



Support for indoor tanning policies among young adult women who indoor tan

Darren Mays,^{1,2} Sarah E. Murphy,¹ Rachel Bubly,¹ Michael B. Atkins,^{1,3} Kenneth P. Tercyak¹

¹Lombardi Comprehensive Cancer Center, Georgetown University Medical Center, Washington, DC, USA

²Department of Oncology, Cancer Prevention & Control Program, Lombardi Comprehensive Cancer Center, Georgetown University Medical Center, 3300 Whitehaven St NW, Suite 4100, Washington, DC 20007, USA

³Melanoma Center, MedStar Washington Hospital Center, Washington, DC, USA

Correspondence to: D Mays
dmm239@georgetown.edu

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Abstract

The purpose of this study to examine support for indoor tanning policies and correlates of policy support among young adult women who indoor tan. Non-Hispanic white women ages 18–30 who indoor tanned in the past year ($n = 356$, $M 23.3$ age, $SD 3.1$) recruited in the Washington, DC area from 2013 to 2016 completed measures of indoor tanning behaviors, attitudes, perceptions, beliefs, and policy support. Most women in the sample supported policies to prevent children under the age of 18 from indoor tanning (74.0 %) and stronger warnings about the risks of indoor tanning on tanning devices (77.6 %); only 10.1 % supported a total ban. In multivariable analyses, support for individual indoor tanning policies varied by demographics (e.g., age), frequent indoor tanning behavior, indoor tanning beliefs, and risk perceptions. Non-Hispanic white young adult women who indoor tan, the primary consumers of indoor tanning, and a high-risk population, largely support indoor tanning prevention policies implemented by many state governments and those currently under review for national enactment. Given low levels of support for a total indoor tanning ban, support for other potential policies (e.g., increasing the minimum age to 21) should be investigated to inform future steps to reduce indoor tanning and the associated health risks.

Keywords

Skin cancer, Indoor tanning, Policy, Prevention

INTRODUCTION

Skin cancer is the most common malignancy in the USA where an estimated 3.5 million cases of non-melanoma skin cancer and 75,000 cases of melanoma are diagnosed each year [1]. Although most skin cancer is preventable by reducing ultraviolet (UV) radiation exposure, the incidence has increased in recent decades, an estimated 9,000 deaths occur each year due to melanoma, and the total costs of skin cancer treatment exceed \$8 billion annually [1].

While sunlight is a primary source of UV radiation exposure, intentional indoor tanning accounts for an estimated 10 % of annual skin cancer cases in the USA [2]. Meta-analyses indicate that any lifetime indoor tanning increases the risks of non-melanoma skin cancer by 29–67 % and melanoma by approximately

Implications

Researchers or research: In the future, as additional regulations are potentially considered to prevent indoor tanning and reduce the associated burden of skin cancer research can inform this process by ascertaining support for specific policies under consideration among key consumer groups.

Practitioners or practice: For public health practitioners, our data on the correlates of policy support can also help them to craft communications about policies including those conveying information about the potential risks of indoor tanning.

Policymakers or policy: For policymakers, these findings can potentially inform FDA's decision-making as the recently proposed regulations are finalized to consider regulations that would be acceptable to consumers.

Previous publication

The findings reported have not been previously published and this manuscript is not being simultaneously submitted elsewhere.

20 %, and these risks are increased with greater indoor tanning exposure [3, 4]. Despite modest declines in the prevalence of indoor tanning in the USA recently, indoor tanning remains prevalent among non-Hispanic white women 18 to 30 years of age [5]. Within this group nearly 30 % indoor tan each year and an estimated 15 % tan frequently (i.e., ten or more times) each year [6, 7], making young adults and white women the primary consumers of indoor tanning and a high-risk population.

Many state governments have taken action to address this public health concern by enacting policies intended to limit indoor tanning, primarily policies restricting indoor tanning access for minors under the age of 18. As of 2015, more than 40 states have such policies in place, but the strength of policies varies widely as does their enforcement. Eleven states and the District Columbia banned indoor tanning among minors under age 18 [8], while other states

require indoor tanning retail facilities to provide consumers with information about the potential risks of tanning and parental permission requirements for minors [9]. Evidence suggests stronger state-level indoor tanning prevention policies (i.e., minimum age vs. parental permission requirements) are associated with reduced prevalence of indoor tanning among adolescent females [9]. This suggests uniform policies at the national level could help to prevent indoor tanning behavior.

