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The Association Between Psychiatric Disorders and Frequent Indoor Tanning

Limited research has explored psychiatric disorders associated with indoor tanning and tanning dependence. In a study con-

ducted in 2006 of students at a large university in the northeastern United States, 90 of 229 (39%) who had used indoor tanning facilities met criteria for tanning dependence,¹ a tanning pattern highly resistant to intervention. Given that tanners report mood and physical appearance as reasons for tanning, psychological disorders, such as seasonal affective disorder (SAD) and body dysmorphic disorder (BDD), may be common among this population. Past research found that 12 of 27 (44%) frequent indoor tanners met criteria for SAD compared with 14 of 56 (25%) nontanners.² Other studies have found that stress in general is predictive of tanning dependence,¹ and tanners have been shown to report lower levels of stress after tanning. Ashrafioun and Bonar³ reported that 57 of 165 (35%) tanners who met criteria for tanning dependence also met criteria for BDD, compared with 77 of 368 (21%) tanners who did not meet these criteria. In the study described here, we assessed the prevalence of SAD, clinically elevated stress, and BDD among a sample of women who frequently use indoor tanning, and we examined bivariate associations between tanning dependence and these psychological conditions.

Methods | Seventy-four women aged 19 to 63 years who reported a minimum of 10 indoor tanning visits in the preceding year and 4 such visits during the 2 months preceding study participation completed a brief survey that assessed demographic characteristics, indoor and/or outdoor tanning habits, tanning addiction (the Behavioral Addiction Indoor Tanning Screener), perceived stress (the Perceived Stress Scale), SAD (the Seasonal Pattern Assessment Questionnaire), and BDD (the Dysmorphic Concern Questionnaire). Dichotomous scores were created for the Behavioral Addiction Indoor Tanning Screener, Perceived Stress Scale, Seasonal Pattern Assessment Questionnaire, and Dysmorphic Concern Questionnaire, based on established cutoff scores in the literature. We also created a binary comorbidity variable for participants who met criteria for all 3 conditions assessed in the study or fewer than all 3, and an “any” variable, defined as participants who screened positive for BDD, SAD, or elevated stress. The study was approved by the institutional review board at the University of Massachusetts Medical School. Patients provided written consent for their participation in the study.

Results | The rates of positive screening for BDD, SAD, and elevated stress were 29 (39%), 42 (57%), and 22 (30%) of the total of 74 study participants, respectively. Rates of these 3 conditions in general global populations are 1.9% for BDD (26 of 1346 German women),⁴ 9.7% for SAD (37 of 382 men and women from New England),⁵ and 13.1% for elevated stress (5 of 38 Swedish women).⁶ Tanning dependence was significantly associated with elevated perceived stress ($r = 0.27$, $P = .02$). Although they did not reach statistical significance, the rates of positive screening for the “any” variable ($r = 0.14$), BDD ($r = 0.14$), and SAD ($r = 0.21$) showed small to medium effect-size estimates with tanning dependence. See the Table for additional sample characteristics.

Discussion | Results of the study show that frequent indoor tanners have substantially higher than expected rates of BDD, SAD, and elevated stress based on brief screening assessments. Among

Table. Characteristics of the 74 Female Study Participants^a

Variable	Total Sample	Tanning Dependence	No Tanning Dependence
Participants	74 (100)	32 (43)	42 (57)
Age, mean (SD), y	35 (12.6)	31 (10.6)	38 (13.4)
Race			
White	67 (91)	27 (84)	40 (95)
Nonwhite	7 (9)	5 (16)	2 (5)
Ethnicity			
Non-Hispanic	72 (97)	30 (94)	42 (100)
Hispanic	2 (3)	2 (6)	0
Educational level			
High school graduate	12 (16)	3 (3)	9 (21)
Some college or college graduate	62 (84)	29 (97)	33 (79)
Psychopathology			
BDD	29 (39)	15 (53)	14 (33)
SAD	42 (57)	22 (69)	20 (48)
Elevated perceived stress	22 (30)	14 (44)	8 (19)
Any ^b	55 (74)	26 (81)	29 (69)
Comorbid ^b	11 (15)	10 (31)	1 (2)

Abbreviations: BDD, body dysmorphic disorder; SAD, seasonal affective disorder; TD, tanning dependence.

^a Data are given as number (percentage) unless otherwise noted.

^b "Any" and "comorbid" are defined as participants who meet the cutoff scores for BDD, SAD, and perceived stress.

those who screened positive for tanning dependence, 31% were grouped as screening positive for BDD, SAD, and elevated stress, compared with 2% who screened positive for these 3 measures among those without tanning dependence.

The study has some limitations. Owing to the small number of participants who screened positive for all 3 variables ($n = 11$), we could not assess the association between comorbidity and tanning dependence via inferential statistics. Furthermore, the cross-sectional design of the study prevented it from addressing temporal relationships. In addition, assessment of psychiatric disorders was based on validated screening instruments, which may not correspond perfectly with physician-based diagnostic assessment.

