

Figure. A Patient With Vitiligo of the Hand



Significant contrast between normal and affected skin.

with face and neck lesions. Fear of greeting others may be a factor as well, because personal interactions often start with a hand shake, which is important in making a good first impression. Indeed, 1 study⁴ showed that a handshake preceding social interaction enhanced the positive impact of approach and diminished the negative impact of avoidance behavior on the evaluation of social interaction. Individuals with vitiligo of the hands may find that others avoid shaking their hand because of the contrast between normal and depigmented skin, contributing to a lower QOL.

Although this study was performed in only 1 center, our results suggest that hand involvement with vitiligo is associated with a significant negative effect on quality of life. Unfortunately, hands are one of the most difficult areas to treat. Similar studies should be performed in other parts of the world. If confirmed, research should focus on hand involvement in patients with vitiligo as one of the most important sites for which effective treatments should be developed.

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1. Dertlioglu SB, Cicek D, Balci DD, Halisdemir N. Dermatology life quality index scores in children with vitiligo: comparison with atopic dermatitis and healthy control subjects. *Int J Dermatol.* 2013;52(1):96-101.
2. Ajose FO, Parker RA, Merrall EL, Adewuya AO, Zachariah MP. Quantification and comparison of psychiatric distress in African patients with albinism and vitiligo: a 5-year prospective study. *J Eur Acad Dermatol Venereol.* 2014;28(7):925-932.
3. Lilly E, Lu PD, Borovicka JH, et al. Development and validation of a vitiligo-specific quality-of-life instrument (VitiQoL). *J Am Acad Dermatol.* 2013; 69(1):e11-e18.
4. Dolcos S, Sung K, Argo JJ, Flor-Henry S, Dolcos F. The power of a handshake: neural correlates of evaluative judgments in observed social interactions. *J Cogn Neurosci.* 2012;24(12):2292-2305.

Self-confidence and Embarrassment About Partner-Assisted Skin Self-examination for Melanoma

Research suggests that patients with melanoma may benefit from partner-assisted skin self-examinations (SSEs) to increase early detection of new melanoma.¹ Despite the potential positive aspects of including partners in SSEs, it is plausible that some individuals may be embarrassed or feel uncomfortable having a nonprofessional or intimate partner routinely check their bodies.²⁻⁴ One way to mitigate these potential barriers is to increase patient and partner self-confidence in performing SSEs. The current study assessed patient- and partner-reported levels of embarrassment, comfort, and self-confidence in performing SSEs during a 2-year period as part of an SSE education training program.

Methods | Participants were recruited from outpatient clinics of Northwestern Medicine. Eligible patients were between 21 and 80 years old, had previously been diagnosed with stage 0 to IIB melanoma with surgical removal of the melanoma at least 6 weeks prior, and identified a partner to check their skin. Enrolled patients and their partners (n = 395) received an SSE education training program and completed surveys at 4-month intervals from June 6, 2011, to April 24, 2015. To assess the level of embarrassment and level of comfort in performing SSEs, participants were asked to indicate on a 5-point scale how much they agreed or disagreed with the following 2 statements: "It is very embarrassing to have my partner help examine my skin," and "I am very comfortable having my partner help examine my skin." To assess self-confidence in performing SSEs, the patients and their partners answered 11 questions (a range,

Box. Survey Items About Skin Self-examination Confidence for the Patient With Melanoma and Partner^a

I am very confident that I know the difference between a melanoma and other types of moles.

I am very confident that I know how to check my skin for signs of skin cancer.

I am very confident that I can have my partner help check the places that I cannot see myself (such as my back).

I am very confident that I can arrange to have a doctor check my skin once a year.

I am very confident that I know how to examine a mole for an irregular border.

I am very confident that I know how to examine a mole for a consistent (even) color.

I am very confident that I know how to measure the diameter of a mole.

I am very confident that I can keep track of the moles on my partner's body.

I am very confident that my partner can keep track of his/her moles.

I am very confident that I can use the ABCDE rule to evaluate my partner's moles.

I am very confident that my partner can use the ABCDE rule to evaluate his/her moles.

Abbreviation: ABCDE, Assess border, color, diameter, and evolution of the mole.