The Food and Drug Administration (FDA) recently issued new regulations reclassifying indoor tanning devices from class I (low to moderate risk) to class II (moderate to high risk) medical devices. The new regulations put into place additional premarket review requirements for manufacturers seeking to introduce new indoor tanning devices to the market, and require all indoor tanning devices to conspicuously display a “black box” warning stating they should not be used by minors under 18 years of age [10]. In December 2015, FDA issued additional proposed rules including a national minimum age requirement of 18 years of age to indoor tan, requirements that adults who indoor tan in retail settings (e.g., tanning salons) must sign a statement acknowledging the risks, specifications for the display of required warning labels on tanning devices, and additional device requirements (e.g., bulb regulations) [11].

The 2014 Surgeon General’s “Call to Action to Prevent Skin Cancer” emphasized that indoor tanning prevention is critical to achieve national skin cancer prevention goals [1]. As in other areas of cancer prevention and control (e.g., tobacco control), indoor tanning prevention policies can play an important role in reducing the public health burden of skin cancer. Public health policy implementation models indicate public support is a key factor influencing policy success [12]. Public health policymakers can foster public support in the process of policy implementation by understanding public support for potential policy measures and through targeted communications and outreach efforts to educate key consumer groups about the rationale and potential impact of policies for improving public health. Understanding the degree to which consumers support public health policies and correlates of policy support can help to guide national implementation efforts. A recent example of the importance of understanding support for potential public health policies occurred in 2014 in the town of Westminster, Massachusetts, where public officials proposed a complete ban on the sale of tobacco products [13]. The vehement response from the town’s citizens—including both tobacco users and non-users—during town hall meetings and through petitions led public officials to abandon the proposed policy [13]. Although research has investigated public health policy support in other behavioral domains (e.g., tobacco control) [14], evidence on support for indoor tanning prevention policies and associated behaviors, attitudes, cognitions, and perceptions among young women is extremely limited [15]. Behavioral theories

identify attitudes, cognitions, and perceived risks as potentially modifiable precursors to behavior change [16, 17], thus these constructs may be important targets of communications to foster support for indoor tanning prevention policy. For example, communications conveying the risks of indoor tanning and the importance of indoor tanning policy for reducing potential risks to key consumer groups may be one strategy to foster policy support if research indicates it would be beneficial for this purpose. Such an approach would be consistent with FDA’s regulatory science goals of ensuring that key consumer groups are informed about potential risks of regulated products and the relevant regulations in order to make informed decisions about product use [18].

With national momentum building towards a uniform set of indoor tanning prevention policies, and supporting policy statements by health organizations [19], the goal of this study was to further inform the implementation of indoor tanning prevention policies by examining support for specific policy measures among young non-Hispanic white women ages 18–30 who indoor tan. Specifically, we investigated support for indoor tanning policies, some of which were proposed for national enactment in FDA’s December 2015 proposed rule, including restricting indoor tanning access among minors under the age of 18 and stronger labels on indoor tanning devices to inform consumers about the potential risks. We also examined support for a total ban on indoor tanning, such as policies in place in Australia and Brazil. Finally, we investigated correlates of policy support in this population.

METHODS

Sample and procedures

Participants were 356 young adult women 18–30 years of age who indoor tanned at least once in the past 12 months. Participants were recruited as part of a larger study of high-risk indoor tanning behavior in young women in the Washington, DC metropolitan area via community and online advertisements. Recruitment materials provided a brief description of the study and directed potentially interested individuals to contact study personnel by telephone or email. Interested individuals were screened for eligibility using items from epidemiological surveys assessing demographic characteristics and indoor tanning behavior [7]. Eligible, interested participants signed written informed consent forms to complete study enrollment.

All participants completed a confidential, self-report online survey. Research staff conducted outreach to participants to ensure timely completion of the online survey. Participants in the study sample were recruited from September 2013 to February 2016. All study procedures were reviewed and approved by the host institution’s Institutional Review Board.

