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Facebook Advertising for Cancer Prevention: A Pilot Study

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Facebook and other social media platforms have been used to influence public opinion, political behavior, and retail.[1] However, Facebook can also be used as an opportunity for public health promotion.[2] Indoor tanning is a known carcinogen, with a direct dose-response relationship to melanoma.[3] The risk of melanoma is higher when initial exposure occurs at a young age (<35 years).[3] According to the 2015 National Health Interview Survey, 3.5% of US adults, and 20.4% of non-Hispanic white women, report using indoor tanning beds in the past year.[4] Current skin cancer prevention messages are mostly didactic, risk-focused, use fear as the main persuasive strategy, and receive little user engagement.[5] Our primary aim was to develop engaging skin cancer prevention videos, disseminate them using online advertising platforms, and measure the reach of, and engagement with, these videos. Our secondary aim was to run a pilot randomized experiment to assess the impact of the prevention videos on self-reported outcomes related to melanoma risk.

We developed three short (<1 minute) skin cancer prevention videos using input from the literature and focus groups with young women who use tanning beds. The first video was developed with ZDoggMD, a doctor who makes humorous, parody videos designed to spread public health messages.[6] The second was a video created by Lauren Giraldo, a 20-year-old Instagram celebrity with 621,000 Instagram followers and 722,000 Twitter followers. The third video was a fact-based video featuring still photos, tanning industry statistics, and skin cancer facts. We placed these videos as advertisements on Facebook for 10 days during mid-spring—the season with highest online searches for indoor tanning (May 3–13, 2017).[7] The advertisements were directed to women aged 18–34 in six states selected based on high tanning bed use and weak indoor tanning legislation (Alabama, Alaska, Arkansas, Georgia, Kentucky, and Tennessee). Our campaign #DontGetBurned was a Facebook Brand Lift study, which randomizes the target population to either the intervention group (which is shown at least one of the videos placed on participants' newsfeeds) or the control group (which sees their regular newsfeed).[8] The primary outcomes were reach - number of individuals exposed, frequency and duration of views, and engagement – number of likes, shares, and comments. The secondary outcome was impact. To measure impact, a subset (N=7,216) of the intervention and control groups were

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randomly selected and asked one of 3 questions: 1) Do you recall seeing a video about the risks of tanning beds online or on a mobile device in the last 2 days? (N=877) 2) Do tanning beds cause wrinkles and skin cancer? (N=3,126) and 3) How likely are you to use a tanning bed in the next year? (N=3,213). Responses included “yes” or “no” for the first two questions, and “very unlikely”, “somewhat unlikely”, “neutral”, “somewhat likely” and “very likely” for the third question. We did not collect any identifying or individual data and this study was considered exempt by the UCSF Institutional Review Board.

The videos appeared on Facebook newsfeeds 2.92 million times, reaching 1.25 million individuals an average of 2.36 times each (Table 1). Overall, the videos received 1,288 comments, 11,415 reactions and 4,201 shares. The parody song had the highest engagement (1,050 comments, 7,725 reactions, 3,875 shares) while the fact-based video had the lowest (22 comments, 121 reactions, 70 shares). The average view duration was 9 seconds for the parody video, 6 seconds for the Instagram celebrity video, and 3 seconds for the fact-based video. A greater proportion of the intervention group responded “yes” to recalling seeing a skin cancer prevention video (82/428, 19.2%), compared to the control group (3¼49, 6.9%). This difference was statistically significant (N=877, OR=3.19, 95%CI 2.06–4.93, p<0.0001). A majority of both the experimental (1,124/1,532, 71.3%) and control (1,201/1,532, 73.4%) groups responded “yes” when asked if tanning beds cause wrinkles and skin cancer. A small proportion of participants reported being “somewhat” or “very likely” to use tanning beds in the next year, both in the exposed group (313/1,524, 20.5%) and the control group (332/1,689, 20.0%). We found no significant differences between groups for knowledge (N=3126, OR=1.30, 95%CI 0.95–1.5) or intent (N=3213, OR=1.1, 95%CI 0.89–1.3).

Our findings suggest that social media advertising is a feasible way to reach many individuals within a target population and represents an opportunity for targeted public health interventions compared to traditional outlets. Future studies are needed to evaluate the effectiveness of social media advertising on lasting health behavior change for cancer prevention.

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Table 1.

Reach, impressions, frequency, comments, shares, and reactions of three different Facebook videos discouraging indoor tanning.

Video	Reach	Impressions[a]	Frequency[b]	Comments	Shares	Reactions	Likes 	Laughing 	Love 	Wow 	Angry 	Sad 
Overall	1,236,234	2,918,395	2.36	1,288	4,201	11,415	9,827	1,334	221	22	6	5
Parody Song	895,915	1,346,603	1.50	1,050	3,875	7,725	6,201	1,319	176	19	5	5
Instagram Celebrity	889,862	1,460,233	1.64	216	256	3,569	3,510	15	41	2	1	0
Fact-based	105,893	111,559	1.05	22	70	121	116	0	4	1	0	0

[a]The number of times the advertisement was displayed on a newsfeed, whether it was clicked or not.

[b]The average number of times a person saw the advertisement