & the meaning of the ABCDE acronym**

Only 7 participants (23.4%) declared to be familiar with the moles' Alarming Signs when filling the pre-intervention survey. There was a 76.6% of knowledge improvement between the pre-and-post-intervention surveys when acknowledging the familiarity with the moles' Alarming Signs. Respecting the ABCDE rule to identify changing moles or Melanomas: Neither patient was familiar with this acronym. A 100% improvement occurred in this specific item after the educational Intervention in the post-intervention survey. When choosing the right combination of meanings for each letter of the ABCDE acronym: A for Asymmetry, B for Borders Irregularity, C for Change in Color, D for Diameter and E for Evolving; only 12 participants (40%) were able to choose the right option in the pre-intervention survey. A 60% of knowledge improvement was observed between the pre-and-post-intervention surveys regarding this item, as illustrated in Table 4.

**Table 4**

*Right Selection of meanings’ combination for each letter of the ABCDE Acronym.*

	Participants who chose the right combination of meanings for each letter of the ABCDE acronym or Melanoma’s Alarming Signs.	Participants who did not choose the right combination of meanings for each letter of the ABCDE acronym or Melanoma’s Alarming Signs.
Before the Intervention	12 (40%)	18 (60%)
After the Intervention	30 (100%)	0

Note: This data was collected between June 18<sup>th</sup>, 2020 and September 4<sup>th</sup>, 2020. Retrieved from Qualtrics

### Self-Skin Examination Performance

In the pre-intervention survey's report appeared that only 10 participants (33.3%) checked the skin with a particular frequency in a year. The majority of these participants: 6 patients (20%) checked the skin only when they felt curiosity, not performing a self-skin-examination with adequate frequency. Only one patient (3.3%) stated that he or she performs the self-skin-examination once a month. After the intervention, 25 patients (83.3%) were aware of the importance of checking the skin once a month, improving participants' knowledge in 80 % between the pre-and-post-intervention surveys. Table 5 illustrates this improvement.

**Table 5**

*Awareness of the importance of performing the Self-Skin-Examination with the adequate frequency. Correct answer\**

	Every six months	Only when curious	Once a Month *	Once a year.
Before the Intervention	1(3.4%)	6 (20%)	1(3.3 %)	2(6.7 %)
After the Intervention	0	0	25 (83.3%)	5 (16.6%)
Knowledge Improvement			80%	

Note: This data was collected between June 18<sup>th</sup>, 2020 and September 4<sup>th</sup>, 2020. Retrieved from Qualtrics

### Awareness of the Typical Areas where Melanoma appears in Hispanics

In the pre-intervention survey, only three patients (10%) thought they knew the typical areas where Hispanics present Melanomas. After the intervention all the participants thought they were capable of recognizing these typical areas. Neither one participant was able to choose the right answer with the typical places where Melanomas appear in Hispanics (acral areas, subungual

areas, and mucosae) in the pre-intervention survey, as shown in Table 6 below. A 100% improvement occurred in this specific item between the pre-and-post-intervention surveys.

**Table 6**

*Right Selection of the Typical Areas where Melanoma appears in Hispanics.*

	Chose the Typical Areas where Melanoma appears in Hispanics.	Chose other wrong areas.
Before the Intervention	0	30 (100%)
After the Intervention	30 (100%)	0

Note: This data was collected between June 18<sup>th</sup>, 2020 and September 4<sup>th</sup>, 2020. Retrieved from Qualtrics

#### **Adequate SPF and when to apply the sunscreen.**

Almost half of participants (14-46.7%) knew the appropriate SPF a sun protector should have (30 or more) before the intervention. Participants experienced a knowledge improvement of 46.6% regarding the adequate filter a sun protector should have. Before the intervention, more than half of the participants (17 patients-56.7%) confirmed the sun protector's application daily when going outdoors to perform any activity. Nevertheless, 9 participants (30%) confirmed that only apply sun protector when going to the beach, and two other confirmed that do not apply sun protector at all because their skin tone protects them from the U.V. rays, being unnecessary. In this particular question, 43.3% of knowledge improvement occurred between both surveys' reports because, in the post-intervention survey, 100% of participants agreed that sun protectors should be applied daily and during outdoor activities. See Table 7.



**Table 7***When to apply the Sun Protector. Correct answer\**

	Only when going to the beach	Only when at home	Daily and when going outdoors to perform any activity *	Only when driving	It is not necessary; my skin tone protects me.
Before the Intervention	9 (30%)	1	17 (56.7%)	1	2
After the Intervention	0	0	30 (100%)	0	0
Knowledge Improvement			13 (43.3%)		

Note: This data was collected between June 18<sup>th</sup>, 2020 and September 4<sup>th</sup>, 2020. Retrieved from Qualtrics

### **Other Sun-protective Strategies or Behaviors**

Seventy percent (70%) of participants (21) were aware of other sun-protective methods, but they could not choose all the possible sun-protective methods when completing the pre-intervention survey. Only 12 participants (40%) chose the right range of time to avoid sun-exposure: from 10:00 AM to 4:00 PM, and only half of the participants (15-50%) chose sunglasses as a protective method. Eighteen patients (60%) recognized the umbrella as a protective method, 19 (63.4%) chose hats and caps, but only 13 (43.4%) were capable of identifying the long-sleeved blouses and shirts as protective methods. Five patients (16.7%) mistakenly stated that they do not avoid sun exposure or use sun protectors because sun rays are necessary to activate Vitamin D and to have healthy bones. Seven patients (23.4%) wrongly chose the bronzers as sun-protective methods. See Table 8 below.

When comparing the percentages achieved in the pre-and-post-intervention responses, we found an increment in the participants' knowledge in the following sun-protective methods: sun avoidance from 10:00 AM to 4:00 PM: 53.3%; sunglasses use: 36.7%; umbrella use: 40%; hats and caps wear: 36.6%; and long-sleeved blouses and shirts wear: 53.3%.

**Table 8**

*Other Sun Protective Methods. Right answers \**

	Sun is Necessary for Vitamin D production.	Sun Avoidance from 10:00 AM to 4:00 PM *	Sun Avoidance only from 9:00 AM to 11:00 AM	Gum-Boots	Sunglasses*	Umbrella *	Bronzers	Hats or Caps*	Long-sleeved blouses & shirts*
Before Intervention	5 (16.7%)	12 (40%)	7 (23.4%)	1	15 (50%)	18 (60%)	7 (23.4%)	19 (63.4%)	13 (43.4%)
After Intervention	0	28 (93.3%)	1(3.4%)	0	26 (86.7%)	30 (100%)	1	30 (100%)	29 (96.7%)

Note: This data was collected between June 18<sup>th</sup>, 2020 and September 4<sup>th</sup>, 2020. Retrieved from Qualtrics

**When and why should you visit the dermatologist?**

More than half of participants (17-56.6%) considered that they should visit the dermatologist only when a new and strange lesion appears in the skin, showing a deficit of knowledge in the pre-intervention survey. Only 13 participants (43.4%) considered correctly before the educational intervention that it is necessary to visit the dermatologist at least once a year to have a full body skin examination performed and when a new lesion does not heal or bleeds. Between the pre-and-the-post-intervention surveys, 56.6% of knowledge improvement occurred, as shown in Table 9.

**Table 9***When and Why to visit a Dermatologist. Right answer\*.*

	Four Times a Year	At least once a year or when a lesion bleeds and does not heal *	Every two months.	Only when a new and strange lesion is growing.
Before the Intervention	0	13 (43.4%)	0	17 (56.6%)
After the Intervention	0	30 (100%)	0	0
Knowledge Improvement		17 (56.6%)		

Note: This data was collected between June 18<sup>th</sup>, 2020 and September 4<sup>th</sup>, 2020. Retrieved from Qualtrics

After comparing the pre-and-post intervention group scores per question, we got an overall knowledge improvement of 60.14%. By obtaining this percentage of improvement, we can conclude that this Quality Improvement Project effectively raised the knowledge of Hispanic patients about skin cancer, skin cancer risks, and strategies to protect themselves from the sun.

### Discussion

In this QIP's sample, the female participants predominated (77%) over male participants, similar to what has been reported in other studies. Porter (2017) conducted a study among rural Hispanics in Southwestern, Arizona and 79.6% of participants were female. In the sample of the research developed by Chung et al. in 2015, 94.1% of participants were female, and Chao et al. also reported 84% of female participants on the Targeted-Intervention Group and 86% on the Comparison-Intervention Group. Supporting this finding, more than 83% of participants in the

study conducted by Hernandez et al. were women. These data suggest that women are more inclined to participate in surveys.

When analyzing this QIP's participants' educational level, most participants (63.4%) were university graduates. Chao et al. also reported 70% of college graduate or graduate professionals in the Targeted-Intervention Group and 68% in the Comparison-Intervention Group. Nevertheless, in the study conducted by Chung, Brown, and Gibson, 70.6% of Hispanic participants had a lower level of education completing high school or reaching a lower level. These researchers developed the community-based project in a rural Hispanic community located in North San Diego, California, with a low socioeconomic status. On the other hand, Robinson, Friedewald, Desai, & Gordon (2016) reported 46% of college education or higher among the patients in the Intervention Group, and only 33% of the participants enrolled in the Standard of Care Group. The participants' educational level seems to be related to the population's socioeconomic status who live in the locality surrounding the place where the study was performed.