Measures

Demographics—Demographic characteristics measured included age, household income, educational attainment, and whether participants were currently a college/university student using items from validated epidemiological surveys [7]. Indoor tanning behaviors were measured using validated items, with frequent indoor tanning defined as indoor tanning ten or more times in the past year [7]. Similarly, age of indoor tanning initiation was measured using a single item [7].

Indoor tanning attitudes—Ten items assessed attitudes toward the positive benefits of indoor tanning by capturing participants' agreement with statements indicating that indoor tanning makes them look healthier, feel confident, look more attractive, look younger, and hides skin flaws and blemishes based and on a 5-point scale (1 = strongly disagree, 5 = strongly agree) [20, 21]. Example items included "I think I look healthier when I am tan" and "I look more attractive when I have a nice tan." Responses to the items were averaged to create a summary score with higher values indicating more favorable attitudes towards indoor tanning (Cronbach's $\alpha = 0.83$).

Indoor tanning cognitions—Participants' cognitive rationalizations for indoor tanning behavior were measured using ten items from a scale developed in a previous study [22]. Example items include "Tanning bed use cannot be that bad for you, because many people who use tanning beds live long lives" and "It is more important for me to get that tanned look at this age than to worry about skin cancer." Responses were based and on a 5-point scale (1 = strongly disagree, 5 = strongly agree) and were averaged (Cronbach's $\alpha = 0.77$) to create a summary score where higher values indicating more favorable indoor tanning cognitions.

Perceived risks of indoor tanning—Participants' perceptions of the health risks associated with indoor tanning, including skin cancer and appearance-damaging effects, were measured using four items with a 5-point response scale (1 = strongly disagree, 5 = strongly agree). Items captured participants' agreement with statements such as "Indoor tanning can lead to premature skin wrinkling and aging" and "Indoor tanning significantly increases my risk of developing skin cancer" [23]. Responses were averaged to create a score where higher values indicate greater perceived risks of indoor tanning (Cronbach's $\alpha = 0.93$).

Perceived severity and susceptibility to skin cancer—Five items were adapted from previous research to assess participants' perceived severity of skin cancer based on a 5-point scale (1 = strongly disagree, 5 = strongly agree) [24]. Example items include "Skin cancer is not very serious" and "Many people survive skin cancer without scarring or long-lasting effects." Responses were averaged to create an overall score with higher values indicating greater perceived severity of skin cancer (Cronbach's $\alpha = 0.73$).

Perceived personal susceptibility to the risks of tanning was measured using seven items adapted from previous research [24]. Items assessed participants' level of

agreement with statements about susceptibility to the risks of tanning on a 5-point scale (1 = strongly disagree, 5 = strongly agree). Example items included "I am worried about developing skin cancer because of too much tanning" and "I am likely to develop skin cancer at some point." Responses were averaged to create a score with higher values indicating greater perceived susceptibility (Cronbach's $\alpha = 0.74$).

Indoor tanning policy support—The primary dependent variables for this study were participants' support for three indoor tanning policies, measured with three items adapted from studies of policy support in other areas, such as tobacco control [14]. Items were prefaced with the introductory statement that "Sometimes health professionals advocate for stricter federal, state, and local laws to protect people from the potential harms of indoor tanning. Please indicate how much you agree or disagree with the following statements about these types of laws." Items measured participants' level of agreement with the following statements: "There should be laws to prevent children under the age of 18 from indoor tanning," "Indoor tanning devices should have stronger labels to warn about the potential health risks of tanning," and "Indoor tanning devices should be banned." Responses were based on a 5-point scale (1 = strongly disagree, 5 = strongly agree). These items were analyzed individually as continuous variables, and for descriptive purposes participants' responses were also examined and reported by response category.

Statistical analysis

The statistical analysis occurred through several steps. Descriptive statistics were used to characterize the sample and to describe level of support for individual indoor tanning prevention policies. Bivariate statistical tests (Pearson's r correlation, t tests) were used to examine the associations between demographics, indoor tanning behavior, indoor tanning attitudes and perceptions, and policy support variables. Finally, multivariable linear regression models were created where each policy support dependent variable was regressed onto predictor variables that were associated with policy support at $p < .10$ in bivariate analyses.

