

**Skin Lightening as An Image Enhancing Phenomenon:  
Investigating Risks, Motivations, and Underlying Psychological  
Factors**

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## Abstract

**Background:** Skin lightening phenomenon is a widely growing trend with serious side effects. Its history spans many decades and affects different cultures and regions globally. So far it has been marginally investigated and the full extent of its reasoning and motives are still poorly understood.

**Aim:** to enhance the existing knowledge and increase public and professional awareness about this phenomenon through identifying the most at risk, exploring the underlying motivations, and analysing users' experiences amongst multicultural populations in clinical and non-clinical settings.

**Methods:** a mixed method approach was developed and comprised in four interconnected studies. Study one involved a comprehensive literature review which laid out the foundation for the following studies. Study two was a quantitative cross-sectional investigation based on semi-structured questionnaire distributed among 500 participants in clinical and non-clinical settings. Data were analysed using SPSS software where descriptive statistics and binary logistic regression were utilized. Study three was centered on semi-structured interviews with dermatological patients. The qualitative data obtained were analysed and coded using N Vivo software where themes and subthemes were generated. Study four focused on qualitative online data extracted from skin lightening related fora. Codes and themes were developed using N Vivo software.

**Results:** Skin lightening use is considered as a mean to gain sociocultural benefits despite the well documented adverse effects. Colorism and prejudice against dark skin also helped fuel this practice. In addition, the role of online platforms in promoting "ideal beauty of fair skin" was a major factor driving skin lightening use. The results showed that Asian, females, 25 to 34 years old with medium coloured skin are the most likely group to use skin lightening products. Alarmingly, 51.8% of users reported side effects and 18.3% have purchased their skin lightening products online. The extracted motivational factors are sociocultural, skin conditions related,

and psychological which are potentially integrated with each other. Accordingly, it was revealed that skin lightening users are more likely to have self-esteem issues. The online experience of skin lightening users emphasized the revealed motivations, side effects and ease of access to skin lightening products.

**Conclusion:** The key issues that have been identified in this research reinforce the fact that skin lightening is a common and dangerous practice. This research identifies those most at risks and sheds new lights on the underlying risks factors associated with this behaviour in both clinical and non-clinical population. It provides some initial and unprecedented evidence to inform policy makers and regulators and help improve clinical practice in dermatology, psychology, and psychiatry. In addition, one of the goals of this research is to raise public awareness and tackle the dominance of harmful body image ideals.

# Table of Contents

<i>Acknowledgment</i> .....	<i>I</i>
<i>Abstract</i> .....	<i>III</i>
<i>List of Tables</i> .....	<i>XII</i>
<i>List of Figures</i> .....	<i>XII</i>
<i>PhD dissemination</i> .....	<i>XIII</i>
Peer-review Publications .....	<i>XIII</i>
Oral and Poster Presentations.....	<i>XIII</i>
<i>Chapter 1</i> .....	<i>1</i>
<i>Introduction to Skin Lightening as an Image Enhancing Practice</i> .....	<i>1</i>
1.1 Introduction .....	<i>1</i>
1.2 Background.....	<i>1</i>
1.3 Rationale for the research.....	<i>6</i>
1.4 Aim and objectives.....	<i>7</i>
1.5 Research questions .....	<i>7</i>
1.6 Methodology .....	<i>8</i>
1.6.1 Researching a sensitive topic.....	<i>8</i>
1.6.2 Implementing new methodology.....	<i>8</i>
1.6.3 Research Methods .....	<i>9</i>
1.6.4 Rationale behind selecting these methods.....	<i>10</i>
1.6.5 Ethics and risk mitigation.....	<i>11</i>
1.6.5.1 Ethical approval.....	<i>11</i>
1.6.5.2 Risk assessment and mitigation.....	<i>12</i>
1.7 Thesis overview .....	<i>13</i>
<i>Chapter 2</i> .....	<i>15</i>
<i>Study 1: Body Image and Skin Lightening: an overlooked phenomenon</i> .....	<i>15</i>
2.1 Introduction .....	<i>15</i>

2.2	Body Image.....	16
2.2.1	Body Image Definition .....	16
2.2.2	Factors affecting “body image” .....	17
2.2.2.1	Sociocultural factors .....	17
2.2.2.1.1	Family and peer influence.....	18
2.2.2.1.2	The role of internet, social media, and advertisements.....	18
2.2.3	Body image dissatisfaction .....	20
2.2.4	Body image disturbances .....	21
2.2.5	Body image in dermatology .....	21
2.2.6	Body Dysmorphic Disorder.....	22
2.3	Skin lightening products as body image enhancers .....	24
2.3.1	A historical look .....	24
2.3.2	Skin lightening regulations development.....	26
2.3.3	How do skin lightening products work? .....	28
2.3.4	Harmful ingredients and side effects .....	30
2.3.4.1	mercury .....	30
2.3.4.2	Corticosteroids .....	31
2.3.4.3	Hydroquinone (HQ).....	32
2.3.5	The online market of skin lightening products .....	33
2.3.6	Motivation for skin lightening use .....	34
2.3.6.1	The non-psychological risk factors (sociocultural and skin conditions risk factors).....	34
2.3.6.2	The psychological related factors .....	37
2.3.6.2.1	Low self-esteem and self-hate .....	37
2.3.6.2.2	Body image disturbances .....	38
2.3.6.2.3	Other psychological risk factors.....	39
2.4	Conclusion and Discussion .....	40
<i>Chapter 3 .....</i>		<i>41</i>
<i>Study 2: A quantitative study examining skin lightening practice and its associated risk factors.....</i>		<i>41</i>
3.1	Introduction .....	41
3.2	Study two objectives .....	41

3.3	Methods .....	42
3.3.1	Questionnaire structure .....	42
3.3.2	Recruitment and data collection .....	44
3.3.3	Inclusion criteria .....	45
3.3.4	Exclusion criteria .....	46
3.3.5	Rationale for inclusion and exclusion criteria.....	46
3.3.6	Risk assessment .....	46
3.4	Ethical consideration .....	47
3.5	Data analysis .....	47
3.6	Results.....	48
3.6.1	Demographic factors .....	48
3.6.1.1	Age.....	48
3.6.1.2	Gender .....	51
3.6.1.3	Employment .....	51
3.6.1.4	Ethnicity.....	51
3.6.2	Skin lightening practice .....	52
3.6.2.1	Types of products.....	52
3.6.2.2	Places of purchase.....	54
3.6.2.3	Source of information .....	54
3.6.2.4	Body parts .....	55
3.6.2.5	Patterns of skin lightening use .....	56
3.6.2.6	Professional advice and side effects .....	57
3.6.3	Reasons for using skin lightening products .....	58
3.6.3.1	Self-esteem .....	59
3.6.3.2	Body Dysmorphic Disorder.....	60
3.6.3.3	Cutaneous Body Image.....	61
3.6.4	Predictors of skin lightening use .....	62
3.7	Discussion.....	64
<i>Chapter 4 .....</i>		<i>67</i>
<i>Study 3: Thematic analysis of interviews with skin lightening users.....</i>		<i>67</i>
4.1	Introduction .....	67



4.2	Study three objectives.....	68
4.3	Methods .....	68
<b>4.3.1</b>	Interview guide structure .....	68
4.3.2	Recruitment and Data collection.....	69
4.4	Data analysis .....	70
4.5	Findings .....	72
	Theme 1: Factors underlying skin lightening use .....	73
4.5.1.1	Sociocultural factors .....	74
4.5.1.1.1	Sociocultural standards .....	74
4.5.1.1.2	People’s influence.....	76
4.5.1.1.3	Media and celebrities’ influence.....	81
4.5.1.2	Psychological factors.....	82
4.5.1.2.1	Body image related factors .....	82
4.5.1.3	Skin-related factors .....	84
4.5.2	Theme 2: Techniques of skin lightening .....	84
4.5.2.1	Skin tone lightening products: .....	85
4.5.2.2	Covering the problem .....	87
4.5.3	Theme 3: Body image effects.....	87
4.5.3.1	Social life impairments .....	88
4.5.3.2	Appearance and work life.....	90
4.5.3.3	Psychological effects of the image concerns.....	92
4.6	Discussion.....	93
	<i>Chapter 5 .....</i>	<i>95</i>
	<i>Study 4: Investigating skin lightening phenomenon online .....</i>	<i>95</i>
5.1	introduction .....	95
5.2	Study four objectives.....	96
5.3	Research strategy.....	96
5.4	Netnography approach .....	97
5.5	Justification of using netnography approach in this research.....	98
5.6	Fora influence as a mutual factor with other online studies .....	99

5.7	Starting the netnography journey .....	101
5.7.1	Cultural entrance and identification of fora for analysis .....	101
5.7.2	Data collection and analysis .....	102
5.7.3	Using a reliable interpretation.....	103
5.7.4	Maintaining the ethics.....	104
5.8	Overview of the selected online fora .....	104
5.8.1	Forum 1 .....	105
5.8.1.1	The skin lightening subforum .....	105
5.8.1.2	Types of threads .....	105
5.8.1.3	Attitudes towards skin lightening .....	106
5.8.1.4	Sharing of experience .....	106
5.8.1.5	Supportive community.....	107
5.8.1.6	Forum influence .....	107
5.8.2	Forum 2.....	108
5.8.2.1	The skin lightening subforum .....	108
5.8.2.2	Types of posts.....	108
5.8.2.3	Attitudes toward lightening .....	109
5.8.2.4	Sharing of experience .....	110
5.8.2.5	Supportive community.....	110
5.8.2.6	Forum influence .....	110
5.8.3	Forum 3.....	110
5.8.3.1	The skin lightening subforum .....	111
5.8.3.2	Types of the threads.....	111
5.8.3.3	Attitudes toward lightening .....	111
5.8.3.4	Sharing of experience .....	111
5.8.3.5	Supportive community.....	112
5.8.3.6	Forum influence .....	112
5.9	Thematic analysis of the selected fora.....	115
5.9.1	Theme 1 Reasons of using online communities .....	116
5.9.1.1	Safe: looking for a place where can be open in.....	116
5.9.1.2	Supportive environment .....	117
5.9.1.2.1	Looking for help .....	117
5.9.1.2.2	Sharing results with others .....	121

5.9.1.2.3 Exchange information .....	123
5.9.2 Theme 2 Motivation for skin lightening products use.....	126
5.9.2.1 Lighter means younger.....	127
5.9.2.2 Feeling comfortable/ happy/ confident.....	127
5.9.2.3 Getting influenced from others especially celebrities .....	127
5.9.2.4 Body image concerns.....	129
5.9.2.5 Skin pigmentation treatment.....	130
5.9.2.6 Reach certain goals or shades .....	130
5.9.2.7 Lighten certain parts of the body .....	131
5.9.2.8 Maintain the results they got from bleaching .....	132
5.9.3 Theme 3 Skin lightening recorded experience .....	133
5.9.3.1 Positive experience .....	133
5.9.3.2 Negative experience.....	133
5.9.3.2.1 Psychological impact .....	133
5.9.3.2.2 Bullying .....	134
5.9.3.2.3 Side effects .....	134
5.9.4 Theme 4: The online availability of lightening products .....	141
5.9.4.1 Topical.....	141
5.9.4.2 Systemic products .....	143
5.10 Concerns about online resources .....	145
5.11 Discussion.....	147
<i>Chapter 6</i> .....	<i>149</i>
<i>Discussion</i> .....	<i>149</i>
6.1 Introduction .....	149
6.2 Research overview .....	149
6.3 Results of studies according to the research objectives: .....	150
6.3.1 Objective one: Identification of the most at-risk group.....	150
6.3.2 Objective two: Exploration the skin lightening experience of skin lighteners including skin lightening techniques, patterns, side effects, among other features. ....	151
6.3.3 Objective three: Investigation of the motivational factors behind this practice. ....	153

6.3.4	Objective four: Examining the association of skin lightening practice with self-esteem and body image disturbances e.g., BDD and CBID in clinical and non-clinical settings.....	154
6.4	Activism: Black = White & Dark = Light.....	156
6.4.1	Black is Beautiful .....	156
6.4.2	Dark is Beautiful .....	157
6.4.3	Black Life Matters (BLM) .....	158
6.5	Policy implications and preventive strategies.....	160
6.6	Further research .....	162
6.7	Strengths and limitations.....	163
6.7.1	Strengths.....	163
6.7.2	Limitations .....	164
6.8	Reflections on the PhD journey.....	164
6.8.1	Study One .....	165
6.8.2	Study Two .....	165
6.8.3	Study Three.....	166
6.8.4	Study Four.....	166
	<i>References.....</i>	<i>169</i>
	<i>Appendix A: The survey questionnaire.....</i>	<i>188</i>
	<i>Appendix B: The participant information sheet.....</i>	<i>198</i>
	<i>Appendix C: The Consent form.....</i>	<i>201</i>
	<i>Appendix D: The interview guide.....</i>	<i>203</i>
	<i>Appendix E: Body Dysmorphic Disorder Diagnostic Module- Adult version .....</i>	<i>205</i>
	<i>Appendix F: Confirmation of ethical approval.....</i>	<i>207</i>
	<i>Appendix G: Confirmation of the modification of ethical approval .....</i>	<i>209</i>
	<i>Appendix H: Barts Health Trust permission.....</i>	<i>211</i>

## List of Tables

Table 3.1 Socio-demographic characteristics by type of enrolment settings and skin-lightening usage. ....	48
Table 3.2 Purchase preferences of skin lightening products by enrolment settings. ....	53
Table 3.3 source of information by enrolment settings. ....	54
Table 3.4 Main body parts subject to skin lightening products by enrolment settings and gender. ....	55
Table 3.5 Patterns of skin lightening use by enrolment settings. ....	56
Table 3.6 Professional advice and side effects by enrolment setting. ....	57
Table 3.7 Reasoning for using skin lightening products by enrolment settings. ....	58
Table 3.8 Regression model with unadjusted odds ratios. ....	63
Table 3.9 Regression model with adjusted odds ratios. ....	63
Table 5.1 The number of threads, pages, and posts that have been analysed. ....	102
Table 5.2 summarizes the observed characteristics of the selected fora. ....	114

## List of Figures

Figure 3.1 The percentages of different skin tones in the sample (N=500) ....	51
Figure 3.2 CBIS grades comparisons by users and non-users. ....	62
Figure 4.1 Theme 1 structure. ....	73
Figure 4.2 Theme 2 structure ....	85
Figure 4.3 Theme 3 structure ....	88

## PhD dissemination

### Peer-review Publications

Al-Sarraf, A., Khatib, Y., & Corazza, O. (2018). The interaction between skin and mind: the case of body dysmorphic disorder. *Research and Advances in Psychiatry*, 5(2),38-42.

Al-Sarraf, A., Bewley, A., De Luca, I., Prilutskaya, M., & Corazza, O. (2021). Image enhancing drugs: A narrative review on the motivational risk factors influencing skin lightening use. *Emerging Trends in Drugs, Addictions, and Health*, 1(May). <https://doi.org/10.1016/j.etched.2021.100009>

Al-Sarraf, A., Bewley, A., Prilutskaya, M., Corazza, O. (2022). Skin lightening as an image enhancing phenomenon: Investigating Motivational Factors and Its Association with Body Dysmorphic Disorder, Cutaneous Body Image Disturbance, and Self-esteem. (Manuscript in preparation).

Al-Sarraf, A., Bewley, A., Catalani, V., Corazza, O. (2022). Skin lightening as an image enhancement phenomenon: Thematic analysis of three interviews with skin lightening users. (Manuscript in preparation).

### Oral and Poster Presentations

Alaa Al-Sarraf. The emerging skin whitening products and public health. Research Developing Program Summer School. University of Hertfordshire. September 2017. (Oral presentation).

Alaa Al-Sarraf. Is it safe to buy skin whitening products online? Analysis of users' motivations, body image problems, side-effects, and contaminants exposure. Postgraduate research seminar. Life and Medical Sciences School. University of Hertfordshire. November 2017. (Oral presentation).

Alaa Al-Sarraf and Ornella Corazza. Skin Lightening: A Dermatological or Psychiatric Problem? Life and Medical Sciences Post graduate research Conference. University of Hertfordshire. April 2018. (Poster Presentation).

Alaa Al-Sarraf and Ornella Corazza. Skin lightening and body image research. ESDaP Psychodermatology training course on body dysmorphic disorder: Practical aspects on management. Brussels, Belgium. November 2018. (Oral Presentation).

Alaa Al-Sarraf. Body Image and Sociocultural Consideration. Mind and Skin Module. Clinical Dermatology master's course. University of Hertfordshire. February 2019. (Oral Presentation)

Alaa Al-Sarraf and Ornella Corazza. Investigating Motivational Factors of Skin Lightening Phenomenon and Related Psychological and Body Image Related Disturbances. Life and Medical Sciences post graduate research conference. University of Hertfordshire. April 2019. (Poster Presentation).

Alaa Al-Sarraf. Using online research in psychodermatology research. Innovation in Online Research Workshop. University of Manchester. May 2019. (Oral presentation).

Al-Sarraf Alaa, Bewley Anthony & Corazza Ornella. Investigating motivational factors of skin lightening phenomenon and related psychological and body image related disturbances. The 18<sup>th</sup> Congress of European Society for Dermatology and Psychiatry. Giessen, Germany. June 2019. (Poster presentation). (best poster prize award)

Al-Sarraf Alaa, Bewley Anthony & Corazza Ornella. Image Enhancing Drugs: An Overlooked Phenomenon. VII International Conference on Novel Psychoactive Substances. November 2020. (Poster Presentation).

