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## Image enhancing drugs: A narrative review on the motivational risk factors influencing skin lightening use

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## ABSTRACT

**Introduction:** In societies that place a great emphasis on physical appearance and body aestheticism, the use of image enhancing drugs (IEDs) has become increasingly widespread. Of particular concern is the use of skin lightening drugs, which might contain undisclosed and harmful ingredients of potential adulterated nature. These products are frequently advertised on social media platforms and elsewhere and used without medical consultation.

**Methods:** An explorative literature search was carried out in PubMed, Scopus, CINAHL, and ProQuest to better understand the motivational risk factors associated with skin lightening and assess their relation to body image, self-esteem, and other psychological disorders. All studies published until December 2020 were included in the review.

**Results:** A number of non-psychological factors can be associated with this practice. These include: (a) socio-cultural i.e., achieve different social and cultural benefits, and (b) skin conditions such as hyperpigmentation lesions. Conversely, psychological factors can be correlated to (a) low self-esteem, (b) body image disturbances, and (c) other psychological factors like history of trauma and depressive symptoms.

**Conclusion:** Skin lightening remains a poorly studied and understood multifactorial phenomenon. More extensive research is needed to improve current clinical practice and raise public awareness on this dangerous practice.

## 1. Introduction

In a society that strives for beauty and perfection the widespread use of idealized images, especially over the Internet, may encourage vulnerable individuals to enhance their appearance through the use of Image Enhancing Drugs (IEDs). IEDs is an umbrella term that includes a wide range of substances which can alter both body aesthetic and physical appearance (Van Hout, 2014). These compounds are often advertised online as "natural" and "safe" alternatives to common medicines, and used to improve physical appearance (i.e., enhance muscle growth, promote weight loss, alter skin colour) (McVeigh et al., 2016; Corazza et al 2019). The undisclosed presence of active ingredients has been linked with various health risks, such as allergic reactions, liver damage, mercury poisoning, brain damage and even death (Mahé et al., 2003; Mahé, 2014; McVeigh et al., 2012; Olumide et al., 2008). Their wide availability without medical prescription is reinforced by comments and reviews on online fora, blogs, and other platforms. This encourages unsusper-

vised intake, which represents an issue of growing public health concern (Burns et al., 2013; Corazza et al., 2012). Particularly harmful is the use of Skin-Lightening Drugs (SLDs), which is the main focus of this review.

The worldwide beauty standards consider skin tone as important as body shape in defining female attractiveness (Craddock, 2016). Skin colour dissatisfaction has been observed in females with different skin tones from diverse backgrounds (e.g. European, Asian, African, Caribbean). For this reason, the attempts to alter natural skin colour via tanning or lightening practices have been popular across various cultures (Swami et al., 2013). According to World Health Organization (WHO), engaging in such practices negatively affects peoples' health and could also lead to life threatening complications (WHO, 2007, 2019). The diffusion of SLDs on the Internet has made such practices even more hazardous as some of the products might contain hidden dangerous ingredients, or heavy metals, which can cause serious dermatologic and systemic adverse effects (Burns et al., 2013; Lewis et al., 2012; Ly et al., 2007; Olumide et al., 2008). Advertisements' false claims of extraordi-

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nary results encourage people to purchase certain SLDs, including injectables, with no medical supervision. The media, such as magazines and websites, are the primary source of information and inspiration for these products (Cash, 2012). In a study conducted in Jordan, about 77% of participants believed that TV advertisements of skin lighteners influence women to use them (Hamed et al., 2010). Further, the persistent exposure to highly demanding “ideal images of beauty” (celebrities, influencers, fitness models, etc.) on social media has been linked with increased body image dissatisfaction (Cafri et al., 2006; Corazza et al., 2019).

Females form the largest proportion of skin lightening users compared to men in the general population (Hunter, 2011). Although the prevalence of use differs around the world, it seems to be particularly popular among certain ethnicities and cultures. Fragmented evidence suggests that the ratio ranges from 25% to 96% in females in sub-Saharan Africa (Ly et al., 2007), while it reaches about 25% of female population in Mali and about 67% in other African countries (Mahé, 2014). James et al. (2016) found that the average prevalence of skin lightening use in black communities is about 35%. It also seems to be in rise amongst men and teenagers (Benn et al., 2016). According to a survey, 80% of Indian men were reported as users of skin lightening creams with an annual increase of 18% (Pillaiyar et al., 2017). Despite these few investigations, the prevalence of skin lightening across the general population is unknown and users might be reluctant to admit taking SLDs, considering it as a sensitive and private subject.

