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Introduction

Sunlight is necessary for life on earth. Not only is it important for plant life and the environment, but it is also a fundamental part of human life. Although this is true, too much sun exposure can still lead to unfavorable health effects.

One of these unfavorable health effects regarding sun overexposure is premature aging. Too much sun exposure can cause changes to the skin's appearance. According to the Skin Cancer Foundation, the sun is responsible for causing more than 90 percent of skin aging changes ("Skin Cancer Facts," 2015). These changes to the skin include wrinkles and age spots, and can only be reduced by reducing the amount of skin exposure. According to research findings, people who use sunscreen daily, on average, show 24 percent less skin aging than people who do not use sunscreen daily ("Skin Cancer Facts," 2015).

Another unfavorable and even more threatening health effect caused by the sun is disease. Research shows that skin cancer cases in the U.S. are rising at an alarming rate. According to the Health Line Network's Skin Cancer Facts and Stats, "new cases of skin cancer outnumber new cases of breast, prostate, lung, and colon cancer every year" ("Skin Cancer Facts and Stats," 2015). Because new cases of skin cancer continue to rise, skin cancer has been reported as the most common form of cancer in the United States, more than one million are diagnosed with skin cancer each year ("The Burning Facts," 2015).

According to our research, the most common skin cancers are melanoma, basal cell carcinoma (BCC), and squamous cell carcinoma (SCC), all of which are directly correlated with sun accumulation over many years ("Skin Cancer Facts," 2015). Due to sun exposure, statistically, half of all Americans, by the age of 65, will develop either BCC or SCC at least

once (“Skin Cancer Facts and Stats,” 2015). A more alarming statistic and serious consequence to sun overexposure, is that an estimated 6,640 men and 3,300 women in the U.S. will die from melanoma in 2016 (“Skin Cancer Facts,” 2015).

Not only are these health effects unfavorable and sometimes life threatening, they can affect all ages. Based on research from the Skin Cancer Foundation, a person accumulates sun exposure throughout their lifespan as sun exposure increases with age. Based on a 78-year lifespan, the following chart shows the average of accumulated sun exposure (Table 1, “Skin Cancer Facts,” 2015).

Table 1

Ages	Average Accumulated Exposure
1-18	22.73 percent
19-40	46.53 percent
41-59	73.7 percent
60-78	100 percent

(“Skin Cancer Facts,” 2015)

Contrary to popular belief, this chart explains that sun overexposure can affect all ages, including young adults.

Contrary to popular belief, young adults can acquire a life threatening disease due to sun overexposure, also known as melanoma. According to the skin cancer foundation, melanoma is a common form of cancer for young adults 25-29 years old and the second most common form for young people 15-29 years (“Skin Cancer Facts,” 2015). This means that young adults have a high probability to develop skin cancer if they are unaware of their sun exposure habits.

Unfortunately for Connor Cockerham, this became his reality and SunSafe (part 2) group member Ava Lindberg shared his journey of fighting skin cancer.

According to Miss Lindberg, at age 16, Connor Cockerham's journey started when he spotted a suspicious mole on his scalp. After noticing the mole, Cockerham went to the doctor for a skin biopsy. Soon after the biopsy in early 2011, the mole was identified as malignant melanoma that was beginning to spread into his brain. For the next six months Cockerham spent his time at Stanford Hospital and underwent multiple surgeries, CT scans, MRIs, X-rays, PET, and LCD, in order for the tumor to be successfully removed. In 2012, through immunotherapy and chemotherapy his body fought melanoma and became stronger. However, on January 9, 2013, the treatment started to become ineffective and unfortunately the tumor had spread into his body cavity.

Based on these statistics and this case study, we found our purpose. Focusing on improving the awareness of skin cancer and protection from the sun is crucial. Because of this, our group decided to take our findings further and our campaign started to form. We decided that the best way to start spreading awareness on a highly overlooked health issue was to start with the people around us. Because we are students at California Polytechnic State University, San Luis Obispo (Cal Poly), we understand that enjoying the outdoors and connecting with nature is a common practice. We also understand, given the area, that exposure to sunlight for a long period of time is a part of the culture. That is why we want to target Cal Poly students for our health campaign.

In order to target Cal Poly Students, we created a survey to get a better idea of the reality of Cal Poly students' habits in regard to skin care and sun overexposure. We also designed the

