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The Influence of Appearance, Health, and Future Orientations on Tanning Behavior

Carolyn J. Heckman, PhD,

Associate Member, Population Science, Fox Chase Cancer Center, Philadelphia, PA

Diane B. Wilson, EdD, MS, RD, and

Associate Professor, Department of Internal Medicine, Virginia Commonwealth University, Richmond, VA

Karen S. Ingersoll, PhD

Associate Professor, Department of Psychiatric Medicine, University of Virginia Center for Addiction Research and Education, Charlottesville, VA

Abstract

Objective—To compare the influence of appearance, health, and future orientations on tanning attitudes and behaviors.

Methods—The study was an online survey of 406 volunteers from a university community.

Results—Appearance and future orientations were more closely related to ultraviolet radiation exposure and protection than was health orientation.

Conclusions—Future research and interventions may benefit from closer attention to associations between specific motivational orientations and behaviors.

Keywords

appearance; tanning; skin cancer prevention

Like other health-risk behaviors, studies demonstrate that Americans, particularly young people, continue to expose themselves to large amounts of ultraviolet (UV) radiation yet protect themselves minimally despite widespread awareness of the harmful effects of UV radiation in terms of skin cancer and photoaging.^{1–5} Educational interventions targeting health-related knowledge have fallen short in terms of changing actual behavior.^{6–8}

In addition to knowledge, behaviors are determined in part by attitudes. Most of the behavioral health literature, including the skin cancer prevention literature, focuses on health-related attitudes. However, the literature suggests that the effect on perceived appearance is the primary motivation for sunbathing and tanning booth use.^{1,3–5,9–11} Therefore, attitudes regarding the importance of appearance or attractiveness may be

particularly salient to skin cancer prevention. Although some people who neglect to use sunscreen actually may have intended to protect themselves, a significant number of individuals ignore health information and purposely avoid sun-screen use in order to get a tan to enhance attractiveness.^{9,12} Likewise, the immediate and potent rewards of tanning on perceived appearance tend to outweigh the delayed and perhaps less salient perceived benefits of protecting one's health in the future,¹³ yet many intervention efforts focus on such distal rather than proximal consequences.^{6–8} Thus, attitudes toward living in the present versus preparing for the future would also be important to consider when investigating behaviors related to skin cancer. Indeed, skin cancer prevention researchers have begun to recommend that skin protection interventions attend to current perceptions about appearance and attractiveness.^{1,4,11,14–16} However, the literature in this area is scant.

A few studies that have used appearance-focused interventions have demonstrated success in changing skin protection attitudes and behaviors. For example, Jones and Leary¹⁰ found that a message emphasizing the negative consequences of UV exposure for future appearance was more effective in motivating intentions to engage in protective behaviors than was a message emphasizing the negative health consequences. Other studies that have used computer-generated pictures¹⁷ or UV-detect photos^{8,18–22} showing currently existing skin damage from UV exposure have been more successful in bringing about behavioral changes than purely health or future-oriented messages.

The study most similar to the current one found that appearance motivation was more predictive of tanning salon attitudes than health orientation but was not predictive of tanning salon behavior.¹⁵ The current study is novel in that it investigated the relationship of several possible attitudes or orientations (appearance, future, health protective, and avoidance of unhealthiness) to a variety of tanning and skin protective behaviors in order to inform future intervention efforts. No previous study has examined all of these variables simultaneously with respect to tanning and skin protection. We hypothesized that (1) tanning behaviors would be positively related to appearance orientation and negatively related to future and health orientations and (2) skin protection would be positively related to health and future orientations.

METHODS

Participants

Participants were a convenience sample of 406 students from Psychology 101 classes and other volunteers from a university community. College-aged participants were selected for this study because teens and young adults are known to be frequent tanners. Participants may have chosen to participate for a variety of reasons such as (1) interest in the topic, (2) online survey administration, (3) course credit, or (4) raffle participation.

Measures

Appearance, health, and future orientation—Appearance orientation or concern with appearing attractive was measured using a 6-item Likert-type Public Body Consciousness Scale that was first published in 1981 and continues to be used today.^{23–26} The items pertain

to the appearance of the hands, skin, facial features, hair, body build, and posture; for example, “I am very aware of my best and worst facial features.” Future orientation was measured using an abbreviated 5-item Likert-type version of Strathman et al.’s²⁷ Consideration of Future Consequences Scale. This scale focuses on preparing for the future in general not behaviors that pertain specifically to health. A sample item is “Often I engage in a particular behavior in order to achieve outcomes that may not result for many years.” Health orientation (attitude toward maintaining good health) and attitude toward avoidance of unhealthiness were measured using two 5-item Likert-type subscales from the Health Orientation Scale.²⁸ Sample items are “I’m very motivated to be physically healthy” and “I really want to prevent myself from getting out of shape,” respectively. The scale authors and others have demonstrated adequate reliability and validity of these scales in other samples including college students, but their use in other tanning studies was not found in the literature.^{23,27,28}

