

*Correspondence: S. Lautenschlager. E-mail: stephan.lautenschlager@triemli.zuerich.ch

Reference

- 1 Sutton RL. A fissured, granulomatous lesion of the upper labio-alveolar fold. *Arch Derm Syphilol* 1932; **26**: 425–427.
- 2 Anderson S, McClain N, Riviello RJ. Genital findings of women after consensual and nonconsensual intercourse. *J Forensic Nurs* 2006; **2**: 59–65.
- 3 Slaughter L, Brown CR, Crowley S, Peck R. Patterns of genital injury in female sexual assault victims. *Am J Obstet Gynecol* 1997; **176**: 609–616.
- 4 McLean I, Roberts SA, White C, Paul S. Female genital injuries resulting from consensual and non-consensual vaginal intercourse. *Forensic Sci Int* 2011; **204**: 27–33.
- 5 Wong CS, Andrew S, Yell J. Isolated vulval splitting—is this normal or pathological? *J Obstet Gynaecol* 2004; **24**: 899–902.
- 6 Edwards L. Vulvar fissures: causes and therapy. *Dermatol Ther* 2004; **17**: 111–116 Review.
- 7 Fraser IS, Lähteenmäki P, Elomaa K *et al*. Variations in vaginal epithelial surface appearance determined by colposcopic inspection in healthy, sexually active women. *Hum Reprod* 1999; **14**: 1974–1978.
- 8 Schmidt Astrup B, Lykkebo AW. Post-coital genital injury in healthy women: a review. *Clin Anat* 2015; **28**: 331–338.
- 9 Bohl TG. Vulvar ulcers and erosions—a dermatologist's viewpoint. *Dermatol Ther* 2004; **17**: 55–67.
- 10 Bucker CB, Neil SM. The genital, perianal, and umbilical regions. In: Burns T, Breathnach S, Cox N, Griffiths C, eds. *Rook's Textbook of Dermatology*, Vol. 71 8th edn. Chapter 71. Wiley-Blackwell, Chichester, UK, 2010: 66.

DOI: 10.1111/jdv.14069

Sunbed use among Portuguese beach goers: a crave group while waiting sunbeds to be abolished

Editor

Although sunbed use is considered a complete carcinogen for skin cancer, over the past decades exposure to indoor tanning is becoming more popular.^{1,2}

The risk appears to be stronger for young women, initial use at an early age (less than 35 years) and a higher number of sunbed sessions.^{3,4}

With this study, we aim to better understand the features of sunbed users in Portuguese beach goers, a group at high risk for skin cancer.

A descriptive cross-sectional study was conducted, using the Portuguese Skin Cancer Association questionnaire (used since 2007), applied consecutively to people at the beach entrance (Praia da Falésia, on the south of Portugal), for four consecutive years (2009–2012).

The following items were investigated: demographic, constitutional and socio-economic factors and behaviour towards sun exposure.

Data analysis was performed by contingency tables and χ^2 independence tests. Statistical significance was established at P -value <0.05.

A total of 4390 questionnaires were completed. The use of indoor sunbeds varied from 6% in 2009 and 2010 and 7% in 2011 to 8% in 2012. Results are given in Table 1. Sunbed use was more frequent in young female and higher schooling individuals ($P < 0.001$).

Table 1 Demographic data and risk factors, according to sunbed use (2009–2012)

	Did you ever used indoor tanning (Total 4390)		<i>P</i> -value
	No (<i>n</i> = 4093; 93%) <i>N</i> (%)	Yes (<i>n</i> = 297; 7%) <i>N</i> (%)	
Sex			
Male	1802 (44)	97 (33)	<0.001
Female	2291 (56)	200 (67)	
Age (years)			
<16	505 (12)	2 (1)	<0.001
16–40	1597 (39)	187 (63)	
≥41	1991 (49)	108 (36)	
Skin Phototype			
I–II	1146 (28)	98 (33)	0.056
III–VI	2947 (72)	199 (67)	
Schooling			
Basic	696 (17)	15 (5)	<0.001
High school	1514 (37)	107 (36)	
University	1883 (46)	175 (59)	
Use of hat on the beach			
No	2497 (61)	214 (72)	<0.001
Yes	1596 (39)	83 (28)	
Use of shirt on the beach			
No	860 (21)	92 (31)	<0.001
Yes	3233 (79)	205 (69)	
Size of the shirt			
Covers arm	1555 (38)	74 (25)	0.001
Covers forearm	860 (21)	57 (19)	
Only covers shoulder	1678 (41)	166 (56)	
Use of sunglasses at the beach			
No	1433 (35)	68 (23)	<0.001
Yes	2660 (65)	229 (77)	
Apply sun protector before Sun exposure			
No	2006 (49)	116 (39)	0.001
Yes	2087 (51)	181 (61)	
Repeat sun protector application after swimming			
No	1555 (38)	92 (31)	0.027
Yes	2538 (62)	205 (69)	
Protection index			
<30	1228 (30)	125 (42)	<0.001
≥30	2865 (70)	172 (58)	

Table 1 Continued

	Did you ever used indoor tanning (Total 4390)		P-value
	No (n = 4093; 93%) N (%)	Yes (n = 297; 7%) N (%)	
Use to be exposed between 11 and 17 h			
No	1514 (37)	80 (27)	0.001
Yes	2579 (63)	217 (73)	
History of sunburn			
No	1433 (35)	78 (26)	0.002†
Yes	2660 (65)	219 (74)	

†Chi-squared test.

