

Do Dermatologists Have a Role in Counseling Patients on the Dangers of Tanning Addiction?

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Abstract

Tanning addiction, often termed tanorexia, is an emerging public health concern driven by psychological and behavioral factors. The compulsive use of tanning beds and excessive Ultraviolet (UV) exposure provide psychological rewards, such as improved mood and body image, while significantly increasing the risk of skin cancer, including melanoma. Dermatologists are uniquely equipped to recognize patients at risk for tanning addiction and intervene proactively. Beyond managing the dermatologic consequences of chronic UV exposure, they are integral to addressing the psychological underpinnings of this behavior. Reframing tanning from a cosmetic choice to a serious health risk is essential for shifting patient attitudes and promoting behavior change. Evidence-based interventions, including cognitive-behavioral therapy, motivational interviewing, and promoting safer alternatives such as self-tanning products and UV-free tanning methods, are crucial in disrupting the addiction cycle and addressing both the psychological and dermatologic consequences. This review examines whether tanning behaviors should be classified as a personal choice or addiction, drawing attention to the psychological drivers, including body dysmorphia, stress relief, and mood enhancement, that perpetuate repeated tanning. Furthermore, it emphasizes integrating tanning addiction screening into routine dermatologic assessments, particularly for high-risk individuals, and developing targeted patient education initiatives. The overarching aim is to equip dermatologists with the tools and knowledge to effectively counsel patients on the dangers of tanning addiction, reduce skin cancer risk, and foster long-term sun-safe behaviors. By addressing both the dermatologic and psychological dimensions of tanning addiction, dermatologists are positioned to mitigate its prevalence and drive long-term behavioral change.

1. INTRODUCTION

Tanning addiction, or tanorexia, is a compulsive behavior characterized by excessive Ultraviolet (UV) light exposure, often through indoor tanning. This condition presents a significant public health challenge involving a complex interplay of physiological, psychological, and sociocultural risk factors. Studies consistently show that frequent tanning increases the risk of skin cancers, including basal and squamous cell carcinoma and melanoma. Indoor tanning, for example, is associated with a 69% higher

likelihood of developing basal cell carcinoma [1]. Although there is widespread knowledge of these risks, many individuals continue tanning, suggesting a more profound, addictive component. Physiologically, UV light triggers the release of endogenous opioids, beta-endorphins, creating a reinforcing reward cycle that mirrors behaviors seen in substance addiction [2]. This contributes to compulsive tanning even in the face of adverse health outcomes.

During patient interactions, dermatologists are uniquely positioned to identify and address tanning addiction, often spotting clinical signs of UV damage, such as photoaging, solar lentigines, and actinic keratoses. These encounters offer valuable opportunities for early intervention, particularly among adolescents and individuals with pre-existing psychological conditions who are at heightened risk. For instance, studies show that 7% of 11th-grade adolescents meet the criteria for tanning addiction, with the prevalence doubling among those with co-occurring substance use or psychological disorders [3]. This raises the critical question: Is tanning simply a personal choice, or is it an addictive behavior that warrants clinical attention?

Compulsive tanning behaviors align with the hallmark features of addiction, such as tolerance, withdrawal, and continued engagement, even when faced with detrimental outcomes [4]. Individuals with body dysmorphic disorder (BDD) or obsessive-compulsive disorder (OCD) are particularly vulnerable to tanning addiction, using UV exposure as a maladaptive coping mechanism for anxiety or body image concerns [5]. Moreover, societal pressures, often perpetuated by media and cultural standards, valorize tanned skin, particularly among adolescents and young women, further fueling this cycle of compulsive tanning [6]. These external pressures, combined with deeper psychological factors, intensify the compulsion to tan.

The psychological drivers of tanning addiction are complex. The mood-enhancing effects of endorphins released during tanning temporarily relieve stress and anxiety [7]. Beyond that, tanned skin is often viewed as a symbol of beauty and desirability, solidifying tanning as an essential aspect of self-image for many individuals [8]. These perceptions are deeply embedded in Western sociocultural norms, highlighting the role of external influences in shaping tanning behaviors. Dermatologists must navigate these psychological and sociocultural dynamics when counseling patients, emphasizing both immediate risks and long-term health implications.

