

A Survey on Sun Protection and Skin Cancer Understanding of Women at the Shelter

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Abstract:- As medical students, we want to make people understand the significance of skin health and protection from the sun. Despite being one of the most preventable forms of cancer, melanoma continues to claim lives due to a lack of understanding and awareness regarding skin health. In addition, the United States faces a skin cancer epidemic with cancer cases on the rise emphasizing the importance of preventative education. However, not all people have the same opportunity to acquire this vital data. This is the reason we are suggesting a skin education and sun protection advocacy project aimed at the high-risk communities in New York City. We aim to enlighten vulnerable groups so they can make reliable decisions and safeguard their health. We started by doing workshops and practical training sessions at women's shelters.

I. INTRODUCTION

With our advocacy work on Skin Care Education and Melanoma Awareness, we want to ensure that the public understands and recognizes this vulnerable group. Similar to the laid-out guidelines and strategies by Saes da Silva, we will show shelter residents how to identify abnormal moles and lesions, understand the dangers associated with sun exposure, and engage in sun-safe practices like applying sunscreen and having regular skin examinations. Through the education of prevention methods, we aim to minimize the rate of potentially fatal skin cancers in the future. In addition to partnering with shelters, we also intend to partner with neighborhood centers and after-school programs to increase the scope and outreach of this program. Developing a sun protection habit in the early stages can determine one's long-term health. We have successfully delivered Skin Care Education and Melanoma Awareness Campaign at a shelter in NY as of April 2024. Our afternoon event was attended by 8 women who currently live in the same residence. Before we conducted our lecture on Sun Protection and Skin Cancer Awareness, we asked 9 questions that would assess their baseline knowledge and understanding about sun protection

and skin cancer. The following questions were asked, and for each question, an answer of 'Yes' or 'No' would be given:

- Are you aware that sun exposure contributes to skin cancer?
- Do you have a sunscreen regimen?
- Do you know how to properly apply sunscreen?
- Do you know the different benefits of sun protection?
- Can you recognize a suspicious mole?
- Are you aware of the different kinds of skin cancer?
- Are you aware that melanoma is the most common deadliest kind of skin cancer?
- Do you know when to see a dermatologist?
- Do you practice a sun-safe lifestyle?

The presentation started with an Introduction to Sun Protection, stressing that skin protection from the sun would prevent harmful effects and long-term damage. Skin cancer prevention strategies include regular skin checks, along with the use of sun-protective clothes and sunscreen lotions. The session also involved discussions on choosing the right sunscreens and discussing SPF, choosing broad spectrum sun blocks, and included ingredients for skin protection. Proper application of sunscreen with a return demonstration was performed. The next part of the lecture involved recognition of normal and abnormal moles. The ABCDEs of melanoma were explained. Instructions were provided on how to recognize lesions and how to approach lesion treatments by referring family members or colleagues to a board-certified dermatologist. Different types of skin cancer, such as squamous cell carcinoma and basal cell carcinoma, were discussed and pictures were shown. The importance of knowing when to consult a dermatologist was explained. A demonstration of self-skin checks concluded the session. After the lecture, a post-presentation survey consisting of the 9 questions was conducted.

II. METHODS

Before conducting the lecture on Sun Protection and Skin Cancer Awareness, 9 questions were asked to all 8 women present in the shelter. The questions were designed to assess their baseline knowledge and understanding about sun protection and skin cancer. The following questions were asked, and for each question, an answer of ‘Yes’ or ‘No’ would be given:

- Are you aware that sun exposure contributes to skin cancer?
- Do you have a sunscreen regimen?
- Do you know how to properly apply sunscreen?
- Do you know the different benefits of sun protection?
- Can you recognize a suspicious mole?
- Are you aware of the different kinds of skin cancer?

- Are you aware that melanoma is the most common and deadliest kind of skin cancer?
- Do you know when to see a dermatologist?
- Do you practice a sun-safe lifestyle?

