



Research Article

**AVAILABILITY KNOWLEDGE AND USE OF SUNSCREEN PRODUCTS BY PEOPLE WITH
ALBINISM IN DAR ES SALAAM REGION - TANZANIA**

Godeliver A. B. Kagashe^{1*}, Sheila M. Maregesi², and Aaron Mnyenye¹

¹ Department of Pharmaceutics, Muhimbili University of Health and Allied Sciences

² Department of Pharmacognosy, Muhimbili University of Health and Allied Sciences

*Corresponding Author: Godeliver A. B. Kagashe; Email: gkagashe@yahoo.co.uk and gkagashe@muhas.ac.tz

Abstract: Albinism is a congenital disorder causing hypo pigmentation of the hair, skin and eyes due to lack of melanin. People with albinism (PWA) are affected by sunlight and may develop blisters, premature skin aging and skin cancer which occur in sun-exposed parts of the body such as the face, neck and shoulders. Use of sunscreen products can be protective to the skin in combination with the use of hats, and protective clothing. In Tanzania the availability of sunscreen products and frequency of use among people with PWA is not well documented. The aim of this study was to assess availability and use of sunscreen products among people with albinism in Dar es Salaam region. This was a descriptive cross-sectional study whereby a simulated client method was used to obtain information from pharmacies while a semi-structured questionnaire was used to interview PWA. This study showed that, sunscreen products were available in 24% of the visited pharmacies. Majority of these sunscreen products (88%) had a Sun Protection Factor of 30 or more. 71.9% of the interviewed albino participants were not using sunscreen at the time of interview. About 58% of the respondents apply the sunscreens when going outside. About 3.5% of the respondents used traditional medicine. In conclusion sunscreen products are available on the Tanzanian market but they are not affordable by most PWA. People with albinism did not know the proper timing and how much sunscreen product to apply on the skin. Education on the proper use of sunscreen is required.

Key words: Albinism, sunscreen products, availability, knowledge, sun protection factor

INTRODUCTION

Albinism is a congenital disorder caused by either a complete lack or a reduction of melanin resulting in hypopigmentation of the hair, skin and eyes.¹ The prevalence of albinism worldwide is estimated to be about 1:17000. It varies considerably across continents and countries, in Africa the prevalence ranges from 1:5000 to 1:15000. In Tanzania albinism is rather at the higher side which is approximately 1:1499.^{1,2}

Lack of melanin predisposes this population to severe skin damage due to sunlight effects. People with albinism are therefore advised to protect themselves from sunlight effects by using different methods such as applying sunscreen products or covering their body with clothes/garments that will prevent the effects of sun rays. Some of the sunlight effects suffered by people with albinism include sunburn, blisters, premature skin aging and skin cancer.³ These lesions are in the most sun-exposed parts of the body such as the face, ears, neck and shoulders. In a study done by Luande and his team in Dar es salaam evidenced chronic skin damage in all albinos by the first year of life and at the age of 20 years, the skin of every study subject demonstrated subclinical malignant change. The predominant sites of cancers were the head and neck regions which are exposed to sunrays, only a few occurred on the trunk region which is normally covered by clothes.⁴ Another study by Berger showed the effect of ultraviolet light being more pronounced in people with albinism and subjecting them to develop skin cancer compared to people

with a normal skin.⁵ Lack of melanin in the eye also results in problems with vision, related and unrelated to photosensitivity.

Lack of adequate sun protection due to various reasons in people with albinism has been reported from different countries. A study conducted in rural areas of South Africa reported that, children living away from home had inadequate sun protection.⁶ In some case improper application of sunscreen products results in wastage of the product e.g. in areas of northern Tanzania, the sunscreen cream was applied at night due to poor knowledge.⁷

Sunscreen products protect against UV radiations from the sun by either, absorbing, reflecting, or preventing it from reaching deeper layers.⁸ For people with albinism a SPF of 20 and above is recommended.⁹ Several types and brands of sunscreen products that are available on the market are categorized based on the sun protection factor (SPF) as well as the active ingredients therein incorporated. In Tanzania, matters pertaining to sunscreen products are not well documented. Therefore, the aim of this study was to assess availability, affordability, prices, proportion of users, source of information, knowledge on the proper use sunscreen products among PWA in Dar es Salaam region.

