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Sunalert behavior, attitude and photoprotective measures against sun exposure among nursing students

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Abstract

In India, with its year-round sunny climate, sun exposure is a significant concern.¹ Ultraviolet (UV) radiation poses a significant risk to skin health, leading to conditions such as skin cancer, premature ageing, and sunburns, and their impact is on the rise globally. Thus, photoprotective measures like wearing protective clothing, seeking shade, using wide-brimmed hats, sunglasses, and applying effective sunscreens are crucial.²

Healthcare professionals are tasked with educating the public on preventive health measures. Nursing students, who serve as both learners and future educators, are expected to possess thorough knowledge about sun protection and practice healthy behaviours.³ A study on medical students found that 17.5% applied sunscreen consistently all summer, while 26.7% reported not using sunscreen at all.⁴ Thus, raising individual awareness is essential to lower skin cancer rates in society, mitigate the consequences of unprotected sun exposure, and encourage photo-protective measures and behaviours.

This questionnaire-based study focuses on understanding the sun-protective behaviour, attitudes, and knowledge among nursing students in India and explores whether the knowledge translates into practice and identifies factors that prevent them from adopting adequate photoprotective measures.

Keywords: Nursing students, sun exposure, sunscreen, skin cancer

Introduction

Aims of the study

To evaluate the behavior, attitude and photoprotective practices of nursing students.

Material and Method

- **Study Type:** Cross-sectional descriptive study
- **Study Population:** Includes 300 nursing students from a university in the coastal region of the country, conducted between June 2023 to August 2023.
- **Questionnaire:** This questionnaire was developed using validated tools from studies on sun protection and tailored to the Indian context.⁵

It comprised four main sections:

1. **Demographics:** Age, gender, year of study, skin type.
2. **Knowledge of UV Radiation:** Awareness of UV-related risks, understanding of peak UV times, and skin cancer risks.
3. **Photo Protective Behaviors:** Frequency of sunscreen use, SPF levels, reapplication practices, and the use of sunglasses, hats, clothing, and avoidance of sun exposure.
4. **Attitudes and Barriers:** Views on tanned skin, cultural preferences, and obstacles to sun protection, such as financial limitations and convenience issues.

The questionnaire includes multiple-choice and open-ended questions to collect qualitative insights.

Data Collection and Analysis: The questionnaires were distributed to students during regular classroom sessions and hospital postings, and responses were gathered anonymously.

The data were analyzed using descriptive and inferential statistics to examine the relationships between demographics and sun-protective behaviors.

Results

Demographic Characteristics

The study population included 300 nursing students, the students average age was 21.16 ± 2.12 years, with 67% identifying as female. Final-year students made up 35% of the sample. About half (55%) of the students had skin type V according to the Fitzpatrick scale [6].

Table 1: Skin types according to the Fitzpatrick Scale

Phototype	Characteristic
Type I and II	Burns easily, never tans/tans minimally with difficulty
Type III	Burns moderately, tans moderately and uniformly
Type IV	Burns minimally, tans moderately and easily
Type V	Rarely burns, tans profusely
Type VI	Never burns, tans profusely

Table 2: Demographic characteristics of Participants

Character	Total 'n' (%)	Sunscreen Users
Gender		
Male	99 (33%)	26 (26%)
Female	201 (67%)	155 (77%)
Academic Year		
1 st year	32 (10.6%)	18 (56%)
2 nd year	74 (24.6%)	54 (73%)
3 rd year	88 (29.3%)	47 (53%)
4 th year	106 (35.3%)	62 (58%)
Fitzpatrick photo skin type		
III	22 (7%)	16 (72%)
IV	96(32%)	58 (60%)
V	165 (55%)	98 (59%)
VI	17 (5%)	9 (52%)

Knowledge of UV Radiation

Awareness of UV Risks: The study showed that most nursing students reported daily sun exposure lasting between 1 and 3 hours, with 45.5% of participants in this category. Additionally, 30% of the students reported they were exposed to sun during peak ultraviolet hours between 10 AM to 4 PM.

While most students recognized that sun exposure can lead to sunburn, but not all were aware of the link between sun exposure and skin cancer. Many participants were knowledgeable about immediate effects of sun exposure, such as sunburn (60.3%) and tanning (64.3%), compared to awareness of its long-term effects, including aging (26.3%) and skin cancer (21%).

Knowledge of UV Protection

Although a significant majority (69.2%) understood that sunscreen prevents sunburns, a smaller proportion recognized its role in preventing skin cancer (24.0%) and skin ageing (22%). Additionally, a notable percentage (54.9%) believed that sunscreen does not reverse signs of ageing.

Table 3: Sun exposure and sunscreen knowledge

Questions (Yes/No/Not sure)	n	[%]
Unprotected exposure to sunlight can be damaging	249	[83]
Sunlight is a major contributor to skin cancer	63	[21]
Individuals with darker skin tones also need to apply sunscreen	168	[56]
Sunscreen reduces the effects of skin ageing	66	[22]
Applying sunscreen helps prevent the occurrence of skin cancer	72	[24]

Sun-Protective Behaviors

1. Sunscreen Use

The study found that out of 181 students (60.3%) reported using sunscreen, only 33 (18.2%) students, were using sunscreen regularly (defined as at least once daily when exposed to the sun), but reapplication during the day was uncommon. Interestingly, the study observed a gender disparity in sunscreen use, with a higher proportion of female students (77%) using sunscreen compared to male students (26%). Among the sunscreen users, 72 (40%) applied it immediately before going out in the sun, 94 (52%) used it 30 mins before sun exposure, remaining applied 1 hour before going out.