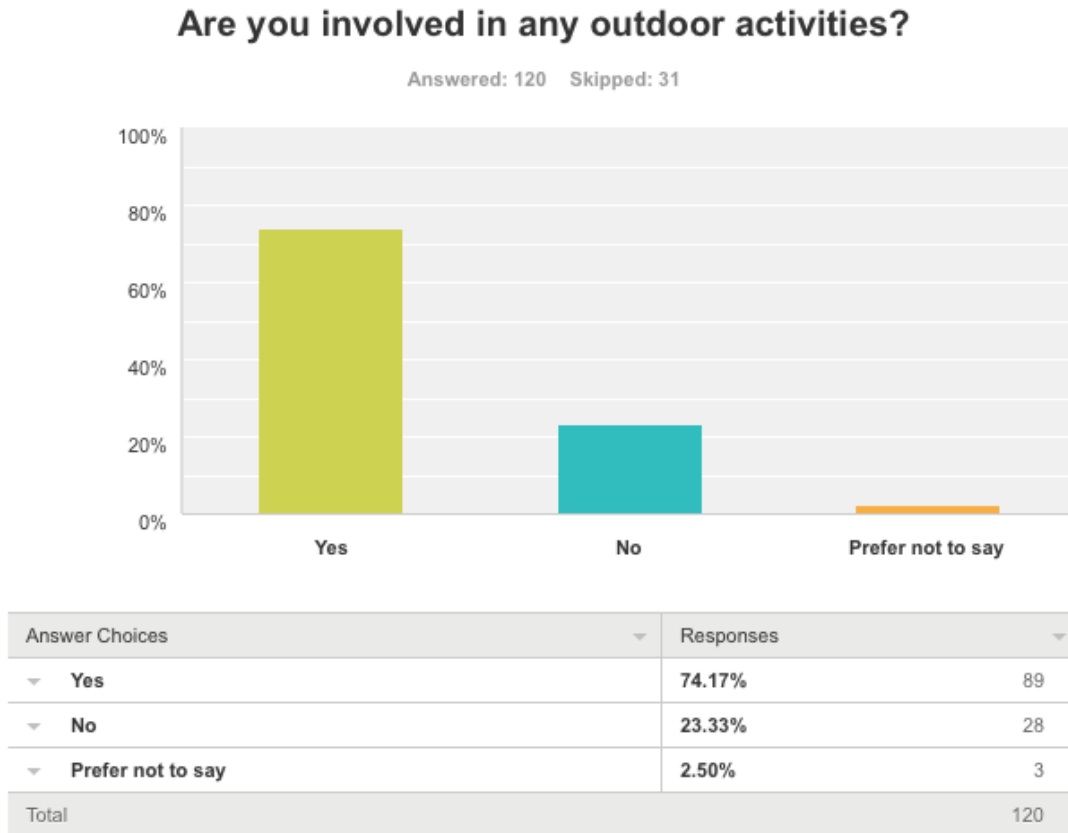
survey to see if reality supported our assumption, that Cal Poly is a prime target for messages on sun overexposure.

Before we started distributing our survey, we had to get our survey approved by the Human Subjects Committee. In order to get approved we had to submit the necessary documents including a research protocol (Appendix, A), consent form (Appendix, B), and Survey (Appendix, C). After required revisions were made, the finalized survey that was distributed consisted of a consent form and 16 questions.

Our survey was created on Survey Monkey and from there it was distributed through a link via email and Cal Poly Facebook pages. The survey ran from May 10th, 2016 to May 18th, 2016 and accumulated 151 responses from Cal Poly students. The survey consisted of four demographic questions including, gender, age, school year, and major. Six questions about daily routines/habits including: involvement in outdoor activities, sunscreen application, major related activities, outside job requirements, and break location preference. We also incorporated six questions about their perceptions on sunscreen and sun overexposure, specifically, questions that asked about their skin cancer knowledge, susceptibility, prevention, and barriers.

According to our survey results, out of 151 respondents, 150 chose to volunteer and continue to the survey. Of those respondents only 120 participants were included and analyzed, the rest (31 participants) were inconclusive due to skipped questions. Out of 120 participants, we had 83.3% females, 14.17% males, and 2.5% other respond to the survey. Of these participants, the majority is in the 18-24-year-old age group (92.5%) and is in their junior year of college (37.19%). After analyzing the results, we found that 74% of participants are involved in outdoor activities (Figure 2). Some of these activities include hiking (69%) and beach days (71%).