# Chapter 1

## Introduction to Skin Lightening as an Image Enhancing Practice

### 1.1 Introduction

This doctoral research focuses on the skin lightening phenomenon as an image enhancing trend among clinical and non-clinical populations. It is meant to identify those most at risk and provide a novel insight into the underlying motivations, body image and other psychological conditions associated with this practice. In an increasingly digitalized society, it explores the historical use of lighteners, the role played by media and the Internet in advertising and selling these products, among other influencing contemporary factors. Emerging findings contribute to the development of much needed original data on the skin lightening hazardous practices and their overlooked association with different dermatological and mental health problems. This in turn will contribute to enhance public and health care professional's awareness about this phenomenon while improving clinical practice in both dermatology and psychiatry.

### 1.2 Background

In societies that place a great emphasis on physical appearance and body aestheticism, the use of Image Enhancement Drugs (IEDs) has become increasingly widespread. IEDs is an umbrella term that includes a wide range of substances which can alter both body aesthetic and physical appearance. These compounds are often advertised online and elsewhere 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). Aesthetic reasons nowadays form the most common cause behind the interest in these drugs (Brennan et al., 2013). They are used by many to look younger, more attractive, muscular, more tanned, or lighter in colour, among other reasons. Their intake is affected by



socioeconomic factors, fashion trends, television programs, magazine articles, and the Internet (Harth, et al., 2008). IEDs mostly attract people who want to enhance their image, or who are vulnerable to the cultural and social pressures (Evans-Brown et al., 2012). The wide availability of IEDs without medical prescription is reinforced by the wide use of the internet to attain certain beauty ideals which represents an issue of growing public health concern (Burns et al., 2013; Ornella Corazza et al., 2012). The aspiration to achieve often unrealistic standards of “beauty and perfection” proposed by idealized images, especially via social media, may encourage vulnerable individuals to adopt such risky behaviours (Van Hout, 2014; Dores et al 2021). Of particular concern is the use of skin enhancement drugs, especially skin darkening and lightening products. These products are available without medical prescriptions and might contain undisclosed and harmful ingredients, such as afmelanotide, bromelanotide, mercury, hydroquinone, and corticosteroids, which have been linked with various health risks including allergic reactions, liver damage, mercury poisoning, brain damage and even death (Lewis, et al., 2011; McVeigh et al., 2012; Van Hout, 2014). They are widely sold in cosmetic shops, beauty salons, and in more recent years over the Internet, where they are often advertised with captivating marketing strategies at relatively low prices (Al-Sarraf et al., 2021; Corazza et al., 2014).

The worldwide beauty standards consider skin tone as important as body shape in defining female attractiveness (Craddock, 2016). Skin colour dissatisfaction has been detected in populations characterized by different skin tones and diverse backgrounds (European, Asian, and African Caribbean). As a result, the use of skin enhancement drugs in the attempt of tanning or lightening the skin has been widespread, (Swami et al., 2013) despite the World Health Organization (WHO) warning about the associated life threatening complications (World Health Organization, 2007, 2019). Besides the social advantages that physical appearance brings, Internet and social media platforms market “body ideals” that are hard to achieve and might encourage the most vulnerable to use enhancement drugs.

The prevalence of skin enhancing drugs usage varies in different parts of the world. Skin lightening, for instance, is particularly popular among certain ethnicities and cultures, such as those originating and migrating from African and South Asian

countries, with a ratio ranging from 25% to 96% among females in sub-Saharan Africa (Ly et al., 2007). On the other hand, indoor tanning remains common in the West, where social value is given to bronzed skins and exposure to different tanning methods (indoors and outdoors). Evidence suggests that this has been practiced by 35% of adults and 55% of university students in 16 different western countries (Cafri et al., 2006; Wehner et al., 2014).

Given the globalisation of colourism leading to the increased use of skin enhancement drugs (both lightening and darkening) with their associated side effects which is crucial to highlight it as an alarming public health issue. This is especially the case regarding immigration and the migration of the practice. For example, in the U.K. the immigrants ratio has increased in the last 20 years to reach about 14% (9.3 million) in 2018 of the total population (Rienzo & Vargos-Silva, 2019). Many are originating from European, Asian, and African countries with different cultural and skin colour preferences, and practices around skin beautification. Although efforts to modify skin coloration has far reaching historical and cross-cultural origins, the more recent spread of damaging skin beautification IEDs, especially over the Internet, has made this a grey area, which deserves urgent attention. Such a phenomenon is tightly linked with the significance of societal perspectives of skin colour, stigma, globalized whiteness, efforts to attain self-esteem and social mobility through skin beautification (Van Hout & Wazaify, 2020).

In addition to skin related side effects, these drugs can cause serious public health problems as they have similarities to addictive or recreational drugs in addition to their adverse effects. Particularly harmful is the unsupervised use of skin-lightening products which is one of the IEDs and the main focus of this research.

Many well described complications of skin lightening products that have been reported are mainly caused by products containing mercury, hydroquinone, and corticosteroids. Most of these are aesthetic or skin related, but it can also progress to serious systemic side effects (Lewis et al., 2012). Research reported nineteen type of aesthetic complications 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 from

products containing mercury can be seen as nephrotoxic, neurotoxic, and paradoxical hyperpigmentation (Gbetoh & Amyot, 2016; Mahé et al., 2003; Olumide et al., 2008). Systemic adverse effects from steroid containing products are well documented such as hypertension, diabetes, immunosuppression, etc. (Naidoo et al., 2016). 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).

Although the prevalence of skin lightening 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 around 67% in other African countries (Mahé, 2014). James et al., 2016 state that the average prevalence of skin lightening use in black communities is about 35%. Females form the largest proportion of skin lightening users compared to men in general population (Hunter, 2011). However, 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 user increase of 18% (Pillaiyar et al., 2017). Despite all the above, the exact percentage is unknown because some users are reluctant to admit using skin lightening products, considering it as a sensitive and private subject.

The diffusion of skin lightening products on the Internet has made such practices even more hazardous as some of the products might contain hidden and 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). The media, such as social media, magazines, television, and websites, are considered as central sources of information and inspiration because it promotes “ideal body images”, relates having light skin colour to success and happiness. Also, advertisements’ false claims of extraordinary results encourage people to purchase certain skin lightening products with no medical supervision (Cash, 2012). In a study conducted in Jordan, about 77% of participants believed that TV advertisements of skin lighteners influence women to use these products (Hamed et al., 2010).

Those with more pathological risks, such as Body Dysmorphic Disorder (BDD), and Cutaneous Body Image Disturbance (CBID) are always considered from a cosmetic perspective (Veale et al., 2016). BDD is a relatively common mental health disorder affecting 1.7-2.9% of the general population characterised by distressing and disabling preoccupation with perceived appearance flaws that are not observable to others. Any element of physical appearance could be a target of this concern. The skin represents the most common concern in both genders and followed by concerns about hair and nose (Veale & Neziroglu, 2010). Some studies showed that the skin is the second most common concern among other body parts which represent 36% of BDD patients after face and nose which comprise 46% of BDD patients. These symptoms usually accompanied by low self-esteem, feeling of hopelessness and shame (Buhlmann et al., 2010; Phillips, 2004; Phillips et al., 2008). Patients often relieve their anxiety by following some strategies like covering the defects, frequent mirror checking, avoiding the mirror, frequent asking for reassurance, and sometimes they adopt some harmful behaviours to change their appearance (Prabhu et al., 2007). For example, adopting skin lightening or tanning practices.

The prevalence highest rates are in rhinoplasty surgery which is 13% followed by the ration in dermatology outpatients which reaches 11.3% of patients (Phillips et al., 2008; Rief et al., 2006). Many people with the disorder never come to the attention of health professionals, in part because of the shame they feel about their problem. If care is sought, it is usually from dermatologists, plastic surgeons, or primary care doctors (as opposed to psychiatrists or psychologists).

Dermatologists describe BDD patients as “rich in symptoms and poor in signs” and hence this condition has been known as “dermatological-non disease” (Al-Sarraf et al., 2018). Such individuals may engage in harmful compulsive or dependent use, which adds a further layer of complexity to their clinical management. Suicide rates are amongst the highest of any psychiatric disorder with odds ratio for suicidality in BDD, relative to the general population, of 3.63 (95% CI 2.62-4.63) (Angelakis et al, 2016). Therefore, the most involved health care professionals such as dermatologists, surgeons, psychiatrists, primary health care professionals should be informed and be aware about the presentation features of these patients and the

complications skin lightening products may cause to identify those patients and give them the optimum clinical care including referring them to the most appropriate clinical practice.

### **1.3 Rationale for the research**

As skin lightening practice is increasing globally as a way of image enhancing which places a major public health concern across culturally diverse populations, it becomes of paramount importance to identify those who are “at risk” which is one of the core aspects of this research. This becomes essential to inform the development of more targeted and informed prevention strategies to mitigate unwanted harms.

Wide range of skin lightening products are disseminating at uncontrollable speed with sourcing from the Internet, as mentioned in the Background section above, posing an urgent challenge to public health. Research examining the relationship between skin lightening and mental health problems reflects a relatively new field of study and there is very little knowledge available for professionals regarding this problem. Poor evidence has linked skin lightening to low self-esteem, BDD and previous exposure to trauma (Charles & McLean, 2017; James et al., 2016). The lack of evidence drives our research to better understand the risks of potential underlying mental health factors such as self-esteem and body image disturbances like BDD and CBID to establish the relationship between these risk factors and skin lightening phenomenon. This drives our research to deeply investigate the association of skin lightening practice with the potential psychological/ psychiatric risk factors in dermatological patients because the prevalence of BDD is one of the highest amongst dermatological patients and in general population to establish new associations and draw comparisons.

Since most accompanied adverse health harms are irreversible due to the significant toxicity and are preventable at the same time, our research aims at understanding the drivers of use and risks navigation ultimately to support awareness raising and preventing/ reducing related health harms. This awareness is especially important among primary care physicians, the first port of call, when negative side effects

occur among users of skin enhancement products, often illegally sourced on the Internet or other sources.

Therefore, a clinical liaison among dermatologists, psychologists, psychiatrists, and other health care professionals is essential to detect those patients and refer them to appropriate pathways of clinical practice. Failure to do so might lead to exacerbation in their mental and physical health symptoms and negatively affect public health.

Such a contribution is necessary to identify and develop the most effective measures to enhance public awareness, especially the targeted community, and health care professionals' informed responses to prevent and reduce patient and public harms associated with skin lightening techniques.

## **1.4 Aim and objectives**

The aim of this study is to enhance knowledge and the understanding of skin lightening phenomenon including risk factors, underlying motives, and related psychological mechanisms in order to prevent harm and raise awareness about the risks associated with sourcing and use.

### **Objectives of the research**

The objectives of this work can be summarized as follows:

1. Identification of those who are using skin lightening products and those most at-risk.
2. Exploring the skin lightening experience of skin lighteners including skin lightening techniques, patterns, side effects, among other features.
3. Investigation of the motivational factors behind this practice.
4. Exploration of the association of skin lightening practice with self-esteem and body image disturbances e.g., BDD and CBID in both clinical and non-clinical settings.

## **1.5 Research questions**

The main research questions of this work are:

How common is the skin lightening phenomenon in (non-clinical) multicultural populations?

How diffuse is skin lightening use among the dermatological clinical population?

What are the cohort profile of people who use SLP?

What are the risk factors associated with this practice?

What are the motivations behind using SLP?

Is there any relationship between BID and skin lightening use?

What side effects do skin lightening users experience?

What products they use and which modality of lightening they prefer?

What are the body parts that they want to lighten?

What is the role of the Internet in increasing skin lightening phenomenon?

What research methods can be better used to explore this phenomenon?

## **1.6 Methodology**

### **1.6.1 Researching a sensitive topic**

Skin lightening has always been considered as a sensitive topic, which aggravates some pressing social issues in the society and its related policy questions (Langer & Beckman, 2005a). Choosing the appropriate methods for researching sensitive topics has always been a challenging act for the researchers. This reinforces the need for the development of innovative methods, which are not commonly found in other types of studies (Lee, 1993). In the context of this work, after an in-depth literature review (chapter 2), it was decided to combine traditional quantitative and qualitative research methods with internet-based research.

### **1.6.2 Implementing new methodology**

Studying a new phenomenon requires new methodology to deepen our understanding of the skin enhancement phenomenon and add sound evidence to this poorly understood area of research. In order to answer the previously listed research questions in 1.5, a mixed methodology inclusive of both a quantitative study represented by a cross sectional study in two different settings (clinical and non-clinical), a qualitative study based on semi-structured interviews with skin lightening users, and netnography (internet-based research) have been carried out.

### **1.6.3 Research Methods**

To aid clarity, this doctoral thesis is composed of 4 main studies, which have been articulated according to the research objectives.

#### ***Study one – Literature Review***

The first study (Chapter 2) provides a comprehensive overview of the skin lightening phenomenon which paves the way for the other three studies. It brings research aims and objectives in the context of the evidence-based literature to highlight any knowledge gaps or contradictions which need further research. Particular attention is given to motivations behind skin lightening practice and the associated psychological and non-psychological risk factors.

The review investigates the origin of the problem by examining the factors affecting individual's body image, and the body image enhancers. Then, the review explores the phenomenon of skin lightening, taking into account the complicated interplay of sociocultural and psychological factors. It also studied the literature about the poorly understood relation with body image, self-esteem, and psychological disorders.

#### ***Study two – cross-sectional survey among clinical and non-clinical population***

Informed by the results of the initial literature review, a semi-structured survey questionnaire was developed and distributed among 500 participants in clinical and non-clinical (online) settings. The questionnaire was divided into five main sections, which are demographics of at-risk population, skin lightening experience including motivations, patterns of use among other variables. The skin lightening usage has been directly examined for the first time with the aid of psychometric measurements such as the Rosenberg self-esteem scale 10 (Rosenberg et al., 1989) and body image psychometric instruments, such as BDDQ and CBIS to establish new relationships and enrich the existent evidence (Gupta & Gupta, 2013). Full details about this study are provided in chapter 3.

#### ***Study three - Semi-structured interviews with three dermatological patients***

Three semi-structured interviews with dermatological patients from different backgrounds who used skin lightening products were carried out to add a qualitative component to this work and investigate in depth the underlying personal and



contextual factors to such practice. Such qualitative component is essential to obtain rich data from participants' opinions, beliefs, experiences, body image issues and potential psychological problems. The collected data have been thematically analysed following Braun and Clarke, (2006) guidelines (Braun & Clarke, 2006b) in order to answer the research questions from different perspectives/ experiences/ concerns of interviewees which are all detailed in chapter 4.

#### ***Study four- Netnography***

According to the findings of the previous studies which have strongly emphasized the role played by Internet in influencing skin lightening practice, the fourth study (chapter 5) presents a novel netnographic (internet- based) approach. Analysis of online communities have been used because of the increased growth of internet use, the rich data they provide and the easy access for both users and researchers to these communities (Belz & Baumbach, 2010). The observational method of netnography is particularly suitable for researching sensitive or controversial phenomena such as skin lightening phenomenon.

Due to the inclusion requirement necessitating all fora included within this research must be open access, not requiring a registration process and/or subscription, all reported materials from said fora are considered to have been of public access. The netnographic nature of this research is comparable to that of open-access-media analysis and informing fora users of the research has the potential to disturb the natural posting behaviours on these sites, particularly in the instances of sensitive topics (Langer & Beckman, 2005; Kozinets, 2010). Three websites have been selected according to listed inclusion criteria (chapter 5) from which data have been collected and then thematically analysed using N-Vivo 12 software which are explained in detail in chapter 5.

#### **1.6.4 Rationale behind selecting these methods**

Study one provides a comprehensive overview of the existing evidence related to the skin lightening phenomenon which set the pace of the next three studies. It helps to highlight any knowledge gap and pave the way for future research.

Study two provided the quantitative data about the population and their baseline characteristics by answering certain targeted questions which in turn enhances the general understanding of the research issue. In addition, within the survey, there were some open-ended questions which provide us with rich qualitative data as well.

Study three provides qualitative data about skin lightening users and the causes of such cosmetic behaviours. The semi-structured face-to-face interviews were taken place with a selected sample of users which assessed in further depth both personal and contextual factors related to their skin lightening practice and more specifically their psycho-dermatological problems. The qualitative interviews provide in depth information that complete the obtained statistical results from the questionnaire in study two. Also, interviews describe participants' opinions and experiences in a deep elaborative way which we need to understand such new phenomenon (Ivankova et al., 2006).

Study four, the qualitative internet-based research, is different from other methods because it provides access to hard-to-reach communities, which are not available to reach otherwise and allows the interpretation of some behaviours within certain communities sharing the same goals, interests and sometimes same ethnic or racial qualities. This method is different from the others because the researcher gets into beauty communities and collects the written descriptions of users from the original language of narratives in terms of their experience, motivations, feedbacks, adverse effects, from real users without any possible bias resulting from the social pressure or the attendance of the researcher.

## **1.6.5 Ethics and risk mitigation**

### **1.6.5.1 Ethical approval**

This study has been approved by the Health Science Engineering & Technology Ethical Committee with Delegated Authority (ECDA) University of Hertfordshire, Protocol number: LMS/PGR/UH/03609.

### **1.6.5.2 Risk assessment and mitigation**

Potential risks and hazards associated with the study have been carefully identified as some questions in the questionnaire, or the interview, might be sensitive in nature and generate a sense of discomfort to the interviewees. This might be related to calling back unpleasant past events or personal experiences/ sensitivity/ prejudice in some questions like ethnicity, their skin tone, their causes behind this practice. Emotional or mental discomfort of some participants which could be aroused after asking some questions about their background, previous or current medical conditions, past experiences, physical or mental satisfaction. These feeling of embarrassment or guilt could be aroused after asking questions in the questionnaire or during the interview. Also, some consider asking about certain behaviours which would invade participants' privacy and breach confidentiality. Minimizing the associated risks was carried out by implementing certain strategies such as providing sufficient information about the study including the advantage of their participations, the participation is completely voluntarily, withdrawal can be applicable anytime, and their confidentiality and anonymity are kept along all the research stages. Also, the most sensitive and appropriate language has been used in the questions taking into consideration opinions of experts such as supervisors and colleagues. Coordination with the clinical teams in dermatological clinics was placed and acknowledging them in advance of these possible adverse effects. Furthermore, contact details of the researcher have been provided if participants experience any adverse circumstances after the study. However, none of the participants have experienced any adverse effects throughout the research.