By addressing the psychological and physiological dimensions of tanning addiction, dermatologists can implement effective interventions. These include behavioral approaches such as cognitive-behavioral therapy (CBT) and motivational interviewing, which target the underlying drivers of compulsive

tanning. Additionally, promoting UV-free alternatives such as self-tanning products provides a safer path to achieving the desired aesthetic. Early identification of at-risk patients and a comprehensive approach to counseling and education can significantly reduce the prevalence of tanning addiction and its associated health risks. This work aims to evaluate the effectiveness of these interventions, examine the role of dermatologists in preventing and treating tanning addiction, and provide recommendations for incorporating routine tanning addiction screening into dermatologic practice, ultimately improving both patient outcomes and public health.

2. PHYSIOLOGICAL, PSYCHOLOGICAL, AND SOCIOCULTURAL DRIVERS OF TANNING ADDICTION

Tanning addiction, or "tanorexia," stems from a complex interplay of physiological, psychological, and sociocultural factors that perpetuate the intense compulsion to tan. Physiologically, (UV) radiation stimulates the release of endorphins, creating a temporary sense of euphoria and relaxation that repeatedly leads individuals to seek this mood-enhancing effect. Over time, this can form a dependence on tanning as a coping mechanism for stress and negative emotions. Psychologically, concerns about body image or self-esteem often drive the desire to tan, as individuals equate a tanned appearance with enhanced attractiveness or social approval. Sociocultural pressures, such as the idealization of tanned skin in media and popular culture, further reinforce these behaviors, especially among younger populations. Together, these factors create a cycle that is difficult to break, complicating efforts to address tanning addiction.

Ultraviolet radiation stimulates the release of beta-endorphins, endogenous opioids that induce euphoria and relaxation. This immediate reward reinforces the desire to seek out UV exposure regularly, as frequent tanners begin to rely on these positive sensations to manage stress or negative emotions. Studies have shown that frequent tanners may develop a dependence on these mood-enhancing effects, as evidenced by withdrawal-like symptoms when opioid activity is blocked [9]. As this dependence deepens, tanning becomes a habitual behavior, often used as a coping mechanism in response to stress and negative emotions [6]. The reliance of the body on the mood-enhancing effects of UV exposure intertwines with psychological factors, such as

body image issues or self-esteem concerns, which drive individuals to continue tanning.

Tanning addiction is strongly linked to psychological conditions such as body dysmorphic disorder and self-image concerns. Individuals with BDD frequently perceive their natural skin tone as flawed and turn to tanning as a way to achieve a perceived ideal appearance. This behavior is reinforced by temporary satisfaction with their tanned complexion, perpetuating the compulsive tanning cycle. A broader dissatisfaction with self-image also drives tanning behaviors, with some individuals viewing a bronzed complexion as synonymous with beauty, health, and vitality. Research has highlighted that such compulsive tanning patterns are particularly prevalent in populations with co-occurring anxiety and substance use disorders, further complicating treatment [10]. The psychological reinforcement of tanning addiction makes breaking the cycle particularly challenging.

Societal and cultural factors amplify these tendencies, especially among adolescents and young adults. Western beauty standards glorify tanned skin, associating it with social status, attractiveness, and success. Social media platforms like Instagram and TikTok exacerbate this issue by showcasing curated images of tanned influencers and celebrities, which create unrealistic expectations and increase peer pressure to tan. Adolescents, in particular, are vulnerable to these influences, often engaging in excessive tanning to conform to perceived social norms and enhance their social standing. A study on adolescent tanning behaviors found a strong correlation between tanning addiction, peer pressure, and psychological conditions, further underscoring the impact of societal influences [11]. Targeted interventions at the individual and societal levels can be employed to address these sociocultural drivers.