Figure 1

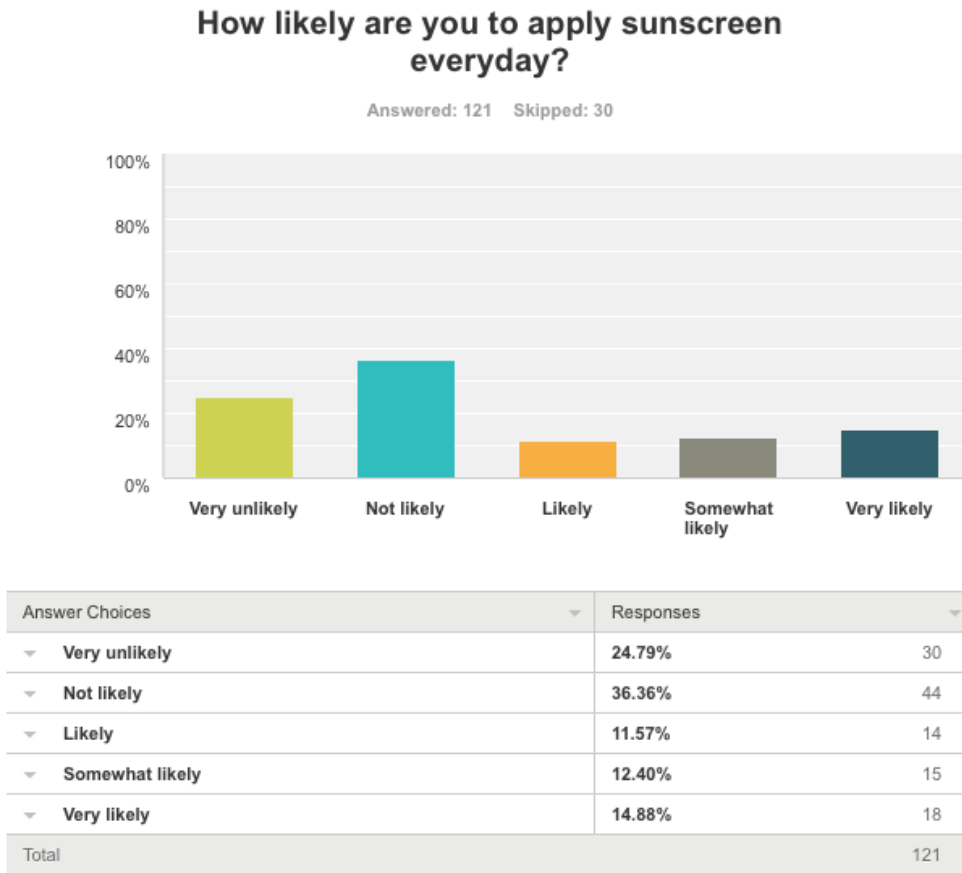


(Survey Monkey, Figure 1)

We also found that a majority of students spent time outside during breaks in between classes, 47% on Dexter lawn and 46% on benches outside. These results indicate that Cal Poly students spend a significant amount of their time outside when they are not in class.

Out of these 120 participants, only 14% stated they were very likely to apply sunscreen everyday (Figure 3). This is in contrast to the 36% of participants who stated that they were not likely to wear sunscreen everyday (Figure 2).

Figure 2



When broken down by gender, the results of our survey indicated that about 18% of female participants were very unlikely to wear sunscreen every day, and a staggering 58% of males were also very unlikely to wear sunscreen daily. Furthermore, of those participants who are required to be outside for their major, about 13% were likely to wear sunscreen daily, and 37% were not likely to wear sunscreen. These results suggest that Cal Poly students do not put on sunscreen as often as they should. In addition, they are in disagreement about who is most at risk for

developing skin cancer. According to our survey results, 22.5% of participants believed males were more at risk, while 70% believed females were more at risk. The survey results also found that the majority of participants, 85% reported forgetfulness as barrier that prevents them from using sunscreen. Given these statistics, we believe the best way to educate Cal Poly students about the risks associated with sun overexposure, is through a health campaign.

Because health campaigns are generally used to increase public awareness, we decided a health campaign would be the best way to educate students. Due to the culture on campus and the low use of sunscreen, a health campaign could be an effective way to educate students on preventative measures and increase awareness of sun overexposure on campus.

We believe a health campaign would be the best way to reach our audience because campaigns are designed to help influence health and social attitudes. According to Rice and Atkin there are seven aspects that are used to define campaigns including, (1) purposive attempts, (2) to inform, persuade, or motivate behavior changes, (3) to a relatively well-defined audience, (4) generally for noncommercial benefits, (5) typically within a given time frame, (6) by organized communication activities, and (7) complemented by interpersonal support (436). Typically, a campaign concept is formed, sculpted, and messages are created in hopes to influence attitudes and/or behaviors on health.

With the definition in mind it is important to also understand that campaigns take time and effort to develop and cannot be implemented effectively without the proper preparation. That is why Maibach, Kreps, and Bonaguro identified social marketing principles and the five steps for a strategic health communication campaign. The five steps include planning, theory, communication analysis, implementation, and evaluation and reorientation, (15-35). By

following these steps, health campaigns will be more effective in encouraging people to make better health habits.

Overall, health campaigns can be very effective if approached and managed correctly. According to Noar, if campaigners have a knowledge-based campaign, supported by theory, and utilize principles of social marketing, they can have effective campaigns (21-42). Although there is no guarantee a campaign will work and meet objectives there is still plenty of research supporting that campaigns can be effective, including campaigns that have contributed to declines in adolescent risk taking, such as smoking. Because campaigns are used to make improvements in public health and have a history of effectiveness, we believe by following the general format of a campaign, we will effectively communicate with Cal Poly students.

Implementation Method

By using the Health Belief Model to guide our campaign, we created the “SunSafe Health Campaign.” The implementation of the campaign is to be done in a two-week period.

During the first week, “SunSafe” campaign members will distribute flyers throughout the entire campus, specifically in high traffic areas. Flyers will also be emailed to faculty and staff, and will be posted on Cal Poly Facebook pages. These flyers will have information regarding the main event, which will be held the following week. It will include the “SunSafe” logo, time, and location of the tabling event. The flyers will also advertise free samples that will be offered during the event. By spreading news of the event, we hope a vast majority of students will be reached and encouraged to go to the event.