Statistical significance established at P-value <0.05. Most relevant data in bold.

Considering behaviours favouring tanning, sunbed users do not use the hat and do not use shirt when exposed to sunlight ($P < 0.001$). They use sun protection index <30, are exposed between 11 and 17 h ($P = 0.001$) and have more sunburns along life ($P = 0.002$).

They also have attitudes evidencing awareness about sun damage like the use of sunglasses, sunscreen before sun exposure ($P < 0.001$) and repeat of sunscreen after swimming ($P = 0.027$).

Despite its limitations (cross-sectional design, self reported), this study has some strengths (sample size, repeated survey along 4 years and consistent evolution along time with persistent low rate of sunbed use) and interesting results. Although the sunbed user's profile is equivalent to the literature,^{2,4,5} when comparing with other southern European countries, in this study we found a lower rate of sunbed users (maximum of 8%) in Portuguese beach goers. This rate of use may not be representative of the general population, but it strengthened by the Portuguese Euromelanoma data, where people go motivated by skin cancer concern, although using even less the sunbed (from 2009 to 2012, the sunbed use rate was 1% to 3% (unpublished data)). In Italy and Spain, the rate is over 20% of the population. In Spain, 51% of women before 35 years old claimed to use sunbeds.⁶ A systematic review from Western countries revealed a summary prevalence of ever exposure of 35.7% for adults, 55.0% for university students and 19.3% for adolescents.⁷

The regulation of indoor tanning devices and inspections is heterogeneous around the world. In Portugal, legislation exists since 2005. It obligates adequate information for users, technical formation for workers, and interdicts the use by pregnant and minors under 18 years, just like the US Food and Drug administration's proposed rule.⁸ According to Prosafe, in Portugal the implementation of the law as well as its inspection is being

accomplished.⁹ Together with the promotion of skin cancer knowledge and prevention campaigns in the last 14 years, this can explain the lower use rate of sunbeds. However, rules and campaigns are not enough, because this complete carcinogen is still used. In the light of current science, the research to date supports a complete ban of indoor tanning all over the world, as has been performed in Brasil and Australia.

While we expect authorities to have a responsible position to reduce the risk of further avoidable morbidity and mortality on skin cancer, sunbed users must be considered a crave group for future prevention campaigns.

A.F. Duarte,^{1,2,*} J.N. Maia Silva,² A. Costa Pereira,³
E. Nagore,⁴ A. Picoto,² O. Correia^{1,2,5}

¹Centro Dermatologia Epidermis, Instituto CUF, Porto, Portugal,

²Portuguese Skin Cancer Association, Lisboa, Portugal, ³Center for Health Technology and Services Research (CINTESIS) and Department of Health Information and Decision Sciences, Faculty of Medicine, University of Porto, Porto, Portugal, ⁴Department of Dermatology, Instituto Valenciano de Oncologia, Valencia, Spain, ⁵Faculty of Medicine, University of Porto, Porto, Portugal

*Correspondence: A.F. Duarte. E-mail: duarte.af.t30@gmail.com

References

- 1 Wehner MR, Chren MM, Nameth D *et al.* International prevalence of indoor tanning: a systematic review and meta-analysis. *JAMA Dermatol* 2014; **150**: 390–400.
- 2 Grange F, Mortier L, Crine A *et al.* Prevalence of sunbed use, and characteristics and knowledge of sunbed users: results from the French population-based Edifice Melanoma survey. *J Eur Acad Dermatol Venereol* 2015; **2**: 23–30.
- 3 Boniol M, Autier P, Boyle P, Gandini S. Cutaneous melanoma attributable to sunbed use: systematic review and meta-analysis. *BMJ* 2012; **24**: 345: e4757.
- 4 Schneider S, Diehl K, Bock C *et al.* Sunbed use, user characteristics, and motivations for tanning: results from the German population-based SUN-Study 2012. *JAMA Dermatol* 2013; **149**: 43–49.
- 5 Schneider S, Kramer H. Who uses sunbeds? A systematic literature review of risk groups in developed countries. *J Eur Acad Dermatol Venereol* 2010; **24**: 639–648.
- 6 Stratigos AJ, Forsea AM, van der Leest RJ *et al.* Euromelanoma: a dermatology-led European campaign against nonmelanoma skin cancer and cutaneous melanoma. Past, present and future. *Br J Dermatol* 2012; **167** (Suppl 2): 99–104.
- 7 Diehl K, Litaker DG, Greinert R, Zimmermann S, Breitbart EW, Schneider S. The prevalence of current sunbed use and user characteristics: the SUN-Study 2008. *Int J Pub Health* 2010; **55**: 513–516.
- 8 Coups EJ, Geller AC, Pagoto SL. The US Food and Drug Administration's proposed rule to increase regulation of indoor tanning devices. *JAMA Dermatol* 2016; **152**: 509–510.
- 9 Joint Market Surveillance Action on Sunbeds and Solarium Services. Co-funded by the European Commission. Directorate General for Health & Consumers (DG SANCO) and Executive Agency for Health and Consumers (EAHC) Agreement No: 2009 82 03

DOI: 10.1111/jdv.14070