Considering the economic status, 67% of this project participants shared a high-income level, earning \$50,000 or more annually. However, 76.5% of participants enrolled in the research performed by Chung, Brown, and Gibson had a low-income level, earning \$30,000 or less yearly. Robinson, Friedewald, Desai, & Gordon (2016) reported that only 28% of individuals enrolled in the Intervention Group and 32% of these belonging to the Standard of Care Group earned \$50,000 or more. The high economic status of this QIP's participants could be explained by the location of the clinical setting where this QIP was developed. As per the American Community Survey Census of 2018, the median household annual income in the community surrounding the clinic was \$63,992.

Kundu, R., et al. (2010) found that 37.6% of their ethnic skin patients reported lifetime blistering sunburns compared with 53.3% of participants in this QIP. The difference in the incidence of blistering sunburns in both studies could be associated with the participants' Skin Type or Phototype. In the study conducted by Kundu et al., only 21.6% of participants were Skin Type I, II, or III, which usually burn and do not tan, while most participants (73.3%) in this QIP self-classified as Skin Type I, II, or III.

Although more than half of participants on this QIP (53.3%) had a history of sunburns during childhood and/or adolescence, most of them (83.3%) were unaware of the association between sunburns occurrence during the earlier stages of life and melanoma's increased incidence later in life. In this QIP, 80% of participants learned the association between blistering sunburns during childhood and adolescence and the incremented melanoma incidence during adulthood thanks to the educational intervention. Kundu et al. (2010) also found a knowledge improvement in this post-educational intervention questionnaire's item among patients with ethnic skin.

Notwithstanding most of the participants (19-63.3%) considered Tanning Salons dangerous and associated with skin cancers since the pre-intervention survey, eight participants (27%) had visited Tanning Salons, six patients (20%) evaluated Tanning Salons as prodigious to achieve fast and effective tanning, four patients (13.3%) thought Tanning Salons make the skin to look healthier and sensual, and one patient (3.4%) appreciated Tanning Salon because it helped the skin to look less pale. These results indicate that despite the public campaigns against tanning beds, there are still people who continue using this dangerous tanning method to achieve desired cosmetic results. The acculturation's influence could explain the indoor tanning and sunbathing behaviors that some Hispanics living in the U.S. show. Coups et al. (2010) conducted a study with 788 Hispanic participants to determine the correlation between acculturation and skin

cancer-related behaviors in English-acclulturated Hispanics and Spanish-acclulturated Hispanics. English-acclulturated Hispanics reported higher rates of sunbathing and indoor tanning than Spanish-acclulturated Hispanics. In this QIP, the researcher did not measure the participants' acculturation degree, but it is an important factor whose influence should not be ignored. The message is clear: the public education campaigns relative to tanning beds and their association with the increased incidence of melanoma cannot stop, and the alert must be disseminated using all the possible means of communication, including social media.

While analyzing the participants' awareness about the different types of skin cancers, 70% of our participants knew that Malignant Melanoma is a type of skin cancer before the educational intervention. Kundu et al. arrived at the same finding: in the pre-intervention survey, a high percentage of participants knew that melanoma was a skin cancer type. The explanation these researchers offered for the high pre-intervention melanoma awareness among the participants is that they were recruited from a dermatology office where they went seeking medical care, having more inclination to perform the self-skin examination, and being more attentive to their skin conditions. This QIP's participants were also recruited among patients who went to receive medical attention in a dermatology clinic, where they could learn about melanoma. However, few of this QIP's participants were able to identify SCC (8-26.7%) or BCC (8- 26.7%) as skin cancer types before the intervention. As Malignant Melanoma is the most lethal type of skin cancer, maybe health care providers put more emphasis on the education provided about this type of skin cancer and not on the others. Consequently, it is important to fulfill this knowledge gap the patients have showed in this QIP. Although BCC and SCC are not as deadly as melanoma could cause disfigurement and also the death of Hispanics.

Respecting the acronym ABCDE to identify changing moles or Melanomas' alarming signs, none of this QIP's participants (0%) knew about it before the intervention, but immediately after the intervention, 100% of participants became knowledgeable about this rule and its meaning. This finding is consistent with previous findings. In the study conducted by Chung, Brown, and Gibson (2015), most of the participants (32- 94.1%) also had no idea of the ABCDE rule and what each letter stands for in screening for melanoma before the educational intervention. This completely changed after the intervention when 94.1% of participants showed awareness about this rule and its significance. Similarly, Hernandez et al. (2013) also had the same finding: all the participants of the Skin Cancer Intervention Group (12-100%) were not familiar with the ABCDE rule to diagnose suspicious melanoma lesions before the educative intervention, but after the intervention, 100% of them had learned the meaning of the ABCDE acronym.

On the other hand, before the intervention, 100% of our participants were not familiar with the typical sites where melanoma appears in Hispanics what abruptly changed after the intervention when 100% of them were able to identify the palms, soles, subungual areas, and mucosal areas as the specific areas where the Acral Lentiginous Melanoma appears in Hispanics.

Fourteen participants (46.7%) already knew the appropriate SPF (30 or more) a sun protector should have, and 17 participants (56.7%) chose the right circumstance and time to apply the sun protector before the educational intervention. One possible explanation of these patients' knowledge regarding the appropriate filter a sun protector should have and the adequate time to apply it before the intervention is the recruitment source of these participants. The participants of this QIP were established patients of a dermatology clinic and had probably received their health providers' advice regarding sun protection before the educational intervention. However, nine participants still had the wrong conception that sunscreen should only be applied when going to

the beach, and two others thought that a darker skin tone is enough to protect against U.V. radiation. Buchanan Lunsford et al. (2018) found in formative research conducted with eighteen focus groups (which involved 159 Hispanics and African-Americans) in four cities of the U.S. that most participants thought they were at low risk for skin cancer due to their darker skin tones. Most of these participants had never used sunscreen for the same reason as two of this QIP's participants: their ethnic skin has enough melanin to protect them against sun radiation damage.

Regarding other sun protective methods, most of the participants in this QIP were able to recognize umbrellas, hats, and caps wearing as sun-protective strategies, previous to the intervention. Nevertheless, Hernandez et al. found that less than half of their participants wore hats or umbrellas as sun-protective strategies. Similarly to this QIP, Hernandez et al. found that less than half of their participants chose protective clothes' wearing as a sun-protective strategy. Also, only 40% of this QIP's participants considered sun avoidance between 10:00 AM to 4:00 PM a sun-protective method.

As the Acral Lentiginous Melanoma is the most frequent Melanoma type in Hispanics, only performing a self-skin-examination monthly or visiting at least once a year the dermatologist would be possible to detect melanomas at earlier stages. The educational intervention of this QIP changed positively the knowledge and beliefs of most of the participants (83.4%) who learned the importance of performing a SSE once a month and to visit the dermatologist at least once a year or when a new suspicious lesion does not heal or bleeds. Chao et al. (2017) also found an improvement between the pre-and post-intervention surveys regarding the SSE performance rate and the likeliness to seek medical care for a suspicious mole in both the Targeted Intervention and Comparison Intervention Groups, immediately after the intervention and during the two-month-follow-up intervention. Really, neither in this QIP nor in the study conducted by Chao et



al., the researchers measured the long-term adherence of participants to the SSE or the dermatologist's annual visit to have the full body skin examination. Knowing that 40% to 57% of melanomas are self-detected by patients, it would be very interesting to measure participants' long-term adherence to the SSE conducting follow-up surveys 6-and-12- months after the intervention. An excellent idea would also be to measure the sun-protective behaviors of participants during these 6-and-12-month follow-up surveys.

This QIP improved the knowledge of Hispanic patients regarding skin cancer, skin cancer risks and protective behaviors in 60.14% , through the implementation of a cultural sensitive educational intervention.

### **Limitations**

This QIP was primarily conceived to be implemented in person, but due to the Covid19 pandemic's epidemiological constraints, the project was changed to be delivered remotely. The researchers of this QIP recruited a small and convenient sample of only 30 patients, one of several limitations this project has. Participants recruited from a dermatology clinic could have learned about skin cancer risks and sun-protective strategies before, influencing their responses to the pre-and-post educational intervention questionnaires. Another limitation was the lack of diversity among participants: the majority were white Hispanic women with high education and income levels. Then, the results are not generalizable to Hispanic men or Hispanics with a lower level of education or income and from a different racial group. Also, another limitation is that only basic statistics were applied.

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

Loescher, Harris, and Curiel-Lewandrowski (2011) concluded that very few training programs for Advanced Practice Nurses (APNs) on skin cancer exist in the United States of America after conducting a systematic review. Pollitt et al. (2011) emphasized the importance of distinguishing the racial/ethnic differences in the anatomical position, histologic subtype, and tumor thickness of malignant melanoma between their Hispanic and NHWs' patients at the moment of diagnosis. APNs make up a significant portion of the primary care arena as they enter healthcare faster than their physician counterparts, provide health services in rural areas, and perform the majority of routine physical exams. For this reason, it is necessary to develop holistic training programs about skin cancer for APNs, which should also include the most effective and culturally tailored interventions to educate our different ethnic/racial populations.

Nurse Practitioners are the leading care providers in many communities, and skin cancers are preventable through primary prevention. APNs could play an essential role in educating Hispanic patients regarding skin cancer risks; melanoma alarming signs or A, B, C, D, E; the areas where Hispanics and African-Americans present melanomas; and the method to perform the SSE, always using a culturally sensitive and effective method. APNs could make the difference by eliminating the current disparities in melanoma survival rates between Hispanics and NHWs.

