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The Impact of Social Media on Skin Care: A Narrative Review

Introduction. Social media is a network that allows information to be shared globally with millions of users. It is a platform that is primarily used for entertainment but lately, the trend has shifted to using social media as an educational platform. Facebook, Twitter, Instagram, Snapchat, and Tiktok are a few of the most commonly used social media platforms. It is not just a tool for consumers to shop but it is also a platform used by beauty influencers and healthcare professionals, including dermatologists, to educate these consumers to buy and use the right products and to provide advice regarding the right aesthetic procedures [4, 7]. It is becoming evident that social media plays quite a prominent role these days on skincare. Social media surely has come to benefit millions of its users around the globe but the downside of social media is that it has the potential to put the user at risk while they follow popular trends. Following skincare trends without the knowledge of its impact on an individual's own skin might be problematic. Skincare and beauty influencers highly influence audiences' choice of purchase of a product [18]. Fortunately, many consumers have benefitted from following the advice of skincare and beauty influencers and skincare trends. During the lockdown in 2020, there has been an increased use of social media among women that have changed their skincare habits [42]. The use of social media on skincare routines will continue to persist perhaps for the next two decades; its impact on one's choice and one's skin needs is still yet to be learned in this changing world. Therefore, with this research we seek to help dermatologists and pharmaceutical professionals to get a better insight on the impact of social media on skin and skincare during the treatment of their patients.

The aim of the study. To review and summarize the current literature on the impact of social media on skincare.

Materials and methods. The content analysis, method of comparative analysis, bibliosemantic method of studying the literature concerning social media and its impact on social media, were conducted. The data was searched on databases such as Google Scholar, research4life, Sciendirect,

pubmed, scopus and advanced search filters were applied. Specific keywords such as "skincare", "esthetic procedures", "dermatologist", "purchase", "COVID-19", "Instagram", "Facebook", "Twitter", "Reddit", "YouTube" were used. The references in each article chosen were again analyzed to select any study highlighting the topic. Upon the completion of the search, each article selected was then thoroughly analyzed to ensure its relevance to the topic. In total 50 English language sources were analyzed.

Results and discussion. 1.1. Popular Social Media Platforms and Their Impact on Modern Day Skincare: physical appearance is an integral aspect of one's personal identity; and its relation to an individual's self-perception begins early in life [47]. In light of this fact, it is only natural that people search for inspiration and solutions concerning their appearance on the most influential tool in this day and age – social media. According to the Pew Research Center, in 2020, the most popular social media platform was YouTube (81.0 %), followed by Facebook (69.0 %), Instagram (40.0 %), Pinterest (31.0 %), LinkedIn (28.0 %), Snapchat (25.0 %), Twitter (23.0 %), TikTok (21.0 %), and Reddit (18.0 %). Social media is quickly becoming the foremost tool for gathering and sharing information, social and professional networking, and communication regarding health topics [23]. Due to this unprecedented level of interconnectivity and global networking of social media, subsequent changes are evident in how physicians and patients approach health care.

In a study conducted among patients at Derma Clinic in Riyadh, Saudi Arabia, it was found that the number of participants who knew about their dermatologists from social media (Twitter, Instagram, Snapchat, Facebook, and Telegram) was 9.7 times higher than those who knew them from traditional sources (newspaper, radio, and TV) [2]. Another study conducted among Indonesian men found that consumers considered skincare brand advertisements that they have seen on social media more trustworthy [40]. This makes the influence of social media on an individual's skincare choices evident. As members of online forums frequently consult social media for dermatologic

information, advice posts may become more influential in the decision-making style of dermatologic patients. Multiple pieces of advice were systematically analyzed in a study investigating the 300 most upvoted posts in the subreddit r/SkincareAddiction. While the general advice was within an atmosphere of mutual learning, other advice varied widely from hygienic techniques like washing one's pillow cases frequently, to breaking habits for instance by stopping unnecessary touching of the face. However, advice that was given related to skincare routines directly linked a disciplined routine with stability and organization [37].

A recent study found that quality and efficacious skincare regimen can have a positive impact on people's quality of life [49]. This might explain the increasing popularity of skin care routines among social media users. Irrespective of the nature of the skincare routine, simply having a skincare regimen practiced on a regular basis was a regulatory factor for most posters. Posts coded under 'sun' discussed the utility of sunscreen and the dangers of uninterrupted sunlight posts coded under 'acne', however, pictures showing the before and after-effects of a particular routine tend to be more impactful. For some posters, acne was associated with depression, reflecting the extensive literature associating acne with depression in dermatology patients. Posts on scarring were also frequently connected to acne, such as a request for advice on removing acne scars or a successful acne scar treatment [37].