Exposure and protective behaviors, Skin cancer and photoaging worry—

Participants were queried about their level of intentional and incidental summer sun exposure, number of sunburns in the last year, recent sunscreen use, tanning booth use, and UV-free chemical tanner use. Two 5-item Likert-type scales asked about frequency of skin cancer and photoaging worry (1 = never, 5 = always). A similar 7-item Likert-type protective behaviors scale was used to assess a range of skin protection behaviors: wearing clothing, staying in the shade, avoiding or limiting midday sun, and using sunscreen.

Procedures

Participants were recruited during the 2006 spring semester via a university psychology student subject pool as well as flyers and advertisements around campus listing the survey URL in order to enhance generalizability. Psychology students are frequent research participants earning research points for their classes, and a raffle for department store gift cards was also offered as an incentive.

Analyses

The orientation variables were normally distributed and were entered into regression models with the exposure, protection, and worry variables as outcomes (JMP version 5.1). Linear regression was used for the normally distributed skin-protection scale score outcome. The other outcome variables were dichotomized using a median split because they were not normally distributed. The analyses of the dichotomous outcomes were conducted using simultaneous logistic regression.

RESULTS

Participants were 406 individuals, 79% of whom were Psychology 101 students and 21% of whom were other members from the university community who responded to ads and flyers around campus. Approximately 65% of participants reported that they first learned of the study via flyers, and 35% first learned of it through the psychology department’s online research recruitment system. Seventy-five percent of the sample was female, and the median age of participants was 19 (interquartile range or IQR = 18, 22). Sixty percent of the sample

were first-year students, 25% were upper-class students, 8% were graduate or special students, and 7% were not in school. Sixty-six percent of participants were white, 17% were African American, 11% were Asian American, and 6% were other races or multiracial. Approximately 21% of enrolled Psychology 101 students completed the survey. The sample was relatively representative of Psychology 101 students in general except that the current sample was more likely to be female, (75% versus 62%) and white (66% versus 58%) and less likely to be first-year students (60% versus 69%).

Cronbach's alpha scores in this sample were .92 for health orientation, .81 for avoidance of unhealthiness orientation, .79 for appearance orientation, and .65 for future orientation. The possible range of the appearance orientation scale was 6 (low appearance orientation) to 30 (high appearance orientation), and the range of the other 3 scales was 5 to 25. The mean scores in this sample were 17.05 (SD = 3.41) for future orientation, 22.70 (SD = 4.69) for appearance orientation, 17.74 (SD = 4.24) for avoidance of unhealthiness orientation, and 16.79 (SD = 4.84) for health orientation.

The mean score on the normally distributed protective behaviors scale was 22.41 (SD = 5.53), given a possible range of 7 to 35. The linear regression model for protective behaviors was significant ($F_{3,362} = 9.99$, $P < .0001$). Independent contributors were future and appearance orientations, which were both protective.

Thirty percent of the sample reported using sunscreen on the last sunny day that they were outside for an extended period of time. The model for sunscreen use was significant (likelihood ratio or LR $\chi^2 = 25.43$, $df = 4$, $P < .0001$) and accounted for 7% of the variance. The independent contributor was future orientation, which was protective (Odds Ratio or OR = 1.17, $\chi^2 = 16.16$, $P < .0001$). Only 23% of the sample had used UV-free chemical tanners during the last year. The model for UV-free chemical tanner use was not significant (LR $\chi^2 = 5.86$, $df = 4$, $P = .21$).

Forty-eight percent of the sample reported sunburns during the last year. The model for sunburns was significant (likelihood ratio or LR $\chi^2 = 10.10$, $df = 4$, $P = .04$) but only accounted for 2% of the variance. Independent contributors were avoidance of unhealthiness, which was a risk factor (OR = 1.13, $\chi^2 = 7.72$, $P = .0055$), and health orientation, which was protective (OR = 0.92, $\chi^2 = 4.54$, $P = .0332$).

The median number of reported hours per week spent tanning in the summer sun was 1 (IQR = 0, 5), and the median number of hours of incidental summer sun exposure was 5 (IQR = 2, 14). The model for sun tanning was significant (LR $\chi^2 = 13.69$, $df = 4$, $P < .01$) but only accounted for 3% of the variance. The independent contributor was future orientation, which was protective (OR = 0.91, $\chi^2 = 7.74$, $P = .0054$). The model for incidental sun exposure was significant (LR $\chi^2 = 10.11$, $df = 4$, $P = .04$) but only accounted for 2% of the variance. The independent contributor was appearance orientation, which was protective (OR = 0.95, $\chi^2 = 4.81$, $P = .0283$).