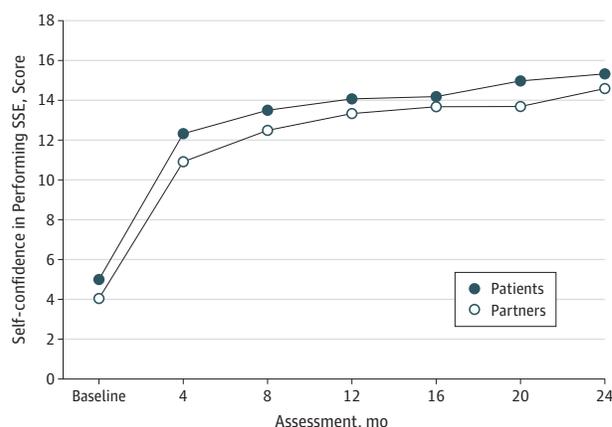
^a Items were rated on a 5-point scale, where 1 indicates strongly disagree; 2, moderately disagree; 3, neutral; 4, moderately agree; and 5, strongly agree.

0.82-0.91) (Box). The Northwestern University Institutional Review Board approved the study. Written informed consent was provided by both the patients and their partners.

A series of mixed measures analysis of variance was performed for both patients and partners to test for change during the 2-year study period in embarrassment, comfort, and self-confidence in performing SSEs. Differences in change were assessed between men and women. These analyses provide an F statistic to evaluate the effect of time across the 7 waves (baseline and 4-, 8-, 12-, 16-, 20-, and 24-month follow-up), sex, and the interaction between time and sex. The magnitude of the F statistics is used to determine if there are differences across the waves, between men and women, and whether men and women differ across the waves. An F statistic less than 5 tends to indicate there are no significant differences (eg, baseline values are not different than those at 12 and 24 months). Furthermore, these analyses also provide a p value for each F statistic that reflects the probability of making an error in evaluating differences (eg, indicating there are significant differences between the waves when, in fact, there are not). Together, the combination of the F and p values provide statistical rigor in evaluating the results.

Results | There was no significant change in the level of embarrassment or comfort in performing SSEs during the 2-year study across the 6 time points measured in the 1146 responses from the patients ($F_{6,1146} = 0.93$; $P = .47$; $F_{6,1134} = 0.22$; $P = .97$, re-

Figure. Change in Self-confidence About Performing Skin Self-examination (SSE)



Patients and partners increased self-confidence scores from baseline to 24 months.

spectively) and partners ($F_{6,1116} = 0.73$; $P = .63$; $F_{6,1116} = 0.49$; $P = .82$, respectively). There was a significant increase from baseline (494 pairs of patients and partners) to 24 months (291 pairs of patients and partners) in self-confidence in performing SSEs for both patients ($F_{6,1098} = 138.72$; $P < .001$) and partners ($F_{6,1020} = 131.17$; $P < .001$) (Figure). Post hoc paired *t* tests comparing patients and partners on self-confidence in performing SSEs revealed that patients reported significantly higher levels of self-confidence at all assessments (*t* values, >2.8 ; $P < .01$) except 16 months (*t* value, 1.69; $P = .09$) and 24 months (*t* value, 1.66; $P = .10$) (Figure). There were no differences between men and women in changes in embarrassment, comfort, or self-confidence.

Discussion | Dyads who received an educational intervention on performing SSEs increased their levels of self-confidence in performing SSEs without increasing levels of embarrassment or decreasing levels of comfort. This finding provides substantive evidence that asking dyads to regularly perform SSEs does not increase emotional barriers (ie, feelings of discomfort or embarrassment). Although it is plausible that there may be a preexisting threshold of comfort in having a partner perform SSEs among patients who enrolled in a study aimed at increasing SSEs with partner assistance, our study participants were all above the threshold. However, our pilot work showed that, of 181 individuals who declined to participate in the study, only 9 indicated that they were uncomfortable having partners help with SSE. This finding indicates that potential embarrassment prevented a relatively small portion of patients (5.0%) from participating. Therefore, dyads indicating some level of embarrassment still will benefit from SSE training and physicians can suggest frequent partner-assisted SSEs.

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1. Robinson JK, Wayne JD, Martini MC, Hultgren BA, Mallett KA, Turrisi R. Early detection of new melanomas by patients with melanoma and their partners using a structured skin self-examination skills training intervention: a randomized clinical trial. *JAMA Dermatol.* 2016;152(9):979-985.

2. Federman DG, Kravetz JD, Tobin DG, Ma F, Kirsner RS. Full-body skin examinations: the patient's perspective. *Arch Dermatol.* 2004;140(5):530-534.

3. Risica PM, Weinstock MA, Rakowski W, Kirtania U, Martin RA, Smith KJ. Body satisfaction effect on thorough skin self-examination. *Am J Prev Med.* 2008;35(1):68-72.