### **Conclusions**

Despite the high level of education, most of this QIP's participants had several knowledge deficits regarding skin cancer types, risk factors for skin cancer, and sun-protective behaviors. Tanning salons are still considered a method to reach cosmetic goals by some Hispanics. A lack

of knowledge about the association between blistering sunburns during childhood and adolescence and the appearance of malignant melanoma in adulthood was very evident among most of the participants.

Less than one-third of participants knew that BCC and SCC are skin cancer types. Although melanoma is the most lethal skin cancer, BCCs and SCCs are more frequent in Hispanics than melanoma. SCCs is a locally invasive malignant type of skin cancer with a great potential to metastasize. Although BCCs tend to grow slowly and do not usually spread to other regions, they could cause disfigurement because they can infiltrate large areas of the affected tissue, including the bones and the cartilages.

None of the participants knew the typical areas where melanoma appears in Hispanics or the ABCDE acronym's meaning previous the Educational Intervention. Before the educative intervention, the majority of participants were not familiar and/or did not perform the SSE. One-third of participants thought wrongly before the intervention that either the sun protector should only be applied when going to the beach or never because their darker skin tone was enough to protect them against U.V.'s radiation.

This cultural-sensitive educational intervention effectively raised Hispanic participants' knowledge about skin cancer risks and protective behaviors. However, it is necessary to continue educating Hispanics to fill all the existing knowledge gaps about these important topics and modify their attitudes.

Suggestions from previous studies were used in this educational intervention. They showed their effectiveness again to increase awareness and knowledge about skin cancer, skin cancer risks, methods to identify earlier any changing mole, how to perform a self-skin examination,

and how to protect themselves from the nocive U.V. rays. Among these recommendations showing depictions of different types of skin cancer, including melanoma in patients with ethnic skin; using the term “melanoma skin cancer” in the educational material; and explaining that people with any skin type, independently of their phototype, ethnicity, or race, could suffer from melanoma were beneficial suggestions. Other effective recommendations from previous studies also showed to be very effective in this QIP. Some of these recommendations were: showing how aggressive the surgical procedures to eliminate skin cancers could be; letting the patients know the areas of the body where melanoma could typically appear in Hispanics and people of color: subungual, acral, and mucosal surfaces; and teaching participants how and when to perform a self-skin examination.

Primary prevention through education is decisive to reduce the incidence of the different types of skin cancers and specifically of Melanoma among Hispanics and in any other ethnic group. It is crucial to start educating as earlier as in childhood and adolescence due to the strong association between sunburns occurring during these early years of life and Malignant Melanoma's appearance later in life.

## References

- Agbai, O. N., Buster, K., Sanchez, M., Hernandez, C., Kundu, R. V., Chiu, M., Roberts, W. E., Draelos, Z. D., Bhushan, R., Taylor, S. C., & Lim, H. W. (2014). Skin cancer and photoprotection in people of color: A review and recommendations for physicians and the public. *Journal of the American Academy of Dermatology*, *70*(4), 748–762.  
<https://doi.org/10.1016/j.jaad.2013.11.038>
- American Cancer Society. (2015). *Cancer facts and figures 2015*.  
<https://old.cancer.org/acs/groups/content/@editorial/documents/document/acspc-044552.pdf>
- American Cancer Society. (2016a). *Cancer facts and figures 2016*.  
<https://old.cancer.org/acs/groups/content/@research/documents/document/acspc-047079.pdf>
- American Cancer Society. (2016b). *Skin exams*. <https://www.cancer.org/cancer/skin-cancer/prevention-and-early-detection/skinexams.html>
- American Cancer Society. (2018). *Cancer Facts & Figures*  
<https://www.cancer.org/research/cancer-facts-statistics/all-cancer-facts-figures/cancer-facts-figures-2018.html>
- American Community Survey Census. (2018). *Selected economic characteristics*.  
[https://data.census.gov/cedsci/table?g=0400000US12\\_1600000US1214250&d=ACS%205-Year%20Estimates%20Data%20Profiles&tid=ACSDP5Y2018.DP03](https://data.census.gov/cedsci/table?g=0400000US12_1600000US1214250&d=ACS%205-Year%20Estimates%20Data%20Profiles&tid=ACSDP5Y2018.DP03)
- Apalla, Z., Nashan, D., Weller, R. B., & Castellsague, X. (2017). Skin cancer: epidemiology, disease burden, pathophysiology, diagnosis, and therapeutic approaches. *Dermatology Therapy*, *7*(1), 5-19. <https://doi.org/doi:10.1007/s13555-016-0165-y>.

- Armstrong, A. W., Idriss, N. Z., & Kim, R. H. (2011). Effects of video-based, online education on behavioral and knowledge outcomes in sunscreen use: a randomized controlled trial. *Patient Education and Counseling, 83*(2), 273–277.  
<https://doi.org/10.1016/j.pec.2010.04.033>.
- Boslaugh, S. (2019). *Health belief model*. Salem Press Encyclopedia.
- Buchanan Lunsford, N., Berktold, J., Holman, D. M., Stein, K., Prempeh, A., & Yerkes, A. (2018). Skin cancer knowledge, awareness, beliefs and preventive behaviors among black and Hispanic men and women. *Preventive medicine reports, 12*, 203–209.  
<https://doi.org/10.1016/j.pmedr.2018.09.017>
- Buster, K. J., You, Z., Fouad, M., & Elmets, C. (2012). Skin cancer risk perceptions: a comparison across ethnicity, age, education, gender, and income. *Journal of the American Academy of Dermatology, 66*(5), 771–779.  
<https://doi.org/10.1016/j.jaad.2011.05.021>
- Chao, L., Patterson, S., Rademaker, A., Liu, D., & Kundu, R. (2017). Melanoma perception in people of color: A targeted educational intervention. *American Journal of Clinical Dermatology, 18*(3), 419-427. <https://doi.org/10.1007/s40257-016-0244-y>
- Cheng, C., Irwin, B., Mauriello, D., Hemminger, L., Pappert, A., & Kimball, A. (2010). Health disparities among different ethnic and racial middle and high school students in sun exposure beliefs and knowledge. *Journal of Adolescent Health, 47*(1), 106-109.  
<https://doi.org/10.1016/j.jadohealth.2009.12.028>
- Chung, G. Y., Brown, G., & Gibson, D. (2015). Increasing melanoma screening among Hispanic/Latino Americans. *Health Education & Behavior, 42*(5), 627-632.  
<https://doi.org/10.1177/1090198115578748>

- Coups, E. J., Stapleton, J. L., Hudson, S. V., Medina-Forrester, A., Rosenberg, S. A., Gordon, M. A., Natale-Pereira, A., & Goydos, J. S. (2013). Linguistic acculturation and skin cancer-related behaviors among Hispanics in the southern and western United States. *JAMA Dermatology*, *149*(6), 679–686. <https://doi.org/10.1001/jamadermatol.2013.745>.
- Coups, E. J., Stapleton, J. L., Manne, S. L., Hudson, S. V., Medina-Forrester, A., Rosenberg, S. A., Gordon, M., Tatum, K. S., Robinson, J. K., Natale-Pereira, A., & Goydos, J. S. (2014). Psychosocial correlates of sun protection behaviors among U.S. Hispanic adults. *Journal of Behavioral Medicine*, *37*(6), 1082–1090. <https://doi.org/10.1007/s10865-014-9558-5>.
- Dessinioti, C., Antoniou, C., Katsambas, A., & Stratigos, A. J. (2010). Basal cell carcinoma: what's new under the sun. *Photochemistry and photobiology*, *86*(3), 481–491. <https://doi.org/10.1111/j.1751-1097.2010.00735.x>.
- Flores, L. (2017, September 8). How the U.S. Hispanic population is changing. *Pew Research Center*. <https://www.pewresearch.org/fact-tank/2017/09/18/how-the-u-s-hispanic-population-is-changing/>
- Frosch, D. L., Kaplan, R. M., & Felitti, V. (2001). The evaluation of two methods to facilitate shared decision making for men considering the prostate-specific antigen test. *Journal of General Internal Medicine*, *16*(6), 391–398. <https://doi.org/10.1046/j.1525-1497.2001.016006391.x>
- Gagliano M. E. (1988). A literature review on the efficacy of video in patient education. *Journal of Medical Education*, *63*(10), 785–792. <https://doi.org/10.1097/00001888-198810000-00006>

