

10-16-2017

# Gender Differences in Indoor Tanning Habits and Location

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## Repository Citation

Feng, Jessica; Frisard, Christine F.; Nahar, Vinayak K.; Oleski, Jessica L.; Hillhouse, Joel J.; Lemon, Stephenie C.; and Pagoto, Sherry L., "Gender Differences in Indoor Tanning Habits and Location" (2017). *UMass Worcester Prevention Research Center Publications*. 76. [https://escholarship.umassmed.edu/prc\\_pubs/76](https://escholarship.umassmed.edu/prc_pubs/76)

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## **Keywords**

Indoor tanning, UVA protection, UVB protection, behavioral health, preventative medicine, public health, skin cancer prevention

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# Accepted Manuscript



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PII: S0190-9622(17)32541-0

DOI: [10.1016/j.jaad.2017.10.015](https://doi.org/10.1016/j.jaad.2017.10.015)

Reference: YMJD 12063

To appear in: *Journal of American Dermatology*

Received Date: 10 July 2017

Revised Date: 21 September 2017

Accepted Date: 9 October 2017

Please cite this article as: Feng J, Frisard C, Nahar VK, Oleski JL, Hillhouse JJ, Lemon SC, Pagoto SL, Gender Differences in Indoor Tanning Habits and Location, *Journal of American Dermatology* (2017), doi: 10.1016/j.jaad.2017.10.015.

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1 **Article Type:** Research Letter

2  
3 **Title:** Gender Differences in Indoor Tanning Habits and Location

4  
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30  
31 **Funding/Support:** This study was funded by the Centers for Disease Control and  
32 Prevention, Division of Cancer Prevention and Control, Prevention Research Center  
33 grant number CDC U48 DP001933-04 to Sherry L. Pagoto and additional support  
34 provided by National Institutes of Health grant number K24 HL124366-01A1 to Sherry L.  
35 Pagoto to provide mentorship on this paper.

36  
37 Funding/Sponsor was involved?

38 Design and conduct of the study? YES

39 Collection, management, analysis, and interpretation of data? YES

40 Preparation, review, or approval of the manuscript? YES

41 Decision to submit the manuscript for publication? YES

42  
43 **Financial Disclosure:** None

44  
45 **IRB Approval Status:** Reviewed and approved by the University of Massachusetts  
46 Medical School IRB.

47  
48 **Conflict of Interest:** Dr. Pagoto has consulted for Johnson & Johnson. The remaining  
49 authors have no competing or conflicting interests to disclose. The findings and  
50 conclusions in this report are those of the authors and do not necessarily represent the  
51 official position of the Centers for Disease Control and Prevention.

52  
53 Reprint requests: Sherry L. Pagoto

54  
55 **Manuscript word count:** 500

56 **References:** 5

57 **Number of Tables:** 2

58 Supplementary Tables: 0

59 **Number of Figures:** 0

60 Supplementary Figures: 0

61 **Supplementary Attachment:** 1 (survey instrument)

62  
63 **Keywords:** Indoor tanning, skin cancer prevention, public health, UVA protection, UVB  
64 protection, behavioral health, preventative medicine

65 **To the Editor,**

66 In 2013, 1.9 million US men reported tanning indoors.<sup>1</sup> Existing research largely  
67 target teen and young adult female tanners, and less is known about male tanning  
68 behavior. Using Survey Sampling International, we recruited a nationally representative  
69 sample of 773 adults who intend to use or used an indoor tanning bed. Participants  
70 reporting a lifetime history of tanning indoors (n=636; 33.5% male) were included.

71 The survey measured tanning frequency, tanning dependence, tanning location  
72 (salon, non-salon business, home), and influences on tanning location selection  
73 (1=strongly disagree, 5=strongly agree). Two or more affirmative responses on the 7-  
74 item Behavioral Addiction Indoor Tanning Screener (BAITS) confirmed tanning  
75 dependence.<sup>2</sup> Participants were also surveyed about smoking, weekly soda  
76 consumption, and binge drinking (5 or more alcoholic beverages within a couple of  
77 hours) in past month.

78 The University of Massachusetts Medical School institutional review board  
79 granted ethics approval. Bivariate comparisons were done using  $\chi^2$  tests, independent  
80 samples t tests, and Wilcoxon rank sum tests, as appropriate using SAS/Stat Version  
81 9.3 (SAS Institute Inc., Cary, NC).

82 No significant differences were found between men (mean [SD], 6.0 [16.9]) and  
83 women (mean [SD], 6.0 [22.7]) in past year indoor tanning visits ( $P=.58$ ; See Table 1).  
84 However, men were significantly more likely to meet the BAITS tanning dependence  
85 threshold (49.3% vs 29.6%,  $P=.001$ ). Men were more likely to tan in private residences  
86 (30.5% vs. 19.4%,  $P=.002$ ). For factors influencing tanning location selection, men gave  
87 significantly higher ratings to the ability to get other services at the same time (3.7 vs.