Thirty-nine percent of the sample had ever used tanning booths. The median age of tanning-booth use initiation was 17 years (IQR = 15, 18). The median number of lifetime tanning-

booth uses was 25 (IQR = 8, 50). The model for ever use of tanning booths was not significant (LR $\chi^2 = 4.96$, $df = 4$, $P = .29$).

Sixty-one percent of the sample reported that they worried about skin cancer, and 67% said they worried about photoaging. The model for skin cancer worry was significant (LR $\chi^2 = 11.53$, $df = 4$, $P = .02$) but only accounted for 2% of the variance. The independent contributor was appearance orientation, which was a risk factor (OR = 1.05, $\chi^2 = 4.66$, $P = .0308$). The model for photoaging worry was significant (LR $\chi^2 = 34.35$, $df = 4$, $P < .0001$) and accounted for 7% of the variance. The independent contributor was appearance orientation, which was a risk factor (OR = 1.15, $\chi^2 = 24.83$, $P < .0001$).

DISCUSSION

These results provide further evidence that adolescents and young adults are at risk for UV radiation exposure and lack of protection. Several lifestyle orientations were found to be associated with UV radiation exposure and protective behaviors as well as cancer and photoaging worry. As expected, appearance orientation was associated with some tanning behaviors. Appearance orientation was associated not only with sunburns, incidental summer sun exposure, skin cancer worry, and photoaging worry, but also with general protective behaviors. An individual's appearance orientation may motivate current sun exposure, yet allow for worry about the effects of the exposure and motivate protective behaviors to preserve good appearance (and health) for the future. Future orientation was associated with not only sunscreen use and protective behaviors in general but also summer sun tanning. The reason for the association of future orientation and summer sun tanning is unclear. Surprisingly, health orientation was not associated with protective behaviors. Health orientation was associated with fewer sunburns, but paradoxically, avoidance of unhealthiness was associated with more sunburns. Health orientation and avoidance of unhealthiness seem to be different constructs, not just opposite ends of a continuum, although they were correlated at the 0.82 level. For example, it is possible that people who want to be healthy try to avoid sunburns, but people who want to avoid being unhealthy participate in outdoor activities that leave them vulnerable to sunburns. Orientation variables were not significantly predictive of recent UV-free chemical tanner use or tanning booth use. Although it is curious that the sun-tanning model was significant but the tanning booth model was not, it is possible that the smaller sample size for tanning booth (39% of the sample) and UV-free chemical tanner (23%) users limited the power of the analyses.

These results are consistent with recent literature in that appearance orientation seems to be more closely related to ultraviolet exposure and protective attitudes and behaviors than to health orientation variables.^{9,12,13} This suggests that tanning interventions that focus solely on health issues such as skin cancer without a major focus on appearance may fall short. Studies that focus on more proximal consequences may also be more effective than those focusing primarily on future consequences.¹³ Additionally, it is important to note that different orientations were associated with different attitudes and behaviors. For example, more highly appearance-oriented individuals scored higher on incidental sun exposure but not intentional sun tanning and high on sunburns but also general protective behaviors. In addition, highly appearance-oriented individuals were worried about both skin cancer and

photoaging. It is difficult to understand why appearance orientation was not related to intentional sun tanning in this study unlike several others.^{9,12,13} However, previous studies did not examine all of the variables included here in the same predictive model. College students are often used as study participants, but items have differed across studies. The participants in this study reported relatively little intentional sunbathing. This may be related to the self-report nature of the study, the ethnic/racial diversity of the sample, or the survey's inquiring about summer behavior in the spring. It is also interesting that future orientation was more important than appearance or health orientation in several cases. What elements contribute to this concern for the future if not health and appearance? Such relationships are likely to vary from person to person as well. In other words, some people are probably more motivated by health, or the future, and some by appearance. This suggests that some tailoring of interventions may be beneficial.

The current study is novel in its simultaneous examination of several lifestyle-orientation variables across a variety of specific exposure and protective behaviors. Limitations of the current descriptive study include its use of self-report measures and a convenience sample, and its cross-sectional nature. Future studies could benefit from random sampling and the use of objective assessments of UV exposure repeated over time. The independent contribution of the variables examined in the current study are small, so clearly there are other important variables and relationships that were not examined here. As the literature expands in this area, future research should further refine and validate measures of tanning-related attitudes and behaviors. Additional important research might identify individuals with strong appearance, future, or health orientations and compare which types of interventions are more effective in changing specific UV exposure and protective behaviors among these subgroups. Understanding the contributions of these lifestyle orientations to specific exposure and protective behaviors could help facilitate the development of targeted and more effective skin cancer prevention interventions.

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