Motives for intentional sunlight exposure among young adult sexual minority men: appearance, relaxation and socialization in a cohort study

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Research letters

Dear Editor, Lifetime skin cancer prevalence is 25% higher among gay men and 46% higher among bisexual men compared with heterosexual men, making sexual minority men (SMM) an at-risk group for skin cancer. These elevated skin cancer rates may be attributed in part to indoor tanning among SMM, some of whom are motivated to indoor tan by perceived body image standards, appearance concerns and cancer rates may be attributed in part to indoor tanning among gay men and 46% higher among bisexual men compared with heterosexual men.

A promising decline in indoor tanning rates among US adults from 2007 to 2018 has followed the passage of legislation limiting youth access to indoor tanning in several states including Illinois. Although SMM’s indoor tanning has been described in the literature, less is known about the prevalence and motives for outdoor tanning. We addressed this gap by surveying tanning motives and behaviours among young adult SMM in urban and suburban Chicago, who participated in a longitudinal survey focused on the health behaviours of SMM.

In consultation with experts from Northwestern University’s Institute for Sexual and Gender Minority Health and Wellbeing, we adapted seven tanning-motive survey items from prior research for use in surveying young adult SMM (Table 1). During this adaptation, we developed the hypothesis that young SMM may be tanning as a social activity, e.g. SMM gather to relax and socialize at the beach or pool. Prior to the survey, we tested the reliability of the screening and tanning-motive items in a separate sample of 50 SMM and found strong evidence of test–retest reliability across 2 weeks (item alphas from 0.93 to 0.75) (Table 1). Survey measures also included frequency of outdoor tanning in the past summer months (June, July and August 2019) in addition to indoor tanning and sunless tanning for the past 3 months. From September 2019 to February 2020, the items were incorporated into the online longitudinal survey of young adult SMM [mean age 25 years (range 16–30)]. The study was considered exempt by the Institutional Review Board of Northwestern University. Analysis was performed using SPSS 22.0 (IBM, Armonk, NY, USA).

Among the 537 SMM, who were all assigned male at birth and currently identify as male, there was no statistically significant difference in age between those who never (n = 442) and those who ever purposely (intentionally) tanned (n = 95) [mean 24 years (SD 2.8)]. Any lifetime tanning was significantly associated with being white or Hispanic/Latino (χ²-test, P < 0.001), being a college graduate (χ²-test, P = 0.001) and being employed full-time (χ²-test, P = 0.05). Participants

Table 1 Purposeful (intentional) outdoor tanning motives

| Survey questions                                      | Test–retest reliability (alpha) | Occasional tanning, two to 10 times in 3 months (n = 88) | Frequent tanning, > 10 times in 3 months (n = 7) | ANOVA P values |
|------------------------------------------------------|--------------------------------|----------------------------------------------------------|-------------------------------------------------|---------------|
| Most other gay and bisexual guys like me feel more attractive with a tan | 0.91                           | 3.64 (1.01)                                              | 3.81 (1.05)                                     | 0.02<sup>a</sup> |
| Tanning (indoors or outdoors) helps me relax         | 0.87                           | 4.10 (0.78)                                              | 4.29 (0.70)                                     | 0.001<sup>a</sup> |
| Most other gay and bisexual guys like me feel more confident with a tan | 0.85                           | 3.09 (0.80)                                              | 3.03 (1.13)                                     | 0.34          |
| Most other gay and bisexual guys like me go tanning (indoors or outdoors) with others as a social activity | 0.93                           | 4.09 (0.80)                                              | 4.55 (0.31)                                     | 0.004<sup>a</sup> |
| It is important to protect my skin from the sun      | 0.84                           | 3.07 (0.73)                                              | 3.00 (1.10)                                     | 0.66          |
| How concerned are you about developing skin cancer?  | 0.79                           | 2.86 (0.86)                                              | 3.00 (1.41)                                     | 0.16          |
| If I don’t protect my skin from the sun, I feel that my chances of getting skin cancer in my lifetime are high | 0.75                           | 3.01 (0.88)                                              | 3.07 (1.50)                                     | 0.29          |