88 3.3,  $P=.004$ ), ability to tan with fewer rules (3.6 vs. 3.2,  $P<0.001$ ), and ability to use a  
89 tan as a workout reward (3.6 vs. 3.3,  $P=.002$ ). Women gave significantly higher ratings  
90 to cleanliness (4.3 vs. 4.1,  $P=.06$ ) and cost (4.2 vs. 3.9,  $P=0.001$ ).

91 Male tanners were more likely to smoke (59.2% vs 38.8%,  $P=.001$ ), reported  
92 more binge drinking in the past month (mean [SD], 4.7 [6.9] vs. 2.2 (4.2),  $P<.0001$ ) and  
93 had higher weekly soda consumption (mean [SD], 13.7 [27.0] vs. 8.1 [12.6],  $P<.0001$ ).  
94 Male tanners were significantly more ethnically diverse than female tanners ( $P=0.002$ ,  
95 See Table 1).

96 Results revealed that while men and women tan at a similar frequency, men  
97 were more likely to screen positively for tanning dependence. Men had higher rates of  
98 comorbid risk behaviors consistent with prior research identifying associations between  
99 tanning dependence and alcohol addiction.<sup>3</sup> Men had higher rates of tanning in private  
100 residences, where unsupervised tanning duration could facilitate dependence.

101 Tanning salon regulations may have less impact on reducing male tanning. Male  
102 tanners preference for settings that offer additional services may provide opportunities  
103 for targeted interventions.

104 Male tanners had a greater proportion of minorities than female tanners which is  
105 consistent with prior research.<sup>4</sup> Other studies have shown that sexual minority men have  
106 higher tanning rates than heterosexual men.<sup>5</sup> Studies that have explored largely white  
107 samples or did not assess sexual orientation may have painted an incomplete picture of  
108 male indoor tanning.

109 Future research is needed to better understand the characteristics and  
110 motivations of male indoor tanners.

111

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129



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<b>Table 1. Participant Characteristics by Gender</b>				
	<b>All (n=636)</b>	<b>Men (n=213)</b>	<b>Women (n=423)</b>	<b>P value</b>
Age, mean (SD)	36.2 (12.9)	36.9 (12.7)	35.9 (12.9)	.34
Ethnicity				.002
% White	76.4%	68.5%	80.4%	
% Hispanic	10.7%	12.7%	9.7%	
% Other	12.9%	18.8%	9.9%	
Education				.01
% High school or GED	13.3%	9.9%	15.1%	
% Some college	23.5%	19.8%	25.4%	
% Associate or Bachelor	46.5%	48.1%	45.7%	
% Graduate	16.7%	22.2%	13.9%	
Health Behaviors				
Smoker	45.6%	59.2%	38.8%	.001
Number of cans of soda consumed per week, mean (SD)	10.0 (18.9)	13.7 (27.0)	8.1 (12.6)	<.0001
Number of days in the past 30 with 5 or more alcoholic beverages consumed, mean (SD)	3.0 (5.4)	4.7 (6.9)	2.2 (4.2)	<.0001
Skin type				.36
%Always/usually burn	33.7%	33.8%	33.6%	
%Sometimes mild burn, tan uniformly	35.7%	38.5%	34.3%	
%Rarely or never burn	30.7%	27.7%	32.2%	

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<b>Table 2. Tanning Behavior by Gender</b>			
	<b>Men (n=213)</b>	<b>Women (n=423)</b>	<b>P value</b>
Frequency of indoor tanning in past year, mean (SD)	6.0 (16.9)	6.0 (22.7)	.58
Tanning Location			.007
Salon Only	91 (42.7%)	217 (51.3%)	
Non-Salon Business	57 (26.8%)	124 (29.3%)	
Home Tanner	65 (30.5%)	82 (19.4%)	
Tanning dependence/behavioral addiction	49.3%	29.6%	<.0001
Factors influencing tanning location choice, mean (SD)			
Ability to tan and get other services at the same time	3.7 (1.06)	3.3 (1.14)	.004
Ability to tan with less rules and regulations	3.6 (1.01)	3.2 (1.14)	<.0001
Ability to reward myself with a tan after I workout	3.6 (1.11)	3.3 (1.14)	.002
Cleanliness	4.1 (.97)	4.3 (.91)	.06
Cost	3.9 (.93)	4.2 (.90)	.001
Convenience	4.1 (.89)	4.2 (.86)	.06
Professionalism	3.9 (.93)	4.0 (.90)	.28

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135

136 **Acknowledgment section**

137 **Author Contributions:** Dr. Pagoto had full access to all the data in the study and takes  
138 responsibility for the integrity of the data and the accuracy of the data analysis.

139 Study concept and design: Hillhouse, Pagoto.

140 Acquisition, analysis, or interpretation of data: All authors.

141 Drafting of the manuscript: Feng, Nahar, Pagoto

142 Critical revision of the manuscript for important intellectual content: Feng, Hillhouse,  
143 Pagoto.

144 Statistical analysis: Frisard,

145 Obtaining funding: Hillhouse, Pagoto.

146 Administrative, technical, or material support: Frisard, Oleski

147 Study supervision: Hillhouse, Pagoto.