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Original Research Article

Evaluation of the knowledge, attitudes and practices about sun exposure and sunscreen usage in outpatients attending a dermatology clinic in North India

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ABSTRACT

Background: Multiple studies are available from West, regarding knowledge, attitude and practices related to sun exposure and usage of sun protective measures, however there is a paucity of such studies in Asian population. India being a tropical country, receives abundant sunlight and Indians are chronically sun exposed. So, we planned to assess the knowledge and awareness about sun protective measures in patients from North India.
Methods: A cross-sectional survey using specially designed questionnaires was carried out. Descriptive and inferential statistics were used wherever appropriate.
Results: A total of 500 patients were included, with majority being females. The mean age was 48.41 years and Fitzpatrick skin type V (60.4%) was the most commonly observed. 68.2% respondents reported daily sun exposure while 31.8% had reported occasional sun exposure. 34.6% had less than 1 hour of exposure, 20.8% had exposure of 1-3 hours and 44.6% had sun exposure more than 3 hours per day. 88% patients were aware of the harmful effects of sunlight. 74% respondents were aware of the benefits of sunscreen but only 26% were using them. Only 6% of those who were using sunscreen, were using sufficient amount and only 4% were reapplying. Most common reason for not wearing sunscreen was lack of awareness (44%). The most common source for information in our participants was social media and television.
Conclusions: This study demonstrated that the knowledge and practice of usage of sunscreen was sub optimal, suggesting the need of awareness programs and targeted interventions to fill this gap.

Keywords: Carcinogenesis, Photoprotection, Sun-protection factor, Sun-exposure, Sunscreens

INTRODUCTION

Excessive sun exposure has a significant health concern due to its association with various photosensitive dermatosis, pigmentary disorders, premature aging and skin cancer. Adequate knowledge, positive attitudes and appropriate practices regarding sun protection are crucial in preventing and managing these conditions. UV radiation has a broad spectrum, which is divided into Vacuum UV, Far UV, UVC, UVB and UVA and out of which; UVB and UVA are medically important.[1] UVA is further subdivided into short-wave UVA and long-wave UVA.[2] Almost all of UVC and much of UVB is filtered by the ozone layer in the stratosphere.[3] UVB affects the epidermis but UVA can penetrate up to dermis owing to its longer wavelength.[4] The amount of UVA reaching the earth surface is usually constant, but the UVB exposure varies with the season; and occurs more during the

summer season.[5] India has a predominantly tropical climate with intense sun exposure throughout the year. Despite this, studies evaluating the knowledge, attitudes and practices regarding sun exposure and usage of sunscreen among the general population are scarce. Therefore, this study aims to fill this knowledge gap by investigating the awareness and practices of sun protection among the outpatients attending a dermatology clinic.

METHODS

This was a cross-sectional descriptive study which was conducted over a period of one year from Jan 2021 to Jan 2022 at Northern Railway Health Unit, Jammu. 500 consecutive outpatients aged more than 18 years attending the dermatology clinic were enrolled in the study. After taking informed written consent and assuring confidentiality, the participants were asked to answer a predesigned, structured questionnaire. In case of uneducated patients, the questionnaire was filled by trained staff after explaining the questions to the patients in their native language.

Patients with psychiatric disease or cognitive impairment were excluded from the study due their difficulty in comprehending and responding to the questionnaire. The questionnaire had two sections; first section included the sociodemographic details and the second section consisted of questions aimed to assess knowledge, attitude and their perception regarding sun exposure and use of photoprotective measures. The data was entered in Microsoft excel sheet and descriptive statistics were used to summarize the participants' demographic characteristics, level of knowledge, attitudes and practices related to sun protection.

RESULTS

A total of 500 patients, including 233 men and 267 women aged 18-74 years (mean 48.41 years) were included in our study. Majority of them were in 20-40 years age group (53%) and 71% belonged to an urban background. 38% of the participants were homemakers, 17% were students and 45% were serving or retired employees. Fitzpatrick skin type V (60.4%) was the most common skin type in the study followed by type IV (25%) and III (7.4%) (Table 1).

Assessment of sunscreen exposure revealed that 341 (68.2%) participants reported daily sun exposure whereas 159 (31.8%) had occasional sun exposure. Among the participants with daily sun exposure, 118 (34.6%) had less than 1 hour of exposure per day, 71 (20.8%) had exposure of 1-3 hours per day and 152 (44.6%) had sun exposure more than 3 hours per day (Figure 1). Assessment of the knowledge of the participants, revealed that 88% (440) of them were aware of the adverse effects of excessive sun exposure but only 17% (85) were aware of its carcinogenic effects. The most frequently identified harmful effect of sun exposure identified by respondents was presence hyperpigmentation or tanning of skin (64%), followed by sunburn (11.2%) and premature aging (7%).