METHODOLOGY

This was a cross-sectional descriptive study that involved pharmacies and people with albinism in Dar es Salaam region. A total of 185 pharmacies were selected

randomly from a list of all pharmacies located in Dar es Salaam region. A total of 57 people were interviewed after obtaining their consent.

Data collection: Simulated client method was employed to assess the availability of sunscreen products in the selected pharmacies. Pharmacies were visited and requested for the sunscreen products suitable for a person with albinism. Given the product(s), the simulated client read the necessary data but declined to buy by giving excuses like the product was expensive so she/he cannot afford to buy, or promising to come later. Immediately after leaving the pharmacy premises data was recorded on the data sheet, these included; the names of the sunscreen products stocked in that particular pharmacy and prices. The representative sunscreen products were then bought for proper recording of the ingredients and the sun protective factor.

Ethical clearance was obtained from Muhimbili University of Health and Allied Sciences ethical review committee. Permission to interview people with albinism was obtained from the chairman of Tanzania Albino Society. A convenient sampling method was used to interview all those who came to the Tanzania Albino Society office and agreed to participate. Face to face interview using a questionnaire was conducted to assess their knowledge and practice on sunscreen products and other sun protective gear recommended. Data was analyzed using SPSS version 20.

RESULTS

Six sunscreen products (types) were available in 44 of the surveyed pharmacies (24%) with Enat cream being the most stocked product (56%) as shown in

Table 1. Review of sunscreen product labels showed that the SPF was ranging between 10 and 60. Those having the SPF of 30 ranked highest (57%) as shown in Figure 1. Demographic data are presented in Table 2. The age of the participants interviewed was 20 to 50 years with the mean age of 39 years. Participants level of education; showed that, 66.7% of them had acquired primary school education which is compulsory to all Tanzanians. Participants mentioned hats, garments, sunscreens product and umbrellas as means/methods of protecting their bodies from the effects of sunrays (see Figure 2).

Time of the day for the sunscreen products application is shown in Figure 3. Most of the participants (58%) apply the sunscreens when going outdoors followed by those who apply it in morning and evening.

61.4% of the participants were at that particular time of the interview not applying the sunscreen products. Tanzania Albino society was the main source of information about sunscreen products to the majority (71.9%) as indicated in Table 3. Regard the affordability, 75.4% said the products were very expensive and none of them could afford to buy the products. This is reflected by prices of sunscreen products ranging between 10\$ to 35\$. Traditional medicines as alternative sunscreen products were mentioned by 3.5% of the participants. Regarding side effects experienced when sunscreen products were used, most (82.2%) of PWA said they encountered no side effect while 5.3% mentioned wounds as a side effect Figure 4.

Table 1: Sunscreen products in Dar es Salaam pharmacies

| Name of product | Percent |
|-------------------|---------|
| Nivea Sun (spain) | 23.3 |
| Soltan lotion | 1.66 |
| Aloe sun screen | 30 |
| Nivea Sunscreen | 1.66 |
| Enat cream | 56.66 |
| Sunblock | 1.66 |