In Study four, despite the open access nature of these platforms though, in order to minimise any potential damage to the fora users, particularly due to the occasional use of Verbatim quotes throughout this research, every effort was undertaken to ensure the anonymity of all fora posters (Kozinets, 2002; Xun & Reynolds, 2010). No provision of names, profile pictures and/or comments containing distinguishable information will be provided in an effort to minimise the potential harms (Skågeby, 2009).

## 1.7 Thesis overview

To aid clarity, this doctoral thesis is composed of six interconnected chapters, which are:

**Chapter one: Introduction to *Skin Lightening as an Image Enhancing Practice*:** this chapter presents skin lightening problem, the rationale for researching such a phenomenon, the objectives, the methods used to address these objectives, risks consideration and the ethical approval protocol.

**Chapter two (Study one) - *Body Image and Skin Lightening: an overlooked phenomenon*:** which presents a literature review of body image, skin lightening phenomenon and its motivational and risk factors including the understudied relationship with body image, self-esteem, and psychological disorders.

**Chapter three (Study two) - *A quantitative study examining skin lightening practice and its associated risk factors*:** Based on the results emerged from study 1, a cross-sectional investigation was carried out among a population of 500 participants in clinical and non-clinical settings using semi-structured questionnaire in order to gain robust evidence on the demographics of the at-risk population, the motivations, experience of skin lightning users, and three psychometric measures.

**Chapter four: (Study three) - *Thematic analysis of interviews with skin lightening users*:** presents three interviews with dermatological patients from different backgrounds who used skin lightening products to investigate in further depth any psychological concerns associated with skin lightening practices.

**Chapter five: (Study four) - *Investigating skin lightening phenomenon online*:** the fourth study presents a novel netnographic (internet- based) approach, which explores and analyses the content of posts on three skin and beauty fora.

**Chapter six: *Discussion*:** Finally, the last chapter integrates the findings from all four studies providing an in-depth discussion on the arguments emerged and draws the conclusions, according to each objective of the research. the strengths and

limitations of the studies have been discussed, and provide recommendations for practices, policies, and future research.

## **Chapter 2**

### **Study 1: Body Image and Skin Lightening: an overlooked phenomenon**

#### **2.1 Introduction**

In societies that places great emphasis on physical appearance and body aestheticism, the use of IEDs has become increasingly widespread. The pressure on people to conform to an “ideal body image”, which is reinforced by sociocultural standards, advertisements, social media, and other factors can lead to body image dissatisfaction (Al-Sarraf et al., 2021; Royal Society for Public Health, 2017). Therefore, many techniques to achieve this desired body have been practiced, of particular concern is the use of skin lightening products. These products are largely available without medical prescriptions and might contain undisclosed and harmful ingredients posing a challenge to public health (Corazza et al., 2014).

In this chapter, an overview of the existing literature regarding body image and skin lightening phenomenon is presented while focusing on the underlying motivational factors and assessing the association with body image, self-esteem, and psychological disorders.

A narrative review of the existing peer reviewed publications exploring skin lightening practice as a body image enhancing phenomenon was carried out. It started from body image meaning, factors affecting body image, and body image disturbances. Then, the motivations behind skin lightening practice and their potential associations with mental health issues was searched to achieve the objectives of the research. The search has been carried out in different databases such as PubMed, Scopus, CINHALL, and ProQuest among others. The used key words were “Image enhancing

drugs” “Skin lightening” “Body image” “Body dysmorphic disorder” “Psychological distress” and “Low self-esteem” among others.

In terms of presentation of the results, the chapter starts by exploring the meaning of body image, the factors affecting individual’s body image, the normal and abnormal conditions related to one’s body image, and the body image enhancers. It then examines the phenomenon of skin lightening use, history of this practice, mechanisms of action of most lightening products as well as their common adverse effects caused by certain ingredients are also discussed.

Furthermore, the complicated interplay of the influential factors is also considered which provides a better understanding of the understudied motivational factors and its relationship with body image problems and other psychological conditions.

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.

## **2.2 Body Image**

### **2.2.1 Body Image Definition**

Body image refers to one’s mental attitude toward their body or organs’ appearance (Gupta & Gupta, 1996). Body Image is a complex term which can be defined as the “Multifaceted construct that refers to individuals’ perceptions of and attitudes toward their own body, especially its appearance” (Cash et al., 2010). Although body image has been defined by Schilder as “the picture of someone’s body formed in his own mind” (de Preester & Knockaert, 2005), it is agreed that it is more complicated than this definition and it refers to a complex multidimensional phenomenon which sometimes means various meanings to different scientists. However, it can be defined as the internal image that has been built in our mind by which we judge our external image (Veale et al., 2012).

Our appearance affects our life in a complex manner which can be simplified by classifying it as; objective way (social): which is our physical appearance to others (physical attractiveness). This is important in terms of making friends, mating, dating, and even it affects the chances of getting employed or promoted. The other way is the subjective way, also called the inside view (Cash, 2004), which is defined as individuals' own perspective of their appearance and it is more powerful in psychosocial terms than the objective way.

Therefore, body image consists of two parts (the outside part and the inside part) which represent two sides of the same coin. The inside part of body image is the way we think about how we look. The outside part of body image is the way we see ourselves in the eyes of the observer i.e, what people perceive when they look at us. Body image can also overlap with other feelings about ourselves such as: self-worth, or self-esteem. At the same time, some scientists believe that our body image can affect the way other people think about us (Veale et al., 2012).

## **2.2.2 Factors affecting “body image”**

### **2.2.2.1 Sociocultural factors**

Culture is the sum of beliefs, ideas, customs, and ways of living of a particular group of people transmitted in this society from one generation to another. However, these behaviours and thoughts are subjected to evolution and constant change (Shenoi & Prabhu, 2013). Knowing the importance of culture in shaping the ideal body appearance, body image can also be described as person's own evaluation of their body attraction compared to what is accepted in their culture as beauty ideals. Some people perceive those ideals as criteria to evaluate someone's attractiveness ( Bakhshi & Baker, 2011). Studies showed that sociocultural factors are associated with appearance concerns on those who practice tanning both males and females (Van Hout, 2014). Also, ethnicity is an important factor which impacts the body image as some concerns are common within certain ethnic groups rather than others (Altabe, 1998). Although some dark toned individuals are proud of their colour, others believe their colour is "a mark of oppression". Recognizing the real extents of racism and prejudice against dark skinned individuals can explain their interest in



skin lightening despite the confirmed harms and side effects. This is further fuelled by the marketing campaigns of the multinational cosmetic industry to get round the shame of give up one's own colour (Van Hout & Wazaify, 2021).

Throughout the years, many campaigns attempted to shed light on the issue of racism and colourism and raise awareness about the dangers of skin lightening. In 2020, The global Black Life Matters (BLM) movement gave big momentum to these campaigns and forced some of the big players in the industry to react and amend some marketing terminology to absorb the increased public pressure. These attempts are hollow in comparison to the deep underlying messages used to promote the products (Van Hout & Wazaify, 2021).

It has been shown that the three most impactful sociocultural factors which participate in shaping individuals body image are parents, peers, and media influence. Those factors can influence people through two mechanisms which are internalization and comparison (Cash, 2005; Keery et al., 2004).

#### **2.2.2.1.1 Family and peer influence**

Feedbacks from others whether it is negative or positive might affect how we think or how we feel about our body image (Clarke et al., 2012). Teasing history (negative comments) is one of the main factors that relates to family and peer pressure. Studies showed that family or friends' teasing about weight, body shape, or eating habits might be related to body image dissatisfaction and eating disorders like Bulimia Nervosa and binge eating (Keery et al., 2004). Also, teasing is considered as a risk factor not only for body dissatisfaction, but also for other psychological distress like low self-esteem and even major psychiatric problems like depression (Jackson et al., 2000). Moreover, family or friend's preoccupation with weight, body shape, dieting behaviours is another important factor for a child to develop body dissatisfaction and psychological dysfunction (Keery et al., 2004).

#### **2.2.2.1.2 The role of internet, social media, and advertisements**

In the era of internet and social media, what is called "ideal pictures" are found everywhere which make people aspire unachievable goals about their bodies.

These unrealistic ideals will negatively affect individual's perception of their attractiveness and beauty (Cafri et al., 2005; Groesz et al., 2002). Marketing and advertising of unattainable aesthetic body perfection by multibillion beauty industry is one of the principal causes of people developing body image dissatisfaction. For example, bombarding people from a very young age of unrealistic body shapes like Barbie and Cinderella for girls and muscular heroes like Batman and Spiderman for boys and selling them as symbols of beauty and bravery respectively.

As a result, vulnerable individuals may be anxious, insecure, and develop psychological problems. Those psychological problems may increase when affected individuals feel their unrealistic goals can't be achieved unless they try dangerous methods to change their bodies (Bakhshi & Baker, 2011). It also has been emphasized that repeated exposure to media portrayals may lead to acceptance of these portrayals as idols in reality (Mahler et al., 2010). A study examined the relationship between social media networking (Facebook and Instagram) and body image concerns in women showed that photo engagement activities in these social media platforms related to body image concerns and increased thin ideal internalization in young women (Cohen et al., 2017).

Also, vulnerable individuals will be dissatisfied, anxious, and prone to have other psychological problems which, in turn, become worse when these unrealistic goals can't be achieved by normal means (Bakhshi & Baker, 2011; Cafri et al., 2006; Corazza et al., 2019). Therefore, they practice dangerous or even fatal behaviours such as adopting extreme diet regimes like anorexia nervosa, abusing medicines or supplements like steroids, changing their skin colour by tanning or lightening techniques and other dangerous practices.

Persistent media representation of what is called "ideal images" make people consider these images as normal and a sign of beauty and attractiveness. As a result, this will negatively affect the individuals' perception of their beauty when comparing themselves to those standards. Consistent exposure to these unattainable media images lead to body dissatisfaction (Grabe, et al., 2008). Some studies that examined the level of exposure to media showed that it can lead to body image problems and even eating disorders (Cafri et al., 2005; Grabe et al., 2008)

Evidence has also showed that exposure to photos and appearance containing materials on Facebook and Instagram (including following celebrities, fitness websites) can cause body image concerns. Engaging with photo containing media will lead to Internalization and appearance comparisons which act as mediators causing body image disturbances (Cohen et al., 2017; Meier & Gray, 2014).

The internet not only participates in developing image concerns, but also considered as supportive environment which encourage certain behaviours regarding image enhancement. For example, vulnerable people who engage in embarrassing behaviours and have similar interests and beliefs interact in online fora where people share information, feedback, and reviews. Therefore, image enhancing drugs users feel a sense of community and are able to freely exchange their experience and advice without exposure to risky or embarrassing face to face communication (Tighe et al., 2017).

The advertisements of lightening products promote a particular body image which refer to happiness, success, and attractiveness and is claimed to be obtained by using their products (Shankar et al., 2007). The advertisements' false claims of extraordinary results encourage people to purchase certain products. Some people state that the media including magazines, websites, short videos, and advertisements are the primary source of why they engage in skin lightening practice (Cash, 2012). These factors have increased the use of human enhancement drugs which in turn place a challenge on public health services (Cash, 2012; Corazza et al., 2012).

### **2.2.3 Body image dissatisfaction**

Individual's discontent and preoccupation of their appearance (a certain facial feature, body size, the shape of some body parts) is very common and it affects 27% of males and 41% of females in general population sample. This preoccupation does not affect their social and psychological wellbeing and they don't meet the DSM-5 criteria for BDD (Buhlmann et al., 2010). Excessive Body image concerns can cause an extreme impairment on psychosocial life which in turn lead to psychosocial complications such as low self-esteem, eating disorders, poor quality of life, social

anxiety, BDD, and even depression (Cash et al., 2004; Maynard, 2013). The effect of appearance on one's personal life can be measured by using different scales such as Appearance Schemas Inventory—Revised (ASI-R), Body Image Quality of Life Inventory (BIQLI), Body Dysmorphic Disorder Questionnaire (BDDQ) which mirror the criteria of BDD in DSM5, among others. The clinical attention towards the body image importance has been increased because of the high prevalence of body image concerns especially in western countries which lead to psychosocial complications or unhealthy practices.

#### **2.2.4 Body image disturbances**

Emotional distress caused by discontent of one's physical appearance can lead to psychosocial impairment and could range from mild to severe forms of psychosocial dysfunction (Cash et al., 2004). Obsessing about one's appearance to the extent that they avoid socializing or engaging in other activities is also considered a body image disturbance. Moreover, they believe that the way they look is preventing them from doing certain activities and if they change their appearance, they will feel happier and more confident (Clarke et al., 2012).

#### **2.2.5 Body image in dermatology**

The widespread and increasing importance on body beauty places an emphasis on the appearance of the skin as it is the most visible organ in the body, and it has been considered as one of the most concerned body areas. Therefore, it is understandable that skin conditions and concerns may affect people's psychological health and it has been found that around 30% of dermatological patients have psychological issues. On the contrary, evidence has shown that psychiatric diseases such as BDD can be presented with dermatological symptoms (Al-Sarraf et al., 2018; Marshall et al., 2016; Picardi et al., 2000).

Dermatologists describe BDD patients as “rich in symptoms and poor in signs” and hence this condition has been known as “dermatological-non disease” (Al-Sarraf et al., 2018). The skin represents the most common concern in both genders followed by concerns about hair and nose (Veale & Neziroglu, 2010). Some studies showed that the skin is the second most common concern among other body parts which

represent 36% of BDD patients after face and nose which comprise 46% of BDD patients.

An important clinical factor in dermatology practice is the Cutaneous Body Image (CBI) which is defined as individual's mental representation of their skin appearance (Charles & McLean, 2017). CBI dissatisfaction may indicate serious comorbidities in dermatologic patients (Gupta & Gupta, 2013).

### **2.2.6 Body Dysmorphic Disorder**

Body Dysmorphic Disorder (BDD) is one of the body image disorders and is defined as a preoccupation with an imaginary defect or slight flaw in appearance with excessive concern which leads to distress and serious impairment (Gupta et al., 1996; Mooney et al., 2017; Phillips et al., 2008; Rief et al., 2006; Veale et al., 2016b). Any element of physical appearance could be a target of this concern. Often these concerns focus on elements in the face or head such as the skin (scars, skin colour, wrinkles, etc.), hair, nose (shape or size) (Gupta et al., 1996). These refer to the most common presented themes of BDD which aggravate intrusive anxiety and hypervigilant state (Mastro, et al., 2016; Phillips, 2005). Patients are usually obsessed with non-existent or minimal flaw in their appearance. Sometimes they even describe themselves as ugly or unattractive. They usually spend approximately 3-8 hours every day thinking of their appearance or the slight flaws, and these thoughts are difficult to control.

BDD generally starts in adolescence period when teenagers are very sensitive about how they look and very concerned about their appearance, often they don't seek help for years. Although this condition is a psychiatric disorder, patients present frequently to dermatologists, general practitioners, and different surgical specialties with the aim of improving their appearance and fix their "flaws" and they often do not get satisfied with the treatment (Al-Sarraf et al., 2018; Phillips et al., 2008; Prabhu et al., 2007) Moreover, some patients tend to see numerous physicians in order to fix their appearance or imaginary flaws with relatively bad treatment outcome. They are unlikely to seek psychiatric help unless they have other associated mental health

problems like depression, Obsessive Compulsive Disorder (OCD), social anxiety or even suicidal thoughts (Al-Sarraf et al., 2018; Veale & Bewley, 2015).

Sometimes, their concerns handicap them, make them isolated, and not able to be functioning or able to face the world, These symptoms usually accompanied by low self-esteem, feeling of hopelessness and shame (Buhlmann et al., 2010; Phillips, 2004; Phillips et al., 2008). Patients often relieve their anxiety by following some strategies like covering the defects, frequent mirror checking, avoiding the mirror, frequent asking for reassurance, and sometimes they adopt some harmful behaviours to change their appearance (Buhlmann et al., 2010; Prabhu et al., 2007).

The prevalence of BDD is different in different settings. The prevalence in community is about 2% of general population, and it is about 3.3% in student populations. In psychiatric outpatients' clinics the prevalence is about 5.8% while the highest rates are in rhinoplasty surgery which is 13% followed by the ration in dermatology outpatients which reaches 11.3% of patients (Phillips et al., 2008; Rief et al., 2006).

Although some studies revealed that the prevalence is equal between males and females, most studies showed that BDD prevalence is higher among females (Veale et al., 2016). The females to males' ratio could range from 1:1 to 3:2 (Phillips et al., 2008; Rief et al., 2006). Women tend to be preoccupied with their weight, and the size of other body parts like breasts, legs, etc. On the other hand, men are more likely to be preoccupied with the body built which is known as muscle dysmorphia. Muscle dysmorphia is considered as type of BDD in which men are worried about their body-built size when they think that their muscles are too small or skinny. However, those individuals are usually muscular as they do body lifting and sometimes abuse steroids and do not seek help (Clarke et al., 2012). Such obsessive compulsive behaviours like BDD and muscle dysmorphia can be considered as precursors for other conditions such as addictive behaviours, mood, and eating disorders (Corazza et al., 2019).