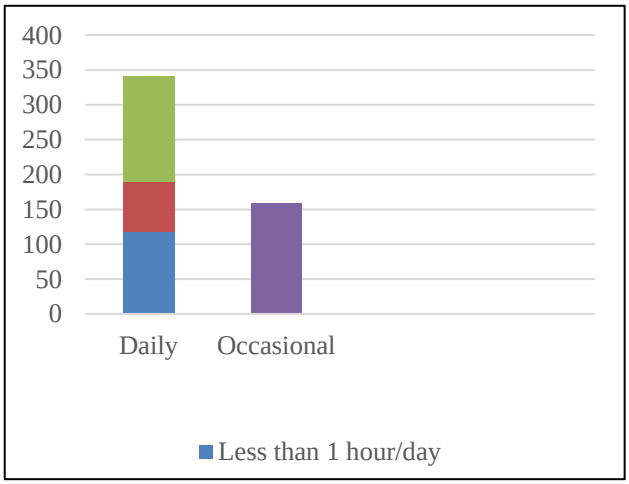

Figure 1: Sun exposure of the study population.

A total of 370 (74%) participants were aware of the benefits of sunscreen but only 130 (26%) were using them. Amongst those who were using sunscreen only 6% were using sufficient amount as per BSA and only 4% were reapplying it 3-4 hourly. 75 (57.7%) respondents reported that they use sunscreen on daily basis and 55 (42.3%) were using them occasionally. The most common reason for not using sunscreen was lack of awareness (44%), followed by cost-issues (30.5%) and, increased sweating and oiliness of face post application (22%). Social media (49%) and television (26%) were the most common source of information in the participants, followed by newspapers and magazines. However, 44 (8.8%) respondents have never heard about sunscreens.

Table 1: Demographic characteristics of the study population.

Demographic characteristics		N (%)
Gender	Male	233 (46.6)
	Female	267 (53.4)
Age (in years)	Less than 20	48 (9.6)
	20-40	265 (53)
	40-60	170 (34)
	60-80	17 (3.4)
Residence	Rural	145 (29)
	Urban	355 (71)
Occupation	Students	85 (17)
	Homemakers	190 (38)
	Employees (serving/retired)	225 (45)
Fitzpatrick skin type	Type 1	0
	Type 2	34 (6.8)
	Type 3	37 (7.4)
	Type 4	125 (25)
	Type 5	302 (60.4)
	Type 6	2 (0.4%)

DISCUSSION

According to The International Agency for Research on Cancer, ultraviolet (UV) radiation has been classified as a Group 1 carcinogen on human subjects.[6] Use of sunscreen and other sun-protective measures like using protective clothing, sunglasses and using wide-brimmed hats have been proven to protect against adverse effects of sunlight like photoaging and decreasing the incidence of skin cancers.[7]

Our study documents that the knowledge about harmful effects of sunlight in general population is sub-optimal and even in participants with adequate knowledge, the usage of sunscreens was inadequate. In our study, 88% patients (n=440) were aware of the harmful effects of excessive sun exposure but only 17% (n=85) were aware of its carcinogenic effects, which is much lower than those reported in studies from Western population. In a Brazilian study, it was observed that 94.3% of the respondents were aware of the adverse effects of sun exposure and 80.8% were aware that the sunlight increases the risk of development of skin cancers.[8]

In a study by Geber et al, it was noted that 77% of the participants were aware that the sun exposure increases the risk of skin cancer.[9] The low level of awareness noted in our study subjects can be attributed to minimal public awareness campaigns in our set up. There was a female preponderance in respondents with knowledge of sunscreens, which is similar to studies conducted by Devos et al and Yurtseven et al.[10,11] Similar results were reported by other studies on this topic.[12-19]

This can be attributed to the fact that women are generally more concerned about cosmetics and skin care. Aggarwal et al, however, found no gender bias in sunscreen usage in their study.[20] In our study 26% (n=130) participants were using sunscreens and out of them, only 57.7% (n=75) were using them on a regular basis. In another study, conducted by Fabris et al, 74.1% participants were wearing sunscreens on a regular basis, whereas in a study by Al-Mutairi et al, 80% of the participants had been wearing sunscreens regularly and 27% were having repeated applications.[21]

The amount of sunscreen used, is one of the important factors in determining the sun protection provided by the product. In our study too, only 6% users were wearing an adequate amount of sunscreen. Lack of awareness was the most common reason cited by study participants for not using sunscreens in our study, while in a Brazilian study, the most common reasons cited were, the lack of patience to apply (34.2%), followed by messing up the tan (31.6%).[8] The most common source of information noted in our study was television and the social media.

Previous experience from various countries has demonstrated that it is possible to improve the sun protection behaviors and attitudes of the population with focused public health campaigns. The use of television and print media, particularly the newspapers, can be a key tool in targeting larger population but awareness campaigns should also incorporate other alternative approaches such as trained healthcare professionals and internet to make these awareness campaigns more effective.

The study participants are from a dermatology OPD, which may not be representative of the general population. Individuals presenting to dermatology clinic may already have some awareness about skin care, skin disease and sun exposure, leading to a selection bias that could overestimate the knowledge and practices related to sunscreen use and sun protection. The study is conducted in North India and that too in a specific population (railway employees and their dependents), which may not reflect the attitudes and practices in other parts of the country where environmental, cultural and socio-economic factors could differ. Another limitation of the study is its cross-sectional design.

CONCLUSION

These findings will provide valuable insights into the existing knowledge gaps and aid in designing targeted educational programs and interventions to enhance sun protection behaviors, reduce the incidence of sun-related skin disorders and promote overall skin health in the population.

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