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Original Article

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

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Abstract

Objective To assess the knowledge, attitude and practices about sun exposure and sunscreen usage in outpatients attending a dermatology clinic.

Methods Three hundred consecutive patients attending a dermatology clinic were enrolled for this questionnaire‐based cross‐sectional, descriptive study.

Results A total of 300 patients, comprising of 112 (37.33%) men and 188 (62.67%) women, aged between 14 and 78 (mean 47.13) years, were included in the study. Majority of the patients, 216 (72%) were in the 20-60 year age group and 226 (75.33%) belonged to an urban background. Assessment of the sun exposure revealed that 224 (74.67) respondents reported daily sun exposure whereas 76 (25.33%) had occasional sun exposure. Assessment of the knowledge revealed that 241 (80.33%) patients were aware of the adverse effects of excessive sun exposure but only 139 (46.33%) were aware of the carcinogenic effect of sunlight. A total of 212 (70.67%) respondents were aware of the benefits of sunscreens but only 156 (73.58%) were using the sunscreens. Sixty-one respondents (39.1%) reported that they used sunscreens on a daily basis while 95 (60.89%) used it occasionally. Lack of awareness was the most common reason (44.67%). Newspapers (47%) and television (39%) were the most common source of information in our respondents.

Conclusion Information, education, and communication activities are imperative to educate people regarding the risks of excessive sun exposure and significance of preventive measures like sunscreens to bridge the gaps in their knowledge. While improvement in individual economic status and education remains highly desirable, mass media can play a pivotal role in creating awareness among masses.

Key words
Skin cancer, UV radiation, sun screen, photoprotection

Introduction

The sun is the principal source of environmental ultraviolet radiation (UVR). Excessive UVR exposure to skin leads to widespread epidermal and dermal cellular damage. DNA is probably the primary molecular target of injury, as a result of both direct UVB absorption and also secondary UVA-induced photosensitization reactions. The acute harmful effects of ultraviolet rays on the skin include damage to DNA, apoptosis, erythema, immunosuppression and an increase in pigmentation due to stimulation of melanogenesis, while the long-term effects include photoaging and photocarcinogenesis. Epidemiological studies have reported an increasing prevalence of

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cutaneous malignancies, which has been attributed to factors like large quantities of UV radiation entering the atmosphere due to the thinning of the ozone layer, living and travelling in sunny climates, excessive sunbathing and sun bed use, outdoor sports, and the usage of appliances and devices that emit UV radiation in domestic and industrial settings.[1]

Sun exposure and photoprotection-related behavior and knowledge are important aspects in the prevention of skin cancer and photodermatoses. Primary skin cancer prevention strategies include increasing knowledge and awareness in individuals, changing sun protection behavior and implementing environmental policies and interventions. It is estimated that the regular use of photo-protectors during childhood may reduce the incidence of skin cancer by almost 80%.[2] The various protective strategies advocated include appropriate use of sunscreens, avoidance of UV exposure by seeking shade, staying indoors during the hours of peak UV radiation, and wearing protective clothing. Unfortunately, patient adherence to these recommendations has been disappointingly low and various barriers have been identified which include lack of knowledge, misconceptions regarding skin cancer risks, difficulty in initiating behavioral changes, and socioeconomic factors such as time and costs involved, etc.[3]

This study was carried out to assess the knowledge, attitude and practices about sun exposure and sunscreen usage in outpatients attending a dermatology clinic.

Methods

Consecutive patients attending outpatient dermatology clinic during July 2015 to June 2016 were enrolled for this questionnaire-based, cross-sectional, descriptive study. Children aged <14 years and severely ill patients were excluded from the study owing to their inability to comprehend or respond to the questionnaire. After informed written consent and assuring confidentiality, they were asked to answer a predesigned, structured questionnaire in their native language. The questionnaire had two parts with the first section for their sociodemographic details and the second section comprised questions aimed at assessing their knowledge, attitude, and perception for sun exposure and photoprotection.