A multifaceted approach is essential to disrupt the reinforcing cycle of tanning addiction. Public health campaigns must challenge societal norms that equate tanned skin with beauty while dermatologists and mental health professionals work collaboratively to provide targeted interventions. Evidence-based treatments such as CBT and motivational interviewing have effectively reduced tanning behaviors by addressing underlying psychological factors and reinforcing healthier coping strategies [12]. By tackling the physiological, psychological, and sociocultural reinforcements of tanning

addiction, healthcare providers can reduce its prevalence and associated health risks.

3. ROLE OF DERMATOLOGISTS IN IDENTIFYING TANNING ADDICTION

Dermatologists are well-suited to recognize and address tanning addiction, given their specialized expertise and frequent patient interactions. With their specialized knowledge in skin health, dermatologists are often the first to identify clinical signs of excessive UV exposure, such as photoaging, actinic damage, and dysplastic nevi. These dermatologic markers signal the effects of chronic UV damage and provide a valuable opportunity for intervention, particularly for individuals at high risk. While the medical community is tasked with educating the public about these dangers, dermatologists' direct access to patients and specialized focus on skin health make them the primary providers for this intervention [13]. As frequent evaluators of skin health, dermatologists have direct access to patients and can initiate discussions regarding the risks of tanning addiction before more severe consequences emerge. In addition to the physical manifestations, dermatologists must consider the psychological drivers behind tanning addiction. Tanning behaviors are often linked to body image concerns and may be exacerbated by conditions such as BDD or anxiety. Early identification of these factors is essential, as dermatologists can refer patients for appropriate mental health care or incorporate psychological strategies into their treatment [14]. This holistic approach enhances the likelihood of reducing the negative impacts of tanning addiction.

As trusted healthcare providers, dermatologists are also responsible for educating patients on the dangers of tanning addiction. This involves reframing tanning as a health risk rather than a cosmetic preference. Given the high rates of tanning among adolescents and individuals with pre-existing mental health conditions, dermatologists have an essential role in promoting safer alternatives, such as self-tanning products and UV-free methods, while addressing misconceptions about the benefits of tanning. This proactive approach is key to preventing the development of addiction and mitigating its long-term health risks.

3.1. Recognizing At-Risk Patients

Dermatologists must remain attuned to the clinical indicators of tanning addiction, a compulsive behavior with profound dermatologic and psychological consequences. A

hallmark of this addiction is the frequent use of tanning beds, particularly in patients who demonstrate an inability to reduce their tanning behaviors, even in the presence of adequate health literacy. Research indicates that approximately 7% of adolescents meet the criteria for tanning addiction, with prevalence rates exceeding 10% in certain demographic groups, such as Native Hawaiian/Pacific Islander populations [15]. Alarming, 10.89% of adolescents report difficulty reducing their tanning habits, pointing to the persistent nature of this behavior [15]. Studies have also shown that a notable proportion of individuals persist with tanning even after being diagnosed with skin cancer, further reinforcing the addictive characteristics of this behavior [16]. These findings emphasize the importance of dermatologists recognizing tanning addiction early and intervening with both preventative and therapeutic strategies.

Dermatologists often identify tanning addiction by observing visible skin damage during routine consultations. Chronic UV exposure manifests in signs of photoaging, such as pronounced wrinkles, solar lentigines, and altered skin texture resulting from prolonged melanocyte stimulation [17]. Patients exhibiting uneven pigmentation, telangiectasia (broken capillaries), or a leathery skin appearance often show visible evidence of cumulative UV damage [17]. Additionally, the presence of precancerous lesions, such as actinic keratoses and dysplastic nevi, alongside recurrent non-melanoma skin cancers, including basal cell carcinoma (BCC) and squamous cell carcinoma (SCC), serves as a strong clinical indicator of excessive UV exposure. Research demonstrates that indoor tanning increases the risk of early-onset BCC by 69%, a stark reminder of the long-term dangers of tanning behaviors [1]. Early recognition of these dermatologic manifestations not only facilitates the identification of tanning addiction but also highlights patients at heightened risk for life-threatening conditions, such as malignant melanoma [18]. By addressing these signs proactively, dermatologists can intervene early, preventing further harm and potentially saving lives.