## **2.3 Skin lightening products as body image enhancers**

Skin colour is one of the body image problems that people from different cultural and ethnical backgrounds suffer from and therefore they experience bad quality of life and practice either tanning or bleaching (Charles & McLean, 2017). Skin lightening is a very common image enhancing trend and because of its serious adverse effects, it has been considered as one of the most harmful cosmetic behaviours around the world (Gupta & Gupta, 2013; Lewis et al., 2012). These products can be purchased via cosmetic shops, saloons, black markets, and online without medical prescription for relatively low prices which make this public health problem even more alarming (Corazza, et al., 2014).

### **2.3.1 A historical look**

The practice of skin lightening had been well-known throughout history, but has become increasingly popular in the last 30 years which represents an intricate interplay of psychological, sociocultural, historical, racial, and even political factors (Naidoo et al., 2016). The practice of having lighter complexion can be dated back to Cleopatra's famous milk bath. In the Elizabeth era, many products that contained toxic substances like ceruse, lye, and ammonia had been used to get a whiter complexion.

In the nineteenth century, the ideal face had been defined by having fair skin and blush cheeks in many regions around the world. So, women used paints, washes, and white powder to gain the desired colour. Therefore, skin whiteners remained the most widely used cosmetic throughout the nineteenth century. Medical side effects started to be recorded as some of these products were found to be lead-based (Peiss, 2011).

In Indian history, skin tone preference was one among many variables that caused discrimination in this diversified society in addition to religion, gender, social class, geographical region, etc. Indians have a wide spectrum of skin colour tone and different facial features depending on the geographical regions they come from. Originally, there was an acceptance of different physical features and the concept of beauty was not based on the colour of the skin (Mishra, 2015). However, recent studies showed that the desire of lighter skin tone persists regardless of people's

skin tone, geographical region, or caste. Females with dark skin are the most affected with “gendered colourism”. Being a dark-skinned Indian female is a reason for concern to the whole family even among educated and independent women. Historically, India was invaded by the British who had fair skin colour and claimed to be “superior” and more “intelligent” than “black coloured” and “inferior” Indians. During this period, lighter skinned Indian were preferred over the dark-skinned ones and got hired by the British who filled the higher jobs. So, skin colour discrimination was noticeable since lighter skinned Indians treated as allies with special advantages over their darker counterparts. As the duration of colonisation lasted for hundreds of years, this formed the association of fair skinned people with superior class, power, attractiveness, and beauty. This concept has remained even after decades of independence (Mishra, 2015).

In Japanese culture, the white face is considered as a symbol of beauty. Japanese women try to make their skin lighter by using expensive face lightening products, wearing make-up such as foundation lighter than their skin colour, and avoiding sun light exposure (Ashikari, 2005). In anthropological research, conducted by Japanese anthropologist Hiroshi Wagatsuma, he argued that skin tone was linked to aesthetic values in Japan where fair skin is related to beauty and black to ugly. This dates back to the Japanese history rather than the ideas of race that came from the west (Ashikari, 2005; Wagatsuma, 1967).

For African-US descendants, Mulatto hypothesis means that the whiter genetic portions the fitter they are in the society according to Darwinism theory. In other word, the whiter they are, the more superior they are. This means having more positive qualities such as intelligence, attractiveness, better mental health, and less from negative qualities. This has been founded by American Africanism in literature which form the history and the coexistence disparaging image of African American individuals. Mulatto hypothesis divided the African descendants into five different categories which range from the most fit to the least fit individuals. So, colorism can be the outcome of the mulatto hypothesis in individuals who are aware of this hypothesis. This, in turn, leads to hair misorientation and skin bleaching practices as psycho-cultural problems (Azibod, 2014).



Moreover, the English immigrants carried the potential of having lighter skin tone to Americans. Some American physicians used other modalities like radiotherapy to bleach the skin in the early 20<sup>th</sup> century (Naidoo et al., 2016). Skin whitening became a growing cosmetic practice from the late 1950s (Blay, 2011), but the real enthusiasm for this practice originated back to 1960s when the whitening effect of hydroquinone was discovered accidentally on some black skinned Americans working in a rubber industry where they were exposed daily to this agent (Burger et al., 2016), In 1960s-1970s the skin whitening market was robust and a very profitable one, but rules started to regulate this market while side effects began to appear.

Despite the constructed differences across the world, currently men and women all over the world engage in this practice. The prevalence of using skin bleaching products among women is different from area to area, but it is estimated to be about 25% and it may reach about 67% among some African countries (Mahé, 2014). This ratio is not exactly known because some users are reluctant to admit using such products and this practice is on the rise among men and teenagers as well (Benn et al., 2016). Although both genders engage in this practice, females have a higher proportion than men in general, and some of them apply these products to their children as well (Hunter, 2011).

### **2.3.2 Skin lightening regulations development**

Preparations containing mercury have been mentioned in U.S and British pharmacy handbooks since the early twentieth century to bleach the skin or to treat freckles. In 1950s cosmetic companies used ammoniated mercury in their products. That's when dermatologists noticed the serious side effects from the high concentration/ prolonged use of mercury containing products. This together with the concerns of renal side effects promoted the South African and the U.S governments to ban the use of mercury in cosmetics in 1970s (Thomas, 2012).

The department of health and human services in the FDA stated that the efficacy of mercury as a bleaching agent is questionable and due to its well-known hazardous effects, it is unjustified to use it as a bleaching agent or as a preservative in cosmetics. An exception is the cosmetics used around the eyes because mercurial

compounds are used to prevent pseudomonas infection which may lead to blindness (FDA, 2020). World Health Organisation (WHO) labeled methylmercury and elemental mercury as toxic substances to the skin, eyes, renal, gastrointestinal, peripheral and central nervous systems (World Health Organization, 2007). It considered mercury as one of the ten most harmful chemicals causing public health concern (Ho et al., 2017). Therefore, mercury use in cosmetics has been banned in most African countries, US, European union and many other countries (World Health Organization, 2019).

However, these products are still being advertised and sold in online and other illegal means. Therefore, WHO stated that there is a great need for public and professionals awareness to educate community and patients about skin lightening products that contain mercury or other hazardous ingredients such as hydroquinone (World Health Organization, 2019).

Hydroquinone containing products dominated the market after mercury prohibition. In mid 1970s, doctors in South Africa documented detrimental effects of the prolonged use of hydroquinone, especially with the concentration of more than 3% on the skin. Therefore, the FDA recommended not to exceed 2% hydroquinone concentration and to put warning labels on all hydroquinone containing products (Thomas, 2012). In a WHO report, it has been stated that HQ 1% aqueous solution or HQ 5% in creams can lead to dermal irritation. Chronic use of 1-2% HQ can lead to exogenous ochronosis. Furthermore, concerns are on the rise because of its carcinogenic effect reported on animal studies (Matsumoto et al., 2016). In 1987, the dermatological society in south Africa and the National Black Consumer Union (NBCU) were working to increase awareness and to ban the use of hydroquinone. In 1990, hydroquinone was banned from use in cosmetic products in South Africa. Therefore, South Africa became the first country to prohibit certain ingredients from skin lightening products and ban the whitening language from skin products which drive the anti-racist political movements afterwards (Thomas, 2012). Moreover, Hydroquinone use has been banned in cosmetics for skin whitening in the UK and EU whereas in the U.S concentration of 2% or less is allowed in cosmetics and concentration 2-4% can be prescribed for skin whitening (Matsumoto et al., 2016).

However, in European countries imported skin lightening products which are not compliant with the European cosmetics legislations are still available in the market. The most common ingredients found are hydroquinone, mercury, and clobetasol propionate (Michalek et al., 2019). In some parts of the UK, the sale of illegal skin lightening products is considered a problem. By law the use of hydroquinone and steroids are not allowed in cosmetic products (Bunn & Hobbs, 2013).

Some African countries such as South Africa, Ghana, and Tanzania have banned the production and the import of skin lightening products that contain corticosteroid, hydroquinone, mercury, resorcinol, among others. Despite the existence of such legislations, the enforcement of such laws are questionable as African countries remain the favorite destination for many lightening products which have been produced in Asia and Europe with high concentration of banned substances (Naidoo et al., 2016).

In 2011, WHO considered mercury as a dangerous substance to consumers health and also warned from skin lightening products as they may contain “hazardous substances” other than mercury (Michalek et al., 2019). Regarding the global regulations, a systematic review conducted in 2019 founded that many high- and middle-income countries has regulations on the heavy metal contents of skin lightening products while there is a lack of such regulations in low-income countries. However, an assessment of the enforcement of these regulations is needed. Also, a global accordance of such standards is necessary with the increase of the availability of skin lightening products especially via the online markets (Michalek et al., 2019).

### **2.3.3 How do skin lightening products work?**

Melanin is a pigment that is responsible for skin colour. This pigment is synthesized by a process called melanogenesis. The pigment-producing cells are located in the epidermis, the skin outermost layer of the skin. Many enzymes are involved in this process, but the principal ones are tyrosinase, and tyrosinase related proteins (TRP1), (TRP2) which are exclusively important for melanogenesis (Pillaiyar et al., 2017). Human tyrosinase is a glycoprotein enzyme which initiate the first two steps of melanogenesis: tyrosinase hydroxylation to L-Dopa and the L-Dopa oxidation to

dopaquinone. Tyrosinase location in melanosomes, the organelles which are responsible of melanin synthesis in the melanocytes (Lai et al., 2016).

When the skin exposed to UV radiation, in skin types 1-4, melanogenesis is increased via activation of L- phenylalanine which convert into L- tyrosine by phenylalanine hydroxylase (PAH). Then L-tyrosine converted by tyrosinase and tyrosinase hydroxylase 1 (TH-1) into L-Dopa and dopaquinone. After this, the melanin formation pathway is divided into two separate pathways the black brownish eumelanin synthesis and the red, yellow pheomelanin synthesis. TRP-1 and TRP-2 are located in the melanosome and participate in eumelanogenesis. Although their role has not been clarified yet, it has been demonstrated that they increase tyrosinase stability and also some suggested that TRP-1 increases the proportion of eumelanin to pheomelanin (Gillbro & Olsson, 2011).

A wide range of both synthetic and natural products have been used for skin lightening purpose. The mechanism of action of skin lightening products can be divided into five groups which are: tyrosinase inhibitors, melanocyte transfer inhibitors, epidermal turnover acceleration or desquamation, antioxidants, and anti-inflammatory agents (Naidoo et al., 2016). All these products target melanin production pathway and many of them contain agents called as tyrosinase inhibitors which is the key enzymes in melanin synthesis process (Gillbro & Olsson, 2011). These products namely are hydroquinone, kojic acid, azelaic acid, arbutin, botanicals, and mercury.

Tyrosinase inhibitors are used to treat medical conditions with melanin accumulation and also in the cosmetic sector to lighten the skin colour (Wang et al., 2011). The frequent non-medical or cosmetic use of these products increases the occurrence of the subsequent local and systemic complications. The absorption process of these products is carried out by epidermis, sweat glands, sebaceous glands, hair follicles, and even through dermis depending on hydration of stratum corneum and how frequent the products are applied to the skin (Gbetoh & Amyot, 2016). The severity of side effects depends on skin type and sensitivity, the method of administration, concentration of the product, the amount of product applied, and other coincident topical or systemic treatments for other conditions. Side effects occur more

apparently in thin skin areas like face, eyelids, groin, and axillary skin folds (de Souza, 2008).

#### **2.3.4 Harmful ingredients and side effects**

Many substances have been used in skin lightening products such as mercury, hydrogen peroxide, lead, hydroquinone, corticosteroids, phenols, salicylic acid, azelaic acid, among others (Gbetoh & Amyot, 2016; Olumide et al., 2008; Van Hout & Wazaify, 2021) However, mercury, corticosteroids, and hydroquinone are the most commonly reported ingredients which caused adverse effects.

##### **2.3.4.1 mercury**

in cosmetic products can be found in three different forms: elemental, organic, and inorganic forms. The most common form in skin lightening products is the inorganic mercury. It works by inhibiting melanin formation in tyrosinase pathway by competing with copper which results in paler skin colour (Gbetoh & Amyot, 2016). Mercury can be absorbed through the gastrointestinal tract, respiratory tract, and the skin and eliminated through kidneys and the colon. Mercury toxicity can happen after topical application which was firstly noticed in 1923. There are two forms of mercury toxicity acute and chronic which correlate with both organic and inorganic forms. Acute form can be appeared as gastrointestinal discomfort or pneumonitis while chronic toxicity may be manifested as neuro or nephrotoxicity. The main way of elimination is by urinary tract route. Therefore, chronic mercury exposure can lead to nephrotoxic side effects like protein urea and nephritis. Nephrotic syndrome and glomerulonephritis both (proliferative and membranous) have been found in people who had applied skin whitening products that contain mercury (Olumide et al., 2008). In addition, long term usage leads to mercury accumulation in the central nervous system and lead to neurotoxicity (Gbetoh & Amyot, 2016).

Moreover, mercury chronic use of mercury can lead to paradoxical hyperpigmentation effect when mercury granules accumulate in the dermis. These granules in turn are absorbed by the appendages of the skin in the dermis, the hair follicles and sebaceous glands. It has been noticed that the brown gray discoloration of the skin (especially on the face, neck and eyelids) can be attributed to chronic use

of mercury containing topical creams (Olumide et al., 2008). World Health Organisation (WHO) considered mercury as one of the ten most harmful chemicals which cause public health concern (Ho et al., 2017). Therefore, its use has been banned in most African countries and in European union countries (World Health Organization, 2019).

#### **2.3.4.2 Corticosteroids**

have been considered as depigmenting agents especially the potent corticosteroids preparations like clobetasol propionate, betamethasone dipropionate, and fluocinonide which can be found as over the counter drugs in some countries (Naidoo et al., 2016). Clobetasol propionate for example, is normally used for many skin diseases as an anti-pruritic and anti-inflammatory agent by inhibiting prostaglandin production pathway. It has also a vasoconstrictive effect. Some steroid containing creams have been diverted from their therapeutic usual use and used as skin lightening products. Although the mechanism in which these products lighten the skin is unclear, it can affect some receptors on melanocytes and keratinocytes leading to depigmenting effect (Gbetoh & Amyot, 2016). It is also believed that topical steroid inhibits endogenous corticosteroid production which led to reduce precursor hormone level, proopiomelanocortin, which is considered as a melanocyte stimulating hormone precursor. So, negative feedback results in decreasing the levels of that hormone. Another mechanism says prolonged use of topical steroid decreases the epidermal turnover which in turn leads to less pigmented and fewer number of melanocyte in epidermis (Olumide et al., 2008). Some suggest that corticosteroids induced vasoconstriction, with chronic use can inhibit melanogenesis in epidermis. Corticosteroids can be contributed to many skin and systemic adverse effects. The cutaneous side effects include hypopigmentation, striae formation, hypertrichosis, steroid induced acne, skin atrophy, and others. Systemic adverse effects have also reported such as hypertension, diabetes, immunosuppression, etc. (Naidoo et al., 2016). Immunosuppression makes the skin targeted by different infectious diseases such as scabies, mycoses, cellulites, superficial bacterial pyoderma. These steroid induced infections usually present with severe and widespread infection (Mahé, 2014). Some cases of reversible adrenal insufficiency and diabetes mellitus have been reported after heavy use of topical corticosteroid containing bleaching creams in different African countries in which these products

can be sold as cosmetics without medical prescription. Acute adrenal insufficiency risk factors are using potent corticosteroid for prolonged duration or with occlusion which increase its absorption especially in thin skin areas (Sobngwi et al., 2003).

#### **2.3.4.3 Hydroquinone (HQ)**

is a benzene metabolite acts as a skin whitening agent by inhibiting the transformation of tyrosine into melanin by acting as an alternative substrate to tyrosinase. Hydroquinone will convert into quinones and free radicals (Naidoo et al., 2016). The semiquinone free radicals damage the melanosome and even the melanocyte. With chronic application and sun exposure, the melanocytes go down to papillary dermis layer. The fibroblast there taking up these melanocytes which result in changing the production of elastic fibres and also excrete abnormal substances into new bundles of fibres. Moreover, when hydroquinone proceeds into oxidative process produce benzoquinone acetic acid which bind the collagen fibers and change the physio chemical bonds and eventually lead to degenerative changes in the skin (Olumide et al., 2008). A common and acute complication of hydroquinone is a periorbital hyperpigmentation which can be attributed to phototoxicity of hydroquinone which usually be prevented in medical use via photoprotection. Other hydroquinone complications are dermatitis, colloid milia, cataract, scleral pigmentation, patchy depigmentation, and exogenous ochronosis which appear in sun exposed areas like face, upper back, and chest and associated with prolonged application of hydroquinone (Olumide et al., 2008). Less common complications might mislead the diagnosis of some skin lesions which are vitiligo like lesions, pseudo lupus eruptions, and lichen planus. They occur after chronic use and disappear after cessation of topical hydroquinone and it leaves only post inflammatory hyperpigmentation (Mahé, 2014).

In addition to harmful health related effects of these drugs, health care workers should bear in mind the possibility of those patients having psychosocial problem. Usually people with somatoform disorders deny the connection between their complaints and psychosocial problems as well as they believe these somatic drugs will relieve the problem. Giving them these drugs is contraindicated as it leads to aggravate their psychological problems. Patients with psychological problems

deliberately ignore the side effects and the complications of their wanted drugs (Harth et al., 2008). Therefore, our research aims to better clarify the psychological reasons behind this phenomenon to help health care professionals deal with this problem in the best way possible.

### **2.3.5 The online market of skin lightening products**

In many countries, the skin lightening products are unregulated which encourage the dissemination of counterfeited products and the online availability of illicit products that can be sold without medical supervision or prescription (Van Hout & Wazaify, 2021).