- Garnett, E., Townsend, J., Steele, B., & Watson, M. (2016). Characteristics, rates, and trends of melanoma incidence among Hispanics in the USA. *Cancer Causes & Control*, 27(5), 647–659. <https://doi.org/10.1007/s10552-016-0738-1>
- Gimeno-García, A. Z., Quintero, E., Nicolás-Pérez, D., Parra-Blanco, A., & Jiménez-Sosa, A. (2009). Impact of an educational video-based strategy on the behavior process associated with colorectal cancer screening: a randomized controlled study. *Cancer Epidemiology*, 33(3-4), 216–222. <https://doi.org/10.1016/j.canep.2009.08.003>
- Guevara, Y., Gaber, R., Clayman, M. L., Gordon, E. J., Friedewald, J., & Robinson, J. K. (2015). Sun protection education for diverse audiences: Need for skin cancer pictures. *Journal of Cancer Education*, 30(1), 187-189. <https://doi.org/10.1007/s13187-014-0661->
- Guy, G. P., Jr, Machlin, S. R., Ekwueme, D. U., & Yabroff, K. R. (2015). Prevalence and costs of skin cancer treatment in the U.S., 2002-2006 and 2007-2011. *American Journal of Preventive Medicine*, 48(2), 183–187. <https://doi.org/10.1016/j.amepre.2014.08.036>.
- Guy, G. P., Jr, Thomas, C. C., Thompson, T., Watson, M., Massetti, G. M., Richardson, L. C., & Centers for Disease Control and Prevention (CDC) (2015). Vital signs: melanoma incidence and mortality trends and projections - United States, 1982-2030. *MMWR. Morbidity and Mortality Weekly Report*, 64(21), 591–596.
- Hernandez, C., Wang, S., Abraham, I., Angulo, M. I., Kim, H., Meza, J. R., Munoz, A., Rodriguez, L., & Uddin, S. (2014). Evaluation of educational videos to increase skin cancer risk awareness and sun-safe behaviors among adult Hispanics. *Journal of Cancer Education : The Official Journal Of the American Association for Cancer Education*, 29(3), 563–569. <https://doi.org/10.1007/s13187-014-0624-z>



- Holman, D. M., Ding, H., Guy, G. P., Jr, Watson, M., Hartman, A. M., & Perna, F. M. (2018). Prevalence of sun protection use and sunburn and association of demographic and behavioral characteristics with sunburn among US adults. *JAMA Dermatology, 154*(5), 561–568. <https://doi.org/10.1001/jamadermatol.2018.0028>
- Holman, D. M., Qin, J., Gottschlich, E. A., & Balk, S. J. (2019). Clinical counseling on sun protection and indoor tanning avoidance: A survey of current practices among U.S. health care providers. *Preventive Medicine, 126*, (1057830), 1-13. <https://doi.org/10.1016/j.ypmed.2019.105783>.
- Horner, M.J., Ries, L.A.G., Krapcho, M., Neyman, N., Aminou, R., Howlander, N., Altekruse, S.F., Feuer, E.J., Huang, L., Mariotto, A., Miller, B.A., Lewis, D.R., Eisner, M.P., Stinchcomb, D.G., Edwards, B.K. (2009). SEER cancer statistics review, 1975-2006. National Cancer Institute, Bethesda. [http://seer.cancer.gov/csr/1975\\_2006](http://seer.cancer.gov/csr/1975_2006)
- Hu, S., & Kirsner, R. S. (2011). Suboptimal skin cancer screening and delayed melanoma diagnosis in Hispanics: Comment on "Cutaneous melanoma and other skin cancer screening among Hispanics in the United States". *Archives of Dermatology, 147*(6), 745–746. <https://doi.org/10.1001/archdermatol.2011.141>
- Hu, S., Parmet, Y., Allen, G., Parker, D. F., Ma, F., Rouhani, P., & Kirsner, R. S. (2010). Disparity in melanoma: A trend analysis of melanoma incidence and stage at diagnosis among whites, Hispanics, and blacks in Florida. *Archives of Dermatology, 145*(12), 1369–1374. <https://doi.org/10.1001/archdermatol.2009.302>
- Jacobsen, A. A., Galvan, A., Lachapelle, C. C., Wohl, C. B., Kirsner, R. S., & Strasswimmer, J. (2016). Defining the Need for Skin Cancer Prevention Education in Uninsured, Minority,

- and Immigrant Communities. *JAMA Dermatology*, 152(12), 1342–1347.  
<https://doi.org/10.1001/jamadermatol.2016.3156>
- Jemal, A., Saraiya, M., Patel, P., Cherala, S. S., Barnholtz-Sloan, J., Kim, J., Wiggins, C. L., & Wingo, P. A. (2011). Recent trends in cutaneous melanoma incidence and death rates in the United States, 1992-2006. *Journal of the American Academy of Dermatology*, 65(5), 17–25. <https://doi.org/10.1016/j.jaad.2011.04.032>
- Kearney, G. D., Phillips, C., Allen, D. L., Hurtado, G. A., & Hsia, L. L. (2014). Sun protection behaviors among Latino migrant farmworkers in Eastern North Carolina. *Journal of Occupational and Environmental Medicine*, 56(12), 1325–1331.  
<https://doi.org/10.1097/JOM.0000000000000275>
- Krouse H. J. (2003). Efficacy of video education for patients and caregivers. *ORL-Head and Neck Nursing: Official Journal of the Society of Otorhinolaryngology and Head-Neck Nurses*, 21(1), 15–20.  
[https://www.researchgate.net/publication/10873715\\_Efficacy\\_of\\_video\\_education\\_for\\_patients\\_and\\_caregivers](https://www.researchgate.net/publication/10873715_Efficacy_of_video_education_for_patients_and_caregivers)
- Kundu, R. V., Kamaria, M., Ortiz, S., West, D. P., Rademaker, A. W., & Robinson, J. K. (2010). Effectiveness of a knowledge-based intervention for melanoma among those with ethnic skin. *Journal of the American Academy of Dermatology*, 62(5), 777–784.  
<https://doi.org/10.1016/j.jaad.2009.08.047>
- Ma, F., Collado-Mesa, F., Hu, S., & Kirsner, R. S. (2007). Skin cancer awareness and sun protection behaviors in white Hispanic and white non-Hispanic high school students in Miami, Florida. *Archives of Dermatology*, 143(8), 983–988.  
<https://doi.org/10.1001/archderm.143.8.983>

- Merten, J. W., Higgins, S., Rowan, A., & Pragle, A. (2014). Sun safety knowledge, attitudes, and behaviors among beachgoing adolescents. *American Journal of Health Education*, 45(1), 37-41. <https://doi.org/10.1080/19325037.2013.852997>
- Perez M. I. (2019). Skin Cancer in Hispanics in the United States. *Journal of Drugs in Dermatology*, 18(3), 117–120.  
<https://jddonline.com/articles/dermatology/S1545961619S0117X>
- Pew Research Center. (2011, May 26). U.S. Hispanic country of origin counts for nation, top 30 metropolitan áreas. <https://www.pewresearch.org/hispanic/2011/05/26/us-hispanic-country-of-origin-counts-for-nation-top-30-metropolitan-areas/>
- Playforth, F., Larkin, L., & Schwartz (2014) College students' behaviors, perceptions, beliefs, and attitudes regarding tanning bed use and skin cancer. *KAHPERD Journal*, 51(2), 34-47. <https://encompass.eku.edu/swps/2014/2014/25>.
- Pollitt, R. A., Clarke, C. A., Swetter, S. M., Peng, D. H., Zadnick, J., & Cockburn, M. (2011). The expanding melanoma burden in California hispanics: Importance of socioeconomic distribution, histologic subtype, and anatomic location. *Cancer*, 117(1), 152–161.  
<https://doi.org/10.1002/cncr.25355>
- Porter, S. (2017). *The role of self-efficacy and outcome expectations in the use of skin cancer preventive behaviors in rural Hispanics of Southwestern Arizona*. DNP Project.  
Faculty of College of Nursing, University of Arizona.
- Ries, L. A. G., Eisner, M. P., Kosary, C. L. , Hankey, B. F., Miller, B. A., Clegg, L., Mariotto, A., Feuer, E. J., & Edwards, B. K. (2005) SEER cancer statistics review, 1975-2002. National Cancer Institute. [https://seer.cancer.gov/archive/csr/1975\\_2002/](https://seer.cancer.gov/archive/csr/1975_2002/)

- Robinson, J. K., Friedewald, J. J., Desai, A., & Gordon, E. J. (2015). Response across the health-literacy spectrum of kidney transplant recipients to a sun-protection education program delivered on tablet computers: Randomized controlled trial. *JMIR Cancer, 1*(2), 8- 23. <http://dx.doi.org.ezproxy.fiu.edu/10.2196/cancer.4787>
- Robinson, J. K., Friedewald, J. J., Desai, A., & Gordon, E. J. (2016). A randomized controlled trial of a mobile medical app for kidney transplant recipients: Effect on use of sun protection. *Transplantation Direct, 2*(1) <http://ezproxy.fiu.edu/login?url=https://search-proquest-com.ezproxy.fiu.edu/docview/1826654714?accountid=10901>
- Robinson, J., Friedewald, J., & Gordon, E. (2016). Perceptions of risk of developing skin cancer for diverse audiences: Enhancing relevance of sun protection to reduce the risk. *Journal of Cancer Education, 31*(1), 153-157. <https://doi.org/10.1007/s13187-015-0885-1>.
- Robinson, J. K., Joshi, K. M., Ortiz, S., & Kundu, R. V. (2011). Melanoma knowledge, perception, and awareness in ethnic minorities in Chicago: Recommendations regarding education. *Psycho Oncology, 20*(3), 313-320. <https://doi.org/10.1002/pon.1736>
- Rouhani, P., Hu, S., & Kirsner, R. S. (2008). Melanoma in Hispanic and black Americans. *Cancer Control, 15*(3), 248–253. <https://doi.org/10.1177/107327480801500308>.
- Rouhani, P., Pinheiro, P. S., Sherman, R., Arheart, K., Fleming, L. E., Mackinnon, J., & Kirsner, R. S. (2010). Increasing rates of melanoma among nonwhites in Florida compared with the United States. *Archives of Dermatology, 146*(7), 741–746. <https://doi.org/10.1001/archdermatol.2010.133>.
- Sobel, R. M., Paasche-Orlow, M. K., Waite, K. R., Rittner, S. S., Wilson, E. A., & Wolf, M. S. (2009). Asthma 1-2-3: a low literacy multimedia tool to educate African American adults