Certain patient traits increase the likelihood of tanning addiction. Those with psychological conditions, such as BDD, OCD, or depression, are more prone to using tanning as a means of coping with perceived societal expectations around beauty. The connection between tanning addiction and mental health disorders is well-documented, with adolescents diagnosed with

OCD being 2.54 times more likely to meet the criteria for tanning addiction [15]. Additionally, adolescent marijuana use has been linked to a higher likelihood of tanning addiction, suggesting that these individuals may be using tanning to self-medicate or manage their mood [15]. This reinforces the importance of recognizing the overlap between mental health challenges and tanning behaviors.

Dermatologists should be alert to patients who repeatedly present with atypical nevi, sunburns, or skin infections linked to frequent tanning bed use, as these may indicate an individual at risk for tanning addiction [19]. The compulsive nature of tanning often results in high-frequency use, increasing exposure to unsanitary conditions and exacerbating skin issues like folliculitis or fungal infections. By recognizing these dermatological signs and behavioral patterns, dermatologists can identify at-risk patients, intervene proactively, and address both immediate skin concerns and the underlying compulsive behaviors driving tanning addiction.

3.2. Integrating Tanning Addiction Screening into Routine Dermatological Practice

The incorporation of addiction screening into dermatological practice is gaining significance as emerging evidence underscores the physiological basis of tanning dependence. Framing tanning as a potential addiction, rather than merely a behavioral choice, carries important implications for the approach dermatologists assume in patient screening.

Several validated screening instruments have been identified. The modified CAGE questionnaire (mCAGE) and modified DSM (mDSM) criteria are the most frequently studied tools [20]. The mCAGE is adapted from a widely-used alcohol screening tool and consists of four key questions that assess the following: the patients' desire to cut down, their propensity to get annoyed when asked about their tanning behaviors, their level of guilt, and early morning tanning urges. The mDSM is adapted from substance-related disorder criteria in the Diagnostic and Statistical Manual of Mental Disorders and evaluates seven domains of addiction-related behavior. To classify the screening as positive, three or more of the following must be present in the patient: tolerance (needing increased tanning time to achieve desired effects), withdrawal symptoms when unable to tan, tanning for more extended periods than intended, persistent desire or

unsuccessful efforts to control tanning, excessive time spent pursuing tanning, giving up other activities for tanning, and/or continued tanning in the presence of physical or psychological problems. Research has found significant rates of tanning addiction among college-age indoor tanners, with 31% meeting mCAGE criteria and 39% meeting mDSM criteria [11]. These findings demonstrate the widespread occurrence of tanning addiction, particularly in young adults, and underscore the necessity for routine screening and early detection in clinical practice.

The Structured Interview for Tanning Abuse and Dependence (SITAD) offers a more comprehensive assessment tool, demonstrating good test-retest reliability with 97% agreement for tanning dependence diagnosis [21]. The SITAD was adapted from the Structured Clinical Interview for DSM-IV Axis I Disorders. Items that specifically focused on opiate abuse and dependence were modified to reflect tanning behaviors.

The SITAD classifies pathological behaviors into two diagnostic patterns: tanning dependence and tanning abuse. Tanning dependence screening is similar to that of the mDSM, with three of the seven main domains discussed above being positive. The SITAD goes a step further and distinguishes dependence from abuse if the patient answers yes for one or more of the following: failure to fulfill major role obligations due to tanning, recurrent physically hazardous tanning, tanning-related legal problems and/or continued tanning despite persistent social/interpersonal issues. Studies using SITAD have found that approximately 5.4% of users meet the criteria for tanning dependence, with dependent tanners showing tanning frequency rates more than 10 times higher than non-dependent tanners [21]. The SITAD's comprehensive nature allows for more nuanced diagnoses, differentiating between dependence and abuse and providing a more accurate understanding of the severity of tanning addiction.

