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ОСВЕДОМЛЕННОСТЬ И МОДЕЛИ ИСПОЛЬЗОВАНИЯ СОЛНЦЕЗАЩИТНЫХ КРЕМОВ

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THE AWARENESS AND USAGE PATTERNS OF SUNSCREEN

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Резюме. Солнцезащитные кремы предотвращают ожоги, фотостарение и рак кожи. Исследование, включавшее 114 респондентов показало, что женщины используют кремы чаще мужчин (97,0% против 61,5%; p<0,001), а наибольшая частота использования наблюдалась в возрастной группе 18–25 лет (93,3%), у лиц старше 50 лет – 60,0% (p=0,0011). Озабоченность вопросами безопасности снижало использование до 77,4% (p=0,0018). Необходимы образовательные интервенции для мужчин, пожилых людей и лиц с чувствительной кожей.

Ключевые слова: солнцезащитные кремы; фотозащита; рак кожи; факторы риска; поведенческий разрыв; общественное здоровье.

Resume. Sunscreen prevents sunburn, photoaging, and skin cancer. A study of 114 respondents showed females use sunscreen more than males (97.0% vs 61.5%; p<0.001). Highest usage was in ages 18–25 (93.3%), while only 60.0% of those over 50 used it (p=0.0011). Safety concerns reduced usage to 77.4% (p=0.0018). Targeted educational interventions are needed for men, older adults, and sun-sensitive individuals.

Keywords: sunscreen; photoprotection; skin cancer; risk factors; behavior gap; public health.

Relevance. Sunscreen usage is arguably one of the most convenient and effective means of protection against ultraviolet harmful effects. It can drastically lower the occurrence of sun damage, photoaging, as well as both melanoma and non-melanoma skin cancers. Nevertheless, witnessing a rise in skin cancer prevalence globally, occurring simultaneously with increased public knowledge about ultraviolet (UV) radiation hazards and sunscreen efficacy, indicates a substantial behavior–knowledge gap. This paradox suggests that awareness alone is insufficient to drive protective behavioral changes. In addition, recent debates concerning potential health risks associated with sunscreen use, such as chemical absorptions, endocrine-disrupting potential of certain ingredients, vitamin D deficiency, and adverse environmental impacts, may further compound the problem of public hesitancy and inconsistent usage patterns. Understanding the interplay between perceived benefits, acknowledged drawbacks, and actual behavioural patterns is therefore essential for developing evidence-based educational strategies and public health interventions.

Aim: to assess the degree of public awareness about sunscreen knowledge and to evaluate the patterns of sunscreen use among the general population.

Objectives:

1. To assess the degree of public awareness regarding the advantages and disadvantages of sunscreen usage and evaluate the patterns of sunscreen use.

2. To identify the factors correlating with the regular use of sunscreen (e.g., gender, age, skin type, safety concerns, information sources).

3. To identify knowledge gaps regarding sunscreen reapplication guidelines and proper usage among different population groups and provide strategies to overcome the knowledge gaps.

Materials and methods. A comparative cross-sectional study was conducted among the general public in Sri Lanka and Belarus. Data were collected using a self-administered structured questionnaire distributed among the public and educational institutions between February and April 2026. The questionnaire consisted of questions regarding demographic characteristics (age, gender, skin phototype), sunscreen use frequency (daily, occasional, never), sun protection factor (SPF) preference, awareness of reapplication guidelines, perceived benefits and drawbacks, health and environmental concerns; and the level of trust in various information sources. A total of 114 respondents were included and evaluated in this analysis. Data were presented as percentages. Results were analyzed using chi-square (χ^2) tests for categorical associations. The statistical significance was set at $p \leq 0.05$. All analyses were performed using JASP statistical software.

Results and their discussion. There were 114 valid responses collected. In total, 101(88.6%) of respondents indicated that they used sunscreen and 13 (11.4%) indicated non-use denoting that most people were educated about the potential benefits of sunscreen use.

Among the sunscreen users, an analysis based on gender showed a strong statistically significant relationship denoting that females have a significant higher usage rate with 84(83.1%) respondents while males demonstrated a lower rate with 17(16.8%) respondents ($\chi2= 22.99$, $p<0.001$) (fig. 1). This finding is consistent with existing literature demonstrating that women generally exhibit greater engagement with skincare routines and higher health-conscious behavior regarding dermatological protection. The gender disparity represents a critical target for intervention, as males experience comparable cumulative UV exposure but demonstrate lower protective behavior adoption.