It is a profitable and multibillion dollar business; myriad amounts of advertisements are dedicated to promoting skin lightening. Many of these advertisements make false claims to deceive people about the extraordinary results they get after using the products. Some advertisements claiming that the products contain organic or certified organic ingredients to counter the well-known medical adverse effects caused by these products (Cash, 2012). Some of the available non-prescription online or over the counter skin lightening products contain active ingredients which are alternatives to HQ like kojic acid, kojic dipalmitate, soy protein, arbutin, areosin, and some plants extracts. These products have been advertised as “natural” by the manufacturer which might be interpreted by consumers to be “safe”. So, these ingredients are increasingly used in different cosmetics despite the lack of scientific safety data about it. Because of the differences in biologic activity and the chemical composition, side effects from these ingredients can be reported (Madhogaria & Ahmed, 2010).

The dissemination of these products on the internet without accountability of their safety profile makes this public health problem more challenging (Lian & Mackey, 2009). The online avenue of buying skin lightening products has been indicated as less recognizable and important way to obtain products with heavy metals. A study in the U.S. stated that 7.2% of skin whitening products sold online in the U.S. contain mercury (Hamann et al., 2014). The availability of skin lightening products online made their use even more likely and widespread among vulnerable people or those



who have skin pigmentation diseases (Burns et al., 2013) because they are unable to obtain or afford these products from other sources (Lian & Mackey, 2009). Vulnerable individuals of all ages are targeted to use different compounds which might contain hidden ingredients or high concentration of some allowed substances. Some of these substances can cause serious dermatologic and systemic adverse effects. The phenomenon is rapidly growing and expanding despite warnings of the dangerous trend of buying pharmaceuticals online.

### **2.3.6 Motivation for skin lightening use**

The motives of skin lightening's use can be associated to various and multifactorial reasons e.g.: social, cultural, political, and psychological issues. References to history of colonialism, enslavement, and the white supremacy in certain cultures affect people's general perception of some skin colour shades and hence they attempt to change it by bleaching (Blay, 2011; Charles, 2012).

Emerging motivational factors in this review were classified according to both the non- psychological related and psychological related reasons. The non-psychological factors were subdivided into (a) sociocultural risk factors; (b) skin conditions related factors, while the psychological related ones were subdivided into factors associated with (a) self-esteem; (b) body image disturbances; (c) other psychological conditions. These categories varied depending on the sociocultural background of the studied population and their history, ethnicity, skin colour shade, among other influencing factors.

#### **2.3.6.1 The non-psychological risk factors (sociocultural and skin conditions risk factors)**

In many cultures, lighter skin tone females are considered as more attractive than their darker counterparts. Some see this as a sign of femininity, fertility, and health (Coetzee et al., 2012). Other data have shown the link between light skin and social life advantages like personal relationships and job opportunities (Swami et al., 2013). A study about facial attractiveness revealed that an attractive female face has lighter skin colour compared to average female face opposite to what is considered as attractive in male face which has darker skin tone compared to average male face

(Said & Todorov, 2011). In a large study conducted on 51 societies in 1986, 47 society preferred lighter skin tone in women than the darker complexion (Swami et al., 2008).

Given that the value associated with skin tone can vary according to geographical location, gender, and ethnicity amongst other factors, it is essential that the complexity of culture is taken into consideration whilst researching cultural variations effect on skin lightening practices.

The sociocultural factors mainly included seeking beauty and attractiveness in the attempt to achieve different social and cultural benefits, such as getting better jobs and relationships chances. For example, black men are usually attracted to fair skinned women who they choose as wives which in turn left many darker coloured women unmarried. Also, some men from upper social status may seek to marry light skinned wives to get the socio-economic benefits associated with this fair skin colour (Charles, 2011). It has also been mentioned that lighter skin coloured black people earn more money and have more distinguished jobs than those who have darker shades (Thompson & Keith, 2001). It has also been stated that getting jobs, education opportunities, as well as increased pay and promotions in work place are linked to skin colour (Hunter, 2002).

In addition to the causes above, skin lightening is needed for skin pigmentation disorders such as hyper or hypo pigmentation or general unevenness of the skin tone especially in Asian countries (Burger et al., 2016). So, some dermatological conditions might drive this practice as a therapeutic use to achieve more uniform colour.

The use of skin lightening products to treat underlying skin conditions e.g.: hyperpigmentation lesions and achieving soft skin that free from acne or pimples was another common reason that emerged from our analysis. For instance, 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, this study was conducted in a clinical setting which may bias the results. Moreover, the targeted population were women from Indian or African origins only whose skin tone

may be more prone to developing hyperpigmentation lesions when compared to other types of skin colour. Another study conducted in university campuses in Cameroon supported this research (Kouotou et al., 2017).

A community study conducted in Jordan targeted pharmacies' customers compared the differences in motivational factors according to the skin colour of participants, their educational level, and their income. Most darker skin coloured participants use lighteners to lighten their skin tone or to treat hyperpigmented disorder, while most people who have lighter skin colour use lighteners because of hyperpigmentation skin disorder (Hamed et al., 2010). This 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 skin lighteners is to achieve "beauty", to attract men, and to have united colour smooth skin (Kamagaju et al., 2016). Another qualitative study investigating the motivations of using skin lighteners in Tanzania has found six motivational themes behind this practice. The four most prominent themes emerged respectively from the largest proportion are;(1) to be white, to "be beautiful" and to have a European look; (2) to impress peers; (3) to treat pimples and other skin conditions; (4) to impress male partner/ mate (Lewis, et al., 2011). These two studies were conducted in African countries and the concept of being beautiful is connected with being fair skinned (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 Middle east are using skin bleaching products more than the Swedish women. In this study, sixteen women were interviewed for qualitative data and concluded that the main motivation of skin bleaching was to be "more beautiful" which meant to most participants having a lighter skin tone. Also, fair skin is associated with having more economic advantages and social opportunities (marriage and employment chances) (Darj et al., 2015; Van

Hout & Wazaify, 2021) as lighter skin tone is always related to socioeconomic rewards for some ethnicities (Buchanan et al., 2008).

### **2.3.6.2 The psychological related factors**

Although to a lesser extent, studies relating skin lightening practices to psychological factors, and potential underlying psychopathological features, especially in relation to body image disturbances, were also identified. For clarity reasons, these have been classified and presented as follows: (a) self-esteem related factors, (b) body image related factors, (c) other potential psychological factors.

#### **2.3.6.2.1 Low self-esteem and self-hate**

In some cultures, the fact of having light skin is considered as a symbol of beauty and attractiveness, which in turn negatively affected the self-esteem of those who had darker skin tones (Charles, 2003a). Participants of a study conducted in Malaysia gave their opinion about “lighter skin tone” as a key feature for higher self-esteem i.e., more beautiful, more chances of getting married, better job, and higher social status. These perceptions of people towards light skin colour may explain the reasons behind skin bleaching practice.

Some evidence suggests that lighter skin-coloured minorities like African Americans have higher self-esteem than their darker counterparts. Furthermore, skin bleacher’s self-worth and confidence level may be negatively impacted when they fail to achieve the unattainable goals of having fair skin and may progress to body dysmorphic disorder (Bakhshi & Baker 2011).

One study showed that a significant proportion of skin lightening users agree to the sentence “lighter skin colour provides women with higher self-esteem” while the majority of women in the study disagree to this notion (Hamed, et al., 2010). Another cross-sectional study conducted in 26 countries to investigate the association between the use of skin lightening with some health and social correlates showed that skin lightening users have some depressive symptoms and absence of personal mastery. These qualities could also be related to having low self-esteem (Peltzer et al., 2016).

Comparing a sample of 54 participants of bleachers and non-bleachers groups in Jamaica using qualitative questions along with Rosenberg self-esteem questionnaire 10, showed that the group of non-bleachers have a higher self-esteem than the bleachers group. However, this does not necessarily mean skin bleaching results from low self-esteem and hence further research required to investigate the causality of skin bleaching (Charles, 2010a). Charles has also stated that self-hate comprises one of many other 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 groups in average scores (Charles, 2003a). Therefore, Charles criticizes the self-hate paradigm in explaining skin bleaching practice in Jamaica. Alternatively, he describes “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 describes the “miseducation and colourism” which resulted from the history of slavery and colonialism are 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 setup to add robust results to the current evidence. In our research a mixed methodology including Rosenberg self-esteem scale 10 have been applied in clinical and non-clinical settings.

#### **2.3.6.2.2 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 compares young women of European origins to their counterparts of South Asian origins. South Asian females showed a great preference to be lighter in colour and showed low

body satisfaction compared to the other group in the study (Sahay & Piran, 1997), but this study did not ask about skin bleaching practice among young women who aspire to be lighter. However, lighter skin colour preference can't be separated from skin lightening practice as this desire can be the drive of using lighteners.

Although skin bleaching has been attributed to a number of different reasons, the concern about body image among bleachers is certain (Charles, 2003). However, Charles and McLean, 2017 refuted this concept when they investigated the association between skin bleaching and body image disturbance for the first time. They have concluded that most skin bleachers in their study don't suffer from body image disturbances. The results of this study can't be generalized as it has been conducted in one country (Jamaica) and on one ethnicity only.

Research in this area is still in its initial stage and there is a call for conducting innovative methods to carry out research on body image which specifically relates to body parts other than body weight such as the skin colour and their association with media influence (Prieler & Choi, 2014). Also, understanding the motivations of using skin lightening cosmetics is needed to conduct the right future intervention (Michalek et al., 2019) and further research is sought to explain the relationship between different psychological conditions and skin bleaching behaviour (Darj et al., 2015).

#### **2.3.6.2.3 Other psychological risk factors**

Skin bleaching has also been connected to other psychological problems in literature such as the history of trauma especially childhood sexual and physical abuse, and depressive symptoms (James et al., 2016). A study conducted in three Caribbean countries concluded that those who lighten their skin colour showed symptoms related to depression, previous exposure to trauma or had been exposed to childhood abuse (James et al., 2016). Furthermore, childhood physical and sexual abuse have been considered as potential risk factors for future BDD development (Buhlmann et al., 2012) which can also drive body alteration practices such as skin lightening. As argued in (Al-Sarraf et al., 2021) this evidence suggests an association between skin lightening practice and BDD. However, this correlation needs to be supported by further research.

## **2.4 Conclusion and Discussion**

Findings of this initial literature review clearly highlight the urgent need for a better understanding of what drives people to lighten their skin, how to prevent irreversible future consequences and to treat any accompanied hidden psychiatric or psychological problems. The number of studies investigating the association of skin lightening with body image problems, self-esteem, and other psychological risk factors are very limited and still inconclusive. More research in this field is necessary to increase public and health care professional's awareness of this complicated phenomenon and its causes, consequences, and related mental or physical health problems.

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 various social and cultural benefits. The goal of having uniformly coloured skin is another common reason for the wide use of skin lightening products 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 skin lightening products usage is a result of low self-esteem. Although the concern about body image can play a crucial role among users, the association of skin lightening products usage with body image problems, and psychological risk factors are limited and still inconclusive.

## **Chapter 3**

### **Study 2: A quantitative study examining skin lightening practice and its associated risk factors**

#### **3.1 Introduction**

This chapter presents the cross-sectional study which undertaken among participants in both clinical and non-clinical settings. Obtained quantitative data is used to achieve a main objective of the study and the research which is to identify at-risk group. By using psychometric measures, the relationships of skin lightening practice with the psychological and psychiatric disorders are investigated in both settings. Section 3.2 presents the objectives of this study which take part in the research objectives. Section 3.3 introduces the unique methods that have used to achieve the objectives including dissemination process, risk assessment, inclusion, and exclusion criteria. Section 3.4 presents the ethical approval obtained from the University of Hertfordshire. 3.5 section details the process of data analysis including the used tests and the steps that have been taken to obtain the results. 3.6 section presents the results of each section of the questionnaire and comparisons between clinical and non-clinical sample were performed if applicable 3.7 discusses the results and integrates them with the existing literature.

#### **3.2 Study two objectives**

The key objectives of this study are to

1. identify those most at risks and compare demographics of skin lightening users with the nonusers' group in a multicultural population.
2. explore the skin lightening experience in users' group including techniques of skin lightening, the side effects, among other features.
3. explore the motivational factors behind this practice.
4. explore the association of skin lightening practice with self-esteem, body dysmorphic disorder, and cutaneous body image in clinical and non-clinical settings.



Emerged evidence will integrate the findings obtained from the internet-based research and the semi-structured interviews in other parts of this study.

### **3.3 Methods**

#### **3.3.1 Questionnaire structure**

In accordance with the objectives above, a semi-structured survey questionnaire was developed as a result of the initial literature review. The questionnaire was divided into five main sections:

**(1) Demographics.** The first section contains eight demographic questions on age, sex, marital status, the country of origin, ethnic group, level of schooling, employment status, and their skin colour type.

**(2) Skin lightening experience.** It contains fifteen questions about skin lightening experience. This section was only accessible by skin lightening users.

**(3) Self-esteem.** The third section consists of Rosenberg self-esteem scale 10, It is a 10 items scale each item can be answered using a scale of four points which are strongly agree, agree, disagree, strongly disagree which evaluates persons feelings of self- worth, which has been used reliably in adults males and females across different ethnicities and cultural backgrounds (Cash et al., 2005; De Maynard, 2009).

**(4) Body Image.** The fourth section is the Body Dysmorphic Disorder Questionnaire (BDDQ) to assess the presence of body dysmorphia in the selected population. Although there are many tools that have been used for screening of Body Dysmorphic Disorder (BDD), BDDQ is the most commonly used screening tool that have been used in different settings with specificity and sensitivity reached up to 100% and 90% respectively (Phillips, 2005; Veale et al., 2016a). As highlighted in my previous work (Al-Sarraf et al., 2018, 2021) . BDD may be accompanied by other psychiatric disorders or symptoms which are easier to discuss and being diagnosed than the BDD such as social phobia, depression, low self-esteem. However, the BDD itself can be the main cause behind the presence of these problems. The clinical judgment according to DSM-V criteria is the only method that can be used in the diagnosis of BDD as there is no blood test or imaging techniques that can help in

this. However, Phillips has designed the BDDQ which is a self-reporting questionnaire which mirrors the DSM-V criteria. Therefore, it has been used in this research as a screening tool of BDD (Phillips, 2005). The key Diagnostic Criteria for Body Dysmorphic Disorder are according to DSM-5 (American Psychiatric Association, 2013).

- Preoccupation with an imagined defect in appearance. If a slight physical anomaly is present, the person's concern is markedly excessive.
- The preoccupation causes clinically significant distress or impairment in social, occupational, or other important areas of functioning.
- The preoccupation is not better accounted for by another mental disorder (e.g., dissatisfaction with body shape and size in Anorexia Nervosa).
- BDD and eating disorders interrelate with each other. So, the "yes" answer to question number 2 can indicate an eating disorder. However, weight concerns can also be involved in BDD (Phillips, 2005).

**(5) Skin concerns.** The Cutaneous Body Image Scale (CBIS) was selected to assess any eventual body image and skin concerns that were not identified by BDDQ. Cutaneous Body Image (CBI) is recognised as one's mental perception of their skin, hair and nail appearance. CBI contribute to dermatology patient's quality of life and can contribute to the overall morbidity in dermatologic disorders. Therefore, assessing the CBI has significant implications in clinical dermatology clinics (Madhulika A. Gupta & Gupta, 2013). So, CBIS has been used to compare the cutaneous body image in clinical and non-clinical groups and in skin lightening users and non-users. According to CBIS dissatisfaction scoring system, those who score <3 means they have severe dissatisfaction, 3-6 means moderate dissatisfaction and >6 mild to no dissatisfaction.

The survey questionnaire took approximately 10-15 minutes to complete and was constructed by using the Qualtrics software, which is a specialized software for conducting surveys provided by Life and Medical School in the University of Hertfordshire. All data were stored in a secure platform at the University of Hertfordshire. Information was only shared between the student and the supervisors

ensuring that all the responses were securely stored and available to the research team only.

Feedbacks from supervisors, professionals, colleagues, and other fellow students have been obtained to modify some questions or contents. This step was done to confirm that the questionnaire is understandable and easy to respond to and to make sure the appropriate language was used which suits the sensitivity of the topic (a copy of the questionnaire attached in appendix A).

### **3.3.2 Recruitment and data collection**

The questionnaire has been administered both online (non-clinical sample) and face-to-face in various dermatological clinics (clinical sample).

Non-clinical sample: The online version was disseminated from April 2019 until June 2020. Recruitment was supported via a dedicated project website which was designed specifically for the project (<https://alaaalsarraf12.wixsite.com/skinlightening>) and posted in relevant social media platforms (e.g., Facebook, WhatsApp). To develop the research sample, a snowballing technique was used: participants were invited to complete the survey and share it with their contacts. A request of participation was also sent via email through a network of colleagues and collaborators working in the dermatological field in different countries. Particular attention was given to Asian and middle eastern countries such as such as Iraq, India, Kuwait, Turkey, Jordan where the skin lightening practices are considered as popular and culturally in demand (Peltzer et al., 2016).

Clinical Sample: The face-to-face data was conducted in person by the researcher who visited Dermatology Outpatient Department/ Whipps Cross University Hospital/ London, and in Dermatology Department/ Royal London Hospital. The collection started from 1<sup>st</sup> May – 1<sup>st</sup> Nov 2019 (two regular visits a week). Approval was sought prior to the visits with the department clinical director (Appendix H). The researcher approached the patients in the waiting area of the Dermatology Department and asked them if they would like to participate in the study. Participants who accepted to take part were presented with information about the research study on the first page

of the questionnaire, which represents the consent to participate in the study (Appendix A). No signature was required in case of participation. Copies of the questionnaire were distributed to patients while they were waiting to see or immediately after seeing the clinician in paper form as this method was convenient to be distributed to several patients at the same time. This was to facilitate the collection of the data, from a patient-centric (participant-centric) perspective. However, it was also highly time consuming for the researcher as the collected data were transmitted manually to Qualtrics software and then exported to SPSS to be statistically analysed.