Various complications related to skin lightening products have been reported and mainly linked to the undisclosed presence of mercury, hydroquinone, and corticosteroids (Naidoo et al., 2016; Olumide et al., 2008). Most of these complications are aesthetic or skin related, but they can also progress to serious systemic side effects (Lewis et al., 2012). Research reports nineteen type of aesthetic conditions associated with skin lightening use, such as joint hyperpigmentation, stria atrophicae, skin atrophy, eczema, skin infections and skin cancer among others (Lewis et al., 2012; Ly et al., 2007). Systemic side effects caused by products containing mercury are nephrotoxic, neurotoxic, and generating paradoxical hyperpigmentation (Gbetoh and Amyot, 2016; Mahé et al., 2003; Olumide et al., 2008). Systemic adverse effects from products containing steroids are well documented in the literature and include hypertension, diabetes, immunosuppression, among others (Naidoo et al., 2016). Also, products containing hydroquinone have been recorded to cause many skin and systemic adverse effects, such as dermatitis, colloid milia, cataract, scleral pigmentation, patchy depigmentation, and exogenous ochronosis (Olumide et al., 2008).

Research examining the relationship between skin lightening and mental health problems reflects a relatively new field of study. For instance, Skin lightening has been recently linked to body Image disturbances (Charles and McLean, 2017), such as Body Dysmorphic Disorder (BDD) (Al-Sarraf et al., 2021) and previous exposure to trauma (James et al., 2016).

Overall, health professionals remain poorly aware of the phenomenon and often there is a lack of collaborative work among dermatologists, plastic surgeons, psychiatrists, psychologists, and primary health care professionals in preventing, detecting and treating possible harmful behaviours or side effects associated with this behaviour (Al-Sarraf et al., 2018). In order to shed new light and contribute to the development of this field of study, we aim to explore here the motivational and risk factors associated with SLDs use and their relation to body image, self-esteem, and psychological disorders.

## 2. Methodology

An overview of the existing peer reviewed publications exploring the motivations behind skin lightening and their potential associations with mental health issues was carried out in PubMed, Scopus, CINAHL, and ProQuest. All studies published until December 2020 were included in the review. Emerged motivational risk factors were classified according

to both non-psychological and psychological motivational factors. The non-psychological factors were subdivided into (a) sociocultural, and (b) skin conditions related factors. The psychological related ones were associated with (a) self-esteem, (b) body image disturbances, and (c) other psychological conditions. This study, as part of a wider investigation on skin lightening use, was approved by the Health Science Engineering & Technology Ethical Committee with Delegated Authority (ECDA) University of Hertfordshire Protocol number: aLMS/PGR/UH/03609(1).

## 3. Results

### 3.1. Non-psychological risk factors: sociocultural background and skin conditions

Seeking beauty and attractiveness represents the main influencing sociocultural factor as well as a way to achieve different social and cultural benefits, such as getting better jobs and increase relationship chances. A 2011 study conducted by Charles and colleagues revealed that black men are usually more attracted by fair skinned women who they choose as wives, leaving in turn many darker coloured women unmarried. Also, men from upper social status may seek to marry light skinned wives to get the socio-economic benefits associated with fair skin colour (Charles, 2011). It has also been mentioned that lighter shaded black people earn more money and have more distinguished jobs than those who have darker shades (Thompson and Keith, 2001). Furthermore, getting jobs, education opportunities, as well as pay raises/promotions in work place are linked to skin colour (Hunter, 2002).

