

# Sun Protection Education for Diverse Audiences: Need for Skin Cancer Pictures

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**Abstract** Sun protection education is needed for kidney transplant recipients, whose increased risk of skin cancer could be ameliorated with sun protection. Cognitive interviews with 24 participants equally stratified among non-Hispanic White, non-Hispanic Black, and Hispanic/Latino kidney transplant recipients were performed to evaluate a sun protection education workbook. Study participants were recruited over the phone using a registry of 700 kidney transplant recipients. Participants included 12 women and 12 men with a median age of 52. In 16 of the cognitive interviews with non-Hispanic Blacks and Hispanic/Latinos, pictures of skin cancer were requested by the participants in order to see the appearance of skin cancer. Kidney transplant recipients with skin of color did not consider themselves at risk to develop skin cancer and wanted to see examples of skin cancer occurring on people with skin of color. Based on these results, the workbook was modified to include pictures of squamous cell carcinoma on varying skin tones. Then, 8 participants evaluated the revised workbook in cognitive interviews and found the photographs acceptable and necessary to demonstrate the severity of skin

cancer and personalize their risk of developing skin cancer. The participants progressed from having knowledge of skin cancer to believing that they could develop skin cancer because they observed skin cancers on people with their skin tone. Using pictures of skin cancers occurring on people with similar skin tone may heighten a kidney transplant recipients' sense of vulnerability and possibly improve the use of sun protection.

**Keywords** Skin cancer · Sun protection · Kidney transplant recipients

Due to immunosuppression, the approximately 180,000 living kidney transplant recipients (KTRs) in the USA are at increased risk of developing skin cancer, especially squamous cell carcinoma (SCC) [1]. While KTRs with fair skin have the greatest risk of developing SCC, patients with darker skin tones also remain at increased risk [2]. Sun protection education is necessary for all KTRs to use sun protection to prevent skin cancer.

Some health programs use fear appeals to scare people into healthy practices by presenting a threat of harm related to a risky health behavior [3, 4]. While anxiety-provoking skin cancer images have been used in public service messages, the response to the images in the context of prevention of skin cancer has not been extensively examined [5]. Educating people with olive or golden brown skin tones about skin protection is important, particularly as many do not consider themselves at risk [6]. Educational materials reinforce this erroneous perception by not depicting skin cancer in people with skin of color [6]. People with skin of color refers to those who have pigmented skin and come from diverse racial and ethnic backgrounds, including African Americans, Asians, Hispanics or Latinos, Native Americans, and Pacific Islanders, as well as those of mixed racial and ethnic heritage [7]. This qualitative study presents initial findings from the process of developing an educational workbook on sun

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protection designed for non-Hispanic White (NHW), Hispanic/Latino (H/L), and non-Hispanic Black (NHB) KTRs, whose increased risk of developing skin cancer can be ameliorated with sun protection [8].

## Materials and Methods

### Development of the Educational Sun Protection Workbook

The goals of the sun protection workbook were to (1) increase KTRs' understanding of the probability of developing skin cancer and the relevance of sun protection to avoid skin cancer, (2) refrain from inducing anxiety in KTRs with pictures of skin cancer, (3) present sun protection strategies, and (4) respect KTRs' perceptions of preferred skin tone. Since KTRs may worry about losing their kidney transplant, we wanted to avoid using fear-inducing images, which may undermine patients' ability to appreciate the personal relevance of the message [4].

The Theory of Reasoned Action and Planned Behavior posits that attitudes toward a given behavior, perceptions about the behavior, and the extent to which one perceives control over the behavior are moderators of a person's intentions to engage in the behavior [9]. In the context of empowering KTRs to reduce their "chance of getting skin cancer," the workbook displayed images of model sun protection behaviors, such as wearing a broad brimmed hat.

### Evaluation of the Sun Protection Workbook Prototype

KTRs without a skin cancer history who received a kidney transplant within the last 5 years were recruited by telephone using a registry of 700 KTRs. During a structured 2-h cognitive interview, participants were asked to (1) provide feedback on the sun protection workbook, (2) give their opinions about facilitators and barriers to using sun protection, and (3) evaluate the workbook's cultural sensitivity.

The cognitive interview session, conducted by two trained research staff, began with participants completing a self-administered questionnaire with demographic items. Next, participants were shown the workbook for about 10–15 min and prompted for their immediate evaluation and/or recall of its content. The interviews were audio-recorded, summarized, and analyzed for significant trends using principles from Interpretative Phenomenological Analysis [10]. The research staff's field notes recorded non-verbal communications. Three reviewers independently reviewed the audiotapes, field notes, and coded the data. The team met to discuss the interpretations, come to consensus, and identify data-driven approaches to revise the workbook. Revisions to the workbook were made in an iterative process after conducting eight interviews with at least two individuals from each racial/ethnic group. Northwestern University's Institutional Review Board approved the

research protocol. All participants provided written informed consent and received \$60 and a parking voucher to compensate them for their time.