The second week will be the tabling event. This event will provide information about sun overexposure and preventive measures. This tabling event will be the climax of the health

campaign and will be held on April 7th. The tabling event will have brochures, posters, infographs, and information about how to check for sun damage. To provide incentive to come to the event, the tabling event will also include free sun protection samples, including sunscreen lip balm and sunscreen. We will also provide two beach gift baskets that students can enter into a raffle to win. The gift baskets will also be an incentive for students to take materials, listen to our campaign goals, and take our campaign evaluation survey. These baskets will include beach merchandise including flip-flops, sunglasses and sun protective products.

Another aspect of our health campaign will include a petition for sunscreen dispensers to be brought to the campus. The petition (board) will be at our tabling event for students to sign and show their support. This petition also provides a way in which the students can help the campaign to have a lasting behavioral change on campus. By gathering student signatures, we are hoping to implement sunscreen dispensers throughout campus as a way to encourage students to be sun safe.

This campaign will hopefully target students and help them understand the importance of taking preventive measures to protect themselves from sun damage. To establish whether or not the campaign accomplished the goal to spread awareness and provide preventive measures by our messages and materials, we would present students at our event with a survey that evaluates our campaign. We feel this will help us determine the success of our campaign.

Overall, this campaign hopes to reach a good number of students and hopes to continue to reach students in the future by implementing a sunscreen program. After researching and reviewing the statistics of so many cases of skin cancer, increasingly among young adults, the importance of this campaign becomes clear. Just as we protect our bodies in the car by putting on seatbelt every day we need to protect our bodies from the sun by using preventive measures, like

wearing sunscreen and protective clothing. Our bodies need to be protected that is why this campaign seeks to prevent health effects caused by the sun, by informing students to make healthy habits.

Research

As previously discussed, health campaigns are an effective method of encouraging individuals to take preventative measures in protecting their health and ultimately changing certain health behaviors. On the Cal Poly San Luis Obispo campus, we see the need for students to be more aware of the dangers of sun overexposure, to understand how certain behaviors and factors can increase their risk of developing skin cancer, as well as to gain information about protective measures they can incorporate into their daily routines. Due to the active culture of this campus and San Luis Obispo community, in addition to the warm Mediterranean climate, Cal Poly students are a prime target audience for messages about sun overexposure. Seeing that we have explained the rationale behind determining that Cal Poly students could greatly benefit from a health campaign educating them on the dangers and risk factors of sun overexposure, we will again briefly explain why a health campaign is a good method of distributing these messages and explain the theory we employed in creating our health campaign.

In their book, *Designing Health Communication Campaigns: What Works?*, authors Backer, Rogers, and Sopory discuss how health campaigns are a viable means of changing health behavior and how research can inform the design of an effective campaign. Primarily, change can be initiated by sharing information in a creative way that stimulates awareness, attitude change, and behavior change. The authors explain that health campaigns typically incorporate interpersonal and community components, and have four essential ingredients: the purpose to

influence individuals, a large target audience, a defined time limit, and a set of communication activities (3-4). Through an extensive literature review as well as interviews with over twenty campaign designers, Backer, Rogers, and Sopory identified twenty-seven generalizations about what makes certain health campaigns effective. While the authors focus on mass media health campaigns, they do state that these generalizations can be applied to a variety of campaigns, with certain modifications. While not all of the generalizations are necessary to mention here, the following were selected from the list of twenty-seven for their applicability to a health campaign such as ours:

- (1) Campaigns for preventive behavior are more effective if they emphasize positive behavior change rather than the negative consequences of current behavior.
- (2) More effective campaigns set fairly modest, attainable goals in terms of behavior change.
- (3) More effective campaigns communicate incentives or benefits for adopting desired behaviors that build on the existing motives, needs, and values of target audiences (30-2).

Backer, Rogers, and Sopory's work discusses the many aspects of effective health campaigns and in what capacities campaigns can be used to address public health concerns. Throughout our studies and preliminary work, our team kept these characteristics of effective campaigns in mind as we developed our own health campaign.

In order to make our campaign as successful as possible, we researched a variety of communication theories that are commonly utilized in the development of health campaigns. According to editors Jackson and Duffy in their book *Health Communication Research: A Guide to Developments and Directions*, the application and employment of communication theories in the creation of health campaign messages has shown to significantly increase the effectiveness

and efficiency of campaigns (141). The following section contains brief explanations and descriptions of popular micro-level theories used in health communication campaigns. These theories, being of the micro-level variety, focus on changing an individual's level of knowledge, attitudes, or behaviors about a health related preventive action.

One popular theory employed in the creation of health campaign messages is the Theory of Reasoned Action (TRA). This theory was originally developed by Martin Fishbein and Icek Ajzen in 1967, and in 1975 they proposed that an individual's behavior is predicted by a number of factors.