As reiterated multiple times, social media has an overwhelming influence over an individual's dermatologic choices. This is all the more evident in a recent case report describing a Chinese woman's worsening condition following forehead injections she received from a doctor she located via WeChat – a popular social networking site in the region [44]. A study analyzing the dermatologists on social media found that TikTok posts contained 70.0 % educational content compared with YouTube's 90.0 %, Instagram's 50.0 %, and Twitter's 43.0 % [35]. Given the tremendous influence of digital communication, physicians have an opportunity to actively participate in and drive these conversations and share health-related knowledge for patient education and engagement [44]. Dermatology related journals and professional organizations have the opportunity to utilize the extraordinary potential these sites offer. However, the online presence of dermatologists is still not prominent, this is remarkably obvious in a study observing dermatology on Snapchat. The results found that no dermatological journal, professional dermatological organization, or dermatology-related patient advocate group had a Snapchat account [33]. Another study conducted to analyze dermatology on Instagram showed that the dermatology user presence on Instagram is controlled by private offices, cosmetic products, and some patient advocacy groups, the top ten dermatology journals on Facebook and Twitter were particularly lacking a presence on Instagram. Even so, the few dermatologists who have a notable social media presence are largely influential. As per the results of the study conducted among patients at Derma Clinic mentioned previously, those

who used social media to choose and follow their doctors favored Twitter. Of the social media users analyzed, patients who visited dermatology clinics for medical reasons preferred Twitter while those that visited for cosmetic purposes preferred Instagram to follow their doctors; which is understandable given that Instagram enables its users to showcase their looks, thus influencing others to also try aesthetic dermatology, a visual field [2]. With continued technological evolution, organizations that fail to recognize the prospects provided by social networking sites risk becoming marginalized by their inability to assimilate to social media as an expected form of communication. As social networking sites persistently attract more active users in search of health-related information, those capable of using this tool efficiently stand to benefit significantly.

1.2. Social media Influencers and Skincare: The future of advertising is social media and with the appearance of advertisement through social media, influential users arose, thus creating a new phenomenon called 'influencers' [1]. More than 40.0 % of the health care consumers in the present day use social media for their health care information requirements [2]. Anyone can be a social media influencer, and there exists no credentialing verification. Social media presence and influence is becoming markedly important for dermatologists and aestheticians to make their practice known among the users. A recent survey by the American Society for Dermatologic Surgery noted that social media ranked in the top three for factors to consider when purchasing skin care products and sixth for whether to have a cosmetic treatment. Additionally, 41.0 % of patients follow their current or potential provider on Instagram, and 43.0 % of consumer decisions to schedule an appointment were due to the provider's social media presence [4].

Influencers had clear importance on women's health, beauty and even skincare, by making use of low fear appeal and high value messages. Social media influencers who promote cosmetic brands interact with followers most effectively when they possess traits such as knowledge, reliability, confidence, and articulation, which are all essential features for building trust with followers. Confidence is a key quality of influencers, altering their perception by their followers and making them appear significantly more authentic and trustworthy. Influencers who can establish a strong connection with their followers and have high reliability are recognized as authentic. Followers can directly interact with the influencers through social media, thus making their experiences more relatable and improving the followers' trust. Consistent content, upholding the expected values, good communication skills, impressive attitude and behavior of the influencers are perceived as trustworthy, authentic, and honest by their followers. In addition, influencers who provide information based on their real expertise or knowledge are considered to be more trustworthy. Information is perceived as valuable if it provides consumers with the understanding required to familiarize themselves with a product to effectively evaluate its quality and performance, the perception of

helpfulness ultimately alters the trustworthiness of the influencer.

A significant proportion of patients use the Internet and social media to search for medical information. This has a positive influence on the patient's skin diseases as well as their relationships with their doctors. Many cosmetic physicians have accounts on a number of social media services, and patients are heavily convinced by the content they view. There remains significant ethical ambiguity when posting as a physician. Major pitfalls to avoid include posting photos or videos without patient permission, discussing controversial topics or dangerous techniques, and posting unprofessional behavior. A recent study showed that unprofessional content by the clinician can significantly affect a patient's confidence in their clinical abilities [4].

Even though the highest preferred way of knowing a doctor for a medical or cosmetic purpose was mostly influenced by a friend, it was also influenced by a family member and lastly by social media. Among social media users, patients who visited dermatology clinics for medical reasons, preferred Twitter, while those who came for cosmetic reasons preferred Instagram to follow their doctors, underlining the importance of aesthetic dermatology as a visual field [2]. Most of the top hashtags and trends on Instagram pertaining to dermatology-related posts were from individuals without any formal dermatology training [4], hence it is important for a user to be able to differentiate between the content posted by a trained dermatologist from that by a person with no background knowledge in the field. Board-certified dermatologists produce a minor fraction of popular dermatology content shared by influencers on Instagram. Out of all the dermatology-related content on Instagram, 5.0 % was created by licensed dermatologists, regardless of their follower count or post engagement [6]. Unlike Instagram and Twitter, where content is primarily shared with followers, social media platforms such as TikTok, have an algorithm that creates a video feed of similar content to users' recent viewings regardless of followers and this algorithm eases the promotion of dermatologists' videos among skincare videos [35]. The available literature on how social media influences medical practice is still scarce and further research is needed.

1.3. Influence of Social Media on Acne Treatment: Acne is a chronic inflammatory skin condition that is prevalent in nearly all adolescents that primarily affects the face, chest, and back. Several large studies support this by reporting a prevalence of adolescent acne ranging from 81 to 95 percent in young men and 79.0 to 82.0 % in young women [43]. Social media websites are increasingly referenced for acne treatment consultation especially among adolescents. It is well-documented that social media influences patient perspectives on medical treatment.

Skin diseases can have a significant impact on an adolescent's body image, self-esteem, and social interactions. Social media has a paradoxical effect on one hand accounting for improved access to healthcare and support while on the other demonstrating a negative impact due to peer pressure and beauty standards. Acne is one of the

eight dermatological diseases with the most frequently viewed hashtags on social media [21]. We, therefore, thought it imperative to review how acne treatment specifically is influenced by social media.

