

Reman S., Sukumar S.

COMPARATIVE STUDY OF ULTRAVIOLET RADIATION EFFECTS ON SKIN HEALTH IN SRI LANKAN AND BELARUSIAN POPULATIONS

Tutor: PhD, associate professor Keis G.D.

*Department of Radiation Medicine and Ecology
Belarusian State Medical University, Minsk*

Relevance. Geographical climate in reference to ultraviolet (UV) irradiation influences the effect of UV radiation on human skin, with skin type depending on the amount of melanin present in the epidermis and dermis of the skin. Controversially, people who have pale skin are the most vulnerable to skin damage from sunlight; dark-skinned people tend to have greater intrinsic protection from sunlight than light-skinned individuals. Notwithstanding ongoing studies, very little direct comparison has been performed around the impact of UV-related health effects and behaviors, along with the level of awareness of the need for sun protection, between a population of Asian descents in a tropical climate and an individual from a cold temperate climate in Europe. The present study sets out to compare Sri Lankans and Belarusians and encompass these differences.

Aim: the purpose of this study was to compare the effect of UV exposure on skin health outcomes (sunburn frequency, sun protection practices, eye symptoms, mole concerns) from 30 participants in Sri Lanka and 19 participants in Belarus according to their Fitzpatrick Skin Type.

Materials and methods. The researchers gave out the same online survey (Google Forms) to participants from Belarus and Sri Lanka (Asian cohort) in such a way that their surveys were both identical. 49 people filled out both forms of the survey with 30 belonging to the sample from Sri Lanka and 19 belonging to the sample from Belarus. The study surveyed Fitzpatrick skin type, previous sunburns, sun protection, eye sensitivity to sunlight, concern over moles, knowledge of Vitamin D and UV index. Data were summarized using a spreadsheet software with descriptive statistics and cross-group comparisons.

Results and their discussion. We collected responses from 49 people. 30 from Sri Lanka and 19 from Belarus. As expected, skin types differed greatly between the two groups. In Sri Lanka, 70% had Fitzpatrick Types IV-V (darker skin, tans easily, rarely burns), while in Belarus, 84% had Types I-II (fair skin, burns easily). A statistical test confirmed this difference was significant ($p < 0.001$). Even though Sri Lanka has stronger sunlight, Sri Lankans got sunburned much less often. Only 23% reported a sunburn in the past year, compared to 68% of Belarusians ($p = 0.002$). The darker a person's skin, the fewer sunburns they had ($p < 0.001$), confirming that melanin naturally protects against burning. Sunscreen use was higher in Belarus (63%) than in Sri Lanka (43%), but this difference was not significant ($p = 0.14$). We also found no real link between sunscreen use and sunburn frequency ($p = 0.53$), suggesting that natural skin color matters more than sunscreen habits. UV Index awareness was very low in both countries only 17% of Sri Lankans and 32% of Belarusians had heard of it, with no significant difference between groups ($p = 0.22$). Vitamin D awareness was higher in Belarus (53%) than in Sri Lanka (27%), and this difference was significant ($p = 0.04$). Concerns about changing moles were reported by 20% of Belarusians and 10% of Sri Lankans, but this was not statistically significant ($p = 0.31$).

Conclusions. People with darker skin tones have some natural protection against UV damage, but they are still at risk from sun exposure. In Belarus, there's a need for a campaign to raise awareness about sunburn prevention and protective measures. In Sri Lanka, it's crucial to educate the public about wearing sunglasses, checking moles, monitoring vitamin D levels, and recognizing that darker skin still requires UV protection. Both groups lack awareness of the UV Index, highlighting the need for targeted educational efforts. These insights can guide dermatologists, skincare brands, and public health officials in developing effective outreach programs.