Published in final edited form as:

J Am Acad Dermatol. 2014 March ; 70(3): 588–589. doi:10.1016/j.jaad.2013.11.041.

Development of a brief scale to assess frequency of symptoms and problems associated with tanning

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Some university students are at risk to display tanning behaviors analogous to drug use behaviors (e.g., continuing to tan despite negative consequences, tanning beyond what is necessary to achieve their desired appearance).^{1,2} Screeners^{1,2} and structured interviews³ help identify those who may be dependent on tanning. Additionally, researchers and clinicians may find useful a measure that assesses frequency of symptoms *and* psychosocial consequences of tanning. We assessed the psychometric properties of a tanning adaptation of the Short-Rutgers Alcohol Problem Index (S-RAPI).⁴ We chose the S-RAPI given the similarities between problematic tanning and other addictions,^{1,2} and the strong psychometric properties of the S-RAPI among university students.⁴

The Tanning Problems Index (TPI) included 11 items characterizing potential problems associated with past-year tanning (Table 1 includes items, scale anchors, and response distributions). We removed five of the S-RAPI's 16 items because they were irrelevant to tanning (see Table 1 footnote). Following Institutional Review Board approval, 414 students from a large Midwestern university who reported indoor/outdoor tanning were administered online questionnaires to assess various characteristics (Table 2).

The TPI showed good internal consistency ($\alpha = .86$). Overall, we found that 9–29% of students across items (Table 1) reported a problem at least once in the past year. In support of construct validity, those screening positive for tanning dependence on the Tanning-DSM ($M = 5.6$, $SD = 5.6$) had significantly higher TPI scores than those screening negative ($M = 1.4$, $SD = 2.9$), $t(412) = -9.92$, $p < .001$. In support of criterion validity, higher TPI scores were associated with more frequent past-month tanning, $r(412) = .36$, $p < .001$, more money spent on tanning $r(409) = .41$, $p < .001$, greater perceived difficulty to stop tanning, $r(410) = .55$, $p < .001$, and less frequent use of sunscreen, $r(410) = -.15$, $p = .003$. In a regression analysis with past-month tanning frequency as a dependent variable and TPI scores and

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Author Contributions: Lisham Ashrafioun and Erin Bonar had full access to all of the data in the study and take responsibility for the integrity of the data and the accuracy of the data analysis. Lisham Ashrafioun and Erin Bonar contributed to the *study concept and design, acquisition of data, analysis and interpretation of data, analysis and interpretation of data, drafting of the manuscript, critical revision of the manuscript for important intellectual content, and statistical analysis*. Both have approved the final manuscript.

Financial disclosure: None reported.

Conflict of Interest: The authors declare no conflicts of interest.

Tanning-DSM scores as independent variables, TPI scores remained significant ($\beta = .14$, $p < .005$) when controlling for the variance explained by Tanning-DSM scores ($\beta = .44$, $p < .001$), overall $F(2,418) = 81.65$, $p < .001$, adjusted $R^2 = .28$. This finding suggests that the TPI provides unique information from the Tanning-DSM when evaluating past-month tanning frequency.

This evaluation of the TPI suggests that there exists a subset of students that experience problems associated with tanning. These findings provide initial support for the internal consistency, construct validity, and criterion validity of the TPI. This appears to be a brief, psychometrically sound instrument that clinicians could administer to assess frequency of tanning-related problems and to enhance motivation to change tanning behaviors. Future studies should replicate these findings in other samples and consider revised response options given that few participants reported the highest frequencies of these tanning-related problems. Researchers could use the TPI as an outcome measure to track the frequency of tanning-related problems. Furthermore, researchers should continue to assess the relationship between TPI and other tanning-related characteristics and psychiatric problems (e.g., substance use, anxiety disorders).⁵

Acknowledgments

Funding/support: During her time working on this project, Dr. Bonar was supported by an NIAAA T32 training grant (#AA007477) awarded to the University of Michigan Addiction Research Center.

Role of sponsor: The University of Michigan and NIAAA had no role in the study design, execution, analysis, or reporting of results.

Abbreviations used

DSM	Diagnostic and Statistical Manual of Mental Disorders
S-RAPI	Short-Rutgers Alcohol Problem Index
TPI	Tanning Problems Index

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Table 1

N (%) by response option on items of the Tanning Problem Index

Items	Response options reflecting past-year frequency of problems (N = 414)					
	0 times	1–2 times	3–5 times	6–9 times	10+ times	
1. Not able to do your homework or study for a test	333 (80%)	55 (13%)	17 (4%)	5 (1%)	4 (1%)	
2. Got into fights with other people (friends, relatives, strangers)	352 (85%)	47 (11%)	9 (2%)	4 (1%)	2 (1%)	
3. Neglected your responsibilities	288 (70%)	96 (23%)	23 (6%)	3 (1%)	4 (1%)	
4. Felt that you needed to tan more than you used to in order to get the same effect	295 (71%)	72 (17%)	37 (9%)	5 (1%)	5 (1%)	
5. Tried to control your tanning (tried to tan less often)	313 (76%)	67 (16%)	22 (5%)	9 (2%)	3 (1%)	
6. Had withdrawal symptoms, i.e., felt sick because you stopped or cut down on tanning	376 (91%)	27 (7%)	7 (2%)	1 (< 0%)	3 (1%)	
7. Felt that you had a problem with tanning	362 (87%)	31 (8%)	14 (3%)	7 (2%)	0 (0%)	
8. Missed a day or part of a day of school or work	357 (86%)	34 (8%)	16 (4%)	5 (2%)	2 (1%)	
9. Wanted to stop tanning but couldn't	374 (90%)	29 (7%)	8 (2%)	2 (1%)	1 (< 0%)	
10. Felt physically or psychologically dependent on tanning	357 (86%)	33 (8%)	18 (4%)	3 (1%)	3 (1%)	
11. Was told by a friend, neighbor, or relative to stop or cut down tanning	322 (78%)	54 (13%)	32 (8%)	4 (1%)	2 (1%)	

Values may not add to 100% due to rounding

^aThe following items were removed from the Rutgers' Alcohol Problems Index: "Caused shame or embarrassment to someone," "Relatives avoided you," "Suddenly found yourself in a place that you could not remember getting to," "Felt like you were going crazy," "Had a bad time"

^bDirections used in our examination of the Tanning Problems Index: "How many times did the following things happen to you while you were tanning or because of your tanning during the last year?"

Table 2

Summary of demographic and tanning-related characteristics

Characteristics	Mean (SD) or n (%) (N = 414)
Age	19.5 (1.8)
Female (%)	301 (73)
Frequency of sun screen use (%)	
Never	93 (23)
Rarely	126 (30)
About ½ the time when I tan	81 (20)
Almost all of the time I tan	61 (15)
Always	51 (12)
Past-month frequency of tanning in days	5.0 (6.3)
Amount of USD spent on tanning in a typical month ^a	15.1 (22.4)
Met cut-off for tanning dependence (%) ^b	152 (37)
Tanning Problem Index ^c	2.9 (4.6)
Difficulty to quit tanning (%)	
Very easy	340 (83)
Somewhat easy	52 (13)
Somewhat difficult	16 (4)
Very difficult	4 (1)

^aRange in current sample from \$0 to \$300.^bBased on *Tanning-DSM* score 3.^cScores range from 0 to 44 with higher scores indicating greater problems associated with tanning. Range in current sample from 0 to 31.