Most studies analyzing social media influence on acne treatment were in the form of cross-sectional surveys. The demographic majorly accessing social media-influenced acne treatment included adolescent women with mild to moderate levels of acne and those with a moderate family income level. Preferred social media sites varied in different studies but the most frequently listed sites were Instagram, Youtube, Twitter, and Google. Social media for acne treatment is found to be easy and accessible. It provides affordable alternatives to treatment options that show considerable improvement in mild acne conditions. Another study indicates that it is comforting for patients to encounter others with similar health problems and see how they cope with them, this is further supported by 14.2 % of patients clearly stating that seeing other patients with acne vulgaris on health programs on television was a relief [21]. However, it must be noted that most treatment decisions based on social media recommendations do not align with American Academy of Dermatology guidelines. Participants most commonly chose dietary modification for acne management followed by oral supplements based on social media recommendations, these supplements included probiotics, vitamins, and oils. Currently, there is insufficient evidence to support the use of antioxidants, probiotics, or fish oil for acne treatment. Treatment approaches most opted for were topical treatments followed by home remedies. Interestingly, dissatisfaction was more prevalent among users of oral antibiotics compared to users of topical antibiotics, and negative tone among this group was most commonly due to lack of improvement in skin appearance [38].

In yet another study [5] confirms that viewers seeking video-based educational content on acne are exposed to significantly inaccurate and low-quality information. For example, some recommended methods of acne treatment on YouTube included highly restrictive diets or the addition of high-dose supplements, which currently lack a scientific basis. Another interesting observation was a notable increase in the sales of dermatologic pharmaceuticals (eg, isotretinoin) without a prescription as a problem that is rapidly growing [46]. Illicit pharmacy-to-patient posts are what most commonly encourage patients to purchase prescription medications without physician oversight [46].

Most respondents who used social media for acne treatment advice were more likely to consult a medical professional. Even if they had the opportunity to send their photographs to doctors and ask questions about their disease, participants stated that they would not trust doctors' responses to their online inquiries, and a large proportion of them would still visit a physician for an examination [21].

Patients have high expectations of doctors and hope that they would be willing to address their questions re-

garding their illness at all times. They are aware that erroneous information can be found on the Internet and social media, and they expect dermatologists and dermatology organizations to be more active in spreading accurate information via the Internet and social media in order to avoid being misled.

Non-medical personnel-generated social media education demonstrates that the patient is not only a passive receiver of knowledge, but also an active provider of treatment solutions. This may impact a patient's decision to purchase things without contacting a dermatologist, thus increasing the risk of perpetuating false information on social media.

1.4. Social media's Impact on Adolescent Skin Care: Skin illnesses are known to have a significant impact on adolescent body image, self-esteem, and social relationships. Acne Vulgaris is one of the most frequent adolescent skin diseases. It is known that more than 70.0 % of adolescents use social media, with Instagram, Facebook, YouTube, Pinterest and TikTok being the most commonly used platforms. The impact social media has left among adolescents is quite prominent given that it is their most common mode of communication. Although they are considered the most body and image-conscious individuals, they have successfully transformed the entertainment-centered social media into an educational platform over the last few years; including the introduction of the body positivity movement. They have learnt to use social media as a stage to support each other and accept their changing bodies in a positive manner [8]. The issue with adolescents is that their minds can be easily influenced, and that's exactly where social media can play a massive role. From what we know, social media is accessible to a large number of young people, and social media marketing is highly known to target specific audiences [14]. Marketing of skincare trends introduced by beauty gurus, influencers, aesthetic centers and social media challenges, when followed by these adolescents without overseeing its outcomes, can be negatively impactful and dangerous to them. More than 40.0% of adolescents have used social media for acne treatments; however, most of the treatments suggested through social media were not fully aligned with American Academy of Dermatology clinical guidelines. Less than 10.0 % of social media users saw significant improvement in their acne and it is also noteworthy that when social media suggested treatments did not work, some users have consulted their dermatologist to sort out their problems. Many social media users often do not know that every individual's skin care needs are different and that treatments and routines suggested on social media might not work for them. Some of the most misinformed skincare trends followed by teenagers are consuming skin supplements, making dietary changes, and carrying out DIY skincare treatments. Dermatologists and medical aestheticians should make use of platforms like social media to directly address the misinformation propagated, also dermatological organizations in collaboration with social media organizations should take an active role in removing inaccurate information from social media.

1.5. Social media's impact on plastic surgery/skin procedures. The influence of appearance, exerted by social media may lead people who are more invested in their appearance to engage in appearance-changing strategies such as cosmetic surgery. A recent survey by the American Society for Dermatologic Surgery noted that social media ranked within the top three for factors to look upon when purchasing skincare products and sixth for whether to get a cosmetic treatment done. Additionally, 41.0 % of patients follow their current or potential provider on Instagram, and 43.0 % of consumer decisions to schedule an appointment were due to the provider's social media presence [4].

Cosmetic surgery has become an increasingly sought after means of improving one's appearance, with around 30,000 procedures being carried out within the year 2016. The Cosmetic industry is one that is heavily influenced by 'popular culture' and social media [47]. The information provided on social media can be a determining factor for patients deciding to undergo a cosmetic procedure. The most requested procedures as a result of social media influence were rhinoplasty, Botox and facelifts, suggesting that people are influenced to undergo cosmetic procedures. Unfortunately, the majority of the treatment decisions promoted on social media do not align with the American Academy of Dermatology guidelines, social media users were also observed incorporating life-style changes not supported by the published guidelines, like dietary changes and supplement use.