- about asthma. *Journal of Community Health*, 34(4), 321–327.  
<https://doi.org/10.1007/s10900-009-9153-9>
- Steckler, A., Allegrante, J. P., Altman, D., Brown, R., Burdine, J. N., Goodman, R. M., & Jorgensen, C. (1995). Health education intervention strategies: Recommendations for future research. *Health Education Quarterly*, 22(3), 307–328.  
<https://doi.org/10.1177/109019819402200305>
- Sweat, M., O'Donnell, C., & O'Donnell, L. (2001). Cost-effectiveness of a brief video-based HIV intervention for African American and Latino sexually transmitted disease clinic clients. *AIDS*, 15(6), 781–787. <https://doi.org/10.1097/00002030-200104130-00014>
- Tsai, S., Frank, S. H., & Bordeaux, J. S. (2018). Improving sun-protective behaviors and self-skin examinations among African Americans: A randomized controlled trial. *Dermatologic Surgery: Official Publication for American Society for Dermatologic Surgery*, 44(4), 512-518. <https://doi.org/10.1097/dss.0000000000001366>  
[doi://dx.doi.org.ezproxy.fiu.edu/10.1097/DSS.0000000000001366](https://dx.doi.org.ezproxy.fiu.edu/10.1097/DSS.0000000000001366).
- Tuong, W., Larsen, E. R., & Armstrong, A. W. (2014). Videos to influence: a systematic review of effectiveness of video-based education in modifying health behaviors. *Journal of Behavioral Medicine*, 37(2), 218–233. <https://doi.org/10.1007/s10865-012-9480-7>
- United States Bureau of Labor Statistics. (2017). *Laborforce characteristics by race and ethnicity, 2014*. <https://www.bls.gov/opub/reports/race-and-ethnicity/archive/labor-force-characteristics-by-race-and-ethnicity-2014.pdf>.
- United States Census Bureau. (2009). *Population projections*.  
<http://www.census.gov/population/www/projections/2009comparisonfiles.html>.

United States Census Bureau.(2010). *The Hispanic population: 2010 Census briefs*.

<http://www.census.gov/prod/cen2010/briefs/c2010br-04.pdf>

United States Department of Health and Human Services. (2014). *The Surgeon General's Call to Action to Prevent Skin Cancer*. US Department of Health and Human Services, Office of the Surgeon General.

United States Preventive Services Task Force. (2012). *Behavioral counseling to prevent skin cancer: U.S. Preventive Services Task Force recommendations statement*.

<http://www.uspreventiveservices->

[taskforce.org/uspstf11/skincancouns/skincancounsrs.htm](http://www.uspreventiveservices-taskforce.org/uspstf11/skincancouns/skincancounsrs.htm).

United States Preventive Services Task Force, Grossman, D. C., Curry, S. J., Owens, D. K., Barry, M. J., Caughey, A. B., Davidson, K. W., Doubeni, C. A., Epling, J. W., Jr, Kemper, A. R., Krist, A. H., Kubik, M., Landefeld, S., Mangione, C. M., Silverstein, M., Simon, M. A., & Tseng, C. W. (2018). Behavioral counseling to prevent skin cancer: US preventive services task force recommendation statement. *JAMA*, *319*(11), 1134–1142. <https://doi.org/10.1001/jama.2018.1623>.

Viola, A. S., Stapleton, J. L., & Coups, E. J. (2019). Associations between linguistic acculturation and skin cancer knowledge and beliefs among U.S. Hispanic adults. *Preventive Medicine Reports*, *15*, 100943. <https://doi.org/10.1016/j.pmedr.2019.100943>.

Weinstein, N., Sandman, P., Blalock, S., Glanz, K., Rimer, B., & Viswanath, K., (2008). *The precaution adoption process model; Health behavior and health education*, 4th. (ed). Jossey-Bass.

Weiss, J., Kirsner, R. S., & Hu, S. (2012). Trends in primary skin cancer prevention among US hispanics: A systematic review. *Journal of Drugs in Dermatology*, *11*(5), 580-586.

<http://ezproxy.fiu.edu/login?url=https://search-proquest-com.ezproxy.fiu.edu/docview/1009531222?accountid=10901>

- Wu, Y. P., Aspinwall, L. G., Conn, B. M., Stump, T., Grahmann, B., & Leachman, S. A. (2016). A systematic review of interventions to improve adherence to melanoma preventive behaviors for individuals at elevated risk. *Preventive Medicine, 88*, 153–167. <https://doi.org/10.1016/j.ypmed.2016.04.010>.
- Yabroff, K. R., Lund, J., Kepka, D., & Mariotto, A. (2011). Economic burden of cancer in the United States: estimates, projections, and future research. *Cancer epidemiology, biomarkers & prevention : A publication of the American Association for Cancer Research, cosponsored by the American Society of Preventive Oncology, 20*(10), 2006–2014. <https://doi.org/10.1158/1055-9965.EPI-11-0650>.
- Yancey, A. K., Tanjasiri, S. P., Klein, M., & Tunder, J. (1995). Increased cancer screening behavior in women of color by culturally sensitive video exposure. *Preventive Medicine, 24*(2), 142–148. <https://doi.org/10.1006/pmed.1995.1027>
- Yoo, J. J., & Hur, W. M. (2014). Body-tanning attitudes among female college students. *Psychological Reports, 114*(2), 585–596. <https://doi.org/10.2466/06.07.PR0.114k21w5>.
- Yzer, M. (2017). Theory of reasoned action and theory of planned behavior. *The International Encyclopedia of Media Effects*, 1-7. <https://doi.org/10.1002/9781118783764.wbieme0075>.

## Appendix A



### *Encuesta a realizar antes de la Intervención Educativa.*

#### **Introducción:**

Estimado paciente, le damos gracias por acceder a participar en este estudio. Los resultados de este estudio nos permitirán comprender cuál es la mejor forma de educar a nuestros pacientes hispanos con respecto al cáncer de la piel y a las estrategias para evitar el daño solar.

Por favor, complete las distintas secciones de esta encuesta lo mejor que Usted pueda. Le agradeceríamos que contestara todas las preguntas y si tiene alguna duda, por favor pregúntele al agente responsable de administrar la encuesta. Su información personal y los datos colectados se mantendrán en estricta privacidad.

Gracias por su valiosa colaboración. **Equipo de Investigadores.**

#### *Datos Demográficos*

**Subject Number:** \_\_\_\_\_

**Sexo:** F / M      **Edad:** \_\_\_\_\_

#### **Raza o Etnicidad:**

Blanco de origen hispano (    )

Afro de origen hispano (    )

Hispano de origen asiático (    )

Hispano de otros orígenes (    )

Hispano de origen mixto (    )

**Estado Civil:** Soltero(a) / Casado(a) / Divorciado(a) / Viudo(a)

Circule la opción más conveniente.

**Por favor, complete las siguientes secciones seleccionando la respuesta que más se adecue a Usted o a su situación particular. En algunas preguntas puede escoger más de una respuesta, pero se le especifica.**

*¿Qué Nivel de Educación Usted ha completado?*



- 1) \_\_\_\_\_ Educación Primaria o Elemental (1ero a 5to Grados).
- 2) \_\_\_\_\_ Educación Intermedia (6to a 9no Grados).
- 3) \_\_\_\_\_ Educación Pre-Universitaria (10mo and 12mo Grados).
- 4) \_\_\_\_\_ Educación Superior o Universitaria.
  - a) \_\_\_\_\_ Grado Asociado.
  - b) \_\_\_\_\_ Grado Bachillerato.
  - c) \_\_\_\_\_ Maestría.
  - d) \_\_\_\_\_ Doctorado.

**Estado de Empleo:**

- 1) \_\_\_\_\_ Empleado(a) actualmente.
- 2) \_\_\_\_\_ Desempleado(a) actualmente.
- 3) \_\_\_\_\_ Retirado(a).
- 4) \_\_\_\_\_ Discapacitado(a).

**Tipo de Vivienda donde Usted habita:**

- 1) \_\_\_\_\_ Casa Móvil.
- 2) \_\_\_\_\_ Apartamento.
- 3) \_\_\_\_\_ Casa.
- 4) \_\_\_\_\_ Hogar de Ancianos o Centro de Rehabilitación.
- 5) \_\_\_\_\_ Sin Casa.
- 6) \_\_\_\_\_ Refugio

**Estado de Propiedad del Lugar donde habita:**

- 1) \_\_\_\_\_ Casa propia.
- 2) \_\_\_\_\_ Renta.
- 3) \_\_\_\_\_ Hogar de Ancianos o Discapacitados.

**Ingreso Anual:**

- 1) \_\_\_\_\_ < \$ 25,000
- 2) \_\_\_\_\_ Entre \$25,000 y \$49,999
- 3) \_\_\_\_\_ Entre \$50,000 y \$99,999
- 4) \_\_\_\_\_ > \$100,000.

1- *¿En su familia alguien ha padecido de cáncer en la piel?*

- 1) Sí \_\_\_\_\_.
- 2) No \_\_\_\_\_.
- 3) No Sé \_\_\_\_\_.

2- *¿En su familia alguien ha padecido de melanoma?*

- 4) Sí \_\_\_\_\_.
- 5) No \_\_\_\_\_.
- 6) No Sé \_\_\_\_\_.

