The Effect of Initial Indoor Tanning With Mother on Current Tanning Patterns

The International Agency for Research on Cancer (IARC) has classified indoor tanning as carcinogenic to humans. Indoor tanning by those 35 years and younger increases melanoma risk by 75%. Still, recent population-based studies reveal that 10% of youths aged 11 to 18 years and 8% to 14% of their primary caregivers have engaged in indoor tanning in the past year. Particularly noteworthy, indoor tanning in the year prior to the survey was 30% among 12- to 18-year-olds whose caregiver also reported indoor tanning. Supporting these findings, a recent meta-analysis revealed that having a parent or guardian who indoor tanned within the previous year was a significant predictor of current indoor tanning among 11- to 18-year-olds whose caregiver also reported indoor tanning.

Methods. In the current study, we explored how initial indoor tanning experience may influence future tanning behavior. Specifically, we investigated whether indoor tanning with one's mother the first time would influence frequency of tanning later in life and whether it was associated with age of initiation. We collected data from October 2008 through March 2009. After receiving approval from the East Tennessee State University institutional review board, we gained access to a full list of student e-mail addresses.

A total of 800 female students were selected using a random number generator. E-mail receipt was confirmed for 395 individuals, and each was sent a screening questionnaire on their indoor tanning history. Those who reported ever indoor tanning (n=252) were invited to participate in the study and offered an incentive ($5). A total of 227 (mean age, 21.33 years; age range, 18-30 years) agreed, signed informed consent documents, and completed assessments.

Results. Skin types were distributed as follows: type I, 42 (18.5%); type II, 59 (26%); type III, 81 (35.7%); and type IV, 45 (19.8%). Indoor tanning during the past year was assessed with a scale that has demonstrated strong correlations with diary measures of behavior in previous work (r range, 0.77-0.86) (P<.001). Participants’ current indoor tanning behavior was categorized as nontanner; moderate tanner (1-25 times per year); or heavy tanner (>25 times per year). These categories are consistent with indoor tanning patterns presented in the literature.

Who accompanied the participant the first time they indoor tanned was also assessed (ie, tanned alone, with friends, with mother, or other). Of the 227 female participants, 70 were nontanners; 113 were moderate tanners; and 44 were heavy tanners. More participants experienced indoor tanning for the first time with their mother (n=88) than went alone (n=45), with their friends (n=72), or with someone other than their friends or mother (n=22). The prevalence of current indoor tanning use among the 88 participants who went with their mother was nearly 81%, with 31.9% reporting heavy tanning.

Adjusting for age and skin type, we found that the participants who reported tanning with their mother during their initial experience were 4.64 times more likely to be heavy current tanners than those who initiated tanning alone or with someone other than their mother (odds ratio, 4.64) (P<.001) (Table). Further analysis revealed that participants who tanned for the first time with their mother started tanning at a significantly earlier age than those who started tanning without their mothers (14.5 years vs 16.5 years) (estimate of difference, 1.94 years; 95% CI, 1.42-2.47 years) (P<.001).

Comment. The results of this study indicate a positive relationship between maternal companionship during the first indoor tanning experience and later frequent indoor tanning among young women. These findings extend research indicating higher prevalence rates if the mother indoor tans. Similar associations between mother’s behavior and age of initiation have been reported with other high-risk behaviors (ie, substance abuse and smoking), which have been explained by

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Outcome</th>
<th>Effect Estimate (SE)</th>
<th>P Value</th>
<th>Odds Ratio Estimate (95% Wald Confidence Limits)</th>
</tr>
</thead>
<tbody>
<tr>
<td>First time tanning with mother</td>
<td>Heavy tanner</td>
<td>1.54 (0.44)</td>
<td>&lt;.001</td>
<td>4.64 (1.97-10.92)</td>
</tr>
<tr>
<td></td>
<td>Moderate tanner</td>
<td>0.51 (0.35)</td>
<td>.15</td>
<td>1.67 (0.83-3.35)</td>
</tr>
</tbody>
</table>
perceptions of easier access, less ambivalent attitudes, and parental modeling.\(^2\)

Physicians interested in decreasing indoor tanning in young patients should be aware of the mother's tanning status. Parents are often willing health educators, and previous parent-based interventions have resulted in reductions in sunbathing activity in middle-school children.\(^9\)

Interventions directed at mothers before the child initiates tanning have the potential to lead to reduced tanning in the mother and reduced tanning initiation and frequency in the child. Informing mothers of the risks of tanning and the strong influence their tanning behavior will have on their child's current and future risks may have significant effects, ultimately resulting in less UV exposure.

As 31.7% of our sample indoor tanned with a friend during their first experience, future interventions should target peers as well as mothers. We must note that this study is limited by its relatively small sample size, and future studies need to confirm these findings in a wider population.

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Author Contributions: Dr Hillhouse had full access to all of the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis. Study concept and design: Baker and Hillhouse. Acquisition of data: Hillhouse. Analysis and interpretation of data: Baker and Liu. Drafting of the manuscript: Baker. Critical revision of the manuscript for important intellectual content: Baker, Hillhouse, and Liu. Statistical analysis: Liu. Study supervision: Baker and Hillhouse.

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Methods. After receiving approval from the Wake Forest University institutional review board, we enrolled 30 subjects with moderate to severe atopic dermatitis (AD) in a randomized, open-label pilot study. Subjects, aged 2 to 15 years, were required to have AD affecting more than 5% of their body surface area and a moderate or severe rating by Investigator Global Assessment (IGA)\(^2\) (scale, 0-4). Subjects were excluded if they had used other prescription therapies for AD within 2 weeks of enrollment.

See Practice Gaps at the end of this letter

Subjects were randomized to 1 of 2 groups. Subjects in the extra visit group were scheduled follow-up visits at weeks 1 and 4. Subjects in the control group were scheduled only for a week 4 visit. All subjects were given topical tacrolimus, 0.03%, ointment (Protopic; Astellas Pharma US Inc, Deerfield, Illinois) to apply to affected body areas twice daily for 4 weeks.

Adherence was assessed by Medication Event Monitoring Systems (MEMS; Aardex Corp, Fremont, California) cap technology. The MEMS cap has a microprocessor inside that records the date and time of every tube opening. Clinical efficacy was assessed at each visit using the IGA, the Eczema Area and Severity Index (EASI),\(^3\) and a 100-mm visual analog scale (VAS) of itch intensity.

All statistics were performed using SAS statistical software, version 9.1 (SAS Institute, Cary, North Carolina).

Results. Treatment with tacrolimus, 0.03%, ointment was well tolerated, and no serious adverse events were reported. Thirty subjects were enrolled in the 4-week study (Table). Twenty-six subjects completed the study and were evaluated for clinical efficacy, and 20 of these 26 had usable MEMS data for adherence analysis (Figure 1).

Adherence ranged from 39% to 114% in the extra visit group and 15% to 79% in the control group. Overall, mean