RESULTS

Sample characteristics

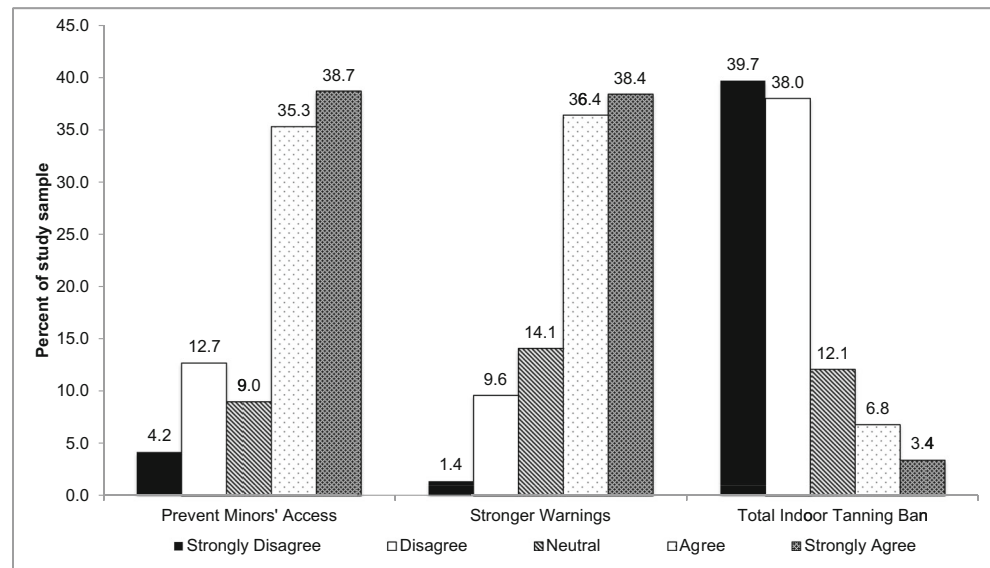
Characteristics of the study sample are shown in Table 1. Participants ($n = 356$) averaged 23.2 years of age (SD 3.1 years), 62.9 % had a college degree or higher, and 59.7 % reported an annual income of \$50,000 per year or higher. On average, participants first indoor tanned at age 17.1 years (SD 2.6) and 43.9 % were frequent indoor tanners (i.e., ten or more tanning episodes) in the past year (Table 1). Bivariate correlations among indoor tanning attitudes, cognitions, perceived risks, perceived severity, and perceived susceptibility ranged from $r = -0.43$ ($p < .001$)

Table 1 | Sample characteristics and correlates of support for indoor tanning policies

	Sample ^a (<i>n</i> = 356)		Correlates of support: Minimum age restriction		Correlates of support: Stronger risk communication		Correlates of support: Total ban		
	Mean (SD)	<i>p</i>	Correlation (<i>r</i>)	Mean (SD)	Correlation (<i>r</i>)	Mean (SD)	Correlation (<i>r</i>)	Mean (SD)	<i>p</i>
Demographics									
Age (<i>M</i> , <i>SD</i>)	23.2 (3.1)	<.001	0.19		-0.05		0.05		.382
Education									
Less than college	132 (37.1 %)		3.7 (1.3)	1.0	4.0	1.0	1.8	1.0	
College degree or greater	224 (62.9 %)	.038	4.0 (1.1)	1.0	4.0	1.0	2.0	1.1	.077
Annual income									
≤\$50,000/year	143 (40.3 %)		4.0 (1.1)	1.0	4.1	1.0	2.0	1.1	
>\$50,000/year	212 (59.7 %)	.103	3.8 (1.2)	1.1	3.9	1.1	1.9	1.0	.225
Indoor tanning behavior									
Age at first indoor tanning (<i>M</i> , <i>SD</i>)	17.1 (2.6)	.001	0.17		0.001		0.05		.392
Past year frequent indoor tanning									
No	199 (56.1 %)		4.0 (1.1)	1.0	4.2	1.0	2.1	1.1	
Yes	156 (43.9 %)	.056	3.8 (1.2)	1.0	3.8	1.0	1.7	0.9	<.001
Indoor tanning attitudes and perceptions									
Cognitions (<i>M</i> , <i>SD</i>)	2.8 (0.67)	<.001	-0.22		-0.24		-0.36		<.001
Attitudes (<i>M</i> , <i>SD</i>)	3.9 (0.59)	.090	-0.09		-0.05		-0.13		.012
Perceived risks (<i>M</i> , <i>SD</i>)	4.5 (0.65)	.002	0.17		0.20		0.18		<.001
Perceived severity of risks (<i>M</i> , <i>SD</i>)	3.8 (0.70)	.373	0.05		0.20		0.22		<.001
Perceived susceptibility to risks (<i>M</i> , <i>SD</i>)	3.2 (0.70)	<.001	0.18		0.19		0.23		<.001