The SITAD is a structured interview with skip patterns and conditional logic, presented as a comprehensive assessment tool, while the mDSM is a shorter screening questionnaire designed for quick administration. Depending on clinical setting and time constraints, dermatologists may find the mDSM particularly useful for brief screenings, while the SITAD offers greater depth for more comprehensive

assessments. Both tools can be integrated into routine practice to ensure accurate identification of tanning addiction in dermatologic settings.

Given the apparent association between tanning addiction and psychiatric comorbidities, dermatologists must be proactive in screening for related mental health conditions in patients with problematic tanning behaviors. Studies have shown that individuals with tanning dependence have notably higher rates of anxiety, substance use, and psychiatric disorders such as BDD and OCD [11,22]. Specifically, research indicates that 42% of indoor tanners meeting addiction criteria report comorbid anxiety and substance use disorders, compared to just 17% of non-addicted tanners [11]. Given these findings, dermatologists should assess not only tanning frequency and patterns but also look for signs of anxiety, substance use, and other psychiatric conditions. Identifying these factors early can guide appropriate referrals for further mental health evaluation and treatment. A thorough screening process that accounts for both physical and psychological components ensures a more comprehensive care approach, improving outcomes and supporting broader efforts to reduce tanning addiction's risks.

These findings suggest the need for comprehensive screening that includes an assessment of:

1. Tanning frequency and patterns
2. Anxiety symptoms
3. Substance use behaviors
4. Other psychiatric comorbidities

Targeted screening tools like the mCAGE, mDSM, and SITAD enable dermatologists to identify tanning addiction in its early stages, facilitating timely intervention. When these tools are combined with a broader approach that addresses the behavior's physical and psychological aspects, dermatologists can offer more effective, personalized care. This approach not only mitigates the risks of skin damage and cancer but also helps curb the widespread health consequences of tanning addiction.

4. EARLY INTERVENTION AND COUNSELING

Identifying tanning addiction early is essential to reduce the long-term risks associated with excessive UV exposure, including melanoma, basal cell carcinoma, and squamous cell carcinoma. Studies have demonstrated that initiating tanning at a young age is associated with developing skin cancers later in life [23]. By

recognizing the signs of tanning addiction early, dermatologists can intervene before these behaviors lead to adverse health consequences. This proactive approach enables dermatologists to address both the physical damage caused by UV exposure and the psychological factors that contribute to the addiction. Early detection allows for timely guidance toward safer alternatives, education on sun protection, and support in changing harmful tanning habits. Intervening before the problem escalates can prevent severe skin conditions, reduce the risk of skin cancer, and promote healthier long-term behaviors. As skin health experts, dermatologists can take the lead in recognizing tanning addiction and offering personalized care that includes behavioral strategies such as CBT and motivational interviewing.

4.1. Strategies for Breaking the Tanning Addiction Cycle

Cognitive-behavioral therapy is a valuable intervention that can be used to improve tanning addiction by helping patients recognize and modify maladaptive thoughts and behaviors around tanning and body image. CBT is a form of psychological treatment that helps people identify negative thought patterns and replace them with healthier ones [24]. CBT aims to teach patients to "rewire" their thinking about tanning and their appearance. The therapy works by helping patients understand the connection between their thoughts, feelings, and behaviors and then developing practical strategies to change problematic patterns [24]. Studies have shown that CBT-based treatments can significantly reduce indoor tanning frequency by targeting appearance-focused motivations [25]. The therapy helps patients identify triggers for tanning urges, develop healthier coping mechanisms, and challenge unhealthy beliefs about the necessity of tanned skin for attractiveness [7]. Research has demonstrated that CBT techniques can help reduce tanning frequency by 35% when combined with appearance-focused interventions, rather than using CBT alone or focusing solely on health risks such as skin cancer [25]. The successful use of CBT for addressing tanning addiction heavily implies that there is an interplay of mental health disorders, body image concerns, and anxiety related to appearance in this compulsion [26]. Dermatologists could potentially help their patients with tanning addictions by offering to refer them to trained psychologists for CBT.

Motivational interviewing is another highly effective approach to help patients with a tanning addiction. Healthcare providers can use motivational interviewing to guide patients to find intrinsic motivation to discontinue their harmful behaviors rather than simply instructing them [27].