Results

A total of 300 patients, comprising of 112 (37.3%) men and 188 (62.7%) women, aged between 14 and 78 (mean 47.13) years, were included in the study. Their baseline demographic features are shown in **Table 1**. Majority of the patients, 216 (72%) were in the 20-60 year age group and 226 (75.3%) belonged to an urban background. Among the males, self-employed and office workers were the most common occupational group (10.7% and 11.3%, respectively), while among the females, homemakers were the most common group (48%). Fitzpatrick skin type III (27.3%) and IV (47.3%) were the most common skin types in our study. Assessment of the sun exposure revealed that 224 (74.7%) respondents reported daily sun exposure whereas 76 (25.3%) had occasional sun exposure. Among the respondents who had daily sun exposure, 102 (45.5%) had less than one hour of sun exposure daily whereas 96 (42.9%) had an exposure of 1-3 hours per day and only 26 (11.6%) had sun exposure more than three hours daily.

Assessment of the knowledge revealed that 241 (80.3%) patients were aware of the adverse effects of excessive sun exposure but only 139 (46.33%) were aware of the carcinogenic effect

Table 1 Baseline characteristics of patients studied (n=300).

Baseline characteristics	*N (%)*
Gender	
Males	112 (37.3)
Females	188 (62.7)
Male: female	1: 1.69
Age (years)	
<20	28 (9.3)
20-40	102 (34)
41-60	114 (38)
>60	56 (18.7)
Social background	
Rural	74 (24.7)
Urban	226 (75.3)
Occupation	
Men	
Office workers	32 (10.7)
Self-employed	34 (11.3)
Students	26 (8.7)
Farmers and laborers	16 (5.3)
Defense person	4 (1.3)
Women	
Homemakers	144 (48)
Students	30 (10)
Office workers	14 (4.67)
Education status	
Illiterate/school dropout/<12th standard	56 (18.67)
Graduate	156 (52)
Postgraduate	78 (26)
Professional	10 (3.33)
Fitzpatrick skin type	
Type II	12 (4)
Type III	82 (27.3)
Type IV	142 (47.3)
Type V	60 (20)
Type VI	4 (1.3)
Source of information	
Television	117 (39)
Radio	36 (12)
Newspaper	141 (47)
Books	81 (27)
Internet	59 (19.7)
Health personnel	31 (10.3)
Family and friends	42 (14)
No information	38 (12.7)

of sunlight. The most frequently identified adverse effects were sunburn (60.3%), blemishes (49%), freckles (42.3%), aging (31.3%) and wrinkles (29.7%), skin cancer (46.3%) and aggravation of acne (19.3%). When questioned regarding the awareness about sunscreens, 212 (70.7%) respondents were aware of the benefits of sunscreens and females (n=140) were more aware than the males (n=72), but only 156 (52%) were using the sunscreens. Of the 156 users of sunscreens, females (n=102) outnumbered the males (n=54). Sixty-one respondents (39.1%) reported that they used sunscreens on a daily basis while 95 (60.9%) used it occasionally. When asked about the sunscreens, 74 (47.4%) users were aware of the Sun Protection Factor (SPF) of the product they were using and 64 (41.0%) respondents were using a sunscreen with SPF ≥30. Among the users of sunscreens, only 32 (20.5%) were using them twice a day and only 39 (25%) were using it over all the exposed sites including face, neck, arms and hands while the rest reported applying it over the face and neck only. The amount of sunscreen used per application was significantly less and 76.3% of the users (n=119) were applying less than 5ml sunscreen over the face and neck per usage. When enquired about the reasons for not using sunscreens, lack of awareness was the most common reason (44.7%), followed by whitish discoloration and excessive oiliness of the face post-usage (21.3%), lack of time for application (10.7%) and cost of sunscreens (5.3%). Newspapers (47%) and television (39%) were the most common source of information in our respondents, followed by books and internet but 38 (12.7%) respondents had no idea about the sunscreens.