After the lecture, a post-presentation survey consisting of the aforementioned 9 questions was conducted. The survey results were collected and organized into a table format, and the results underwent statistical analysis using the McNemar’s Test, a paired sample test often used for dichotomous dependent variables. This test is often used to determine whether a significant change in nominal data is present before and after a specific event.

III. RESULTS

The following table lists the responses for each question before and after the presentation (Figure 1).

Time Period	Response	Are you aware that sun exposure contributes to skin cancer?	Do you have a sunscreen regimen?	Do you know how to properly apply sunscreen?	Do you know the different benefits of sun protection?	Can you recognize a suspicious mole?	Are you aware of the different kinds of skin cancer?	Are you aware that melanoma is the most common and deadliest kind of skin cancer?	Do you know when to see a dermatologist?	Do you practice a sun-safe lifestyle?
Before Presentation	Yes (Before Presentation)	0	3	1	3	0	0	0	2	3
	No (Before Presentation)	8	5	7	5	8	8	8	6	5
After Presentation	Yes (After Presentation)	8	7	7	8	6	8	5	8	8
	No (After Presentation)	0	1	1	0	2	0	3	0	0

Fig 1. Responses for 9 Questions Assessing Women’s Understanding of Skin Care and Protection were Collected before and after a Presentation on Sun Protection and Skin Cancer Awareness. The Questions were Categorical in Nature and Allowed Respondents to Provide a ‘Yes’ or ‘No’ response.

The results were also analyzed in the form of a bar graph (Figure 2).

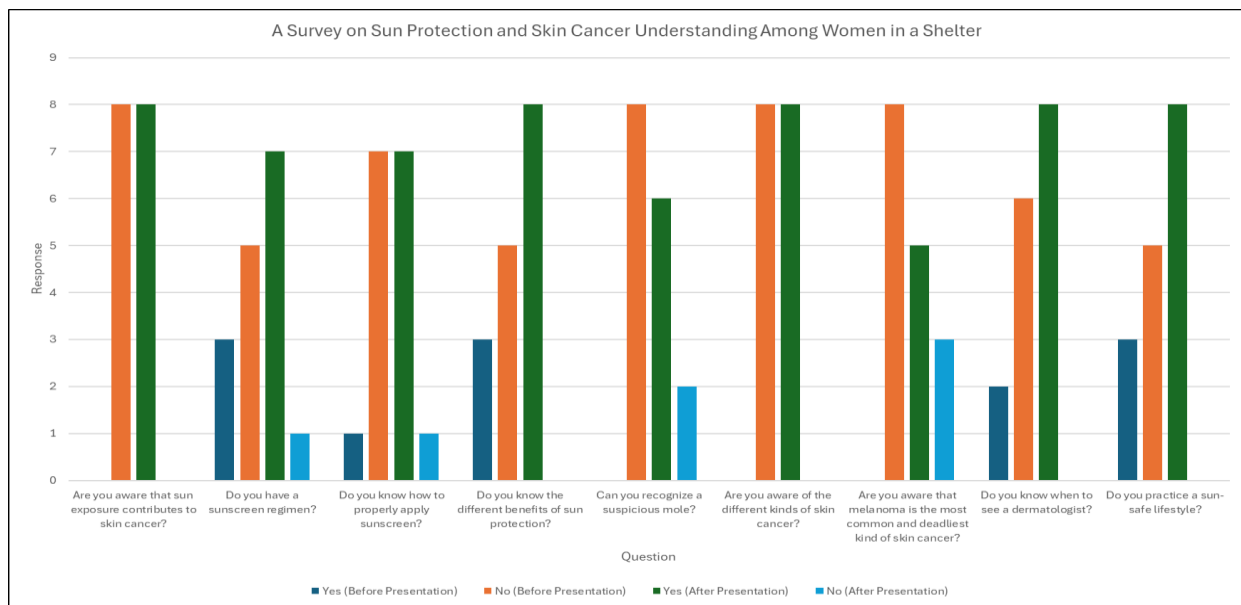


Fig 2. A Bar Graph Indicating Women’s Responses to Questions Assessing Women’s Understanding of Skin Care and Protection as Collected from Bethany House.