This technique works by helping patients explore and resolve their mixed feelings about making changes, allowing them to come to their conclusions about the need for change. Motivational interviewing is particularly effective because it acknowledges patients' conflicting feelings towards tanning while steering them toward healthier choices [28]. Research demonstrates that incorporating this approach into routine dermatology visits can significantly reduce tanning bed use [29]. Even brief 22-minute motivational interviewing sessions can dramatically reduce tanning behavior [30]. To conduct motivational interviewing, dermatologists should use open-ended questions to explore patient motivations for tanning and reflect on patient concerns. Next, they should identify discrepancies between tanning behavior and health goals, support patient autonomy in making changes, and establish achievable goals to reduce UV exposure.

Dermatologists are key in providing sun safety education and guiding patients toward safer alternatives for achieving cosmetic goals. Effective education should include guidance on proper application techniques, the importance of product safety, and clarification that sunless tanners do not offer UV protection [31]. Modern sunless tanning products, including professional spray tanning, lotions, mousses, and tinted moisturizers, offer natural-looking results without the risks associated with UV exposure [29]. Research shows that when dermatologists educate patients about these alternatives, UV tanning behaviors decrease by as much as 40% [32]. Clinical studies further support that switching to sunless tanning methods reduces UV exposure and better sun protection practices [33]. Patients who adopt sunless alternatives demonstrate improved long-term adherence to sun-safe behaviors and a reduced risk of skin cancer [34]. In addition to advocating for sunless tanning options, dermatologists must emphasize the importance of daily sunscreen use as a fundamental component of UV risk prevention. Broad-spectrum sunscreens with an SPF of 30 or higher are essential for shielding against UVA

and UVB rays [35]. Patients should be educated on proper application techniques, including using approximately one ounce of sunscreen for full-body coverage and reapplying every two hours or after swimming or sweating. Studies such as Green et al. demonstrate the significant impact of consistent sunscreen use, showing up to a 73% reduction in invasive melanoma risk among regular users [36]. In addition to sunscreen, dermatologists should encourage using UPF-rated clothing as a practical and stylish way to reduce UV exposure. Lightweight, long-sleeved shirts, wide-brimmed hats, and UV-blocking sunglasses provide practical barriers against harmful rays while offering aesthetic appeal. Behavioral adjustments, such as seeking shade during peak UV hours (10 a.m. to 4 p.m.) and using UV index apps to plan outdoor activities, reinforce sun-safe habits. These strategies can help dermatologists reshape how people view tanning and encourage healthier choices regarding their skin.

4.2. Shifting Patient Perceptions: Choice or Addiction?

The cultural fascination with tanned skin is deeply embedded in Western beauty standards, leading many individuals to perceive tanning as an aesthetic choice rather than recognizing the health risks associated with UV exposure. However, evidence reveals that tanning, particularly when frequent or initiated at a young age, significantly increases the risk of skin cancers such as melanoma, basal cell carcinoma, and squamous cell carcinoma [37]. Dermatologists should help shift patient perceptions of tanning as a potential addiction rather than a harmless cosmetic habit, helping patients recognize the risks and consider safer alternatives.

4.2.1. Reframing Tanning as a Health Risk

Dermatologists must utilize evidence-based approaches that challenge the misconceptions surrounding UV exposure to effectively reframe tanning behaviors. Research highlights the powerful impact of visual interventions. Data has found that when women viewed simulated UV damage to their skin through specialized imaging software, their attitudes toward tanning shifted dramatically [38]. Participants who viewed their projected skin damage reported higher intentions to adopt sun-protective behaviors and expressed increased awareness of their susceptibility to long-term UV harm compared to those who only received health-focused informational interventions.