M mean, *SD* standard deviation

^a Participants recruited in the Washington, DC area 2013–2016. Data for the study sample display *n* and % unless otherwise indicated. Some totals for the sample do not add to the sample *n* due to sporadic missing data (1 % of cases for any variable)



Note: Participants recruited in the Washington, DC area 2013-2016.

Fig. 1 | Support for indoor tanning policies among young adult women who indoor tan

to $r = 0.28$ ($p < .001$), indicating these variables captured unique constructs.

Indoor tanning policy support

The categorical distribution of participants' level of support for individual indoor tanning prevention policies is shown in Fig. 1. A majority of participants strongly agreed or agreed that policies should be in place to prevent children under the age of 18 from indoor tanning (74.0 %) and that there should be stronger warnings about the risks associated with indoor tanning on tanning devices (74.6 %). A majority disagreed (77.7 %) that indoor tanning devices should be banned. The average level of support for policies to restrict access among children under age 18 (M 3.9, SD 1.2) and stronger warnings communicating the potential risks (M 4.0, SD 1.0) did not differ significantly ($p = .100$). However, on average support for both of these policies was higher than average support for a total indoor tanning ban (M 2.0, SD 1.0, $p < .001$).

Correlates of policy support

Bivariate correlates of support for the three indoor tanning policies examined are shown in Table 1. Support for policies to prevent children under age 18 from indoor tanning was correlated with age, age of tanning initiation, and less favorable attitudes and cognitions toward indoor tanning. Support for policies to prevent children under age 18 from indoor tanning was also lower among those with less than a college education. Support for stronger warnings conveying the potential risks of indoor tanning was lower among frequent indoor

tanners, and was correlated with less favorable indoor tanning cognitions and stronger perceived risks, perceived severity, and perceived susceptibility. Finally, support for a total ban on indoor tanning was lower among those with less than a college education and among frequent indoor tanners, and was correlated with less favorable indoor tanning cognitions and attitudes, and stronger perceived risks, perceived severity, and perceived susceptibility (Table 1).

Results of the multivariable regression models including all variables associated with support for each indoor tanning policy at $p < .10$ in bivariate analyses are shown in Table 2. Support for policies to prevent children under the age of 18 from indoor tanning was greater with increasing age ($\beta = 0.06$, $SE = 0.02$, $p = .011$), older age of indoor tanning initiation ($\beta = 0.07$, $SE = 0.02$, $p = .003$), and greater perceived susceptibility to risks of tanning ($\beta = 0.28$, $SE = 0.09$, $p = .002$). Support for stronger warnings about risks of tanning was lower among frequent indoor tanners compared with infrequent tanners ($\beta = -0.32$, $SE = 0.11$, $p = .003$) and was associated with greater perceived severity of risks ($\beta = 0.19$, $SE = 0.08$, $p = .016$) and greater perceived susceptibility ($\beta = 0.22$, $SE = 0.22$, $p = .005$). Finally, support for a total ban on indoor tanning was lower among frequent tanners compared with infrequent tanners ($\beta = -0.31$, $SE = 0.11$, $p = .004$), was associated with less favorable cognitions towards indoor tanning ($\beta = -0.37$, $SE = 0.09$, $p < .001$), and was associated with greater perceived severity of ($\beta = 0.17$, $SE = 0.08$, $p = .034$) and greater perceived susceptibility to ($\beta = 0.29$, $SE = 0.03$, $p < .001$) the risks of indoor tanning.