Table 4: Sunscreen application

When should sunscreen be applied?	'n'	[%]
Right before going out in the sun	72	[40]
30 min before going out in the sun	94	[52]

2. Other Protective Behaviors

Use of Protective clothing was more common among female students, with 83% wearing scarves, full sleeves, and umbrellas while only 23% of male students reported hats, umbrellas.

A considerable number of students recognized that the most harmful time for sun exposure is between 10:00 a.m. and 2:00 p.m.; however, only 25% of them consistently avoided the sun or sought shade during these peak hours, while 53% did so occasionally.

Table 5: Other photoprotective practices

	Male 'n' (%)	Female 'n' (%)
Other photo protection methods include umbrellas, long sleeves, scarves, and hats.	23 (23%)	167 (83%)

Attitudes Toward Sun Protection Cultural Preferences

About 26% of students expressed a preference for tanned skin, often citing outdoor activities as justification for sun exposure. In contrast, a significant portion (60.3%) preferred to have untanned skin, which affected their sunscreen usage habits. The primary factors influencing their choice of sunscreen included promotions and advertisements (36.4%) as well as packaging (30.5%), while only a small proportion of students consulted a dermatologist for a sunscreen.

Most commonly used sunscreen was 30 SPF (sun protection factor), furthermore only 36% of the students were aware about the SPF and its role.

Health Promotion Role

While 86% of students believed that healthcare professionals should demonstrate good sun protection practices to their patients, only 52% felt that they consistently applied such behaviors in their own lives.

Barriers to Sun Protection

Primary reasons for avoidance of sunscreen included cost and the oily/ greasy look it left on the skin after application. Other factors for not using sunscreen included an unaware of its benefits, forgetting to apply, and incompatibility with makeup.

Table 5: Barriers to usage of sunscreen

What makes you avoid the usage of sunscreen?	'n'	[%]
Forgetting to	56	18.6
Skin looks greasy/oily	122	40.6
Costly	96	32
It is not effective/ not aware	22	7.3

Discussion

The students average age was 21.16 ± 2.12 years, with 67% identifying as female. Third-year students accounted for 35% of the participants. About half (55%) of the students had skin type V according to the Fitzpatrick scale. These findings were consistent with other studies related to skin cancer and sun protection [7,8].

Nursing students demonstrated moderate knowledge about sun exposure and photoprotective measures, similar to findings from a study involving nursing students in Turkey [9]. Compared to medical students, it was found that they had moderate to high knowledge regarding skin cancer, but their understanding of sunscreen and ultraviolet radiation was limited [10]. These results indicate that enhancing educational awareness is crucial for nursing students.

The study revealed that participants' knowledge about the link between sun exposure and skin cancer was quite low (21%). This finding contrasts with international studies from countries like Australia, Canada, the United States, and Malta [11, 12], where a higher proportion of individuals understood the risks of sun exposure and practiced sun protection measures. This difference in knowledge levels suggests a need for targeted education and awareness campaigns for healthcare workers in this study's setting. Photoprotective behavior and awareness among female students were significantly greater than that of male students, a similar observation was reported by Haney *et al.* [13]. Although 64% of participants had sufficient knowledge about the benefits of sunscreen, this figure is lower than in studies from Western countries, where awareness of sunscreen benefits is typically high [14]. For instance, a study from coastal regions of Greece found that wearing sunglasses was the most common sun protection, followed by protective clothing [15]. In contrast, our study noted lower adoption of sun protection measures, possibly due to factors like limited knowledge, social norms, cultural practices, and economic barriers.

In our study, 24% of participants strongly believed that sunscreen use protects against skin cancer, contrasting with another study of nursing students where 87% strongly agreed on this protective effect [16].

According to Ugurlu *et al.*, students gather information on skin cancer from online (24.5%) and through media sources (24.1%), similar observations were made in our study, where the majority relied on advertisements and packaging, with a few consulting a dermatologist for their sunscreen usage [17].

Additionally, in a study by Yursteven *et al.*, a significant percentage of participants preferred to avoid going outdoors during peak sunlight hours [18]. This alignment with our study and similar research emphasizes the common practice of avoiding direct sun exposure at peak times to reduce skin damage risk.

Similar to a study by Julian AK *et al.*, [19] cost and discomfort were the primary reasons for not using sunscreen regularly. Thus, interventions targeting nursing students should focus on addressing the practical barriers to sun

protection, such as promoting affordable sun care products and educating students on the importance of daily sunscreen use, even during clinical shifts.

Conclusion

The findings indicate that nurses, play a key role in shaping behaviors, such as photoprotective behavior and practices. However, sufficient knowledge about the benefits of sunscreen and sun protection was lacking, with many participants holding misconceptions about sunscreen's effects. This study highlights a gap between nursing students' awareness of sun exposure, risk associated and their actual behavior. While most students understood the dangers, factors like cost, convenience, and social norms often took precedence, leading to inconsistent sun protection practices. It is crucial to involve nursing students in educational efforts and public health campaigns aimed at raising awareness about skin cancer prevention and sun protection.

Limitations

The sample was confined to a single region of the country, so the results might not apply to the general population of the country.

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