3- Si respondiera Sí, ¿qué nivel de parentesco tiene con ese familiar?

- a) \_\_\_\_\_ Primer grado: padres, hijos, cónyuge, suegros, yernos y nueras.
- b) \_\_\_\_\_ Segundo grado: abuelos, hermanos, nietos y cuñados.
- c) \_\_\_\_\_ Tercer grado: bisabuelos, biznietos, tíos y sobrinos.
- d) \_\_\_\_\_ Cuarto grado: primos.

4- *¿Ha Usted padecido de cáncer en la piel anteriormente?*

- a) Sí \_\_\_\_\_.
- b) No \_\_\_\_\_.
- c) No Sé \_\_\_\_\_.

5- *Por favor, escoja el Fototipo (uno solo) que describa mejor las características de su piel, color de ojos, color de cabello y reacción de su piel al exponerse al sol.*

- 1) \_\_\_\_\_ **Fototipo I:** presenta quemaduras solares fácilmente al exponerse al sol, no se broncea nunca y se descama ampliamente después de quemarse. Generalmente son personas con piel muy clara, pelirrojos, ojos claros (azules) y su piel tiene un color blanco lechoso.
- 2) \_\_\_\_\_ **Fototipo II:** se quema con facilidad, se broncea levemente y se descama con facilidad. Personas de piel clara, rubios, de ojos claros con pecas y cuya piel es de color blanco.
- 3) \_\_\_\_\_ **Fototipo III:** se quema de forma moderada y se broncea adecuadamente

- 4) \_\_\_\_\_ **Fototipo IV:** se quema mínimamente y se broncea con facilidad.  
Generalmente son personas morenas o piel marrón claro, con piel y ojos oscuros.
- 5) \_\_\_\_\_ **Fototipo V:** rara vez se queman, se broncean de manera inmediata. Son personas de piel marrón oscuro, ojos negros y pelo oscuro.
- 6) \_\_\_\_\_ **Fototipo VI:** no se queman nunca y se pigmentan de manera inmediata.  
Personas de razas negras como africanos o los afroamericanos.

**6- ¿Cree Usted que la exposición a los rayos ultravioletas del sol o de los salones de bronceados puede causar cáncer en la piel?**

- 1) \_\_\_\_\_ Sí.
- 2) \_\_\_\_\_ No.
- 3) \_\_\_\_\_ No sé.

**7- ¿Recuerda Usted haber sufrido quemaduras en la piel con presencia de ampollas causadas por exposición al sol durante su niñez y adolescencia?**

- 1) \_\_\_\_\_ Sí.
- 2) \_\_\_\_\_ No.

**8- ¿Cuándo Usted considera que debe aplicarse el protector solar?**

**Seleccione solo una respuesta.**

- 1) \_\_\_\_\_ Sólo cuando voy a la playa.
- 2) \_\_\_\_\_ Cuando estoy en la casa.
- 3) \_\_\_\_\_ Todos los días cuando salgo afuera de mi casa ya sea para trabajar, para ir a la playa, para realizar ejercicios o deportes, para caminar en el parque, para cortar la hierba o para caminar a mi mascota si la tuviera.
- 4) \_\_\_\_\_ Sólo cuando voy a manejar.
- 5) \_\_\_\_\_ Realmente no es necesario, el color de mi piel me protege bien del sol.

**9- ¿Conoce Usted que es el SPF o Filtro Solar?**

- 1) \_\_\_\_\_ Sí.
- 2) \_\_\_\_\_ No.

**10- ¿Qué Factor de Protección Solar mínimo o SPF debe tener el protector solar para bloquear con efectividad los rayos ultravioletas? Seleccione sólo una respuesta.**

- 1) \_\_\_\_\_ SPF 15
- 2) \_\_\_\_\_ SPF de 30 o más.
- 3) \_\_\_\_\_ Sólo un SPF de 100 o más es efectivo.

4) \_\_\_\_\_ Sólo es necesario un SPF de 10 o más.

**11- ¿Conoce otros métodos para protegerse contra el sol?**

- 1) \_\_\_\_\_ Sí.
- 2) \_\_\_\_\_ No

**12- ¿Cuáles de los siguientes métodos Usted particularmente usaría para protegerse del sol?**

**Seleccione todas las que Usted considere adecuadas.**

- 1) \_\_\_\_\_ Protegerse del sol no es necesario porque coger sol es saludable para nuestro cuerpo y para fabricar la Vitamina D tan necesaria para tener huesos saludables.
- 2) \_\_\_\_\_ Evitar el sol desde las 10:00 de la mañana hasta las 4:00 de la tarde, cuando más radiaciones ultravioletas hay.
- 3) \_\_\_\_\_ Evitar el sol desde las 9:00 de la mañana hasta las 11:00 AM
- 4) \_\_\_\_\_ Uso de botas de agua.
- 5) \_\_\_\_\_ Uso de gafas o espejuelos de sol.
- 6) \_\_\_\_\_ Uso de sombrillas o paraguas.
- 7) \_\_\_\_\_ Uso de espray para broncear o dorar la piel.
- 8) \_\_\_\_\_ Uso de gorras o sombreros.
- 9) \_\_\_\_\_ Uso de blusas o camisas con mangas largas.

**13- ¿Se ha bronceado alguna vez en una cámara o salón de bronceado?**

- 1) \_\_\_\_\_ Sí.
- 2) \_\_\_\_\_ No

**14- ¿Qué Usted piensa de las cámaras o salones para broncearse? Seleccione una respuesta.**

- 1) \_\_\_\_\_ Son maravillosas porque nos permiten lucir una piel más saludable y sensual.
- 2) \_\_\_\_\_ Me permiten ocultar la palidez de mi piel que me hace lucir fuera de moda.
- 3) \_\_\_\_\_ Son dañinas para nuestra piel pudiendo causar cáncer de piel.
- 4) \_\_\_\_\_ Son definitivamente prodigiosas para alcanzar un bronceado rápido y efectivo.

**15- ¿Conoce Usted los principales tipos de cáncer de la piel?**

- 1) \_\_\_\_\_ Sí.
- 2) \_\_\_\_\_ No.

**16- ¿De las siguientes lesiones de la piel puede Usted escoger las que Usted considera que son tipos de cáncer de la piel?**

**Por favor, seleccione todas las que Usted considere que son cánceres de la piel.**

- 1)  Nevus Spitz.
- 2)  Carcinoma de Células Basales.
- 3)  Keratosis Seborreica.
- 4)  Carcinoma de Células Escamosas.
- 5)  Keratosis Actínica.
- 6)  Lunares compuestos.
- 7)  Melanoma.

**17- ¿Conoce Usted los Signos de Alarma de los lunares que lo harían ir a visitar a un Dermatólogo si los notase en uno de sus lunares?**

- 1)  Sí.
- 2)  No.

**18- Sabe lo que significa el ABCDE de los Lunares?**

- 1)  Sí.
- 2)  No.

**19- Si responde Sí, pudiese identificar cuál de las siguientes combinaciones del ABCDE es la correcta:**

- a)  **A** para Anormalidad, **B** para Basal, **C** para Carmelita, **D** para Diámetro y **E** para Espacio.
- b)  **A** para Asimetría, **B** para Irregularidad en los Bordes, **C** para Cambio de Color, **D** para Diámetro y **E** para Evolución del Lunar como presencia de sangramiento o Picazón.
- c)  **A** para Anterior, **B** para Bilateral, **C** para Coloración, **D** para Dividido, **E** para Extraño.

**20- ¿Usted se chequea regularmente su piel para identificar cualquier cambio que ocurra en sus lunares?**

- 1)  Sí.
- 2)  No

**21- Si responde Sí, ¿cada cuanto tiempo Usted se chequea los lunares?**

- a) \_\_\_\_ Cada 6 meses.
- b) \_\_\_\_ Cuando me entra la curiosidad.
- c) \_\_\_\_ Una vez al mes.
- d) \_\_\_\_ Una vez al año.

**22- ¿Cree Usted que es necesario chequearse uno mismo la piel para identificar cambios en sus lunares?**

- a) \_\_\_\_ Sí.
- b) \_\_\_\_ No, realmente no es necesario.
- c) \_\_\_\_ No, realmente no es necesario, para eso están los dermatólogos.

**23- ¿Sabe en qué áreas del cuerpo aparecen con más frecuencia el melanoma maligno en los Latinos o Hispanos?**

- 1) \_\_\_\_ Sí.
- 2) \_\_\_\_ No.

**24- Si responde Si, por favor identifique las áreas del cuerpo donde Usted considera que aparecen con más frecuencia los melanomas en los Latinos:**

- a) \_\_\_\_ En la cabeza y orejas.
- b) \_\_\_\_ En las plantas de los pies, palmas de las manos, debajo de las uñas y en las mucosas.
- c) \_\_\_\_ En los ojos y en la lengua.
- d) \_\_\_\_ En la rodilla y en los genitales.

**25- ¿Cuándo debemos visitar al dermatólogo?**

- 1) \_\_\_\_ Cuatro veces al año.
- 2) \_\_\_\_ Al menos una vez al año y cuando notamos cambios en nuestros lunares o lesiones nuevas que no cicatrizan o sangran con facilidad.
- 3) \_\_\_\_ Cada 2 meses.
- 4) \_\_\_\_ Sólo cuando notamos algo anormal en nuestra piel.