Table 2 | Multivariable analysis of correlates of support for indoor tanning policies

Independent variable	Support for minimum age restriction			Support for stronger risk communication			Support for total ban			
	β	SE β	Partial r^2	β	SE β	Partial r^2	β	SE β	Partial r^2	p
Age	0.06	0.02	0.04	.011	–	–	–	–	–	–
Education										
Less than college	Ref.									
College degree or greater	-0.03	0.15	<0.001	.849	–	–	0.11	0.11	0.009	.316
Annual income										
≤\$50,000/year	–	–	–	–	–	–	–	–	–	–
>\$50,000/year	–	–	–	–	–	–	–	–	–	–
Indoor tanning behavior										
Age at first indoor tanning	0.07	0.02	0.02	.003	–	–	–	–	–	–
Past year frequent indoor tanning										
No	Ref.									
Yes	-0.08	0.13	0.005	.540	-0.32	0.11	0.03	0.03	0.11	0.03
Indoor tanning attitudes and perceptions										
Cognitions	-0.19	0.11	0.03	.085	-0.14	0.09	0.04	0.09	-0.37	0.11
Attitudes	-0.09	0.11	<0.01	.413	–	–	–	–	-0.10	<0.01
Perceived risks	0.09	0.10	0.005	.377	0.09	0.09	0.010	0.09	-0.05	<0.01
Perceived severity of risks	–	–	–	–	0.19	0.08	0.01	0.08	0.17	0.01
Perceived susceptibility to risks	0.28	0.09	0.02	.002	0.22	0.08	0.02	0.08	0.29	0.03
Model total R^2	0.13				0.12				0.19	

Participants recruited in the Washington, DC area 2013–2016

DISCUSSION

Policies to prevent indoor tanning are recommended as part of a comprehensive approach to reduce the population-level burden of skin cancer and other health outcomes associated with indoor tanning [25]. As state and national policymakers are considering implementing indoor tanning prevention policies, evidence on the level of public support for specific policy measures among consumer groups that may be affected can inform implementation decisions. This study investigated support for indoor tanning prevention policies among young adult women who indoor tan, a primary consumer group who may be affected by such policy measures and a group at risk of skin cancer and other potential negative outcomes associated with indoor tanning behavior. Our results show high levels of support for some prevention policies, including policies similar to those that have been recently proposed for national enactment by FDA, such as policies to prevent children under the age of 18 from indoor tanning and stronger warnings communicating the risks of indoor tanning on tanning devices. However, young women in the sample largely did not support a total ban on indoor tanning. Analyses of correlates of indoor tanning policy support indicate support varies by specific subgroups (e.g., past year frequent tanners) and highlight perceptions and cognitions correlated with policy support. These findings have potential implications to inform policy implementation efforts and future research in this area.

A recent analysis of state-level policies to restrict youths' access to indoor tanning indicates more restrictive policies such as minimum age requirements are associated with greater reductions in indoor tanning prevalence than less restrictive policies (e.g., parental permission for minors) [9]. A national minimum age requirement could address documented issues with retailer compliance with state-level age restrictions by positioning FDA to take stronger enforcement actions against retailers in violation of such policies [26]. In the study sample support for policies to prevent indoor tanning among children younger than age 18 was high overall, and on average the young women in our sample initiated indoor tanning before the age of 18. This finding is consistent with another recent study that which found 61 % of female college students who indoor tanned in the past year, a majority of whom tanned for the first time before age 18, supported minimum age requirements [15]. Taken together, this evidence suggests a minimum age restriction may have the potential to prevent the escalation of indoor tanning behavior from adolescence into young adulthood. In terms of independent variables examined, support for policies to prevent indoor tanning among those under age 18 was most strongly associated with greater perceived personal susceptibility to the risks of indoor tanning in multivariable analyses. This suggests policymakers could craft communications conveying information about susceptibility to risks (e.g., that no level of indoor tanning

is safe, that indoor tanning at a younger age increases skin cancer risks) and the potential preventive impact of a minimum age restriction as one possible measure to garner stronger support.