In the case of online participation, the same information sheet was provided in the first page of the survey and consent was obtained by ticking the box “I have read and understood the information above, and I agree to participate in the study” and clicking the continue button at the end of information sheet. In both the online and face to face interviews, participants were informed of their right to withdraw at any time, even if the questionnaire was not completed. The survey was anonymous, and no participant could be identified by their responses. Demographic features such as age, gender, relationship status, ethnicity, country of origin, level of schooling, and occupation were gathered to enable comparisons. However, these details were completely anonymized, and no one could be identified from their answers.

### **3.3.3 Inclusion criteria**

#### **For non-clinical (online) participants**

- People who are 18 years old and older.
- Both genders and all ethnicities and backgrounds are included to get a multicultural sample with various skin colours shades.

#### **For clinical participants**

- Patients who attended dermatology departments in both mentioned hospitals.
- Patient should be  $\geq 18$  years old.
- Patients are able to understand English language.
- Patients should give the researcher verbal consent to participate and then tick the box of agreement box in the information sheet.

- No skin colour, ethnicity, or skin diseases have been excluded.

#### **3.3.4 Exclusion criteria**

- Patients younger than 18 years old and those who visited the paediatric dermatology department.
- Patients who are unable to understand or read English.
- Patient who are unable to give consent or didn't give consent to participate.

#### **3.3.5 Rationale for inclusion and exclusion criteria**

This criterion-based sampling was implemented to all the researcher choosing wide variety of skin colour shades and obtaining a multicultural sample. This in turn can help to identify the risk and motivational factors of skin lightening phenomenon in different cultures and facilitate the understanding of the emerging themes from the study.

#### **3.3.6 Risk assessment**

Potential risks and hazards associated with the study have been carefully identified as some questions in the questionnaire, or the interview, might be sensitive in nature and generate a sense of discomfort to the interviewees. This might be related to calling back unpleasant past events or personal experiences/ sensitivity/ prejudice in some questions like ethnicity, their skin tone, their reasons behind this practice. Emotional or mental discomfort of some participants which could be aroused after asking some questions about their background, previous or current medical conditions, past experiences, physical or mental satisfaction. These feeling of embarrassment or guilt could be aroused after asking questions in the questionnaire or in interview. Also, some consider asking about certain behaviours invades participants' privacy and breach confidentiality. Minimizing the associated risks was implemented by providing sufficient information about the study, the advantage of their participations, the participation is completely voluntarily, withdrawal can be applicable anytime, and their confidentiality and anonymity are kept along the research stages. Also, the most sensitive and appropriate language has been used in the questions taking in consideration opinions of experts such as supervisors and colleagues. Coordination with the clinical teams in dermatological clinics was placed

and acknowledging them in advance of these possible adverse effects. Furthermore, contact details of the researcher have been provided if participants experience any adverse circumstances after the study. However, none of the participants reported experiencing any adverse effects.

### **3.4 Ethical consideration**

The ethical approval of the data collection was submitted in Dec 2018 and the approval was obtained on 31<sup>st</sup> January 2019. This study has been approved by the Health Science Engineering & Technology Ethical Committee with Delegated Authority (ECDA) University of Hertfordshire, Protocol number: LMS/PGR/UH/03609 (Appendix F). Then a modification was submitted to include the research website as a dissemination method. So, further approval was obtained on the 16 April 2019 protocol number: aLMS/PGR/UH/03609(1) (Appendix G).

### **3.5 Data analysis**

Data analysis was performed using SPSS 20.0 (SPSS Inc., Chicago, IL, USA) for Windows. For categorical variables, frequency and percentages were used. As categorical variables the following parameters were described: age, gender, ethnicity, employment, educational, marital status, types of skin colour, and patterns of skin lightening practices. The score of both the Rosenberg self-esteem and the Cutaneous Body Image scales were summarized by mean and standard deviation. The score of the BDDQ was processed as categorical dichotomous variable: positive or negative screening results. According to the scoring standards of the BDDQ, the rate of positive answers on the differential question “Is your main concern with your appearance that you are not thin enough or that you might become fat?” was separately calculated to exclude cases with eating disorder issues.

Considering the nonparametric distribution of some variables, Mann–Whitney U and Kruskal-Wallis tests were used to compare continuous variables, while the categorical variables were analysed using chi-squared- and Fisher exact tests. The comparison groups were formed according to two characteristics in parallel: 1) the fact of skin-lighteners use at least once in a lifetime (yes/no) and 2) a setting of the sample allocation (at clinics or online).

A binary logistic regression analysis was conducted to predict risk factors related to skin lightening used. Preparatory steps were undertaken to test the regression

model: the creation of dummy coding for some of the demographic variables including age group of 25-34 years; Caucasian/ white and Asian ethnic groups; fair and medium skin colours; secondary, bachelor and postgraduate levels of education. These variables were tested in the model because they had revealed significant differences in their prevalence between skin-lighteners and non-lighteners users. Additionally, the psychological scale scores were introduced to the regression model as continuous variables for Rosenberg scale's, CBIS total scores and dichotomous outputs of BDDQ. Based on the results of the logistic regression, raw and adjusted Odd Ratios (OR) with their 95% confidence intervals (95% CI) were obtained. The P value (< .05) was considered statistically significant.

### 3.6 Results

Overall, 500 responses were collected 315 from online distributed survey and 185 responses were collected from the clinical method.

#### 3.6.1 Demographic factors

##### 3.6.1.1 Age

The most common age group that participated in the total sample size is (25- 34-year-old) which comprises 38.3% of all participants. It is interesting to know that age groups 34 year and younger form 84.9% of online participants. However, the participants in the clinical group were more steadily distributed in all age groups (Table 3.1).

Table 3.1 Socio-demographic characteristics by type of enrolment settings and skin-lightening usage.

Characteristics, n (%)	Total	Skin-lightener use			Type of survey distribution		
		Yes	No	Statistical criterion, p	Clinics,	Online,	Statistical criterion, p
<b>Age groups</b>	<b>N=486</b>	<b>n=127</b>	<b>n=357</b>	<b><math>\chi^2=36.28</math>, <b>p&lt;0.001</b></b>	<b>n=181</b>	<b>n=305</b>	<b><math>\chi^2=130.70</math>, <b>p&lt;0.001</b></b>
18-24	142 (29.2%)	29 (22.8%)	113 (31.7%)		22 (12.2%)	120 (39.3%)	

25-34	186 (38.3%)	75 (59.1%)	110 (30.8%)		47 (26.0%)	139 (45.6%)	
35-44	70 (14.4%)	14 (11.0%)	56 (15.7%)		42 (23.2%)	28 (9.2%)	
45-54	40 (8.2%)	5 (3.9%)	35 (9.8%)		26 (14.4%)	14 (4.6%)	
55-64	28 (5.8%)	4 (3.1%)	23 (6.4%)		24 (13.3%)	4 (1.3%)	
65-74	12 (2.5%)	0	12 (3.4%)		12 (6.6%)	0	
75 or older	8 (1.6%)	0	8 (2.2%)		8 (4.4%)	0	
<b>Gender, n (%)</b>	<b>N=486</b>	<b>n=127</b>	<b>n=357</b>	$\chi^2=10.31^*$ , <b>p=0.001</b>	<b>n=181</b>	<b>n=305</b>	$\chi^2=0.09^*$ , <b>p=0.76</b>
male	138 (27.6%)	22 (17.3%)	116 (32.5%)		50 (27.6%)	88 (28.9%)	
female	347 (69.4%)	104 (81.9%)	241 (67.5%)		131 (72.4%)	216 (70.8%)	
Prefers to use their own terms	1 (0.2%)	1 (0.8%)	0		0	1 (0.3%)	
<b>Marital status</b>	<b>N=480</b>	<b>n=127</b>	<b>n=351</b>	$\chi^2=10.29$ , <b>p=0.07</b>	<b>n=176</b>	<b>n=304</b>	$\chi^2=24.89$ , <b>p&lt;0.001</b>
Married	196 (40.8%)	65 (51.2%)	131 (37.3%)		80 (45.5%)	116 (38.2%)	
Widowed	9 (1.9%)	1 (0.8%)	8 (2.3%)		7 (4.0%)	2 (0.7%)	
Divorced	15 (3.1%)	5 (3.9%)	9 (2.6%)		11 (6.3%)	4 (1.3%)	
Separated	3 (0.6%)	0	3 (0.9%)		1 (0.6%)	2 (0.7%)	
Never married	217 (45.2%)	46 (36.2%)	170 (48.4%)		60 (34.1%)	157 (51.6%)	
Other	40 (8.3%)	10 (7.9%)	30 (8.5%)		17 (9.7%)	23 (7.6%)	
<b>Ethnic groups</b>	<b>N=485</b>	<b>n=127</b>	<b>n=351</b>	$\chi^2=13.26$ , <b>p=0.02</b>	<b>n=179</b>	<b>n=306</b>	$\chi^2=34.99$ , <b>p&lt;0.001</b>
White	151 (31.1%)	26 (20.5%)	125 (34.9%)		76 (42.5%)	75 (24.5%)	
Black or African American	49 (10.1%)	10 (7.9%)	39 (10.9%)		27 (15.1%)	22 (7.2%)	
American Indian or Alaska Native	1 (0.2%)	0	1 (0.3%)		0	1 (0.3%)	
Asian	210 (43.3%)	69 (54.3%)	141 (39.4%)		59 (33.0%)	151 (49.3%)	
Native Hawaiian or Pacific Islander	1 (0.2%)	0	1 (0.3%)		1 (0.6%)	0	



Other	73 (15.1%)	22 (17.3%)	51 (14.2%)		16 (8.9%)	57 (18.6%)	
<b>Education</b>	<b>N=480</b>	<b>n=127</b>	<b>n=351</b>	$\chi^2=12.67,$ <b>p=0.03</b>	<b>n=175</b>	<b>n=305</b>	$\chi^2=40.02,$ <b>p&lt;0.001</b>
No schooling completed	2 (0.4%)	0	2 (0.6%)		2 (1.1%)	0	
Primary school	2 (0.4%)	0	2 (0.6%)		2 (1.1%)	0	
Secondary school	91 (19.0%)	12 (9.4%)	79 (22.4%)		56 (32.0%)	35 (11.5%)	
Bachelor/ undergraduate degree	221 (46.0%)	64 (50.4%)	157 (44.5%)		64 (36.6%)	157 (51.5%)	
Post graduate degree	130 (27.1%)	42 (33.1%)	88 (24.9%)		38 (21.7%)	92 (30.2%)	
Other	34 (7.1%)	9 (7.1%)	25 (7.1%)		13 (7.4%)	21 (6.9%)	
<b>Employment</b>	<b>N=487</b>	<b>n=127</b>	<b>n=360</b>	$\chi^2=14.48,$ <b>p=0.03</b>	<b>n=181</b>	<b>n=306</b>	$\chi^2=92.55,$ <b>p&lt;0.001</b>
Student	139 (28.5%)	33 (26.0%)	106 (29.4%)		15 (8.3%)	124 (40.5%)	
Employed	255 (52.4%)	73 (57.5%)	182 (50.6%)		109 (60.2%)	146 (47.7%)	
Not employed, looking for work	22 (4.5%)	5 (3.9%)	17 (4.7%)		7 (3.9%)	15 (4.9%)	
Not employed, not looking for work	16 (3.3%)	3 (2.4%)	13 (3.6%)		10 (5.5%)	6 (2.0%)	
Retired	24 (4.9%)	0	24 (6.7%)		22 (12.2%)	2 (0.7%)	
Unable to work	13 (2.7%)	5 (3.9%)	8 (2.2%)		11 (6.1%)	2 (0.7%)	
Other	18 (3.7%)	8 (6.3%)	10 (2.8%)		7 (3.9%)	11 (3.6%)	
<b>Skin colour</b>	<b>N=487</b>	<b>n=127</b>	<b>n=360</b>	$\chi^2=12.97,$ <b>p=0.02</b>	<b>n=182</b>	<b>n=305</b>	$\chi^2=13.52,$ <b>p=0.02</b>
Very Fair (always burns, cannot tan)	13 (2.7%)	3 (2.4%)	10 (2.8%)		5 (2.7%)	8 (7.6%)	
Fair (usually burns, sometimes tans)	110 (22.6%)	19 (15.0%)	91 (25.3%)		39 (21.4%)	71 (23.3%)	
Medium (sometimes burns, usually tans)	162 (33.3%)	57 (44.9%)	105 (29.2%)		47 (25.8%)	115 (37.7%)	
Olive (rarely burns, always tans)	64 (13.1%)	17 (13.4%)	47 (13.1%)		23 (12.6%)	41 (13.4%)	
Brown (rarely burns, tans easily)	97 (19.9%)	20 (15.7%)	77 (21.4%)		47 (25.8%)	50 (16.4%)	

Dark brown (never burns, always tans)	41 (8.4%)	11 (8.7%)	30 (8.3%)		21 (11.5%)	20 (6.6%)	
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### 3.6.1.2 Gender

Females to male's ratio is almost equal in both settings with the total ratio of 71.4% to 28.4%.

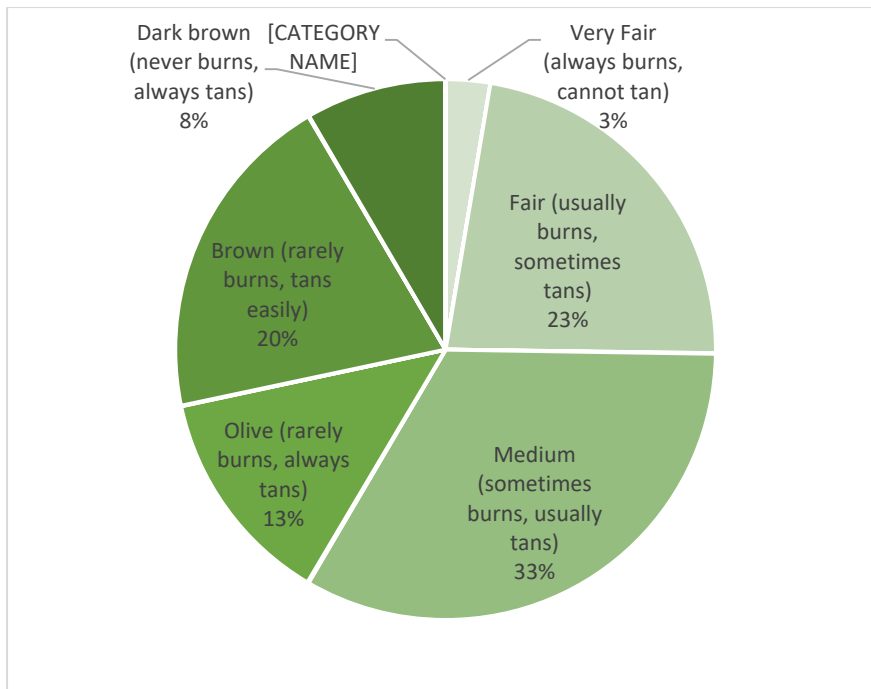
### 3.6.1.3 Employment

The previous percentages can explain the significant difference in the employment level of participants between clinical and online group as 40.5% of nonclinical participants are students and 47.7% of them are employed whereas only 8.3% of clinical group are students. However, 60.2% of the clinical group are employed and 12.2% of them are retired.

### 3.6.1.4 Ethnicity

43.3% of all participants were Asian, and 31.1% were white and only 10.1% were from black ethnicity reflecting the typical ethnicity subgroups common in the area where survey distributed in London and the countries where the online survey was disseminated. However, applying Fitzpatrick skin tone criteria in total, we studied a wider range of different skin tones (Ash et al., 2015) as shown in (figure 3.1) – across both samples.

Figure 3.1 The percentages of different skin tones in the sample (N=500)



### 3.6.2 Skin lightening practice

It has been noticed that 35.2% of the non-clinical group have used skin lightening products and only 10.4% of the clinical group have used skin lightening previously. So, more than a quarter of the whole sample have used skin lightening products. Giving the different ethnicities, backgrounds, and skin colour shades of participants, these percentages conclude that the skin lightening practice is a noteworthy and serious phenomenon in the community for which public and health care professional's awareness should be increased.

26% of the respondents claimed to have used skin lightening products or any other methods of skin lightening. Among these, the large majority was female (81.9%) (Table 1). Such a result is consistent with the literature that states the skin lightening practice is more among females (Peltzer et al., 2016). Among skin lighteners users, the 25-34 age group conform 59.1% of users followed by 18-24 age group which form 22.8% of them. 25-34 age group were twice as much as the non-users of the same age group ( $p < 0.001$ ). The respondents of Asian ethnic group reported using skin-lighteners more often than the other ethnicities. Differences by lighteners use factor were also observed in educational level and employment status (Table 3.1).

#### 3.6.2.1 Types of products

The most commonly used topical skin products were creams, chosen by 78% of all

users, followed by scrubs (32.3%), skin wash (31.5%) and soaps and recipes that participants made themselves (26.8%). Chemical peels are used only by 11% of participants. No statistical difference of using other topical skin care products like creams, soaps, scrubs, facial and body wash were found between the two genders.

Table 3.2 Purchase preferences of skin lightening products by enrolment settings.