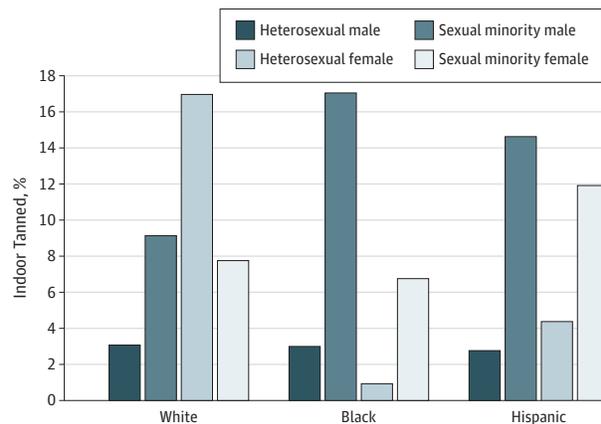
4. McAuley E, Bane SM, Rudolph DL, Lox CL. Physique anxiety and exercise in middle-aged adults. *J Gerontol B Psychol Sci Soc Sci.* 1995;50(5):229-235.

Indoor Tanning and Skin Cancer Risk Among Diverse US Youth: Results From a National Sample

Sexual minority males have one of the highest known prevalence rates of skin cancer, at 4.3% to 6.6% (an increased odds of 1.5 to 2.0) compared with heterosexual males.¹ One likely explanation for this health disparity is sexual minority males' use of indoor tanning, a Group 1 carcinogen.² Indeed, recent research has found elevated indoor tanning among sexual minority men.³ However, no known studies have examined indoor tanning by sex, sexual orientation, and race/ethnicity, casting uncertainty regarding which groups are most vulnerable for developing skin cancer. Furthermore, no known studies have explored these relationships among youth, a salient limitation, given that indoor tanning before the age of 35 years is associated with disproportionate risk of developing skin cancer.

Methods | Data were used from the 2015 Youth Risk Behavior Survey,⁴ a nationally representative survey that examines the prevalence of health risk behaviors among 9th to 12th grade

Figure. Prevalence of Past 12-Month Indoor Tanning by Sex, Sexual Orientation, and Race/Ethnicity



Overall, 96 members of the studied sample were sexual minority Hispanic males; 235, sexual minority Hispanic females; 41, sexual minority black males; 131, sexual minority black females; 217, sexual minority white males; 520, sexual minority white females; 1198, heterosexual Hispanic males; 993, heterosexual Hispanic females; 580, heterosexual black males; 519, heterosexual black females; 3235, heterosexual white males; and 2879, heterosexual white females.

public and private school students. Sexual minority status was defined from responses to 2 items: sexual identity and sex of sexual partners, with sexual minorities denoted as participants who reported a nonheterosexual identity or reported sex with a member of their own sex (a common approach in the field).⁵ Past 12-month indoor tanning was dichotomized as 1 or more times vs none. The total sample was 10 644, with 1240 sexual minority participants (886 females; 354 males). Logistic regressions were used, with independent variables of sex (referent: male), sexual orientation (referent: heterosexual) and race/ethnicity (ie, dummy coded black, Hispanic, with white as the referent). Complex Samples in SPSS 24 (IBM Analytics) was used to account for weighting, cluster, and stratification. Institutional review board approval was not required, given that analyses were conducted on deidentified, secondary data.

Results | Significant 3-way interactions were revealed, thus, analyses were stratified by race/ethnicity. Among black participants, there was a main effect of sexual orientation (odds ratio [OR], 4.48; 95% CI, 2.50-8.00; $P < .001$) and sex (OR, 2.63; 95% CI, 1.03-6.61; $P = .04$), with sexual minorities and males reporting elevated indoor tanning (Figure). Among Hispanic participants, there was a main effect of sexual orientation (OR, 3.92; 95% CI, 1.78-8.63; $P < .001$), with sexual minorities reporting elevated indoor tanning. Among white participants, there was a sexual orientation by sex interaction ($F_{1,35} = 17.97$; $P < .001$). Follow-ups revealed that sexual minority status was a risk factor within males (OR, 3.17; 95% CI, 1.31-7.66; $P = .001$), and a buffer variable within females (OR, 0.41; 95% CI, 0.24-0.73; $P < .001$).

Discussion | Results highlight the need to incorporate sex, sexual orientation, and race/ethnicity when developing skin cancer