**Appendix B***Encuesta a realizar después de la Intervención Educativa.***Introducción:**

Estimado paciente, le damos gracias por acceder a participar en este estudio nuevamente. Los resultados de este estudio nos permitirán comprender cuál es la mejor forma de educar a nuestros pacientes con respecto al cáncer de la piel y a las estrategias para evitar el daño solar.

Por favor, complete las distintas secciones de esta encuesta lo mejor que Usted pueda. Le agradeceríamos que contestara todas las preguntas y si tiene alguna duda, por favor pregúntele al agente responsable de administrar la encuesta. Su información personal y los datos colectados se mantendrán en estricta privacidad.

Gracias por su valiosa colaboración. **Equipo de Investigadores.**

**Subject #:** \_\_\_\_\_

**Por favor, complete las siguientes secciones seleccionando la respuesta que más se adecue a Usted o a su situación particular. En algunas preguntas puede escoger más de una respuesta, pero se le especificara.**

1) *¿En su familia alguien ha padecido de cáncer en la piel?*

- a) Sí \_\_\_\_\_.
- b) No \_\_\_\_\_.
- c) No Sé \_\_\_\_\_.

2) *¿En su familia alguien ha padecido de melanoma?*

- a) Sí \_\_\_\_\_.
- b) No \_\_\_\_\_.
- c) No Sé \_\_\_\_\_.

3) *¿Ha Usted padecido de cáncer en la piel anteriormente?*

- a) Sí \_\_\_\_\_.
- b) No \_\_\_\_\_.
- c) No Sé \_\_\_\_\_.

4) *Por favor, escoja el Fototipo (uno solo) que describa mejor las características de su piel, color de ojos, color de cabello y reacción de su piel al exponerse al sol.*

- a. \_\_\_\_\_ **Fototipo I:** presenta quemaduras solares fácilmente al exponerse al sol, no se broncea nunca y se descama ampliamente después de quemarse. Generalmente son personas con piel muy clara, pelirrojos, ojos claros (azules) y su piel tiene un color blanco lechoso.
- b. \_\_\_\_\_ **Fototipo II:** se quema con facilidad, se broncea levemente y se descama con facilidad. Personas de piel clara, rubios, de ojos claros con pecas y cuya piel es de color blanco.
- c. \_\_\_\_\_ **Fototipo III:** se quema de forma moderada y se broncea adecuadamente
- d. \_\_\_\_\_ **Fototipo IV:** se quema mínimamente y se broncea con facilidad. Generalmente son personas morenas o piel marrón claro, con piel y ojos oscuros.
- e. \_\_\_\_\_ **Fototipo V:** rara vez se queman, se broncean de manera inmediata. Son personas de piel marrón oscuro, ojos negros y pelo oscuro.
- f. \_\_\_\_\_ **Fototipo VI:** no se queman nunca y se pigmentan de manera inmediata. Personas de razas negras como africanos o los afroamericanos.

5) *¿Cree Usted que la exposición a los rayos ultravioletas del sol o de los salones de bronceados puede causar cáncer en la piel?*

- a. \_\_\_\_\_ Sí.
- b. \_\_\_\_\_ No.
- c. \_\_\_\_\_ No sé.

6) *¿Considera Usted que el haber sufrido quemaduras en la piel causadas por exposición al sol (con presencia de ampollas) durante su niñez y adolescencia le ponen en mayor riesgo de padecer de melanoma?*

- a. \_\_\_\_\_ Sí.
- b. \_\_\_\_\_ No.



**7) ¿Cuándo Usted considera que debe aplicarse el protector solar?****Seleccione solo una respuesta.**

- a. \_\_\_\_\_ Sólo cuando voy a la playa.
- b. \_\_\_\_\_ Cuando estoy en la casa.
- c. \_\_\_\_\_ Todos los días cuando salgo afuera de mi casa ya sea para trabajar, para ir a la playa, para realizar ejercicios o deportes, para caminar en el parque, para cortar la hierba o para caminar a mi mascota si la tuviera.
- d. \_\_\_\_\_ Sólo cuando voy a manejar.
- e. \_\_\_\_\_ Realmente no es necesario, el color de mi piel me protege bien del sol.

**8) ¿Conoce Usted que es el SPF o Filtro Solar?**

- a. \_\_\_\_\_ Sí.
- b. \_\_\_\_\_ No.

**9) ¿Qué Factor de Protección Solar mínimo o SPF debe tener el protector solar para bloquear con efectividad los rayos ultravioletas? Seleccione sólo una respuesta.**

- a. \_\_\_\_\_ SPF 15
- b. \_\_\_\_\_ SPF de 30 o más.
- c. \_\_\_\_\_ Sólo un SPF de 100 o más es efectivo.
- d. \_\_\_\_\_ Sólo es necesario un SPF de 10 o más.

**10) ¿Conoce otros métodos para protegerse contra el sol?**

- a. \_\_\_\_\_ Sí.
- b. \_\_\_\_\_ No

**11) ¿Cuáles de los siguientes métodos Usted particularmente usaría para protegerse del sol?****Seleccione todas las que Usted considere adecuadas.**

- a. \_\_\_\_\_ Protegerse del sol no es necesario porque coger sol es saludable para nuestro cuerpo y para fabricar la Vitamina D tan necesaria para tener huesos saludables.
- b. \_\_\_\_\_ Evitar el sol desde las 10:00 de la mañana hasta las 4:00 de la tarde, cuando más radiaciones ultravioletas hay.

- c. \_\_\_\_\_ Evitar el sol desde las 9:00 de la mañana hasta las 11:00 de la mañana.
- d. \_\_\_\_\_ Uso de botas de agua.
- e. \_\_\_\_\_ Uso de gafas o espejuelos de sol.
- f. \_\_\_\_\_ Uso de sombrillas o paraguas.
- g. \_\_\_\_\_ Uso de spray para broncear o dorar la piel.
- h. \_\_\_\_\_ Uso de gorras o sombreros.
- i. \_\_\_\_\_ Uso de blusas o camisas con mangas largas.

**12) ¿Qué Usted piensa de las cámaras o salones para broncearse? Seleccione una respuesta.**

- a. \_\_\_\_\_ Son maravillosas porque nos permiten lucir una piel más saludable y sensual.
- b. \_\_\_\_\_ Me permiten ocultar la palidez de mi piel que me hace lucir fuera de moda.
- c. \_\_\_\_\_ Son dañinas para nuestra piel pudiendo causar cáncer de piel.
- d. \_\_\_\_\_ Son definitivamente prodigiosas para alcanzar un bronceado rápido y efectivo.

**13) ¿Conoce Usted los principales tipos de cáncer de la piel?**

- a. \_\_\_\_\_ Sí.
- b. \_\_\_\_\_ No.

**14) ¿De las siguientes lesiones de la piel puede Usted escoger las que Usted considera que son tipos de cáncer de la piel?**

**Por favor, seleccione todas las que Usted considere que son cánceres de la piel.**

- a. \_\_\_\_\_ Nevus Spitz.
- b. \_\_\_\_\_ Carcinoma de Células Basales.
- c. \_\_\_\_\_ Keratosis Seborreica.
- d. \_\_\_\_\_ Carcinoma de Células Escamosas.
- e. \_\_\_\_\_ Keratosis Actínica.
- f. \_\_\_\_\_ Lunares compuestos.
- g. \_\_\_\_\_ Melanoma.

**15) ¿Conoce Usted los Signos de Alarma de los lunares que lo harían ir a visitar a un Dermatólogo si los notase en uno de sus lunares?**

- a. \_\_\_\_\_ Sí.

b. \_\_\_\_ No.

**16) Sabe lo que significa el ABCDE de los Lunares?**

a. \_\_\_\_ Sí.

b. \_\_\_\_ No.

**17) Si responde Sí, pudiese identificar cuál de las siguientes combinaciones del ABCDE es la correcta:**

a. \_\_\_\_ **A** para Anormalidad, **B** para Basal, **C** para Carmelita, **D** para Diámetro y **E** para Espacio.

b. \_\_\_\_ **A** para Asimetría, **B** para Irregularidad en los Bordos, **C** para Cambio de Color, **D** para Diámetro y **E** para Evolución del Lunar como presencia de sangramiento o Picazón.

c. \_\_\_\_ **A** para Anterior, **B** para Bilateral, **C** para Coloración, **D** para Dividido, **E** para Extraño.

**18) . ¿Cree Usted que es necesario chequearse uno mismo la piel regularmente para identificar cualquier cambio que ocurra en sus lunares?**

**¿Se chequearía Usted regularmente su piel para identificar cualquier cambio que ocurra en sus lunares?**

a. \_\_\_\_ Sí.

b. \_\_\_\_ No, realmente no es necesario.

c. \_\_\_\_ No, realmente no es necesario, para eso están los dermatólogos

**19) Si responde Sí, ¿cada cuánto tiempo Usted se chequearía los lunares?**

a. \_\_\_\_ Cada 6 meses.

b. \_\_\_\_ Cuando me entra la curiosidad.

c. \_\_\_\_ Una vez al mes.

d. \_\_\_\_ Una vez al año.

**20) ¿Sabe en qué áreas del cuerpo aparecen con más frecuencia el melanoma maligno en los Latinos o Hispanos?**

a. \_\_\_\_ Sí.

b. \_\_\_\_ No.