Characteristics	Total	Type of survey distribution		
		Clinical	Non-clinical	Statistical criterion
<b>Lightning techniques, n (%)</b>	N=128	N=19	N=109	Chi-square, p-value
Creams	99 (77.3%)	15 (78.9%)	84 (77.1%)	1.0*
Toners	18 (14.1%)	4 (21.1)	14 (12.8)	0.47*
Scrubs	41 (32.0%)	2 (10.5%)	39 (35.8%)	<b>0.03*</b>
Soap	34 (26.6%)	5 (26.3%)	29 (26.6%)	0.001, 0.97
Recipes that you do it yourself/ homemade mixtures	34 (26.6%)	1 (5.3%)	33 (30.3%)	0.02*
Facial/ body wash	40 (31.3%)	6 (31.6%)	34 (31.2%)	0.001, 0.97
Injections	3 (2.3%)	1 (5.3%)	2 (1.8%)	0.39*
Chemical peels	12 (9.4%)	0	12 (11.0%)	0.21*
Laser treatment	10 (7.8%)	1 (5.3%)	9 (8.3%)	1.0*
Others	4 (3.1%)	0	4 (3.7%)	1.0*
<b>Places of purchase</b>				
Pharmacy	61 (47.7%)	8 (42.1%)	53 (48.6%)	0.28, 0.60
Supermarket	43 (33.6%)	6 (31.6%)	37 (33.9%)	0.04, 0.84
Small cosmetic store	31 (24.2%)	4 (21.1%)	27 (24.8%)	1.0*
Beauty salon	15 (11.7%)	1 (5.3%)	14 (12.8%)	0.69*
Online	23 (18.0%)	3 (15.8%)	20 (18.3%)	1.0*
Other	7 (5.5%)	0	7 (6.4%)	0.59*
<b>Monthly cost of skin lightning products</b>	<b>N=117</b>	<b>N=18</b>	<b>N=99</b>	2.38, 0.66
£0-£30	71 (60.7%)	12 (66.7%)	29 (59.6%)	
£30-£60	27 (23.1%)	25 (27.8%)	22 (22.2%)	
£60- £120	9 (7.7%)	0	9 (9.1%)	
£120- £250	8 (6.8%)	1 (5.6%)	7 (7.1%)	
£250- £500	2 (1.7%)	0	2 (2.0%)	

\* Fisher exact test

\*\* Pearson chi-square test was used for dichotomized splitting with the threshold of “3 year and more”

Regarding systemic techniques, no one has used oral pills for skin lightening, whereas 2.4% have used injections (all of them are females) to lighten their skin. Laser treatment have been used by 7.8% of skin lightening users.

An interesting finding in the non- clinical participants who have used recipes that they do themselves significantly more than the patients who attend the clinics. Also, all the participants who used chemical peels are from the non-clinical group and 9 out of 10 participants who used laser techniques are also from non-clinical group.

### **3.6.2.2 Places of purchase**

47.6% of respondents purchased their skin lightening products from “pharmacies”, while 34.1% chose “supermarkets” and 24.6% chose “small shops”. Interestingly, 18.3% have used the online methods to purchase their skin lightening products. Possible reasons for the significant percentage of online purchasing are the discomfort of discussing it with a health care professional, ease of access, the potential lower cost, peer-pressure influence and online advertisements campaigns (Corazza, et al., 2014).

Regarding the cost of the products, 60.7% of participants spend less than £30 monthly on their skin lightening products and 23.1% used products ranging from £30-60. A significant 16.2% spent more than £60 every month.

### **3.6.2.3 Source of information**

Family or friend’s recommendations was the most common answer which had been chosen by 36.7% of users (most of them (41.3%) from the non-clinical group) followed by doctor’s prescription which had been chosen by more than 32.5% of skin lightening users. However, social media pages came next which had been selected by 31% of users (All from non-clinical group) and advertisement effect conforms 25% of answers. An 18% of users followed the advice of beauty therapist to use skin lightening products.

Table 3.3 source of information by enrolment settings.

Characteristics	Total	Type of survey distribution		
		Clinical	Non-clinical	Statistical criterion
<b>Sources of information</b>	<b>N=128</b>	<b>N=19</b>	<b>N=109</b>	
Doctor's prescription	42 (32.8%)	4 (21.1%)	38 (34.9%)	0.29*
Beauty therapist advice	23 (18.0%)	1 (5.3%)	22 (20.2%)	0.19*
Advertisements	32 (25.0%)	6 (31.6%)	26 (23.9%)	0.52, 0.47
Social media pages (you tube, Facebook, Instagram, snapchat, etc.).	39 (30.5%)	0	39 (35.8%)	0.001*
Family/ friend's recommendation	47 (36.7%)	2 (10.5%)	45 (41.3%)	0.01*
Other	3 (2.3%)	0	3 (2.8%)	1.0*

\* Fisher exact test

No significant differences were found between clinical and non-clinical groups in terms of professional consultation about whitening. The majority of participants (58.8%) did not consult a medical professional for advice before, during, or after using the products. On the other hand, around 41.2% of them said they had consulted a health care professional.

### 3.6.2.4 Body parts

The most common body part that people aspire to lighten is the face which had been chosen by 83.6% of users followed by hands (23.4%), neck and upper chest (16.4%). The previous three parts comprised the most common three body parts in another study (Alghamdi, 2010) in which the face was the most common part followed by neck and hands respectively. Knees, elbows, and underarms came next with 14.1% of users, while 11.9% of respondents used the products to lighten their intimate parts (Table 3.4).

Table 3.4 Main body parts subject to skin lightening products by enrolment settings and gender.

Characteristics	Total	Type of survey distribution			Gender		Statistical criterion, p
		Clinical	Non-clinical	Statistical criterion, p	Male	Female	
<b>Body parts for</b>	<b>N=128</b>	<b>N=19</b>	<b>N=109</b>		<b>N=22</b>	<b>N=104</b>	

skin lighter application							
Face	107 (83.6%)	16 (84.2%)	91 (83.5%)	1.0*	17 (77.3%)	89 (85.6%)	0.94, 0.33
Hands	30 (23.4%)	7 (36.8%)	23 (21.1%)	2.23, 0.14	7 (31.8%)	23 (22.1%)	0.94, 0.33
Legs	15 (11.7%)	2 (10.5%)	13 (11.9%)	1.0*	1 (4.5%)	14 (13.5%)	0.47*
Arms	13 (10.2%)	4 (21.1%)	9 (8.3%)	0.10*	3 (13.6%)	10 (9.6%)	0.70*
Neck and upper chest	21 (16.4%)	2 (10.5%)	19 (17.4%)	0.74*	2(9.1%)	19 (18.3%)	0.37*
Underarms	18 (14.1%)	1 (5.3%)	17 (15.6%)	0.31*	0	18 (17.3%)	0.04*
Knees and elbows	19 (14.8%)	2 (10.5%)	17 (15.6%)	0.74*	1 (4.5%)	18 (17.3%)	0.19*
Intimate parts	15 (11.7%)	2 (10.5%)	13 (11.9%)	1.0*	0	15 (14.4%)	0.07*
Other	3 (2.3%)	0	3 (2.8%)	1.0*	0	3 (2.9%)	1.0*

\* Fisher exact test

It is interesting to see that there are gender differences in which body part they use skin lightening for especially intimate parts, and underarms in which all respondents were females as better highlighted in (Table 3.4).

### 3.6.2.5 Patterns of skin lightening use

Of the total skin lightening products users, 60% stopped the practice within 6 months, of which 24.8% stopped within the first month. This high percentage is mainly due to the ineffectiveness of products, unexpected side effects, extended treatment time, and adherence difficulties (Table 3.5).

Table 3.5 Patterns of skin lightening use by enrolment settings.

Characteristics	Total	Type of survey distribution		
		Clinical	Non-clinical	Statistical criterion
<b>Duration of skin lighter use</b>	<b>N=117</b>	<b>N=18</b>	<b>N=99</b>	1.01, 0.32**
Less than a month	29 (24.8%)	2 (11.1%)	27 (27.3%)	

1 to 6 months	40 (34.2%)	8 (44.4%)	32 (32.3%)	
6 to 12 months	12 (10.3%)	3 (16.7%)	9 (9.1%)	
1 to 3 years	15 (12.8%)	3 (16.7%)	12 (12.1%)	
3 to 5 years	(6.0%)	2 (11.1%)	5 (5.1%)	
more than 5 years	11 (9.4%)	0	11 (11.1%)	
Other	3 (2.6%)	0	3 (3.0)	
<b>Frequency of skin lighter use</b>	<b>N=118</b>	<b>N=18</b>	<b>N=100</b>	11.44, 0.08
Twice daily	14 (11,9%)	5 (27,8%)	9 (9,0%)	
Daily	52 (44,1%)	7 (38,9%)	45 (45,0%)	
2-3 times a week	6 (5,1%)	1 (5,6%)	1 (1,0%)	
Weekly	17 (14,4%)	4 (22,2%)	13 (13,0%)	
Twice a month	2 (1,7%)	1 (5,6%)	1 (1,0%)	
Monthly	6 (5,1%)	0	6 (5,1%)	
Other	9 (7,6%)	0	9 (9,0%)	
<b>Rhythm of skin lightening use</b>	<b>N=119</b>	<b>N=20</b>	<b>N=99</b>	0.85, 0.61
Continuously	33 (33.7%)	6 (33.3%)	27 (33.8%)	
When required	45 (45.9%)	7 (38.9%)	38 (47.5%)	
For a while then stopped	20 (20.4%)	5 (27.8%)	15 (18.7%)	
If you stopped, why did you stop using them?	21 (17.7%)	2 (10.00%)	19 (19.2%)	

### 3.6.2.6 Professional advice and side effects

38.3% of respondents received professional medical consultations before, throughout, or after using skin lighteners. The majority of them (n=50) got medical advice from doctors. Gender had no effect on this parameter (p=0.23).

Alarmingly, 21.9% of users had suffered from skin redness after using the topical lightening products and 14.1% of them had experienced itching. Dark and light spots had been reported by 7% and 3.9% respectively. However, 51.6% of all respondents did not report any side effects. Gender differences were not observed in this section of the survey (Table 3.6).

Table 3.6 Professional advice and side effects by enrolment setting.

Characteristics	total	Type of survey distribution		
		clinical	non-clinical	Statistical criterion



<b>Have you consulted a healthcare professional before, throughout using, or after using skin lighteners?</b>	<b>N=128</b>	<b>N=19</b>	<b>N=109</b>	0.02, 0.89,
yes	49 (38.3%)	7 (36.8%)	42 (38.5%)	
<b>What kind of medical advice did you receive?</b>	<b>N=49</b>	<b>N=5</b>	<b>N=45</b>	1.84, 0.39
Doctor	40 (81.6%)	7 (100%)	33 (78.6%)	
Pharmacist	8 (16.3%)	0	8 (19.0%)	
Other	1 (2.0%)	0	1 (2.4%)	
<b>Side effects</b>	<b>N=128</b>	<b>N=19</b>	<b>N=109</b>	
Skin redness	28 (21.9%)	4 (21.1%)	24 (22.0%)	0.01, 0.93
Skin itching	18 (14.1%)	2 (10.5%)	16 (14.7%)	1.0*
Skin irritation	24 (18.8%)	3 (15.8%)	21 (19.3%)	1.0*
Light spots	5 (3.9%)	1 (5.3%)	4 (3.7%)	0.56*
Dark spots	9 (7.0%)	2 (10.5%)	7 (6.4%)	0.62*
Other	4 (3.1%)	0	4 (3.7%)	1.0*

\* Fisher exact test

### 3.6.3 Reasons for using skin lightening products

Regarding the question “Why do/ did you practice skin lightening?” question, the most common answer given was “being more beautiful or attractive” which had been chosen by 39.1% of skin lightening users.

Table 3.7 Reasoning for using skin lightening products by enrolment settings.

<b>Characteristics</b>	<b>Total, N=128</b>	<b>Type of survey distribution</b>		<b>Statistical criterion</b>
		<b>Clinical, N=19</b>	<b>non-clinical, N=109</b>	
To feel more confident with my body	46 (35.9%)	1 (5.3%)	45 (41.3%)	0.002*
To be more beautiful/ attractive	50 (39.1%)	4 (21.1%)	46 (42.2%)	0.13*
To increase chances of being in a relationship	2 (1.6%)	1 (5.3%)	1 (0.9%)	0.28*
To increase chances of getting hired/ employed	1 (0.8%)	0	1 (0.9%)	1.0*
To look younger than the	15 (11.7%)	5 (26.3%)	10 (9.2%)	4.59, 0.03

real age				
Against hyper-pigmented (dark) skin lesions	47 (36.7%)	8 (42.1%)	39 (35.8%)	0.28, 0.59
Against hypo-pigmented (light) skin lesions	2 (1.6%)	0	2 (1.8%)	1.0*
Family/ partners/ peer pressure	12 (9.4%)	1 (5.3%)	11 (10.1%)	1.0*
Advertisements or media effects	18 (14.1%)	2 (10.5%)	16 (14.7%)	1.0*
Having been bullied in the past	6 (4.7%)	2 (10.5%)	4 (3.7%)	0.22*
Others	8 (6.3%)	0	8 (7.3%)	0.60*

\* Fisher exact test

“Having hyperpigmented lesions” came second which comprise 36.7% of those who used skin lightening products followed by “feeling more comfortable with my body” which form 35.9% of them. Remarkably, women were almost five times (43.3%) as much as men (9.1%) in practicing skin lightening due to hyper-pigmented skin lesions ( $p=0.003$ ). Advertisements and media influence were chosen by 14.3% of users followed by looking younger which was the answer of 11.9% of them. Family/ partners/ peer pressure came after which form 9.4% of answers. Only 4.7% of them have mentioned that they used skin lightening products because they had been bullied in the past.

It is interesting to know that about 53.0% of users mentioned that skin lightening practice made a difference to their mood with very close ratios between male and females' groups.

### 3.6.3.1 Self-esteem

Descriptive statistics and proof of non-parametric distribution of Rosenberg scores were obtained for clinical and non-clinical settings. In clinical settings, approximately 85% of participants responded to Rosenberg part of the questionnaire, while more than 88% responded from the non-clinical group.

In the descriptive analysis, the mean of Rosenberg self-esteem in the clinical group was  $18.33 \pm 4.99$ , while in non-clinical group the mean was  $19.96 \pm 4.73$ . Due to non-parametric distribution of Rosenberg score results, Mann-Whitney test has been

used for comparisons. It showed that the non-clinical group had higher scores on the scale, which demonstrate more problems with their self-esteem. Another comparison was conducted between those who use skin lightening and non-users based on the total number of participants (n=500). The mean Rosenberg score of skin lightening users were significantly high ( $20.33 \pm 5.12$ ) compared to their counterparts ( $19.07 \pm 4.78$ ) ( $p=0.017$ ).

Therefore, these results which describe the participants input is highly significant with regard to their self-esteem. It can be concluded that users of skin lightening products are more likely to have self-esteem issues in both groups (the whole sample).

### **3.6.3.2 Body Dysmorphic Disorder**

According to the scoring of BDDQ, the respondents who obtained the threshold of 4 points were considered as having positive screening result. The additional question, "Is your main concern with your appearance that you are not thin enough or that you might become fat?" aims to verify the subgroup of people who were more likely to show symptoms of eating disorder. In the statical analysis, results have been categorised according to the presence or absence of eating disorder. This helps to differentiate BDD from the accompanying eating disorders. Overall, 80 respondents (16.0%) were positively screened with BDDQ, from which 43 (53.8%) showed eating disorder symptoms.

The respondents who answered positively, to the eating disorder question, were more likely to give positive answers to the other items of the BDDQ ( $\chi^2=71.87$ ,  $p<0.001$ ). The correlation between the positive answers, to the body dysmorphic and eating disorders items, was confirmed statistically ( $r=0.38$ ,  $p<0.001$ ).

The prevalence of BDD in clinical and non-clinical settings were calculated after exclusion of eating disorders in order to achieve more accurate statistical results (only for BDD without any bias from overlapping with eating disorders). The statistical results concluded that patients from clinics were more likely to have BDD. 16.8% of clinical patients showed positive BDD screening versus 4.4% of non-clinical group ( $\chi^2=17.42$ ,  $p<0.001$ ). This result also supports the evidence of BDD

prevalence, in previous literature, which is about 2% of community population. In psychiatric outpatients' clinics, the prevalence is about 5.8% while the highest rates are in rhinoplasty surgery which is 13% followed by the ration in dermatology outpatients which reaches 11.3% of patients (Phillips et al., 2008; Rief et al., 2006).

Another comparison between skin lightening users and non-users, after exclusion of an eating disorder, did not reveal statistically significant difference ( $\chi^2=0.05$ ,  $p=0.82$ ) since 9.9% and 9.1% of users and non-users are likely to have BDD respectively. These results support a previous study which concluded that skin bleachers didn't suffer from body image disturbance (Charles & McLean, 2017).

Although most studies showed that BDD prevalence is higher among females (Veale, et al., 2016), some studies revealed that the prevalence is equal between males and females. The females to males' ratio could range from 1:1 to 3:2 (Phillips et al., 2008; Rief, et al., 2006) which is consistent with the results obtained in this research i.e., there was no significant difference between female and male who having BDD with the exclusion of weight concerns (eating disorders). That is females who have positive screening of BDD were 10.2% versus 8.1% for male participants ( $\chi^2=0.43$ ,  $p=0.51$ ).

In contrast, eating disorders were significantly more prevalent in females than in males: 23.3% and 10.1% respectively ( $\chi^2=10.92$ ,  $p=0.001$ ) which is consistent with previous studies that showed the incidence of eating disorder is lower among male participants compared to females (Phillips et al., 2006; Støving et al., 2011).