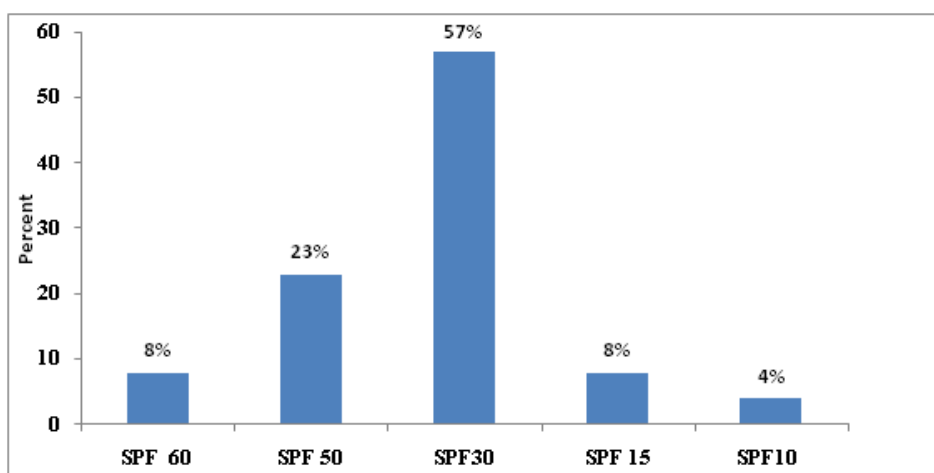


Figure 1: Proportions of sunscreen products based sun protection factor in Dar es Salaam pharmacies

Table 2. Demographic features of people with albinism participants

| Characteristic | % | Characteristic | % |
|--------------------|------|-------------------|------|
| <u>Sex</u> | | <u>Education</u> | |
| Male | 56.1 | Informal | 5.3 |
| female | 43.9 | Primary | 66.7 |
| | | Secondary | 28.1 |
| | | College | 0 |
| <u>Age (years)</u> | | <u>Occupation</u> | |
| 11-20 | 10.5 | Small business | 57.9 |
| 21-30 | 24.6 | Private sector | 1.8 |
| 31-40 | 33.3 | Public sector | 8.8 |
| 41-50 | 26.3 | Unemployed | 31.6 |
| Above 50 | 5.3 | | |

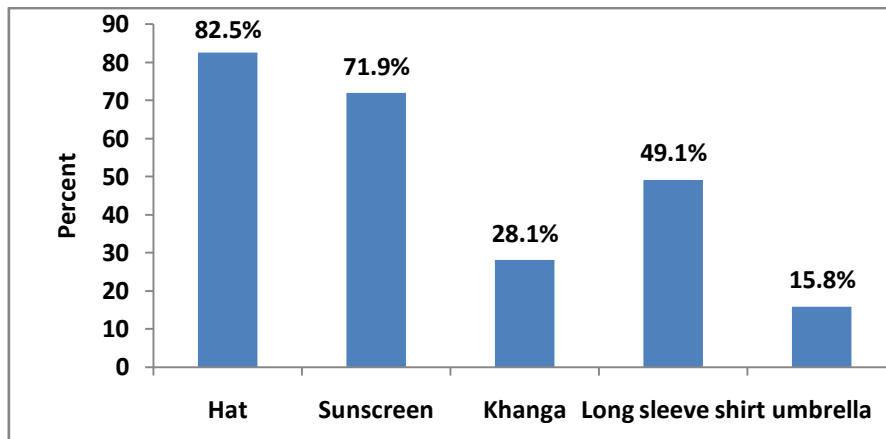


Figure 2: Methods used for sun protection

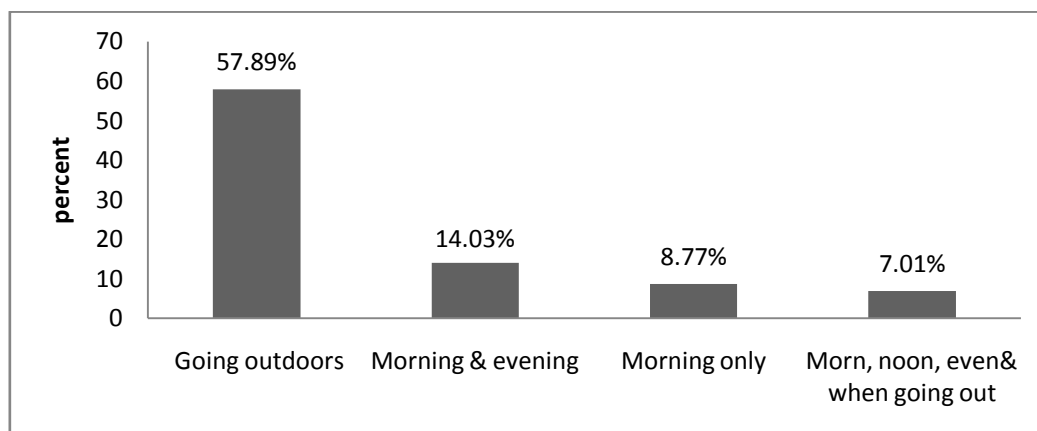


Fig. 3: Time of applying the sunscreen products

Table 3: Sunscreen products: Use, affordability, source of information and traditional products use