In the TRA, Fishbein and Ajzen (1975) propose that a person's behavior is predicted by their intentions, which in turn, are predicted by their attitudes toward the behavior and subjective norms. Attitudes are predicted by behavioral beliefs and evaluations of those beliefs. Subjective norms are predicted by normative beliefs and the motivation to comply with those normative beliefs (Jackson and Duffy 144).

Therefore, according to Fishbein and Ajzen, two sets of beliefs need to be changed in order for any behavior change to come about. The first are any beliefs about the consequences of performing a suggested behavior and the person's attitudes about those consequences. The second are beliefs about what other people might think about these new suggested behaviors and the individual's motivation to adhere: "Only when a message targets the salient beliefs of these variables do attitudes and subjective norms, and subsequently, behavioral intentions and behavior, change" (Jackson and Duffy 144). According to this theory, when creating health campaign messages, it is crucial to address a particular, primary belief in order to truly change behaviors. The Theory of Reasoned Action has been applied to many influential and effective campaigns that address a variety of topics ranging from exercise in schoolchildren to testicular

cancer prevention (147).

Social Cognitive Theory is another theory often used by health campaign creators. Albert Bandura expanded on this theory in the 1970s and '80s. Social Cognitive Theory primarily focuses on the role of perceived self-efficacy in changing behaviors of individuals. "Self-efficacy is defined as 'people's beliefs that they can exert control over their motivation and behavior and over their social environment' (Bandura, 1989, p. 128). In other words, perceived self-efficacy is what you believe about your capability to perform a certain action (your perceived self-effectiveness)" (Jackson and Duffy 147). This is an important concept that is examined and developed in many theories. In the context of health communication campaigns that focus on preventing diseases or other maladies, it is necessary for the messages to address the perceived self-efficacy of the individual. If this is done successfully, and the individual believes that he or she is capable, the person will then make the suggested changes.

In addition to high self-efficacy, it is also necessary for the person receiving the health campaign messages to believe that the prescribed changes will lead to the particular outcome. This is referred to as *outcome expectations* (148). However, the perceived self-efficacy of the person will determine whether or not they make the changes that will lead to that outcome. The concepts within Social Cognitive Theory have proven to be useful in a wide range of health campaigns, including those addressing addictive behavior such as smoking and drinking (148).

Fear appeals are yet another theory and tactic used by health campaign designers. Due to the nature of the content of health campaigns, fear appeals can naturally appear. Oftentimes health promotion or disease prevention campaigns will incorporate information about a serious outcome of a particular behavior. For example, in anti-smoking campaigns, a fraction of the messages will discuss oral or lung cancer, loss of sense of smell and taste, or increased risk of

stroke and brain damage. In a campaign against drunk driving, messages could focus on horrendous car accidents caused by a drunk driver. These are all examples of fear appeal messages that will elicit anxiety in an individual. Now, not all campaigns intentionally utilize fear appeals. Depending upon the topic, fear appeals occur naturally or unintentionally. However, if fear appeals are intentionally being created and used, it is optimal for health campaign designers to apply risk communication/fear appeal theories when creating these messages.

One important fact that health campaign designers are encouraged to remember is that experts and laypersons will view health risks in very different ways: “For example, experts tend to view health risks in a very scientific, rational manner — ‘there’s a one in a million chance you’ll get disease X.’ In contrast, laypersons tend to evaluate risks in terms of whether or not they are controllable, familiar, voluntary, necessary, catastrophic, personally relevant, or representative...” (Jackson and Duffy 150). This one difference in perception is extremely important to understand, because the incorrect and inappropriate use of fear appeals can backfire in a major way. In simplified terms, the fear appeals need to generate enough fear in order to create awareness in the audience and encourage them to change their behavior. Otherwise, if the fear appeals cause too much anxiety or fear, this will ultimately inhibit the individual from making any changes to their behavior. Therefore, effective fear appeal messages will incorporate three things: the severity of the health threat, the probability that the threat will occur, and the efficacy of the recommended responses as well as the self-efficacy of the individual (150-51). Fear appeal theories are incorporated into a variety of other theories including the Extended Parallel Process Model (EPPM) and the Health Belief Model (HBM). According to various research, fear appeals are an appropriate tool in many different campaigns, including those that

address skin cancer, pregnancy prevention, and nutrition programs.

The Health Belief Model (HBM) is the final health communication theory to be discussed. By far the most popular and widely used theory, it has been used as guide in the development of health campaigns and interventions (142). Developed in the 1950s by a group of social psychologists, the Health Belief Model focuses on how to promote preventative behaviors, and does so by emphasizing the role of beliefs in the audience and how these beliefs can and do determine the application of the suggested behaviors. “The model suggests that preventive health behavior is influenced by five factors: (a) perceived susceptibility to a health threat; (b) perceived severity of a health threat; (c) perceived barriers to performing the recommended response; (d) perceived benefits of performing the recommended response; and (e) cues to action” (Jackson and Duffy 142). There are many aspects of the Health Belief Model that are similar to aspects of other theories previously discussed. For example, both HBM and Social Cognitive Theory place an emphasis on the self-efficacy of the individual and its role in the likelihood that the individual will follow through with the suggested actions. Likewise, the Health Belief Model does, to an extent, employ fear appeal theories such as an emphasis on the individual’s susceptibility to the threat and the probability that the threat will affect the individual.