The preferred way of finding a recommended doctor for medical or cosmetic purposes was through a friend, followed by a family member and finally via social media, with patients visiting dermatology clinics for medical reasons favouring Twitter, while those who came for cosmetic reasons favouring Instagram to follow their doctors, establishing the importance of aesthetic dermatology as a visual field [2]. The internet and social media play a pivotal role in plastic surgery, resulting in more informed patients but creating far-fetched expectations. using facial filters such as those found on Instagram and Snapchat has led to a growing increase in the number of aesthetic procedures performed highlighting the impact of filters in creating far-fetched expectations [1] Even if the internet provides adequate information about the procedure, and answer questions like what to expect after the procedure, the drawbacks of the procedure and so on, it cannot replace the face-to-face consultation, which always should remain an intricate process, covering both risks and limitations of alternative procedures [25]. There is abundant misinformation on social media, especially concerning aesthetic procedures, which can leave patients vulnerable to potential harm [4]. Results highlighted that looking at images of females who have undergone cosmetic enhancements affected young women's desire for cosmetic surgery, especially if they spent a significant amount of time on social media, followed many accounts, and were less satisfied with their appearance and are more likely to undergo the cosmetic procedure [47]. In line with the increasing trend in social media use, there is also

an increasing number of young people having cosmetic procedures, reportedly going up from 17.2 % in 2014 to 18.2 % in 2017. In addition, celebrities also play an influential role in imparting medical decisions to the general population [45].

1.6. Influence of social media on purchase of Cosmetic and Skin Care Products: With the advent of social media in the early 2000s, its rapid evolution has made it one of the most effective and important aspects of communication, with its significance being prevalent in our lives. There is no denying that social media has become a powerful tool for communication for business owners and brands, allowing them to share their content with a creative methodical approach, whether as photos or videos which gathers the interest of millions.

Magnified accessibility to social media allows an increasing number of brands and business owners to stay in touch and interact with consumers. Social Networking Sites are the most common channel used currently for dynamic communication between brands, businesses and customers due to ease of use. 73.0 % of brands believe that social media marketing has been "somewhat effective" or "very effective" for their business [24]. Marketers use multiple creative tools for communication and product advertisements that appeal to the customer. Using hashtags, livestream and frequent posting ensures consumer attention and assists in choices when picking out the right product.

Marketers use social media to build a relationship with consumers, as the consumers interact and make certain requests to the brand, building a strong emotional bond. In a study emotional bonds between consumers and a brand strengthen loyalty, creating advocacy and ultimately leading to brand loyalty, and research on brand loyalty has shown that customers' loyalty has a proportional relationship with companies' profitability. This dynamic emotional connection ultimately impacts choices upon purchasing a product and affects consumer decision making, as consumers always prefer to make safe risk-free decisions which are shaped as a result of a positive brand image. Social media and advertising also have multiple challenges that come in hand. While brands are able to deliver messages through digital platforms, they may only have limited control over the communications within networks, and cannot govern the spread of information [48]. Studying consumer behavior is crucial for marketers to understand the past and predict the future behavior of consumers.

The cosmetic industry is one of the largest industries and extremely valuable, offering personalized care for individuals encompassing a range of ages, ethnicity and even catering to all genders. Cosmetic demand has been surging in today's world, the global skin care market projected to increase from \$130 billion in 2020 to over \$177 billion by 2025, the need to enhance and maintain beauty and youth is at an all-time high, In a 2021 survey among American shoppers, 41.0 % of shoppers aged 18-24 spent the most on skin care [39].

Skin care market encompasses many different products such as face cleansers, toners & moisturizers, face masks,

skincare gadgets such as skin rollers. Full body care, hair removal, shower gels, SPF sun protection products offering several additional benefits such as UV protection and anti-aging treatments are deemed important by health-care professionals and dermatologists- one of the examples being the usage of sunscreens. Many consumers are now interred in purchasing eco-friendly and organic skin products. 96.0 % of beauty brands promote or market their products using social media and social media influencers [10] and have a large following by their consumers who actively enjoy and interact with this content, building more trust with the consumers ultimately leading to brand loyalty. Social media impacts consumer choices when it comes to making decisions related to purchasing a certain skincare product.

A study [12] was conducted, focusing on South African women aged 18-34 using the Attention, Interest, Desire, Action (AIDA) model. AIDA model is an advertising effect model identifying the various stages one goes through during the purchase of the product. The study was aimed at modifying this model to examine the impact of YouTube, Instagram and Facebook advertisements on cosmetics interest, purchase intention and willingness to pass-along information. About 259 users were surveyed and results revealed that Instagram and YouTube advertising increase cosmetic interest. Similar results were observed in the study conducted on Indonesian Men aged 19-39 [40], using non-probability sampling techniques with convenience sampling method making the use of surveys and questionnaires to observe the cosmetic product purchase intention in the target group. The results were analyzed using the Partial least squares structural equation modeling Technique. Results showed that social media marketing had a significant impact on brand image and brand trust, with brand image and brand trust 56.1 % showed purchase intention, 53.6 % showed social media marketing explained the brand image, and 65.4 % of the social media marketing explained the brand trust as well. There was a significant positive correlation between social media marketing of skin care products and cosmetic interest. This phenomenon is also highlighted in the purchase of eco-friendly skin care products, a study [34] was conducted on females in Romania and Hungary, and had no specific age restrictions. The study applied the Theory of Planned Behavior, a psychological theory linking beliefs to behavior, to study the impact of social media on consumers' purchase intention and motivation towards green cosmetics. The study used a self-administered questionnaire and the reliability and validity of the results were tested using the Partial least squares regression technique. The results elucidated social media has an important role in consumer motivation formation and green cosmetic purchasing intentions. Interestingly, in another study, it was found that social media had an indirect influence on the subjects who were indirectly influenced by third party influences such as children and grandchildren. The participants strongly expressed that they are not influenced by social media and are independent in their decision-making, showing a lack of trust of