The following displays the results of the McNemar’s Test for each question provided before and after the presentation (Figure 3).

Are you aware that sun exposure contributes to skin cancer?	Number of People Who Changed from Yes to No	0	χ^2 Test Statistic	6.125
	Number of People Who Changed from No to Yes	8	χ^2 Critical Value	3.841458821
Do you have a sunscreen regimen?	Number of People Who Changed from Yes to No	0	χ^2 Test Statistic	2.25
	Number of People Who Changed from No to Yes	4	χ^2 Critical Value	3.841458821
Do you know how to properly apply sunscreen?	Number of People Who Changed from Yes to No	0	χ^2 Test Statistic	4.16666667
	Number of People Who Changed from No to Yes	6	χ^2 Critical Value	3.841458821
Do you know the different benefits of sun protection?	Number of People Who Changed from Yes to No	0	χ^2 Test Statistic	3.2
	Number of People Who Changed from No to Yes	5	χ^2 Critical Value	3.841458821
Can you recognize a suspicious mole?	Number of People Who Changed from Yes to No	0	χ^2 Test Statistic	4.16666667
	Number of People Who Changed from No to Yes	6	χ^2 Critical Value	3.841458821
Are you aware of the different kinds of skin cancer?	Number of People Who Changed from Yes to No	0	χ^2 Test Statistic	6.125
	Number of People Who Changed from No to Yes	8	χ^2 Critical Value	3.841458821
Are you aware that melanoma is the most common and deadliest kind of skin cancer?	Number of People Who Changed from Yes to No	0	χ^2 Test Statistic	3.2
	Number of People Who Changed from No to Yes	5	χ^2 Critical Value	3.841458821
Do you know when to see a dermatologist?	Number of People Who Changed from Yes to No	0	χ^2 Test Statistic	4.16666667
	Number of People Who Changed from No to Yes	6	χ^2 Critical Value	3.841458821
Do you practice a sun safe lifestyle?	Number of People Who Changed from Yes to No	0	χ^2 Test Statistic	3.2
	Number of People Who Changed from No to Yes	5	χ^2 Critical Value	3.841458821

Fig 3. The McNemar’s Test was Conducted for each Survey Question Comparing Outcomes before and after the Presentation. The Appropriate Chi-Square Test Statistic and Critical Value were Calculated for each Question.

The null hypothesis for each scenario (H_0) stated that the presentation had no effect on the participants' responses, while the alternative hypothesis (H_1) stated that the presentation had a statistically significant effect on participants' responses. The McNemar's test was performed with a p-value of 0.05 and a degree of freedom 1 for each analysis. A test statistic being greater than the associated critical value indicated a statistically significant result and rejection of the associated null hypothesis. Therefore, the following questions displayed statistically significant differences in responses before and after the presentation:

- Are you aware that sun exposure contributes to skin cancer?
- Do you know how to properly apply sunscreen?
- Can you recognize a suspicious mole?
- Are you aware of the different kinds of skin cancer?
- Do you know when to see a dermatologist?

The following questions' test results were unable to reject the null hypothesis.

- Do you have a sunscreen regimen?
- Do you know the different benefits of sun protection?
- Are you aware that melanoma is the most common and deadliest kind of skin cancer?
- Do you practice a sun-safe lifestyle?

For the question "Do you have a sunscreen regimen?," the associated analysis was true assuming that no one changed their answer from yes to no, as was observed with the other questions within the survey.

Further research with a larger sample size would promote more significant findings and determine whether skin care presentations could affect patient understanding.

IV. CONCLUSION

Melanoma is preventable and yet its prevalence continues to rise, but through cancer prevention initiatives and skin education, the trend can be reversed. With knowledge of skin care choices, we can dispel the myths surrounding the condition and work together to reduce cancer statistics among the most vulnerable groups. We would also appreciate it if people would join us in this effort of community empowerment and advocacy for a life-saving cause.

Conflicts of Interest: None to declare.

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