The use of skin lightening products to treat underlying skin conditions or achieving softer skin, free from acne or pimples, was also found in various studies. Dlova et al. (2015) found that the main reason for using skin lightening creams is to treat skin problems (including hyperpigmentation) and to achieve lighter skin tone. However, the study was conducted in a clinical setting which may bias the results. Moreover, the targeted population was women from Indian or African origins whose skin tone may be more prone to developing hyperpigmentation lesions when compared to other types of skin colour. Such findings were also supported by another study conducted at university campuses in Cameroon (Kouotou et al., 2017). Further validation of emerged from another community study conducted in Jordan, targeted pharmacies' customers, compared the motivational factors according to the skin colour of participants, their educational level, and their income. Most darker skin coloured participants use SLDs to lighten their skin tone or to treat hyperpigmented disorders, while most people who have lighter skin colour use SLDs because of hyperpigmentation skin disorders (Hamed et al., 2010). The aforementioned study is different from other studies in this review as Jordan is an Asian, middle eastern country and the population have a wide range of skin colour shades from very light to dark shades. Also, they compare skin lightening practice with many variables other than skin colour to investigate more about the causes of skin lightening.

A mixed methodology study in Rwanda showed that the major cause of using SLDs is to achieve “beauty”, to attract men, and to have evenly coloured and smooth skin (Kamagaju et al., 2016). Another qualitative study investigating the motivations of using SLDs in Tanzania has found six motivational themes behind this practice. The four most prominent themes based on percentages in descending order were: (1) to be white, to “be beautiful” and to have an European look, (2) to impress peers, (3) to treat pimples and other skin conditions, and (4) to impress male partner/mate (Lewis et al., 2010). These two studies were conducted in African countries where the concept of “being beautiful” is largely connected with lighter skin shades (Buchanan et al., 2008).

In “the fairer the better” study, which was conducted in Sweden, quantitative data showed that women born in Africa, Asia, and in Middle east use SLDs more than the Swedish born counterparts. Qualitative data was obtained from sixteen women indicated that the main moti-

vation of skin bleaching was to be “more beautiful” which means to most participants having lighter skin tone. Also, they associate being fair with having more economic advantages and social opportunities like better jobs and marriage chances (Darj et al., 2015). For some ethnicities, a lighter skin tone is associated with socioeconomic rewards (Buchanan et al., 2008).

### 3.2. Psychological related factors

Although to a lesser extent, studies relating skin lightening practices to psychological factors were also identified. The related psychological problems that have been highlighted in this review are categorised as (1) self-esteem related factors, (2) body image related factors, and (3) other potential psychological factors.

#### 3.2.1. Low self-esteem and self-hate

In some cultures, having light skin is considered as a symbol of beauty and attractiveness, which negatively affect the self-esteem of those who have darker skin tones (Charles, 2003). Participants in a study conducted in Malaysia gave their opinion about “lighter skin tone” as a key feature for higher self-esteem, getting married, having better job, and higher social status (Rusmadi et al., 2015). Some evidence suggests that lighter skin coloured minorities like African Americans have higher self-esteem than their darker counterparts (Swami et al., 2013; Thompson and Keith, 2001). Furthermore, SLDs users self-worth and confidence level may be negatively impacted when they fail to achieve the difficult goals of having fair skin and may progress to BDD (Bakhshi and Baker 2011).

One study showed that the majority of women disagree to the statement “lighter skin tone provides women with higher self-esteem” while a significant proportion of skin lightening users agree to this notion (Hamed et al., 2010). Another cross-sectional study conducted in 26 countries to investigate the association between the use SLDs and both health and social correlates, revealed that skin lightening users showed depressive symptoms, absence of personal mastery and low self-esteem (Peltzer et al., 2016). In Jamaica, a study comparing a sample of 54 participants, of bleachers and non-bleachers, using qualitative questions along with Rosenberg self-esteem questionnaire showed that the group of non-bleachers have a higher self-esteem than the bleachers group. However, this does not necessarily mean skin bleaching is a result of low self-esteem and hence further research is required to investigate the motives behind skin bleaching (Charles, 2010a). Charles has also stated that self-hate comprises one of many complex reasons which drives this practice (Charles, 2010b). In contrary, a qualitative study of 18 participants also conducted in Jamaica revealed that there is no association between self-hate and skin bleaching by showing no significant difference between bleachers and non-bleachers in average scores (Charles, 2003). Therefore, Charles criticizes the self-hate paradigm in explaining skin bleaching practice in Jamaica. Alternatively, he promotes “the complex personhood as a useful psychological construct to liberate the skin bleachers from the mental pathology explanation of their behaviour”. In this concept, he considers the “miseducation and colourism”, which resulted from the history of slavery and colonialism, as the most plausible explanations of skin bleaching in Jamaica (Charles, 2010b). However, these studies were locally conducted in Jamaica. So, the results cannot be generalised.