social media influence [27]. These studies highlight and prove that social media has a direct and indirect influence on cosmetic products, and even eco-friendly skincare products, and purchase intention of these. The findings of these studies can be extremely useful for marketers based on the demographic of their target skincare product.

Social media provides a large amount of information that can be used for consumer decision making, with a growing amount of content available on Social Media, there is also a lot of unethical false advertisements that can influence the consumer to make wrong decisions in purchasing the right skincare product for them. It is critical to understand that social media advertising of brands and skincare products is an extremely unregulated area and extremely necessary for the consumer to critically analyze each product before making a purchase decision.

1.7. Impact of Social Media on Skin Cancer Prevention: Multiple studies portray social media as an underutilized resource for skin cancer prevention. There is a noticeable scarcity of information about the benefits and drawbacks of social media in the prevention of skin cancer. Squamous cell carcinoma, basal cell carcinoma, and melanoma are the most commonly diagnosed cancers worldwide. Given the increasing number of social media users and its influence, measures must be taken to make social media an asset in skin cancer prevention. Tanning beds are found to be a major cause of skin cancer, the rise in popularity of indoor tanning, particularly among young people, is concerning. Social media use has been linked to more pro-tanning beliefs and indoor tanning among young women, according to studies. TV and media are known to frequently glamorize a tanned appearance and this is associated with more positive attitudes towards tanning with the belief that tan women are more attractive this results in increased use of indoor and outdoor tanning among college-going women. The daily usage of Instagram is linked to an increase in the trend of intentional tanning and feeling more beautiful when tanned. Similarly, regular Instagram and Twitter use is linked to greater rates of indoor tanning [14].

In yet another study [29] conducted to study public engagement to skin cancer on social media via a 27-year-old Kentucky native termed as Tawny Willoughby (TW), shared a graphic selfie of her skin cancer treatment on Facebook. She stated in it that "this is what skin cancer therapy can look like," and recommended people to avoid tanning beds and sun exposure. She also mentioned that she had tanned 4-5 times per week when she was younger and was first diagnosed with skin cancer at the age of 21.

TW's skin cancer selfie appeared to have engaged the public in ways only previously seen with celebrity disclosure. Over the TW effect period (May 13-18), there were between 197,000 and 229,000 searches for the term "skin cancer" alone. Another study [14] suggests using messages on social media as prevention messages are more effective when they are image-based.

Skin cancer prevention and awareness are influenced by different social media sites [9], TikTok with over 689

million monthly active users is known for video content consisting of challenges, choreography, sketches, etc. However, certain challenges encourage risky behavior. For example, the "#tanningchallenge", "#tanningbedchallenge" both encourage the posting of videos from within a tanning bed and "#sunburnchallenge" collates videos of dramatically sunburned participants. These challenges result in increasing trends of tanning bed use and unnecessary excessive UV ray exposure. Traditional public health surveillance does not capture tanning beliefs, behaviors, or injuries, therefore Twitter data provides a unique window into them. People use Twitter to speak about their sun-related and skin cancer experiences, as well as to give advice and information. People use Twitter more frequently to talk about sunscreen and skin cancer in general, but less frequently to talk about other sun-protective practices or skin cancer prevention efforts. People use Twitter more frequently to talk about sunscreen and skin cancer in general, but less frequently to talk about other sun-protective practices or skin cancer prevention efforts. On Instagram, the most widely used hashtags related to medical and procedural dermatology were "sun damage", "melanoma" and "skin cancer", numbers of which were up to 261,000, 237,000, and 233,000, respectively as of March 2021 [9].

The majority of Instagram posts are targeting skin cancer prevention. The majority of the posts on this site are photos of people who have significant sun damage or who have undergone surgery, with a caption that tells their story and advises people to use sunscreen and avoid tanning. Facebook too has shown tremendous potential in skin cancer awareness. A study of skin cancer prevention messages posted on Facebook by 24 popular skin cancer organizations over the course of a year found that the majority of posts were risk-oriented, with many utilizing fear as the primary motivator. This is in line with studies that suggest negative consequences messages are more effective than positive outcomes messages in a variety of skin cancer prevention and risk behaviors. Skin cancer awareness on Facebook pages has a lot of promise. The Skin Cancer Foundation and the Melanoma Research Alliance, for example, have over 65,082 and 59,991 followers, respectively. These studies repeatedly demonstrate how social media can be used as an effective tool to raise awareness of skin cancer while also combating misinformative messages.

It is very interesting to note that a minority of patients will present to a melanoma screening clinic after being influenced by social media [17]. It shows social media is not currently a major conscious driver to attend a melanoma screening; self-examination of a suspicious lesion or influence of relatives or friends remain the predominant motivators, as demonstrated in previous research.