The first factor this theory focuses on is perceived susceptibility, “an individual’s subjective evaluation of the probability that he or she will experience a health threat” (142). A health campaign applying the Health Belief Model would aim to increase the target audience’s perceived susceptibility to the health threat in question. For example, in the case of a bike safety campaign, the audience would need to believe that they are susceptible to falling off their bikes and hitting their heads in order to be more likely to take the suggestion of wearing a helmet while

riding a bike (Jackson and Duffy 142). Perceived severity is whether or not the individual believes that the health threat would be particularly serious. The aim of the campaign messages, therefore, is to convince the audience that the threat is indeed serious. This seriousness can manifest in a variety of ways, including physical harm and social harm (142). The third factor is perceived barriers. Perceived barriers are the costs to the individual if the prescribed behaviors are applied. If these costs are too high, the individual will likely not make the behavior changes. These barriers can come in many forms, such as financial infeasibility. The opposite of perceived barriers is perceived benefits. These are those factors that the individual will believe are positive and desirable. The goal is to increase the individual's perceived benefits of the prescribed behavior. Depending on the campaign, benefits could focus on anything from not developing skin cancer, to not becoming obese. The fifth and final factor of HBM is cues to action. Messages that include a call to action are the aspect of the campaign that either encourage the audience to actually make the changes suggested or give them a step to take.

According to the model, cues to action are necessary to trigger the decision-making process. Cues can be external (e.g., public service announcements or brochures on the hazards of smoking) or internal (e.g., symptoms of a condition, such as a bleeding or unusual-looking mole). The model suggests that external cues, such as mass media campaigns, increase individuals' reception of threat, which in turn, cause the individual to engage in the recommended response (143).

These five factors, when applied to the message of a health campaign, can be very effective in changing people's behavior and preventing diseases and other issues. For our health campaign, we applied the theories and concepts from Health Belief Model while creating our messages.

An important message came in the form of an infographic we created (Appendix, D), in

addition to engaging students in conversation when they approached our booth at our on-campus event. This infographic and its messages were where we applied the concepts from the Health Belief Model.

As previously discussed, the first factor of HBM is perceived susceptibility. While creating our health campaign messages, we needed to craft them in such a way that our audience, Cal Poly students, would believe that they were susceptible to the health risk being discussed. More specifically, our messages need to increase the audience's perception of how susceptible they are to developing skin cancer or other skin maladies. We accomplished this by providing messages and facts such as the following: "Do you go tanning? Have you been sunburned before? Do you often forget to wear sunscreen? If you answered 'YES' to any of these questions, then you are considered at RISK!" (Appendix, D). Our goal is for these questions to increase our audience's perceived susceptibility by causing them to realize that (most likely) they are in fact at risk for developing skin cancer or premature aging.

Perceived severity, the second factor of HBM, is how serious the individual believes the problem is. Through our messages, we would include statistics about various types of skin cancer, how many skin cancer diagnoses there are in the United States every year, and how these risks should be taken seriously: "1 person dies from melanoma every 52 minutes' 5 (or more!) sunburns in a lifetime DOUBLES your risk of melanoma." Through the wording and the selection of statistics, we aim to convey the seriousness of sun overexposure is communicated to the students.

The next two factors, perceived barriers and perceived benefits, were addressed through what we called the "3 P's", Prep, Protect, and Pick. The concept of perceived barriers and benefits, as previously mentioned, is that in order for an individual to take preventative

measures, they must believe that the suggested behaviors are not unfeasible or too difficult. Furthermore, if the individual does believe that the suggested behaviors can't be done to some extent, the perceived benefits of incorporating those behaviors must outweigh any negative outcomes. The SunSafe 3 P's are intended to address both the perceived barriers and benefits: "How to protect yourself: PREP...with sunscreen every day. Use at least SPF 30. PROTECT...with clothing by choosing clothes that cover your skin maximally. Use hats and sunglasses. PICK...the shade. Be mindful outside by using shade for lounging & venturing rather than in direct sunlight" (Appendix D). Our hope is that the simplicity of the message will communicate to the audience that protecting against sun overexposure can easily be done. In addition, when speaking with the students at the tabling event, we also addressed some of the perceived barriers that they expressed, such as simply forgetting to apply sunscreen or not wanting to wear protective clothing. We made suggestions such as carrying a small bottle of sunscreen with you throughout the day, or developing the habit of wearing a hat when appropriate. Through our messages we also attempted to increase the perceived benefits of implementing the 3 P's by reemphasizing the harmful effects of not adopting these behaviors and risking sun overexposure.