| Response | Percent | Response | Percent |
|------------------------------------|---------|---|---------|
| Using sunscreens currently | | Source of information on sunscreen | |
| No | 61.4 | Hospital /pharmacy | 15.8 |
| Yes | 38.6 | Relative/friend | 5.3 |
| | | Internet | 1.8 |
| | | Radio/TV | 5.3 |
| | | Albino Society | 71.9 |
| Affordability of sunscreens | | Tradition medicine Use | |
| Very expensive | 75.4 | Never used traditional medicines | 96.5 |
| Expensive | 24.6 | Used traditional medicines | 3.5 |
| Affordable | 0 | | |

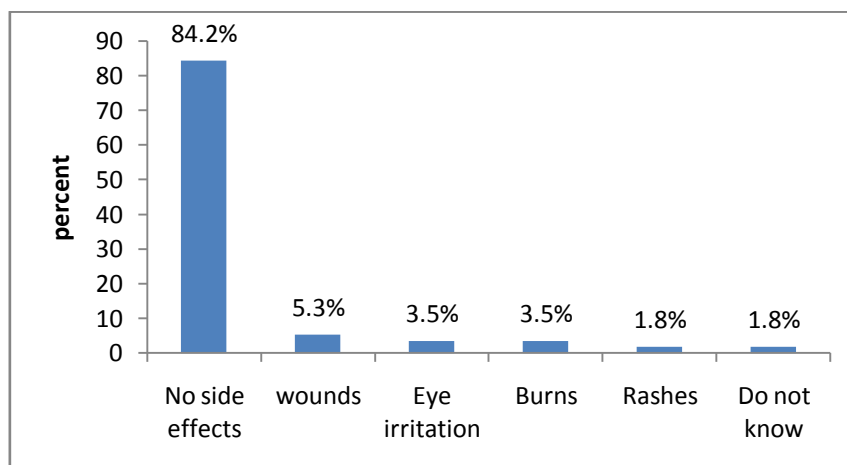


Figure 4: Side effects experienced with sunscreen products

DISCUSSION

Albinism is a condition that cannot be cured, but efforts can be made to improve the quality life of people with albinism. Use of sunscreen products to protect the skin is recommended so as to prevent premature skin aging or skin cancer when exposed to sunlight. Use of hats and sunglasses can also help people with albinism to tolerate sunlight.

This study has shown that people with albinism were knowledgeable about methods that can be used to prevent effects of sunlight, among these methods sunscreen products were mentioned by majority. However majority of participants were not knowledgeable on the time when the sunscreen product should be applied and how much should be applied. Most of them said they will apply the product when going out regardless of whether it is daytime or during the night while others said morning and evening. These results are similar to the previous findings in a study conducted in Northern Tanzania where participants showed reasonable understanding on risks of skin cancer and sun-avoidance methods but, the proper use of sunscreen products was not very clear to them.⁷ According to WHO sunscreens should be applied liberally and re-applied every two hours, or after working, swimming, playing or exercising outdoors.⁹

Hat wearing was mentioned by most of the participants which is in line with what is required. In order for people with albinism to benefit from the use of the hat it is recommended that the hat should have a wide brim that will prevent the light from reaching the person.⁹

Exploring availability of sunscreen on the market, it was found that, six brands/types of sunscreen products were available on the Tanzanian market. Of the representative samples 88% qualified for sun protective factor for people with albinism with SPF of 20 and above as recommended by WHO and NOAH.^{9, 10}

The reason given for why most of the participant were currently not using sunscreen product was financial inability as the products are very expensive. For them to use sunscreen products sole depend on free donation from

Tanzania Albino Society. The price of one tube of the sunscreen product ranged from 10 \$ to as high as 35 \$. People with albinism are among the disadvantaged group having low level of education to have employment with good salaries. Most of them are not employed as civil workers nor working in private sectors/non-governmental organizations but petty traders with unreliable low income sometimes less than a 1\$ per day.