1.8. Patient Awareness and Accessibility to Skin Care on Social Media: The internet and social media have completely revolutionized communication, making it highly dynamic unbound by time or geography, ultimately resulting in increased accessibility to social media and a large amount of information and content available on

these platforms. There is increased use of social media in health and medical related searches, with a large percentage of internet users choosing to access medical topics online. The traditional patient-physician relationship is being changed, as patients now have a plethora of medical information at their disposal, easily accessible by searching on the internet and social media thereby shifting the knowledge from professionals to normal people. In the past, the disparity of knowledge placed physicians as the sole patient educators, now with increased patient access to information they can make informed decisions related to medical problems and are actively involved in health-related decision making.

Social media users visit various health-related forums on Instagram, Facebook, Reddit and many other forums to seek information and research about certain medical problems, a surgical procedure, get tips from other caregivers and even receive emotional support. This has resulted in the formation of a strong community of users who are involved in the gathering and spread of medical information. Social media has an enormous potential in healthcare, consumer education and dissemination of evidence-based information on the prevention of diseases, these developments have also affected dermatology and skin-care related information, with the most frequent skincare concerns being searched and discussed on social media platforms being acne, blackheads, eyebags, skin redness, dry skin and the various ways to counteract them [11].

Eight in ten dermatology patients have researched on the internet for medical information before consulting their dermatologist, with the most accessed websites being Google, Facebook and YouTube. The most common motivation is to have a better understanding of a disease, while the others are to self-diagnose and research alternative therapy [15]. Interestingly, in a different study conducted in Vietnam, it was concluded that social media use is high among dermatology patients, but there was only a moderate utilization of social media as a source of dermatology-related information [28].

A popular reddit community r/Skincare Addiction, consisting of over 1.2 million members, cross-posting from multiple different social media platforms such as Instagram, YouTube, Tumblr and serves as a support and discussion platform for millions dealing with skin care related challenges. The forum primarily focused on general skin health and a wide range of cosmetic advice. The major intent of this forum was to improve mental health, promote well-being and some posts even recommend a dermatologic intervention such as recommending a consultation and giving advice given by their dermatologist [37]. This community on Reddit is an example of one of the thousands of tight-knit communities that exist on social media platforms, providing a form of support group for various skin-related grievances and discussions.

Public engagement with dermatologic content was the highest for educational posts followed by interactive posts, news articles and academic articles [22]. This indicates that content with an informative purpose is greatly pre-

ferred among Facebook users. In contrast to this finding, upon analysis of the posts by popular skin cancer groups, it was found that the majority of the posts were focused on risks, using fear as a persuasive strategy [30]. There exist a large number of unmoderated discussions on Facebook, which include respondents perpetuating negative claims such as about addiction due to steroids, toxic effects of steroids and even accusing physicians of withholding valuable information [41].

In yet another study, [36] the quality of content of the most popular results of the term "psoriasis" on YouTube was reviewed and the analysis revealed that majority of the videos were described as patient perspectives, while rest were classified as medically useful and others were medically misleading, the videos classifying as useful having less user engagement compared to the rest. It's also important to keep a skeptical eye as two of the top 15 videos that resulted from a common search term had dubious medical advice on YouTube [19].

Social media is a powerful tool for users to gather information and content about skincare and dermatological issues, a platform where users form tight knit communities where they connect, share information and even provide emotional support. At the same time, it is also important to remember that medical information available can also be misleading in multiple ways. These platforms contain huge numbers of users posting information which is largely unregulated allowing access to various misleading, dubious and incorrect advice, incorrect opinions that will wrongfully garner large engagement and ultimately cause more harm than good. Medical information on social media can potentially omit critical information, and is never a replacement for a professional dermatologist who makes accurate diagnosis on the basis of a total-body skin exam and patient history. Social media can merely provide users with information and content, and never a personalized patient-based care.

1.9. Impact of Social Media on Skin Care during the COVID-19 Pandemic: The COVID-19 pandemic, with millions of people affected and an enormous death toll, has affected every facet of existence in today's world and drastically changed everyone's lives. Lockdowns and social distancing, although an integral part of putting an end to this pandemic has negatively affected the economy, causing unemployment to be at an all-time high and negatively impacting businesses and the industries. The beauty industry although not as negatively impacted compared to the other industries [16] has also faced its own set of obstacles and as a result there is now a rapid shift to the digital world and marketing.

Due to ongoing lockdowns, people are stuck indoors and have a lot more free time compared to pre-pandemic times. This has caused a shift in the beauty priorities from applying a full face of makeup to spending more time caring for their skin and adapting new skin care routines. In a study conducted in Poland on women, it was found that 58.0 % of the respondents said they devoted more time for daily skincare habits compared to pre-pandemic, and among the respondents who spend more time on skin

care, 63.8 % admit to not having the time to do so before the pandemic [42]. The use of clean products has increased and the purchase rate of hand sanitizer, shower body gel, and hair conditioner were high while the purchase of basic and color products were significantly reduced compared to the cleaning products [26].

Social media, even in the pre-covid era had seen an exponential rise in the number of users, who used these social networking sites to connect, share ideas and form online communities and the recent lockdowns have further highlighted the importance of these platforms. As described in previous sections, social media is one the most effective means used by brands and business owners, for advertising products and staying in touch with their consumers. These strategies ultimately build consumer trust leading to brand loyalty. The COVID-19 crisis is accelerating the trends that were already shaping the market and the industries, such as the use of e-commerce sites.