Social media platforms complicate the tanning narrative by promoting it as glamorous and desirable. Consider Pinterest, a popular platform among young women, where over 85% of skin-tanning-related content promotes tanning as attractive and acceptable. Posts often featured non-celebrity models emphasizing aesthetic outcomes such as a "healthy glow" or slimmer appearance, garnering far more engagement than skin cancer prevention messages [39]. This overwhelming bias in favor of tanning highlights the need for dermatologists to counteract these messages by advocating for sun-safe behaviors and educating patients about the dangers of tanning addiction. Visual aids such as UV damage imaging and educational resources that illustrate the biological mechanisms of tanning can dismantle the myth of tanning as harmless. Highlighting the endogenous opioid response triggered by UV light exposure can help patients recognize the physiological drivers behind their tanning habits [40]. These strategies, alongside patient education, can help reshape patient attitudes and drive a shift toward healthier behaviors.

4.3. Promoting Sustainable Behavior Change

Promoting sustainable behavior change in tanning practices necessitates a holistic approach that addresses the psychological and sociocultural drivers of tanning while offering practical, health-conscious alternatives. Behavioral change is rooted in understanding and addressing the motivations behind tanning. Many individuals tan to meet societal beauty standards or achieve a particular aesthetic. Evidence suggests that interventions targeting excessive tanning behaviors, rather than just educational approaches, may be more effective in curbing this emerging addictive behavior. A review by Stapleton et al. emphasizes the need for treatments explicitly addressing tanning addiction, noting that interventions combining CBT and motivational interviewing offer a promising framework for mitigating excessive tanning tendencies [12]. Additionally, broader strategies, such as a social media campaign to shift attitudes toward indoor tanning, have successfully changed behavior. Buller et al. demonstrated that these campaigns could reduce maternal permissiveness toward adolescent tanning, increase self-efficacy in refusing tanning requests, and foster support for policies restricting indoor tanning among minors, illustrating the importance of multifaceted interventions [41]. Building on these findings,

individualized strategies that offer practical alternatives to UV tanning can further support long-term behavior change.

Providing patients with actionable alternatives is equally crucial for ensuring lasting change. Many individuals who tan are motivated by cosmetic goals, and offering safe substitutes can help them achieve their desired look without the risks associated with UV exposure. Self-tanning products, including lotions, sprays, and foams, have evolved significantly, offering natural-looking results comparable to traditional tanning [42]. Spray tans, in particular, provide an even and long-lasting option for patients seeking a professional touch. By recommending high-quality, dermatologist-approved products, clinicians can support patients in transitioning to UV-free alternatives while maintaining their aesthetic preferences.

Beyond cosmetic solutions, dermatologists are essential in emphasizing the importance of comprehensive sun protection routines. Dermatology-led initiatives can be instrumental in reshaping public perceptions of tanning and amplifying these efforts. Public health campaigns that leverage social media platforms offer a powerful platform for disseminating evidence-based messages to counteract the widespread pro-tanning narratives online [43]. Visual storytelling, such as testimonials from melanoma survivors or impactful educational infographics, can resonate deeply with younger audiences, underscoring the risks of tanning while advocating sun protection. Social media platforms like Pinterest and Instagram, where tanning-related content is pervasive, present opportunities to shift the conversation by promoting sun-safe behaviors and safe alternatives. A randomized controlled trial (RCT) targeting frequent tanners showed that body image-focused messaging and acceptance-based content significantly reduced tanning behaviors, with participants tanning 9.4 fewer times over eight months [44]. With high engagement rates, social media can also be utilized as a powerful and accessible tool for reaching individuals at high risk of tanning addiction. Specifically targeting adolescents with educational programs is crucial, as this age group often experiences a decline in sunscreen use while increasing their reliance on indoor tanning. A study of middle school students demonstrated the effectiveness of a single educational session that showed them UV-filtered images of their skin damage, resulting in 59% of students planning to use sunscreen within the next month, compared to

just 35% of those who did not see the images [33]. These findings reflect the power of personalized, appearance-based education in changing attitudes and encouraging protective behaviors. Dermatologists can incorporate similar strategies into school curricula and patient education, using experiential learning to emphasize the dangers of UV exposure. This comprehensive approach not only safeguards individual health but also contributes to broader public health efforts to reduce skin cancer rates and promote a culture of sun safety. By combining personalized care with community-based initiatives, dermatologists have the distinct privilege of transforming societal attitudes toward tanning and protect future generations from its harmful consequences.