Finally, cues to action were incorporated into our campaign through the event itself, the distribution of these pamphlets, and the messages we created. Our cues to action came in the form of providing Cal Poly students with practical steps they could take to protect themselves from sun overexposure and its harmful effects. These were primarily the 3 P's as well as other suggestions and information provided to students who talked with us at our event.

An additional aspect to our research included looking into other health campaigns that utilized the Health Belief Model. One research study we found was written by Naghashpour,

Shakerinejad, Lourizadeh, Hajinajaf, and Jarvandi, and published in the Journal of Health, Population & Nutrition in 2014. These researchers looked into nutrition education based on the Health Belief Model and its effect on the calcium intake of female junior high school students. Their hypothesis was that a nutrition education program based on HBM would improve knowledge, attitude, and practice of dietary calcium intake and lead to nutritional behavior change among this particular student demographic (Naghashpour et. al. 421).

The nutrition program, and the subsequent research study, was conducted among female junior high school students from an educational zone in Ahvaz, within the capital city of Khuzestan province in Iran in the 2010-2011 academic year. Out of two particular schools, one was considered the intervention and the other was considered the control (421). Ninety-five students participated in the intervention education program while 93 students with similar demographics participated in the control group. “Participants in the intervention group received training and completed pre- and post-nutrition education questionnaire [sic]. Students in the control grip received no training and completed pre- and post-nutrition questionnaire [sic]” (421). The questionnaire asked the students to report various demographic information and also had questions focusing on their knowledge, attitude, and practice regarding calcium intake. Specifically, 20 questions assessed HBM factors including perceived susceptibility, perceived severity, perceived benefits, and perceived barriers (Naghashpour et. al. 421).

The nutrition education program received by the intervention group comprised eight 30-minute to one-hour sessions during a two-month period. The specific lessons were based on the factors of the Health Belief Model. “According to this model, the nutrition education programme included objectives based on individual perceptions (perceived susceptibility and perceived severity) and likelihood of action (perceived benefits, perceived barriers, and taking health

action) that influence dietary calcium intake behaviour of the students” (423). The messages of the program included lectures, various forms of literature, and other visual aids.

Once a statistical analysis was conducted of the students’ questionnaires, the researchers found that the mean scores of the intervention group on knowledge, attitude, and practice was significantly higher in the post-nutritional program questionnaire. The control group, however, did not show a statistically significant difference in the pre- and post-program questionnaires. Overall, the researchers state the program based on the Heath Belief Model was successful in not only increasing the students’ knowledge regarding various aspects of calcium intake, but it was also successful in changing students’ health behavior. “Additionally, this study showed that students believed after the intervention that they were susceptible to ill-health condition relating to calcium deficiency....This belief may have led to take action to protect their health” (Naghashpour et. al. 426). The authors of this article do discuss the various limitations of their study, but did stress how successful this HBM-based program was, especially compared to programs constructed differently. While the topic of this study differed from the topic of the SunSafe health campaign, it was interesting and useful for us to gain awareness of how HBM can be used in different contexts.

The success of our SunSafe health campaign is ultimately related to careful planning and the utilization of relevant research. Through careful consideration of the aims of our campaign, our target audience, and effective communication theories, we created and conducted our campaign on the Cal Poly San Luis Obispo campus. The campaign was a tabling event in the University Union and was implemented on Thursday, April 7th 2016. The particulars of the event are discussed in Part Two of this project by our colleagues, Alyssa Howarter, Ava Lindberg, and Charlotte Marinovich. Part Two of this project is titled: “SunSafe Health

Campaign: Implementation and Assessment.”

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Appendix

A: Research Protocol

Research Protocol

Title of the research: SunSafe: Health Campaign

Name and department/affiliation of the primary investigator(s) and faculty advisor:

Michelle Merritt - Student

Charlee Marinovich - Student

Ava Lindberg - Student

Jennifer Gonzales - Student

Alyssa Howarter - Student

Dr. Lorraine Jackson - Project Advisor - Communication Studies department

Statement of purpose, benefits, and hypotheses

Our senior project is an applied project that focuses on and utilizes Health Communication theories in the creation of a health campaign. The purpose of the project, SunSafe, is to educate the Cal Poly student body on the risks of sun overexposure and practical steps that they can take to protect against sun overexposure, premature aging, and skin cancer. We believe that this campaign and information would be beneficial for students because this is a very active campus community that participates in many outdoor activities, and the tanning culture is also prevalent and popular. As part of our process, we wish to gain a better understanding of **students'** current attitudes regarding sun overexposure and sunscreen usage. Therefore, we have created a survey that we will distribute to Cal Poly students online.

Methods:

- Subjects: The subjects are Cal Poly students. We will attempt to reach a wide range of students from different majors and years. We are not targeting a vulnerable group, and are not intentionally excluding a particular group (based on gender, ethnicity, etc.). We expect that the age range of respondents will be 18

years and older. Since we are trying to reach as many Cal Poly students as possible, we will be distributing the survey on various Cal Poly groups on social media, as well as sending the survey (via a link) through email.