Lockdowns, social distancing mandates and precautionary protocols being followed in shopping centers and malls, have caused more and more people to now opt for online shopping [20]. COVID-19 has caused a tremendous impact on the economy and the implementation of e-shopping has made shopping no longer limited by time and space [50]. With people now at home spending hours on social media and shopping on e-commerce sites, brands are using this to their advantage and actively advertising their content, connecting with a large number of consumers and building a huge following. Before the pandemic, consumers resorted to purchasing skin care products and cosmetics in store, and made choices by touching and smelling the product, and during the pandemic people now resort to purchasing products online by seeing social media advertisements, reviews from influencers and micro-celebrities and from other people who have used the product.

Increased use of smartphone to use the internet and social media for multiple reasons whether it being chatting with friends online, online shopping and using social media has caused an increased exposure to blue light and hence as a countermeasure, blue light prevention cosmetics have been developed which prevent skin aging and have sufficient blue light blocking activity and is being incorporated in large numbers as a part of the basic skin care routine and in sunscreens [32]. The prolonged lockdown has bought an increase in the use of personalized skin care, and skin analysis care at home. The number of people using these augmented reality applications and skin analysis at home is continuing to grow and giving rise to user customized skin care products to meet the needs of the customers [13]. This shift has occurred due to the diversification of market and products and an increased consumer demand due to lockdown.

The COVID-19 pandemic has affected millions of lives, businesses and industries and putting forth times that none of us had previously imagined of. Despite these challenges, industries especially the beauty and cosmetics industry have adapted for the ongoing situation by incorporating social media and online shopping websites,

to make up for the lack of face-to-face interaction using various creative tools and means to advertise, bringing recognition to their product. With social media being the major platform of communication between brands and consumers, the focus has now shifted to provide consumers with personalized skin care. This pandemic has marked the beginning of our society's path to a digital age. The COVID-19 pandemic is rapidly evolving in the current date, and hence it will be interesting to observe the evolution of the skin care industry and consumer behavior in terms of this dramatically unfolding situation.

1.10. Ethical Challenges to The Growing Social Media Influence: The ethical code of medicine, better known as the Hippocratic oath, is the very spirit of ethics in medicine. It promotes ethical principles including beneficence, non-maleficence, respect for life, professional integrity, and patient confidentiality. Traditionally, this ethical code has been utilized for in-person interactions between patients and physicians; however, recent technological development and its use in medicine have posed new ethical challenges [23]. Almost 4.0 % of daily searches on the internet globally are health-related. Social media has become the platform of choice for people seeking immediate access to information. They have become so omnipresent and compelling that many people are using them to research health care providers and communicate with them about their issues [2].

A majority of the patients used social media for health-related reasons that were described by a recent systematic review is social support, social support is defined as "the process of communication in relationships which is supposed to boost coping, belonging, esteem, and competence through perceived or actual exchanges of psychosocial resources". This potential of social media as a powerful tool comes with several pitfalls, some of which may have serious implications for patient health [44]. The media exerts a strong influence on society's ideas of body image. It is proposed that if a person internalizes beauty ideals about appearances (i.e., those depicted by the media or reinforced by others) that s/he cannot live up to and/or routinely engages in appearance comparison, this can create issues with body image such as body dissatisfaction. The picture-oriented nature of social media, especially Instagram, only adds to this sensitive issue. People may engage in low-level appearance change as a result of the influence of social media, such as dying their hair, altering the clothes they wear, or changing how they apply their make-up. In other instances, the changes may be more permanent and dramatic, for example, those brought about by cosmetic enhancements. In such situations, these changes can have pronounced consequences for their psychophysical functioning as the physical changes may influence their well-being for better or worse.

Together, these findings would suggest that high usage of social media, especially picture-based ones, can be harmful to certain individuals in regard to their body image and psychosocial functioning, including lowered self-esteem and an elevated risk of depression and anxiety. Increasing media literacy training including spreading awareness about the effects of such online behavior could

help combat these issues. Another concerning factor to take note of is that online information may not always be medically accurate or provided by credible sources [44]. Misinformation on social media can have a negative impact on public health, whether it's on discussions about alternative therapies to skepticism about medical guidelines, and there is mounting evidence that fabrications and misrepresentations spread more quickly and influence more people than accurate factual information online. Even though the dangers of misinformation affect all specialties and aspects of medicine, it is especially noteworthy in dermatology, where a high percentage of the general public consults the internet for information pertaining to any specific disease, treatment, or medical procedure [23]. A study of Instagram hashtags carried out found that the greater part of top dermatology-related posts are made by individuals without formal dermatology training [31]. Efforts including the #VerifyHealthcare campaign, which encouraged health care professionals to record their credentials for social media transparency, aims to help distinguish medical information presented by licensed professionals from that of disreputable sources [44]. Apart from these issues, another ethical challenge is the core values of companies that market dermatological products.

A study based on the contents of a dermatology-related subreddit found that some users brought up ethical concerns of predatory corporations and labor abuse related to skincare products and companies [37]. Ethical considerations from the point of view of a physician or health care provider are extremely crucial as well. A survey found that although a large proportion of healthcare workers indicated social media usage, 40 % were unaware of their workplace social media policy, and only 31% of healthcare institutions codified such policies at all. These factors could possibly breach patient confidentiality and reveal private medical

information. Social media can also be an alluring marketing tool for dermatologists, but conflicts of interests (COI) can arise. The Federation of State Medical Boards and the American Medical Association have published guidelines on how physicians can implement social media in an ethical way. Besides COIs, maintaining expected professionalism in terms of respecting patient autonomy and upholding non-maleficence need to be ensured when engaging in social media as a medical professional.