Our results also showed a high level of support for stronger warnings about the risks of indoor tanning on tanning devices. The FDA's recently proposed rule includes provisions for new warning labels on indoor tanning devices and requirements that consumers sign a written acknowledgement listing the potential risks associated with indoor tanning such as skin cancer. However, under the proposed rule the required warnings and acknowledgement statement consist of text only. Evidence suggests that indoor tanning risk communication messages incorporating imagery to enhance their persuasive appeal [27] may be more effective for conveying risks and dissuading indoor tanning among young women than text-only messaging. Such communications with visual information about risks are currently implemented in indoor tanning retail settings in New York City through policies enacted there [28] and in the future federal rulemaking could be undertaken to implement such messages nationally in the form of warnings on indoor tanning devices and through other potential communications (e.g., risk acknowledgement statements signed by consumers). Our data suggest young women may be supportive of stronger warnings about potential risks of indoor tanning, that support was lower among women who indoor tanned frequently, and that greater support was correlated with higher perceived severity of and personal susceptibility to the risks associated with indoor tanning. However, we used a broad measure of support for stronger warnings about risks on indoor tanning devices and did not examine support for specific risk communication strategies such as those noted above (e.g., text-only communications versus messaging with graphic, visual content). Future studies can further clarify the extent of support for specific policies in this domain.

In contrast to other policies examined, support for a total ban on indoor tanning as has been enacted in other settings (e.g., Australia, Brazil) was low overall. This finding suggests that although policies can continue to be strengthened through state and federal rulemaking, there are likely boundary conditions surrounding specific policies that young women will support. Support for a total ban was lower among women who indoor tanned frequently in the past year, decreased with more favorable beliefs about indoor tanning, and increased with greater perceived severity and susceptibility to risks. Across the different policies examined, our findings indicate that young women in the sample tended to view favorably age-based restrictions that would not directly affect them and risk communication policies that may draw limited attention and be of limited impact (e.g., text-only risk communications) [29], but they largely did not support policy that would restrict their personal access to a behavior in which they engage frequently or that they perceive to be beneficial. Future studies can help to better understand young women's

views on the most restrictive indoor tanning policy measure—a total ban—by gathering additional data on the reasons for supporting such a measure in the small subset of young women who do so.

A total ban on indoor tanning may be unrealistic in the US regulatory environment considering challenges to implementing federal regulations in other public health domains, but more incremental policies could also be investigated to inform future policy development. For example, studies could investigate support for increasing the minimum age to indoor tan to 21 years, as is being considered for tobacco products [30], and support for specific aspects of warnings on indoor tanning devices and other risk communications (e.g., incorporating persuasive visual content) [29] as possible future policy measures.

The study findings should be interpreted in light of important limitations. We assessed support for a small number of potential policies, and additional studies are needed to continue to examine levels of support for a range of specific policy options, such as thresholds for minimum age restrictions, specific risk communication strategies (e.g., visual depictions of risks), and potentially others such as increasing taxation on indoor tanning [31]. Our measures of policy support were broad and did not specifically assess young women's support for policies recently proposed by the FDA, although some policies examined were similar to those proposed. This context may affect their levels of policy support. The study involved a convenience sample of non-Hispanic white young adult women ages 18–30 recruited in a single geographic region, limiting generalizability to broader populations. Studies in representative samples that include both indoor tanners and those who do not will be important to inform indoor tanning prevention policies at the national level. Finally, the constructs examined as correlates accounted for a relatively small amount of variance in policy support (12–19%). This indicates a need to consider a broader set of constructs that may be associated with policy support in future research.

IMPLICATIONS

Young adult women who indoor tan support indoor tanning prevention policies including policies to prevent indoor tanning among children younger than age 18 and stronger warnings about the risks of indoor tanning on tanning devices, policies that are similar to those recently proposed for national enactment by the FDA. However, support for a total ban on indoor tanning among the sample was low. Indoor tanning prevention policy support varied based on indoor tanning behavior, beliefs, and perceptions as well. For researchers, in the future as additional regulations are potentially considered to prevent indoor tanning and reduce the associated burden of skin cancer, research can inform this process by ascertaining support for specific policies under consideration among key consumer groups. For public health practitioners, our data on the correlates of policy support can also help

them to craft communications about policies including those conveying information about the potential risks of indoor tanning. For policymakers, these findings can potentially inform FDA's decision-making as the recently proposed regulations are finalized to consider regulations that would be acceptable to consumers.

Compliance with ethical standards

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Conflict of interest: The authors declare that they have no conflicts of interest.

Statement of human rights:

Ethical approval: All procedures were conducted in accordance with the ethical standards of the responsible committee on human subjects and with the 1964 Helsinki Declaration.

Informed consent: All participants provided written informed consent.

IRB approval: The study was reviewed and approved by the Georgetown University Institutional Review Board.

Statement on the welfare of animals: Not applicable.

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