## Results

### Population

Eligible participants were identified by their self-reported ethnicity. A purposively stratified accrual yielded 24 participants with 8 individuals representing each of the following ethnic/racial groups: NHW, NHB, and H/L. Participants included 12 women and 12 men with a median age of 52.

### Skin Cancer Pictures

Some participants with skin of color requested pictures of skin cancers because they did not think people with their skin tone got skin cancer. A Latina woman stated, "I know people don't like to see graphic photographs, but showing a picture of someone with my skin tone that has a skin cancer ... so you can get an idea of the damage... would have an impact on me." A Black male desired to see pictures of skin cancer by saying, "If you don't see what can really happen to you, you don't pay attention."

After modifying the workbook to include pictures of squamous cell carcinoma occurring in NHW, NHB, and H/L patients, all participants in the subsequent wave ( $n=8$ ) of cognitive interviews found the content informative, acceptable, and indicated a willingness to improve their sun protection practices. The skin cancer images were presented in the context of sun protection preventing development of skin cancer. A 46-year-old Latina viewed the images of skin cancers on the lip, leg, and nose, and commented, "The pictures are OK. They are not really pretty... but they make it real." A White male's impression was, "I think it's OK to have scary pictures because it makes you really see what happens to you and even though you think it won't, it can. We assume that it always won't happen to you."

### Skin Tone

The common perception of KTRs with skin of color was that sun protection was a way to prevent their skin from darkening with sun exposure; however, sun protection to prevent skin cancer was not a common perception. A Latina commented, "I don't know if it's cultural. I remember my mom telling me since I was very young. Don't take too much sun because it's not good for you. So, I grew up trying to avoid the sun because I got a lot of dark spots on my nose from the sun. I am Latina so my skin is already dark and I do not want to get even darker." All NHW KTRs were familiar with sun protection to prevent skin cancer and wrinkles.

## Discussion

Despite the workbook giving estimates of the risk of developing skin cancer, the KTRs participating in this qualitative research requested pictures of skin cancer in order to make the sun protection message “real.” People have difficulty perceiving, understanding, and acting upon probabilistic terms of risk [4]. Risk perceptions, a person’s beliefs about their personal likelihood of a negative event occurring, play a central role in an individual’s health behavior. In this study, KTRs progressed from having skin cancer knowledge to feeling it could happen to them because they observed skin cancers on people with their skin tone. Squamous cell carcinoma, which is the common skin cancer in KTRs, was shown in the workbook occurring in NHW, H/L, and NHB KTRs with a variety of skin tones.

The KTRs with skin of color participating in our cognitive interviews readily accepted sun protection to keep their skin from becoming darker, but in the past, sun protection to prevent skin cancer was not considered. By contrast, NHW KTRs were familiar with sun protection to prevent skin cancer and wrinkles.

Since this study was conducted in one urban medical center, the findings of this study may not generalize to other KTRs populations or to the general public.

Adoption of skin cancer prevention behaviors involves a complex and recurring set of decisions and actions in which the person weighs the negative aspects of the behavior, such as the expense of sunscreen and the inconvenience of using it, against what may be gained by engaging in the behavior: reducing the chance of developing a potentially lethal skin cancer. The participants in this study desired to see examples of skin cancer so that they could know what they were trying to avoid. This study supports the need to link primary prevention information with the potential consequences of failing to adhering to primary prevention strategies. Heightening the KTR’s sense of vulnerability to the consequences of unprotected sun exposure with a picture of skin cancer occurring on a person with whom they can identify may motivate them to use sun protection.

### Significance for Public Health

The risk of developing SCC can be modified for NHW KTRs as well as H/L KTRs and NHB KTRs, who comprise 38 % of living KTRs, by regular sun protection use. With the increasing incidence of skin cancers among NHW and H/L populations, our findings among KTRs has relevance to the wider population of people with skin of color who do not think they are at risk to develop skin cancer, and do not routinely engage in sun protection behaviors. Public health messages presenting fear-inducing images of skin cancers occurring in people

with skin of color in the context of using sun protection to prevent skin cancer may increase awareness of skin cancer and enable use of sun protection.

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All participants gave their informed consent prior to their inclusion in the study.