5. FUTURE DIRECTIONS

A deeper understanding of the psychological underpinnings of tanning addiction is essential to developing effective interventions that address both behavioral and emotional drivers [22]. While existing research has established links between compulsive tanning and conditions such as body dysmorphic disorder, anxiety, and substance use, further studies should explore the nuanced ways these factors interact and contribute to tanning dependence. Although psychological interventions like CBT and motivational interviewing have been well-supported by the literature, investigating their efficacy in dermatologic settings could provide valuable insights into how these approaches influence patient behavior [45].

Additionally, examining how dermatologists can best integrate these techniques into patient interactions, either through direct counseling or structured referrals, would help optimize care. Longitudinal research tracking patients who undergo these interventions could offer critical data on the sustainability of behavior change and inform best practices for reducing UV-seeking behaviors over time. Given the prevalence of tanning addiction in younger populations, studies should also assess early intervention strategies targeting adolescents, particularly in school-based or social media-driven prevention programs.

Efforts to enhance clinical screening for tanning addiction must prioritize the development of standardized, validated tools that dermatologists can efficiently implement during routine consultations. Current instruments such as the modified CAGE (mCAGE) and Structured Interview for Tanning Abuse and Dependence

(SITAD) provide valuable frameworks. Nevertheless, their integration into clinical workflows remains limited [20]. Creating brief, targeted screening measures tailored to dermatology practice could streamline the early identification of at-risk patients, enabling more timely interventions. Additionally, research should assess how incorporating these screening tools into electronic health records (EHRs) can facilitate broader adoption and improve clinical outcomes. Beyond individual patient screenings, studies are needed to evaluate systemic approaches, such as incorporating tanning addiction assessments into national skin cancer prevention guidelines or dermatologic residency training programs. Increasing awareness among healthcare providers about the addictive nature of tanning could foster a more proactive approach to early identification and intervention.

Technology and public health initiatives offer promising avenues for addressing tanning addiction at both individual and population levels. Mobile health applications that track UV exposure, provide real-time sun protection reminders, or offer personalized behavioral coaching could help patients modify their tanning habits. Also, public health campaigns should focus on dismantling the cultural perception that equates tanned skin with beauty and desirability [33]. Collaborations between dermatologists, mental health professionals, and media organizations could drive evidence-based messaging through social media, influencer partnerships, and school-based educational programs to challenge pro-tanning narratives. Additionally, examining the impact of policy measures, such as stricter regulations on indoor tanning bed access for minors or enhanced warning labels, could provide further insights into structural interventions that effectively reduce tanning behaviors. By leveraging research, clinical advancements, and public health strategies, future efforts can work toward minimizing the prevalence of tanning addiction and its associated health risks.

6. CONCLUSION

Tanning addiction presents a complex public health challenge, intertwining dermatological, psychological, and societal factors that drive compulsive UV exposure despite well-documented risks. Dermatologists play a critical role in identifying and addressing this issue, leveraging their expertise to diagnose skin damage, educate patients, and implement evidence-based interventions. Beyond treating

the physical consequences of excessive tanning, dermatologists must integrate psychological support through counseling strategies like cognitive-behavioral therapy, motivational interviewing, and referrals to mental health professionals when necessary. Developing standardized screening tools and incorporating them into routine dermatologic practice can improve early identification of at-risk patients while promoting safer alternatives, such as self-tanning products, providing a practical solution for those motivated by aesthetic concerns. Furthermore, digital health innovations, public awareness campaigns, and collaborative efforts with policymakers and media platforms can help shift the cultural perception of tanning from a personal choice to an addiction with serious health consequences. A comprehensive, multidisciplinary approach is essential to breaking the tanning addiction cycle, reducing skin cancer incidence, and fostering sustainable sun-safe behaviors. By addressing both the psychological and dermatological dimensions of tanning addiction, dermatologists can significantly contribute to mitigating this growing health concern while empowering patients to make informed, long-term changes that prioritize their well-being.

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