<sup>a</sup>The 95 participants who responded to these survey questions gave a ‘yes’ response to the screening question ‘Have you ever purposely (intentionally) tried to get a tan to make your skin tone darker with either indoor tanning or spending time outdoors in the sun?’ The screening question was incorporated into an online longitudinal study (RADAR) that regularly surveys sexual minority men aged 16–30 years. Reliability estimates are from a presurvey test of the measures with a separate sample of 50 sexual minority men. Data are presented as mean (SD) unless otherwise stated. <sup>b</sup>Likert scale [1 = strongly disagree (not at all concerned); 5 = strongly agree (extremely concerned)]. <sup>c</sup>Significant at P < 0.05.

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Supporting Information

Additional Supporting Information may be found in the online version of this article at the publisher’s website:

**File S1** Full author affiliations and Conflicts of Interest statements.

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tanned outdoors two to three times (46%), four to five times (22%), six to 10 times (25%) and more than 10 times (7%) in the previous three summer months. Overall, 12 SMM reported indoor tanning. Frequent outdoor tanners reported significantly higher agreement on motives related to appearance (P = 0.002), relaxation (P = 0.001) and socialization (P = 0.004) compared with occasional tanners (Table 1).

In our sample, young adult SMM who were outdoor tanners were less concerned about developing skin cancer than feeling more confident with a tan or needing protection from the sun (Table 1). However, outdoor tanners agreed that tanning was motivated by going out with others as a social activity. This finding is consistent with a study of San Francisco SMM who reported the importance of their community, notably their female friends, in encouraging indoor tanning as a group activity. Among adolescent boys, the tendency to conform to peer expectations and experiencing appearance-related criticisms in conversations with friends were associated with sunbathing and using a tanning booth. Limitations of our study include this urban and suburban Chicago area regional sample not being generalizable to other SMM populations and a survey duration of 6 months.

Legislation passed in Chicago in 2012 and in Illinois in 2013 to limit access to indoor tanning to individuals aged 18 years or older may have been a key factor in the low rate (6-5%) of indoor tanning reported among the surveyed Chicago area young adult SMM. State legislation and the corresponding media coverage may have acted as a ‘risk signal’ that indoor tanning is dangerous, which was amplified as it passed through information channels. Interventions to discourage social outdoor tanning among young adult SMM may benefit from a dissonance-based intervention approach designed to teach skills to young SMM to resist perceived social pressures to tan and boost self-perceptions of a positive body image. Finally, it is notable that although SMM who tan report social reasons as an important motive for tanning, the majority of participants did not report intentional outdoor tanning. This suggests the potential value of a social norms communication campaign designed to correct misperceptions about the high prevalence of tanning among SMM by emphasizing the low overall rates of tanning within young communities of SMM while promoting sun protection during social outdoor activities.

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Clinical response to immune checkpoint inhibition in patients with advanced skin cancers receiving concurrent ruxolitinib therapy for haematological malignancy

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Dear Editor, Patients who are being treated with janus–kinase (JAK) inhibitors for haematological conditions have a higher risk of developing nonmelanoma skin cancers (NMSC) with an aggressive course.1–3 This has been attributed to relative immune suppression that can accompany the use of JAK inhibitors, from their effects on T-cell signalling pathways.3 Acquired inactivating mutations in JAK1 and JAK2 genes have been reported to lead to a loss of programmed death ligand-1 (PD-L1) expression and a lack of response to interferon-γ in melanoma, contributing to acquired resistance to anti-programmed death 1 (PD-1) treatment.4 Because immune checkpoint inhibitors (ICI) are now the preferred treatment option in advanced Merkel cell carcinoma (MCC)5 and cutaneous squamous cell carcinoma (cSCC),6 there are concerns about JAK inhibitors potentially compromising the efficacy of ICI in NMSC. We describe three patients with advanced NMSC who were treated successfully with PD-1/PD-L1 blockade, while