High humidity and temperatures prevailing in most months year in Dar set Salaam region, leaves sunscreen products as the most convenient method in protecting the body compared to covering the exposed body parts with clothes such as kanga. Although kanga are cheaper and could have been an obvious method especially amongst women, sweating brings a lot of discomfort hence less used.

Although sunscreen products are generally regarded as medically safe product and very effective,⁹ some ingredients contained therein are known to cause skin hypersensitivity.⁸ Most participants in this study did not give such complaints. Only 5% reported developing wounds and only a few mentioned to suffer from eye irritation. Wound problems can not strictly be ascribed to sunscreen products use since previous works reported the same the condition among people with albinism where it was found that, people with albinism had more infected wounds compared with those with normal skin¹². On the other hand, low prevalence of the side effects could be explained by the inconsistent application of the sunscreens due to non affordability of sunscreen products.

CONCLUSION

People with albinism are aware of the need to protect themselves from the effects sunrays and they are knowledgeable on different means that can be applied to protect their skin including use of sunscreen products. These people however did not know the proper time of applying the sunscreen product and how much to apply. The sunscreen products are available on the Tanzanian market but they are expensive and unaffordable by most PWA. Educating PWA on the proper use of sunscreens and availability of sunscreen products at affordable price will help them protect their skin better from sunrays effects. Since albinism is one among other disability, our government is required to provide the sunscreen products as

a medicine rather than leaving this responsibility to the Tanzania Albino Society which is overwhelmed. Since the use of tradition medicine has been mentioned it is worth inquiring on what products are used for further scientific research.

Acknowledgement

We are grateful to the support of Tanzania Albino Society and people with albinism who agreed to participate in the study.

References

1. Grønskov K, Ek J, Brøndum-Nielsen K. Oculocutaneous albinism. *Orphanet J Rare Dis.* **2007**; 2:43.
2. Hong ES, Zeeb H, Repacholi MH. Albinism in Africa as a public health issue. *BMC Public Health.* **2006**; 6:212. (Prevalence)
3. Lookingbill DP, Lookingbill GL, Leppard B. Actinic damage and skin cancer in albinos in northern Tanzania: findings in 164 patients enrolled in an outreach skin care program. *Am Acad Dermatol.* **1995**; 32(4):653-8.
4. Luande J, Henschke CI, Mohammed N: The Tanzanian human albino skin. *Cancer* **1985**; **55**(8):1823-1828.
5. Berger E, Hunt R, Tzu J, Patel R, Sanchez M. Squamous-cell carcinoma in situ in a patient with oculocutaneous albinism. *Dermatol Online J.* **2001**;17(10):22.
6. Lund PM, Taylor JS. Lack of adequate sun protection for children with oculocutaneous albinism in South Africa. *BMC Public Health* **2008**; 8:225.
7. McBride SR, Leppard BJ. Attitudes and beliefs of an albino population toward sun avoidance: advice and services provided by an outreach albino clinic in Tanzania. *Arch Dermatol.* **2002**;138(5):629-32.
8. Sun protection and sunscreen available from www.MedicineNet.com
9. World Health organization (WHO) INTERSUN Programme available from <http://www.who.int/uv>
10. National Organization for Albinism and Hypopigmentation USA . Information about albinism- Sun protection. Available from <http://www.albinism.org>
11. Skin cancer foundation. Available from <http://www.skincancer.org/prevention/sun-protection/sunscreen/sunscreens-safe-and-effective>
12. Kiprono SK, Masenga JE, Chaula BM, and Naafs B. Skin flora: Differences between people affected by Albinism and those with normally pigmented skin in Northern Tanzania – cross sectional study. *BMC Dermatol.* **2012**; 12:1.