- **Experimenter(s):** The experimenters are the group members: Michelle Merritt, Charlee Marinovich, Ava Lindberg, Jennifer Gonzales, and Alyssa Howarter. We will be creating the survey and distributing it on SurveyMonkey. We will not be interacting with participants directly.
- **Materials and Procedures:** Please see attached for survey questions. At the beginning of the survey, we will have an introductory statement that gives general information about the project and the survey. In this statement, we will also make it clear to participants that they are not required to answer any questions they wish to leave blank or skip altogether. In addition, the survey will begin with an Informed Consent Form for Online-Questionnaires.
- **Informed Consent Form:** Please see the Informed Consent Form template attached that we plan to include in our survey.

B: Consent Form

1. Consent

* 1. Informed Consent Form

INFORMED CONSENT TO PARTICIPATE IN A RESEARCH PROJECT, "SunSafe: Health Campaign"

A research project on attitudes about sun overexposure and sunscreen use is being conducted by students Jennifer Gonzales, Alyssa Howarter, Ava Lindberg, Charlee Marinovich, and Michelle Merritt in the Department of Communication Studies at Cal Poly, San Luis Obispo, under the supervision of Dr. Lorraine Jackson. The purpose of the study is to gain an understanding of Cal Poly students' attitudes regarding sun of overexposure and sunscreen use.

If you are 18 or older, you are being asked to take part in this study by completing the following questionnaire. The questions focus on your attitudes regarding sun overexposure. Your participation will take approximately five minutes. Please be aware that you are not required to participate in this research, you may omit any items that you prefer not to answer, and you may discontinue your participation at any time without penalty.

Your responses will be provided anonymously to protect your privacy. Your participation will benefit our health campaign by aiding us in gathering information that we will take into consideration while creating our project.

If you have questions regarding this study or would like to be informed of the results when the study is completed, please feel free to contact Dr. Lorraine Jackson at ljackson@calpoly.edu. If you have concerns regarding the manner in which the study is conducted, you may contact Dr. Michael Black, Chair of the Cal Poly Human Subjects Committee, at (805) 756-2894, mblack@calpoly.edu, or Dr. Dean Wendt, Dean of Research, at (805) 756-1508, dwendt@calpoly.edu.

If you agree to voluntarily participate in this research project as described, please indicate your agreement by completing and submitting the following questionnaire. Please print a copy of this consent form now for your reference, and thank you for your participation in this research.

- Yes, I volunteer.
- No, I do not volunteer.

C: Survey

2. Survey

Thank you for participating in our survey. Your feedback is important.

1. What gender do you identify as?

- Female
- Male
- Other
- Prefer not to say

2. How old are you?

- 18-24
- 25-34
- 35-44
- 45-54
- 55-64
- Prefer not to say

3. What year are you in school?

- Freshman
- Sophomore
- Junior
- Senior
- Graduated
- Prefer not to say

4. What is your major?

5. Are you involved in any outdoor activities?

- Yes
- No
- Prefer not to say

6. How likely are you to apply sunscreen everyday?

- Very unlikely
- Not likely
- Likely
- Somewhat likely
- Very likely

7. What amount of SPF do you think is most effective?

- 15-25 SPF
- 30-35 SPF
- 50-75 SPF
- 75+ SPF
- None of the above

8. Does your major require outdoor field trips or other outside activities?

- Yes
- No
- Prefer not to say

9. If you have a job, does it require you to be outside on a regular basis?

- Yes
- No
- Prefer not to say

10. What locations on campus do you visit during class breaks?

- The library
- Dexter lawn
- Benches outside
- Outside at University Union
- In front of the Business building
- Other (please specify)

11. Select all of the activities you partake in at Cal Poly and/or San Luis Obispo.

- Tennis
- Rock Climbing
- Basketball
- Soccer
- Paddle boarding
- Kayaking
- Hammocking
- Hiking
- Biking
- Yoga
- Swimming
- Running
- Horseback riding
- Volleyball
- Walking your dog
- Beach days
- Golfing
- Beach concerts
- Surfing
- Shopping
- Fishing
- Logging
- Slacklining
- Bouldering
- Prefer not to say
- Other (please specify)

12. Who do you believe is more at risk for developing skin cancer?

- Females
- Males
- Other

13. How susceptible do you think young people are to developing skin cancer?

- Not at all susceptible
- Somewhat unsusceptible
- Susceptible
- Somewhat more susceptible
- Extremely susceptible

14. How helpful do you think sunscreen is in preventing skin cancer?

- Not at all helpful
- Slightly helpful
- Somewhat helpful
- Very helpful
- Extremely helpful

15. How helpful do you think sunscreen is in preventing premature aging?

- Not at all helpful
- Slightly helpful
- Somewhat helpful
- Very helpful
- Extremely helpful

16. What barriers prevent you from using sunscreen?

(check all that apply)

- Cost
- Forgetfulness
- Desire for a tan
- Inconvenience
- Hassle of reapplying
- Other (please specify)

D: Infograph