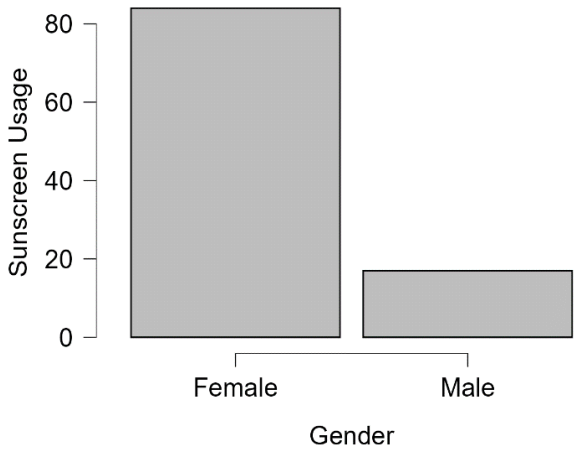

Fig. 1 – Sunscreen usage by gender

Age analysis revealed an inverse relationship between age and sunscreen usage. The 18–25 age group showed a significantly higher usage rate with 74 (73.2%) respondents while the 36-50 years group demonstrated the lower rate with 11 (10.9%) (χ^2 =10.64,

p=0.0011) respondents (fig. 2). This declining pattern is particularly concerning given that older adults possess consequently higher baseline risk of skin cancers and melanoma. The reduced usage in comparison with this demographic factor may reflect the generational variability in sun safety education, lower cosmetic concern, or misconceptions about lower vulnerability with increasing age.

A paradoxical and statistically significant finding arose in relation to skin type. The majority of sunscreen users differentiated using the Fitzpatrick scale were of lowest skin sensitivity type V 47 (46.5%) and type VI 20 (19.9%) when compared to other high skin sensitivity type II 7(6.9%), type III 21 (20.8%), type IV 6 (5.9%), ($\chi 2$=2.614, p = 0.624). This risk–behavior inversion suggests that current public health messaging may fail to reach high risk demographics or may be perceived as irrelevant to their self-assessed vulnerability.

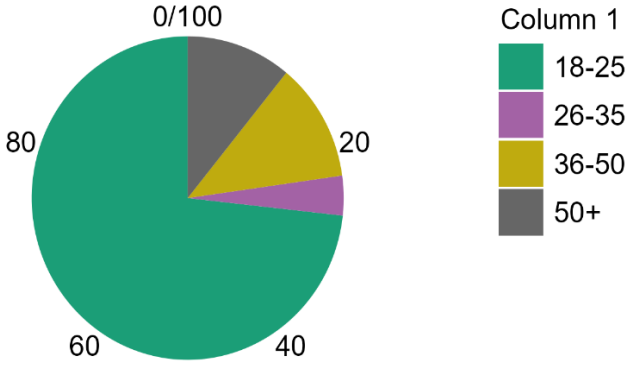

Fig. 2 – Sunscreen usage by age group

Knowledge assessment revealed that majority of the people do not follow the known recommendation on the sunscreen reapplication regimen. Among the sunscreen users, 49 (48.5%) respondents rarely followed the recommendation compared to the respondents who always did (3(3%). Furthermore, a significant group of people 33(32.7%) did not know this recommendation. ($\chi 2$= 47.7 p < 0.001). This knowledge gap regarding proper application technique may substantially compromise real-world efficacy even among regular users.

Analysis based on the SPF preference denoted that 4(4%), 22(21.8%) and 35 (34.7%) of respondents used SPF 15, 30 and 50 respectively denoting the misconception that higher numbers are better for health. This misconception may contribute to inadequate reapplication and over-reliance on single morning application. Furthermore, a significant number of respondents 40 (39.6%) lacked knowledge about sunscreens when compared to respondents who had a SPF preference ($\chi 2$= 13.01, p = 0.003) additionally evidencing the gap between knowledge and behavior.

The paradoxical finding that individuals with the highest objective risk (older adults, males, sun-sensitive skin types) demonstrate the lowest protective behaviour aligns with previous studies. The reverse correlation between the level of risk and behavior indicates that public campaigns for raising awareness on skin cancer prevention do not reach high-risk groups or that these groups consider the campaigns as being unimportant for themselves. This analyzed also showed that medical practitioners, especially dermatologists and general practitioners, are considered to be the most trustworthy information source (78.9%).

Conclusions:

1. Females use sunscreen more than males. This difference indicates that females generally are more likely to use sunscreen owing to strictly followed skin care routines.

2. There is an alarming declining rate of sunscreen usage in elders that may lead to severe health hazards as this population segment has a higher risk of skin cancer and damage.

3. The paradoxical finding is that individuals at high risk for UV induced morbidities (Type I and Type II) are less likely to employ sunscreen use. Furthermore, it can be witnessed that people acknowledging recommendations do not follow it thus indicating a significant knowledge gap in public health education. As such this study underlines the fundamental importance of educating the population on sunscreen and its function among defense mechanisms against UV radiation, despite its limitations.

4. In addition, the study offers some perspective on trusted healthcare professionals' participation on sunscreen application behaviors across demographic groups and in particular among men, older adults and those with sun-sensitive skin.

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