**21) Si responde Sí, por favor identifique las áreas del cuerpo donde Usted considera que aparecen con más frecuencia los melanomas en los Latinos. Escoja solo una respuesta.**

- a. \_\_\_\_\_ En la cabeza y orejas.
- b. \_\_\_\_\_ En las piernas, debajo de las uñas y en las mucosas.
- c. \_\_\_\_\_ En los ojos y en la lengua.
- d. \_\_\_\_\_ En los labios y en los genitales.

**22) ¿Cuántas veces al año debemos visitar al dermatólogo para que realice un examen completo de la piel en búsqueda de lunares anormales?**

- a. \_\_\_\_\_ Cuatro veces al año.
- b. \_\_\_\_\_ Al menos una vez al año.
- c. \_\_\_\_\_ Cada 2 meses.
- d. \_\_\_\_\_ Sólo cuando notamos algo anormal en nuestra piel.

## Appendix C



Office of Research Integrity  
Research Compliance, MARC 414

**Munoz**

**MEMORANDUM**

**To:** Dr. Name  
**CC:** Name  
**From:** Name-Vargas, MIBA, IRB Coordinator  
**Date:** April 12, 2020

A handwritten signature in black ink, appearing to be the initials "WV".

**Protocol Title:** "An Educational Intervention in Hispanic patients to increase awareness of skin cancer risks and to improve their sun protective behaviors"-A QualityImprovement Study"

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

**IRB Protocol Exemption #:**

**IRB Exemption Date:** 04/10/20

**TOPAZ Reference #:**

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>.

MMV/em

## Appendix D



Office of Research Integrity  
Research Compliance, MARC 414

## MEMORANDUM

**To:** Dr. Name  
**CC:** Name  
**From:** Name-Vargas, MIBA, Coordinator  
**Date:** June 18, 2020

A handwritten signature in black ink, appearing to be the initials "WV".

**Proposal Title:** "An Educational Intervention in Hispanic patients to increase awareness of skin cancer risks and to improve their sun protective behaviors"-A Quality Improvement Study"

**Approval #** IRB-20-0136-AM01

**Reference #** 108944

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








- Changed educational intervention from in person and directly to implement the educational intervention online using a telemedicine platform (DermConnect, Doxi.me pro platform) due to Covid-19.

**Special Conditions:** N/A

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

MMV/em

## Appendix E

Factores de riesgo de los cánceres de piel:	Cuáles son los signos de alarma de la piel?	Cuáles son los signos del Melanoma?												
<ul style="list-style-type: none"> <li>➢ Historia de quemaduras con ampollas por exposición al sol en la niñez.</li> <li>➢ Exposición a la luz solar directa frecuentemente y por largas horas sin protección.</li> <li>➢ Se exponen al sol de forma intensa aunque por cortos periodos de tiempo (como en periodo de vacaciones).</li> <li>➢ Exposición a las lámparas solares y a las cabinas de bronceado.</li> <li>➢ Presencia de muchos lunares.</li> <li>➢ Historia de Lunares displásicos (que han cambiado).</li> <li>➢ Familiares con cáncer de piel.</li> <li>➢ Personas con Inmunodeficiencias.</li> </ul> <p><b>¿Sabías que el cáncer de la piel no distingue el color de la piel?</b></p> <p><b>Biancos, negros, rubios, pelirrojos y trigüños, todos podemos sufrir cáncer de piel.</b></p>  <p>PROTEGE tu piel del  y mantenla SANA y JOVEN. EVITA estos cruentos procederes quirúrgicos!</p>	<ul style="list-style-type: none"> <li>➢ <b>Lesiones de la piel rosadas, escamosas.</b>  <p><b>Queratosis Actínica, lesión precancerosa, precursor del Cáncer de Células Escamosas.</b></p>  <p><b>Carcinoma de Células Escamosas.</b></p> </li> <li>➢ <b>Lesiones perladas o brillantes.</b>  <p><b>Carcinoma de Células Basales.</b></p> <p>Lesiones que no cicatrizan. Lesiones que sangran con facilidad.</p> </li> <li>➢ <b>Lunares que aparecen nuevos o que ya existían, pero que comienzan a cambiar y a crecer rápidamente. Lunares que sangran o pican.</b>  <p><b>Melanoma Maligno.</b></p> <p>Deja que en tu piel solo se posen mariposas y no Melanomas.</p>  <p>En tus manos está tu piel</p> </li> </ul>	<table border="1"> <thead> <tr> <th>LUNAR BENIGNO</th> <th>MELANOMA</th> </tr> </thead> <tbody> <tr> <td>A de Redondos y simétricos</td> <td>Asimetría</td> </tr> <tr> <td>B de Regular</td> <td>Borde Irregular</td> </tr> <tr> <td>C de Color marrón claro u oscuro pero homogéneo</td> <td>Color no homogéneo</td> </tr> <tr> <td>D de Inferior a 6 mm</td> <td>Diámetro Superior a 6 mm</td> </tr> <tr> <td>E de</td> <td>Evolución</td> </tr> </tbody> </table> <p>Usualmente son lunares Asimétricos, con Bordes Irregulares, con color no homogéneo (2 o más colores donde predomina el negro y el carmelita) y Diámetro de más de 6 mm.</p> <p>Algunos no producen melanina y pueden lucir de color rosado, pálido o incluso blanco.</p> <p>Aparecen a partir de un Lunar Nuevo que apareció recientemente o de un lunar que haya tenido toda la vida.</p> <p>Crecen rápido.</p> <p>Invasión otros órganos y causan la muerte en el 40% de los que lo padecen si no se diagnostican y tratan rápidamente.</p>	LUNAR BENIGNO	MELANOMA	A de Redondos y simétricos	Asimetría	B de Regular	Borde Irregular	C de Color marrón claro u oscuro pero homogéneo	Color no homogéneo	D de Inferior a 6 mm	Diámetro Superior a 6 mm	E de	Evolución
LUNAR BENIGNO	MELANOMA													
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### Melanoma en Hispanos o Latinos.

- La incidencia de melanomas entre los **hispanos ha aumentado en un 20% en las últimas dos décadas.**
- Aunque la incidencia de Melanoma es menor en hispanos que en blancos no hispanos (caucásicos), sin embargo, **la mortalidad es mayor.**
- Los Melanomas en Latinos se Diagnostican en **etapas avanzadas cuando es peor el pronóstico.**
- El melanoma aparece más en lugares como **las palmas de las manos, planta de los pies, debajo de las uñas y en las mucosas más que en otros lugares.**



### Como podemos identificar tempranamente un lunar que está cambiando?

Haciendo un auto-examen completo de la piel desde la cabeza hasta la punta de los dedos de los pies una vez al mes. Debemos revisar con más detenimiento las siguientes áreas:

**Paladar, encías, y parte interna de los labios, palmas de las manos, plantas de los pies, espacios entre los dedos de los pies y de las manos, debajo de las uñas, los glúteos o nalgas y el área genital.**

### EL AUTOEXAMEN DE PIEL

SEGÚN LA SOCIEDAD AMERICANA DEL CÁNCER (American Cancer Society) EL AUTOEXAMEN CONSTA DE CUATRO FASES:



### Cuál es la forma adecuada de realizar el AUTO-EXAMEN de la PIEL

Examina tu cuerpo en un espejo de cuerpo entero. Examina el frente y la parte posterior de tu cuerpo en un espejo de cuerpo entero, luego mira los lados derecho e izquierdo con los brazos levantados.

Mira tus axilas, antebrazos y palmas. Doblar los codos y mirar cuidadosamente los antebrazos, las axilas y las palmas.

Mire sus piernas, entre los dedos de los pies y las plantas de los pies. Mire la parte posterior de las piernas y los pies, los espacios entre los dedos de los pies y las plantas de los pies.

Use un espejo de mano para examinar su cuello y cuero cabelludo. Examine la parte posterior de su cuello y cuero cabelludo con un espejo de mano. Parta el cabello para una mirada más cercana.

Use un espejo de mano para revisar su espalda y glúteos. Finalmente, revise su espalda y glúteos con un espejo de mano.

### Como podemos protegernos del sol?

**Aplique un protector solar con un amplio espectro, y resistente al agua en toda la piel expuesta al sol. El Factor de protección solar (SPF) debe ser de 30 o más para que realmente proteja contra los rayos ultravioletas UVA y UVB.**

**Aplique protector solar generosamente de 15 a 30 minutos antes de salir al aire libre. Use suficiente bloqueador solar: al menos 1 onza de protector solar y frote el bloqueador solar completamente en la piel.**

**Reaplique protector solar por lo menos cada dos horas para permanecer protegido, o inmediatamente después de nadar o sudar excesivamente.**

**Use ropa protectora, como una camisa de manga larga, pantalones, un sombrero de ala ancha y anteojos de sol, siempre que sea posible.**

**Buscar la sombra cuando sea apropiado. Recuerde que los rayos del sol son más fuertes entre las 10:00 de la mañana y las 4:00 de la tarde.**

**Tenga más cuidado cerca del agua, la nieve y la arena, ya reflejan e intensifican los rayos dañinos del sol, aumentando las probabilidades de quemarse en el sol.**

**Obtenga vitamina D en forma segura a través de una dieta saludable que puede incluir suplementos vitamínicos. No se exponga al sol para obtener vitamina D.**

**Evite las camas de bronceado. La luz ultravioleta del sol y de las camas de bronceado puede causar cáncer de piel y arrugas. Considere el uso de un producto autobronceador spray, pero continúe usando un protector solar.**