Social media also presents the concern of maintaining patient-health care provider boundaries. Organizational policies and professional societies often recommend physicians to limit online personal communication with their patients. In spite of its primary value as a means of communication and dissemination of information, social media brings with it legal, ethical, and professional risks. Since an increasing number of healthcare providers are using social media platforms, hospitals and medical residencies must consider implementing formal training for their employees in order to reduce the risks associated with internet misuse [23].

Conclusions. Social media users of the modern day are well informed and have access to an enormous variety of information and a licensed dermatologist is no longer the sole provider of dermatologic information. This in turn has resulted in its users, particularly women and teenagers, being influenced by social media on their skin care choices. It is important to realize that every skin is different and our skin care needs differ from one another too. Taking a generalized opinion and following another individual's choice of skincare products and cosmetic procedures might not give us the desirable results we look for. Ultimately, we all thrive to look and feel beautiful, but relying entirely on social media particularly for the care of our skin is not the best decision.

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The authors of this article argue that there is no conflict of interest.

The Impact of Social Media on Skin Care: A Narrative Review

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Introduction. Social media has completely taken over multiple aspects of our lives, it has a prominent influence on an individual's decisions, particularly regarding their lifestyle. Social networking sites such as Facebook, Twitter, Instagram, TikTok play a prominent role in one's choices on their skin care, cosmetics, aesthetic procedures, and dermatological treatments.

The aim of the study. To review current literature on the role of social media and its impact on skin care.

Materials and methods. Search databases – Google Scholar, Research4life, ScienceDirect, PubMed, and Scopus were used. Employing content analysis, methods of comparative analysis & bibliosemantics the literature survey concerning social media and its impact on social media, was conducted. A total of 50 English language publications were selected and thoroughly reviewed based on their relevance to the subject.

Results. The beauty industry uses social media as a marketing strategy to reach out to its consumers around the globe, particularly targeting consumers like adolescents and women with skin problems. In recent years, social media has turned from an entertainment platform to an educational platform for many users, providing awareness about various skin-related conditions such as skin cancer and even acne treatment. Dermatologists and medical aestheticians are being proactive in sharing information about common skin conditions. Although currently the dependency on social media has increased due to a variety of reasons, there exists a large amount of false and dubious information on the social media posted by unverified users with no legitimate medical background, hence using these sites for making choices related to our skin care is still a debatable option.

Conclusions. A dermatologist is no longer the sole patient advisor, this role being gradually replaced by social media. As a result, social media users are well informed having access to a variety of information, resulting in a large number of people being influenced over their skin care choices. This may do more harm than profit, since every skin is fairly individual organ and a generalized skin care routine may not provide the desirable look one strives for.

Keywords: Social Media, Skin Care, Dermatology, Instagram, YouTube, Reddit, TikTok.

Вплив соціальних медіа на догляд за шкірою: огляд літератури

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Вступ. Соціальні медіа цілковито заволоділи багатьма аспектами нашого життя, вони мають значний вплив на вибір людини, особливо щодо способу життя. Сайти соціальних мереж, таких як «Фейсбук», «Твітер», «Інстаграм», «Тікток», відіграють важливу роль у виборі засобів догляду за шкірою, косметики, естетичних і дерматологічних процедур.

Мета. Здійснити огляд сучасної літератури, присвяченої ролі соціальних мереж та їх впливу на догляд за шкірою.

Матеріали й методи. З використанням пошукових баз даних Google Scholar, Research4life, ScienceDirect, PubMed та Scopus, за допомогою контент-аналізу, методів порівняльного аналізу та бібліосемантики проаналізовано сучасну літературу, присвячену впливу соціальних медіа на практику естетичної дерматології. Загалом відібрано та опрацьовано 50 публікацій англійською мовою на основі їх відповідності обраній темі.

Результати. Індустрія краси використовує соціальні мережі як маркетингову стратегію, щоб охопити якнайбільше споживачів, із особливим акцентом на підлітків і жінок, що мають проблемну шкіру. За останні роки соціальні медіа перетворилися з розважальних платформ на освітні для численних користувачів, забезпечуючи їх інформацією про дерматологічні проблеми, включаючи хвороби шкіри, такі як рак шкіри чи акне. Дерматологи та фахівці з медичної естетики активно діляться інформацією про поширені хвороби шкіри. Сьогодні в соціальних мережах поширюється значна кількість неправдивої та сумнівної інформації, яку публікують користувачі, що не мають медичної освіти. Відтак користь означених сайтів для вибору шляхів догляду за шкірою досі залишається дискусійною.

Висновки. Дерматолог уже не є єдиним джерелом інформації для пацієнтів. Цю роль поступово опановують дописувачі в соціальних мережах. Як наслідок, користувачі інтернет-платформи, маючи доступ до різноманітної інформації, зазнають впливу великої кількості людей, обираючи догляд за шкірою. Це може завдати непоправної шкоди, оскільки кожна шкіра має індивідуальні особливості, а отже, обраний режим догляду може не забезпечити очікуваних результатів.

Ключові слова: соціальні мережі, догляд за шкірою, дерматологія, інстаграм, ютуб, редіт, тікток.

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