Discussion

Ultraviolet (UV) radiation has been classified by the International Agency for Research on Cancer (IARC) as a Group 1 carcinogen to humans.[4] Sun protection is therefore an important public health message for skin cancer prevention. Experts advocate the use of sunscreen, as well as, other sun-protective measures like wearing protective clothing and sunglasses, wearing

wide-brimmed hats, and sun-avoidance to protect from sun exposure. Sunscreens have been proven to have protective effects against photoaging and reduce the incidence of skin cancers.[5]

This population-based survey documents that the knowledge about risks of solar radiation in general population is suboptimal and even in respondents with adequate knowledge, the sunscreen usage is inadequate. In the present sample, 80.3% patients (n=241) were aware of the adverse effects of excessive sun exposure but only 46.3% (n=139) were aware of the relationship between sun exposure and skin cancers, which is much lower than those of the western populations. In a Brazilian study, 94.3% of the respondents were aware of the risks of sun exposure and 80.8% knew that the sunlight increases the risk of skin cancer.[6] In a study performed at the National Institute of Cancer on the USA, it was found that 77% of the participants knew that the sun increases the risks of skin cancer.[7] This low level of awareness in our study population could be attributed to minimal public awareness campaigns in our setup.

The knowledge regarding the sunscreens and their usage was higher among the females in our study, which was similar to the results of other studies. Devos *et al*.[8] showed that knowledge regarding sunscreens and their regular use was considerably higher in the female participant group than in the male group. Yurtseven *et al.*[9] also showed that while 90.6% of women used sunscreen, only 57.1% of men were using sunscreens. In our study also, of the 156 users of sunscreens, females (n=102) outnumbered the males (n=54). This can be related to the fact that women are more concerned about cosmetics and skin care. In our study 52% respondents were using sunscreens, out of which only 20.3% (n=61) were using sunscreens on a regular basis. In a study by Fabris *et al.*,[6] 74.1% respondents were using sunscreens on a regular basis, whereas in a study by Al-Mutairi *et al*.,[10] 80% of the respondents had been using sunscreens regularly and 27% were using repeated applications of sunscreen. In our study, 47.4% (n=74) users were aware of the SPF of the product they were using, while 96% of sunscreen users were aware of the product's SPF in the study by Al-Mutairi.[10] The amount of sunscreen is an important factor in determining the sun protection offered by the product. A European study showed that individuals used one-fifth (0.3-0.5 mg/cm2) of the quantity recommended by the manufacturer on the product packaging (2 mg/cm^2).[11] In our study too, only 23.72% (n=37) users were using an adequate amount of sunscreen. Lack of awareness was the most common reason cited by the respondents for not using sunscreens in our study, while in a Brazilian study, the lack of patience to apply (34.2%), followed by messing up the tan (31.6%) were the most common reasons.[6] Television and the printed media were the most common sources of information in our study, more so than health professionals.

Experience from various countries demonstrates that it is possible to improve the sun protection behaviors and attitudes of a population with public health campaigns. Use of television and the printed media, particularly newspapers, are the key in targeting a large population but campaigns should also incorporate alternative approaches such as healthcare professionals and the internet to make these campaigns more effective.

Conclusion

As the incidence of skin cancers is on the rise, proper education of the masses regarding the adverse effects of sun exposure and the use of various photoprotective measures including

sunscreens is imperative. The respondents evaluated in our study had an acceptable understanding of the risks of sun exposure; however, large majority were unaware of benefits of sunscreens or were not using sunscreens in a proper manner to be of any benefit.

Limitations

There were several potential limitations in our study. Firstly, the sample size was small and as convenience sample of respondents from only one centre was surveyed; thus, caution must be exercised in extending our findings to the whole population, especially in other geographical regions. Moreover, results of this study rely on self-reported data, which could introduce recall and social desirability biases.

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