Following this contradicted evidence about skin bleaching and self-esteem relationship, further research is required in multicultural setting to add robustness to the current evidence.

#### 3.2.2. Body image disturbances

Skin colour has been considered as body image variable for women as it affects their beauty and attractiveness just like body shape and size variables (Buchanan et al., 2008). There is some evidence connecting skin colour dissatisfaction with negative body image in some ethnic minorities (Swami et al., 2013). Similarly, skin colour preference is also

related to body satisfaction in a Canadian study which compared Canadian young women from European and South Asian origins. The latter showed a great preference to be lighter in colour and demonstrated low body satisfaction compared to their European counterparts (Sahay and Piran, 1997). However, the study did not consider skin lightening practice among young women who aspire to be lighter. Nevertheless, the desire to have lighter skin colour should not be ruled out as a reason for skin lightening practice.

While the concern about body image seemed to play a crucial role among bleachers (Charles, 2003)(, Charles and McLean (2017) refuted this concept when they investigated the association between skin bleaching and body image disturbance. They concluded that most skin bleachers do not suffer from body image disturbances. These results cannot be generalized as it has been conducted in one country (Jamaica) and among one ethnic group.

Different findings recently emerged from another study (Al-Sarraf et al., 2021) highlighting a previously unexplored association between skin lightening practice and BDD in a larger sample of clinical and non-clinical population. As it has been suggested (Prieler and Choi, 2014), more attention should be paid in future research at the association between body image and different aspects, other than body weight (e.g., the skin colour and facial features) and at relationship between different psychological conditions and skin lightening behaviour (Darj et al., 2015). For instance, a recent study has found an excessive use of IEDs during the Covid-19 pandemic, where self-isolating individuals have shown to be even more concerned about their physical appearance and more likely to take a wide range of products to boost their body image (Dores et al., 2021).

#### 3.2.3. Other psychological risk factors

Skin lightening has also been connected with psychological problems in literature such as history of trauma and depressive symptoms. This was investigated in a study conducted in three Caribbean countries which concluded that those who lighten their skin colour showed symptoms related to depression, previous exposure to trauma or childhood abuse (James et al., 2016). Childhood physical and sexual abuse have been considered as potential risk factors for future BDD development (Buhlmann et al., 2012), which can drive body alteration practices such as skin lightening.

## 4. Conclusion

The skin lightening phenomenon represents an intricate interplay of psychological, sociocultural, historical, racial, and even political factors, which remain poorly addressed. Most explanations of the underlying motives behind this practice fall into the sociocultural category. For some cultures, the concept of beauty is largely connected with lighter skin shades and is considered a way to achieve social and cultural benefits. The goal of having uniformly coloured skin is another common reason for the wide use of SLDs which has been reported as a treatment for some skin conditions.

While seeking attractiveness can help gain social advantages, it can also lead to impaired self-esteem, lowered confidence level, and negatively impacted body image especially when the desired results are difficult to achieve. However, this does not necessarily mean SLDs usage is a result of low self-esteem. Although the concern about body image can play a crucial role among SLDs users, the association of SLDs usage with body image problems, and psychological risk factors are limited and still inconclusive.

## 5. Recommendations

Broader and more extensive research is needed to better understand the motivational variables behind SLDs use. This will enhance the existent evidence and reduce literature contradictions. Recognizing the causes can lead to collaborative clinical work among dermatologists,

plastic surgeons, psychiatrists, psychologists, and primary health care professionals to detect and treat possible harmful behaviours. Raising public awareness among the most vulnerable groups about this dangerous practice is highly necessary to encourage body image acceptance.

### Declaration of Competing Interest

The authors declare that there is no conflict of interest for the publication of this paper.

### CRediT authorship contribution statement

**Al-Sarraf Alaa:** Conceptualization, Methodology, Investigation, Writing - review & editing. **Bewley Anthony:** Writing - review & editing. **De Luca Ilaria:** Writing - review & editing. **Prilutskaya Mariya:** Formal analysis, Data curation. **Corazza Ornella:** Methodology, Writing - review & editing, Project administration, Supervision.

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