Results of the present study may have implications for the clinical care of frequent tanners. Given the high level of psychiatric disorders observed among frequent indoor tanners, it may be prudent for dermatologists to screen patients, or at least those who are frequent tanners, for SAD, BDD, and perceived stress. Physicians are encouraged to refer patients who screen positive for 1 or more of these psychiatric disorders to mental health professionals for behavioral or pharmacological interventions or both. Furthermore, interventions to stop tanning dependence may require addressing underlying psychological factors.

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Hair and Scalp Care in African American Women Who Exercise

There are notable disparities in physical activity (PA) levels among different racial and ethnic groups.¹ African American women comprise a population that deserves special focus because non-Hispanic black women participate in less PA than any other racial or ethnic sex group, yet have the highest prevalence of obesity and obesity-related conditions.²⁻⁴ In a previous study by Hall et al,⁵ 38% of black women avoided exercise at times owing to hair-related issues, and 50% modified their hairstyle to accommodate exercise. This present study sought to survey physically active black women to determine the most common hair care practices used to accommodate exercise, and provide recommendations for ideal regimens for hair and scalp care during and after exercise.

Methods | A 70-item questionnaire was administered to women at the completion of a 12-week community PA program consisting of biweekly seminars and group exercise sessions. The study was approved by the Wake Forest Baptist Health institutional review board. Written informed consent was obtained from all participants and they were not compensated for participating. Inclusion criteria included female sex, age of 21 to 75 years, and self-reported African, African Caribbean, or African American race. The questionnaire included sections on demographic information, hair- and scalp-related symptoms, hairstyles worn, and hair care in relation to PA. Descriptive statistics were performed using SAS statistical software (version 9.3; SAS Institute Inc). Analysis was performed from July 1 to December 22, 2015.

Results | Sixty-one women participating in a community PA program were included in the study. The mean (SD) age of participants was 52.3 (8.8) years. Most women classified their hair as normal (64%) or dry (29%). The most common symptoms were scalp itching (52%), hair breakage (41%), and scalp flaking (21%). Most women used over-the-counter (36%) or salon products (28%) to treat symptoms. Only 5 women used prescription topical or oral medications for hair- or scalp-related issues. Most participants washed their hair every 1 to 2 weeks, owing to dirtiness (47%), itchiness (33%), and dryness (16%). No significant differences were noted between women with self-reported dry or normal hair in the frequency of hair washing, hair and scalp symptoms, or hairstyles worn.

The most common hairstyles were natural and relaxed (46%). Nearly one-third of women modified their hair to accommodate exercise with natural hairstyles or braids. To preserve their hair during exercise, women wore a ponytail or bun (38%) or a scarf or hair wrap (31%). After exercise, women used these same hairstyles to style the hair with the most ease or did not style their hair (46%). The **Table** has more details.

Table. Hair Care During and After Strenuous Physical Activity^a

Characteristic	All Participants (n = 61)	Responses Based on Self-Reported Quality of Hair	
		Dry (n = 18)	Normal (n = 39)
Frequency of hair washing			
Daily	2 (3)	0	1 (3)
Every other day	4 (7)	0	4 (10)
Weekly	22 (36)	10 (55.6)	12 (31)
Every 2 weeks	24 (39)	5 (27.8)	17 (42)
Monthly	4 (7)	1 (5.6)	3 (8)
Less than monthly	4 (7)	2 (11.1)	2 (5)
Hair and scalp symptoms			
Itching	32 (52)	10 (55.6)	20 (51)
Flaking	13 (21)	4 (22.2)	8 (20)
Hair breakage	25 (41)	11 (61.1)	13 (33)
Hair coming out at root	8 (13)	5 (33.3)	2 (8)
Pain	3 (5)	0	3 (5)
None	15 (25)	2 (11.1)	13 (33)
Most common hairstyles worn			
Natural	28 (46)	8 (44)	20 (51)
Relaxed	28 (46)	10 (56)	17 (44)
Braided or locked	7 (11)	3 (17)	4 (10)
Weave or wig	8 (13)	4 (22)	4 (10)
Hot combed	12 (20)	4 (22)	8 (20)
Curled	3 (5)	1 (6)	2 (5)
Styles to preserve hair during exercise			
Ponytail or bun	23 (38)	6 (33)	15 (38)
Scarf or hair wrap	19 (31)	4 (22)	14 (36)
Hat	4 (7)	0	4 (10)
Nothing	32 (52)	13 (72)	18 (46)
Hairstyles worn after exercise			
Ponytail or bun	18 (29)	5 (28)	12 (31)
Scarf or hair wrap	12 (20)	1 (6)	6 (15)
Wash and dry	8 (13)	2 (11)	4 (10)
Nothing	28 (46)	11 (61)	17 (44)

^a Data are given as number (percentage).

Most women (69%) did not experience worsening of hair or scalp symptoms with PA, but 18% of women stated that they exercised less than they would like because of their hair, because of sweating out hairstyles (18%) and the time needed to restyle hair (13%).

Discussion | This study surveyed women participating in a PA program, and thus sheds light on the experiences of physically active women. Scalp itching and hair breakage were common complaints and were largely treated with over-the-counter products. Dermatologists may provide a meaningful intervention by evaluating for and treating these symptoms. The **Figure** demonstrates basic components of an ideal hair care regimen for physically active women, based on their main hair