### **3.6.3.3 Cutaneous Body Image**

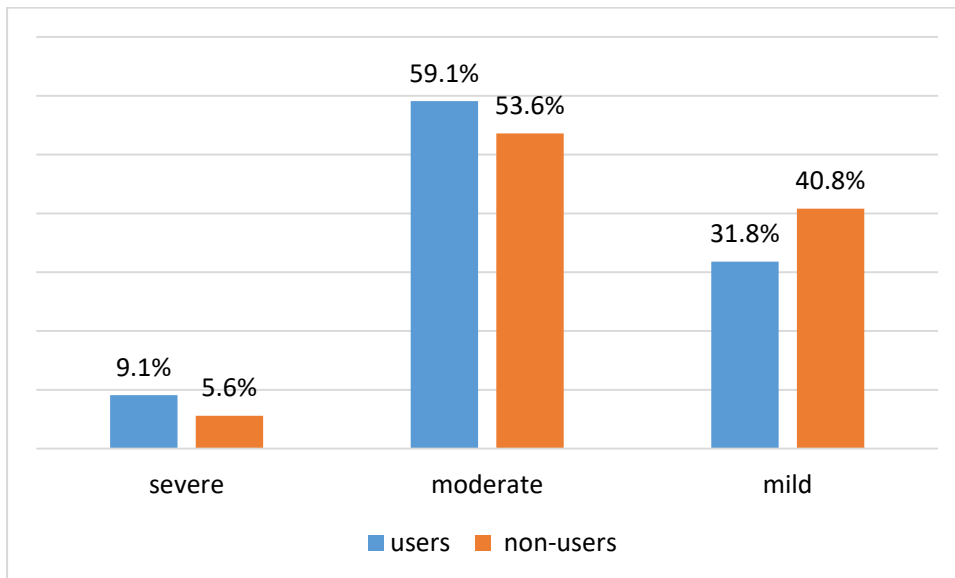
According to the scoring standards, the CBIS results were calculated in a stepwise manner. Firstly, the total numerical score was derived as an average of all seven items. The mean score of the total sample was  $5.48 \pm 1.67$  based on the scale ranging from 0 to 9. Secondly, CBI dissatisfaction grading was applied using CBIS score: score  $<3$  = 'severe'; 3 to 6 = 'moderate';  $>6$  = 'mild to none.

Severe dissatisfaction with the integumentary system (skin, hair, and nails) had been

reported in 10.3% of respondents from the clinical sample, while 3.5% of respondents in nonclinical sample reported severe dissatisfaction ( $\chi^2=8.04$ ,  $p=0.018$ ). However, moderate grade has almost identical ratios in the two groups which is 55.4% and 54.5% of nonclinical and clinical participants respectively.

There were no significant differences between those who practiced lightening from those who didn't in the three grades of CBIS ( $\chi^2=3.16$ ,  $p=0.21$ ).

Figure 3.2 CBIS grades comparisons by users and non-users.



Also, there is no statistically significant differences that can be highlighted between females and males among all three grades of the CBIS. However, the percentage of females who reported severe grade is 7.1%, while only 4.5% of male participants recorded a severe score in CBIS. In the contrary, 44.1% of males recorded as “mild to none” compared to 35.8% of the females in the same category ( $\chi^2=2.76$ ,  $p=0.252$ ).

### 3.6.4 Predictors of skin lightening use

A logistic regression model was developed to investigate predictors for skin lightening use. Baseline variables from sociodemographic status, Rosenberg self-esteem, BDDQ and CBIS were selected as independent variables as they can be related to the likelihood of skin lightening practice. Preliminary univariate analysis was used to identify the socio-demographic characteristics that were more prevalent among skin lighteners. Those parameters included the following: the age of 25-34,

Asian and White (Caucasian) ethnicity, fair and medium skin colour, secondary, bachelor and postgraduate education. For the computational of the regression model, all these characteristics were transformed into a set of dummy variables.

Two methods of logistic regression were performed in a sequence: the forced entry method (to obtain unadjusted odds ratios) and stepwise forward Wald method (to obtain adjusted odd ratios). The results of each process are described in the tables 3.8 and 3.9 below.

Table 3.8 Regression model with unadjusted odds ratios.

Variables	B	S.E.	Wald	df	Sig.	Odd ratio Exp(B)	95% C.I. for EXP(B)	
							Lower	Upper
<b>Gender (females)</b>	<b>1.649</b>	<b>0.394</b>	<b>17.490</b>	<b>1</b>	<b>0.000</b>	<b>5.199</b>	<b>2.401</b>	<b>11.258</b>
<b>Age (25-34)</b>	<b>1.306</b>	<b>0.302</b>	<b>18.752</b>	<b>1</b>	<b>0.000</b>	<b>3.692</b>	<b>2.044</b>	<b>6.667</b>
Ethnicity (Asian)	0.156	0.354	0.194	1	0.660	1.169	0.584	2.340
<b>Ethnicity (White)</b>	<b>-0.889</b>	<b>0.437</b>	<b>4.147</b>	<b>1</b>	<b>0.042</b>	<b>0.411</b>	<b>0.175</b>	<b>0.967</b>
Skin colour (Fair)	0.332	0.421	0.624	1	0.430	1.394	0.611	3.181
<b>Skin colour (Medium)</b>	<b>0.779</b>	<b>0.326</b>	<b>5.695</b>	<b>1</b>	<b>0.017</b>	<b>2.178</b>	<b>1.149</b>	<b>4.129</b>
Education (Secondary)	-0.241	0.631	0.146	1	0.702	0.786	0.228	2.705
Education (Bachelor)	0.132	0.535	0.061	1	0.805	1.141	0.400	3.255
Education (Postgraduate)	0.405	0.565	0.514	1	0.473	1.500	0.495	4.540
Rosenberg self-esteem score	0.059	0.033	3.160	1	0.075	1.060	0.994	1.131
CBIS score	-0.097	0.088	1.208	1	0.272	0.908	0.764	1.078
BDDQ score	-0.088	0.397	0.049	1	0.825	0.916	0.420	1.995
Constant	-3.892	1.242	9.830	1	0.002	0.020		

Table 3.9 Regression model with adjusted odds ratios.

Variables	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
							Lower	Upper
<b>Gender (females)</b>	<b>1.574</b>	<b>0.376</b>	<b>17.501</b>	<b>1</b>	<b>0.000</b>	<b>4.828</b>	<b>2.309</b>	<b>10.095</b>
<b>Age (25-34)</b>	<b>1.300</b>	<b>0.275</b>	<b>22.342</b>	<b>1</b>	<b>0.000</b>	<b>3.669</b>	<b>2.140</b>	<b>6.290</b>

<b>Ethnicity (Asian)</b>	0.688	0.275	6.249	1	0.012	1.990	1.160	3.412
<b>Skin colour (Medium)</b>	0.588	0.273	4.649	1	0.031	1.801	1.055	3.075
<b>Constant</b>	-3.572	0.446	64.053	1	0.000	0.028		

The model found four statistically related predictors of skin lightening use ( $p < 0.05$ ). The female gender increases the probability of skin lightening use by 4.83 times (95% CI: 2.31-10.10). Compared to other age groups, the age of 25-34 associates with 3.67 times (95% CI: 2.14-6.29) higher risks of skin lightening. Among all ethnicities, Asian ethnicity revealed to be another significant predictor of skin lightening use increasing the likelihood in 1.99 times (95% CI: 2.16 – 3.41). Medium skin colour was 1.81 times (95% CI: 1.06-3.08) as much as the others associated with the use of skin lightening products.

The psychometrics parameters did not reveal their role in the model. However, the Rosenberg score had correlational link with frequency of lightening use ( $r = 0.13$ ,  $p = 0.007$ ), i.e., the less frequently the respondent used the lighteners, the higher the Rosenberg results and self-esteem.

### 3.7 Discussion

Asian, females, who are 25 to 34 years old with medium coloured skin are the most likely group to use skin lightening products. A previous study found that the major consumers of skin lightening products in south Asian societies are women from 16 to 35 years old (Glenn, 2008). In agreement with previous findings, this study found that females are more likely to use skin lightening products than males (Peltzer & Pengpid, 2017; Rusmadi et al., 2015). Creams were the main method used for skin lightening while scrubs were the second most common method. The majority of skin lightening users bought their products from pharmacies and supermarkets. A significant portion of the participants obtained their products through online platforms which has been considered as an immediate method for image enhancement despite the ambiguity around its legality, safety, and ingredients (Corazza, et al., 2014). Most participants applied products to the face compared to other body parts which has also been described in another study about topical lightening agents

(Alghamdi, 2010) followed by hands, neck and upper chest. Alarmingly, a substantial number of users (51.81%) reported some sort of side effects. Skin redness and irritation were the most experienced side effects. However, some users continue to use these products despite the adverse effects which, in their opinion, is not serious and the outcome outweighs the drawbacks (Darj et al., 2015). Unexpectedly, some users experience side effects after discontinuing the products which force them to continue using them (Alghamdi, 2010).

Consistent with the results of our previous literature review (Chapter 2) regarding the motivations of skin lightening products, the most common two reasons behind skin lightening products use are “being beautiful” and having hyperpigmentation skin lesions (Al-Sarraf et al., 2021).

Regarding psychological measures, it can be concluded that users of skin lightening products are more likely to have self-esteem issues which is in agreement with other studies’ proposals (Charles, 2010; Peltzer & Pengpid, 2017). However, skin lightening users and non-users did not reveal statistically significant difference in BDDQ and CBIS. These results mean that skin lightening users didn’t suffer from BDD. However, this could not exclude the other range of body image disturbances which need further research to be explored.

The above data and future quantitative research can be used to tailor that public health messaging regarding skin lightening to efficiently target the risk groups and create the foundation for a precise course of action for health professionals. The statistical results can be employed to generate analytical models or charts for identifying the most appropriate treatment plan. For example, if the patient is classified as a high-risk patient, the model may suggest referring the patient to psychiatric practice simultaneously with the dermatological treatment plan, while a low-risk patient can be educated about the risks of skin lightening without the need for additional referral.

Another aspect where the quantitative analysis can be used to reach the targeted group is to select the suitable representation in social media and public campaigns. It is more effective to convey the message through a member of the group than someone who doesn’t share the common characteristics with the targeted group.



The local and international organizations, like WHO, could benefit from the statistical data to optimize their operations and resources in countries and regions where the at-risk communities exist. Governments could improve their regulations in combatting such practices and raise the self-esteem of their citizens with the aid of similar studies.

## **Chapter 4**

### **Study 3: Thematic analysis of interviews with skin lightening users**

#### **4.1 Introduction**

The complexity of the researched subject and its direct relation to the psychological health necessitate the implementation of qualitative methods, along with the quantitative one, to obtain more realistic results from the real experience of the participants. This, in turn, strengthened the study and added sound evidence to the lacking literature. In order to better understand the causes and motivations behind skin lightening use and the association with body image problems and psychological conditions, three in-depth semi-structured interviews were conducted with three skin lightening users from different backgrounds recruited from dermatology clinics.

This chapter presents the key objectives, methods, and the results of study three. It explains and thematically organises the study findings according to the listed objectives. Section 4.2 describes the objectives of the chapter which partly match the research objectives. Section 4.3 presents the method which has been subdivided into 4.3.1: The “Semi-structured Interview Guide” components, and 4.3.2: explanation of how the data were collected and the recruitment of the three patients in dermatology clinics. Section 4.4 presents the steps that have been followed to carry out the phenomenological thematic analysis of the final data sample. This analysis based on descriptive phenomenological approach to focus on the subjective lived experiences of participants. In section 4.5, the findings of the emerged themes have been presented in subsections accompanied by participants’ quotes. A pseudonym was given to each participant and the findings have been discussed and compared to the evidence from the existing literature. The last section 4.6 is the discussion where the phenomenological understanding of the participant experiences is presented.

## **4.2 Study three objectives**

The key objectives of this study are to explore

1. Skin lightening users' in-depth experiences including their preferred techniques of lightening and any side effects of these products, among others.
2. The motivational factors underlying skin lightening products use in rich qualitative details.
3. The psychological factors affecting skin lightening practice such as BDD, among others.

## **4.3 Methods**

Qualitative data were used to obtain rich data from participants' opinions, beliefs, and experiences. Semi-structured Interviews were used to assess in depth the personal and contextual factors. Also, to identify their body image ideals and potential psychological problems. This method has been designed to be thematically analysed following Braun and Clarke, 2006 guidelines (Braun & Clarke, 2006b).

### **4.3.1 Interview guide structure**

According to the main objectives of the research and the specific objective of this study, the Semi-structured Interview Guide was constructed to contain three sections: 1) Demographic questions, which are essential to draw comparisons. 2) Several open-ended questions regarding participants' opinions about body ideals, skin colour preferences, their motivations of using the products, and participants' skin lightening experiences. These questions are crucial to deeply understand the personal, contextual, and sociocultural factors underlying skin lightening practice and to extract details about the products they use, the availability, the effectiveness, and any accompanied side effects. These details are crucial to implement any needed regulations and policies to control these products. 3) Body Dysmorphic Disorder Diagnostic Module – Adult Version Diagnosing BDD according to DSM-5 Diagnostic Criteria. BDD diagnostic module is a validated measure (Appendix D) which has been chosen over other instruments to diagnose BDD because it closely reflects the DSM5 diagnostic criteria which is the gold standard criteria to diagnose BDD. This instrument is specific for BDD diagnosis only and doesn't include the diagnosis of

other mental disorders e.g., Structured Clinical Interview for DSM5 (SCID) and MINI plus. Also, it is brief and has simple scoring system which can be applied easily in clinical practice and takes approximately five minutes to complete compared to other instruments which are more complex and take more time to apply e.g., Body Dysmorphic Disorder Examination (BDDE) (Mayville et al., 1999). The diagnosis of BDD among skin lightening users is important in enhancing the existing evidence about this relationship and the clinical practice in dermatology clinics.

Feedback for the semi-structured guide from supervisors, professionals and colleagues were obtained to add, delete, or modify some questions. This also assured that the questions are clear, understandable and the appropriate language was used to suit the sensitivity of the topic.

#### **4.3.2 Recruitment and data collection**

The interviews were conducted with patients who visited the dermatology clinic. In order to be included in the study, participants had to have used skin lightening products previously and reported concerns related to their body image. This was achieved by using the questionnaire detailed in chapter 4. Participants who answered yes to “Have you ever used skin lightening products or any other methods of skin lightening?” and “Are you very concerned about the appearance of some part(s) of your body that you consider particularly unattractive?” were the targeted candidates who were invited to participate in a longer interview. Those accepted to be interviewed were given a participant information sheet (Appendix B) which contains sufficient information about the study and the contact details of the researcher. Participants were also informed of their right to withdraw at any time during the interview even if the interview has not been completed and that the interview would be voice recorded. After which they were provided with the consent form (Appendix C) to sign and were given a copy of the information sheet and the consent form to keep for their future reference. Interviews were recorded via a voice recorder device and later transcribed by the researcher. The related files, which were password protected, were stored in university computers according to GDPR regulations.

The semi-structured interviews were designed to provide sufficient time for participants to describe their opinions, views, attitudes, emotions, and even intensions around subjects which considered as sensitive as skin colour and skin lightening experience. The interviews lengths ranged from 35 to 45 minutes and all of them were audio recorded and then transcribed manually into a word document. After that, they were imported into N-vivo 12 mac version for coding, categorisation, and themes generation in the next analysis stage.

The final sample of interviews consisted of three interviews. Two of them were carried out face-to-face in the clinic and the third was carried out over the phone as the participant had no time to stay in the clinic and preferred to be contacted later by the phone.

The first interviewee: Natalie (pseudonym), female, 32 years old originally from Nigeria, black ethnicity, skin type VI, suffered from BDD and her main concerns are her skin colour and her height. She started skin lightening practice since she was 13, and her aim to lighten all her body skin shade.

The second interviewee was Sara (pseudonym), female, 38 years old originally from India, skin type III, used skin lightening products to treat/ cover hyperpigmented lesions on her face.

The last interview was with Stephanie (pseudonym), female, 49 years old originally from Sri Lanka, skin type IV, she used skin lightening products and makeup to treat and cover hyperpigmented lesions on her face.

#### **4.4 Data analysis**

The data was analysed using thematic analysis based on descriptive phenomenology in which the focus will be on the lived experience of participants. Openness, questioning preunderstanding, and adopting a reflective attitude have been implemented throughout the analysing process. So, the aim of the analysis is to comprehend the complexity of the meanings behind the data set and not the frequency (Sundler et al., 2019). Investigating how the events are experienced and

extracting meaningful understanding require interpretations from both the participants and the researcher to make sense of their lived experiences which are expressed by their own words (Eatough et al., 2008).

Six steps of thematic analysis were implemented to generate the codes and subsequent themes from the data set as described by Braun and Clarke (Braun & Clarke, 2006b).

1. Familiarise yourself with data: Although interview data were generated via an interactive way between the researcher and the participants, the data collection sample was read and reread by the researcher to be fully immersed with it. Dealing with verbal data have the advantage for the researcher to become more conversant with the data, not only through the process of data collection, but also through the transcription process. Verbal data were transcribed to written data manually. Although transcribing data seem to be time consuming and a boring process, it has the advantage of listening to the collected conversations again and writing them word for word which helped the researcher to advance ahead in the analysis process. Reading and rereading the data set are essential to have initial ideas about the codes, themes, meanings that are going to be generated in the next steps of analysis.
2. Generating initial codes: using N vivo 12 software, the data were actively read again to extract meanings and codes. Initial codes were developed and categorised to be used in the next steps where themes were generated from these codes.
3. Searching for themes: codes were classified and categorised to be involved into initial themes and subthemes hierarchy.
4. Reviewing themes: themes were reviewed, and the coded units were evaluated again to ensure that they match the belonging themes. So, the coded data, the themes, and the subthemes were reorganised to best fit the intended meaning and the categorisation of the data.
5. Defining and naming the themes: the final set of themes were defined with names that best fit the essence of data and its meaning.

6. Producing the report: the themes and their subthemes were written in a specific chapter with an introductory description for each theme. Also, some of the original collected data were included in the report as quotes to reflect the meaning and capture the leading points of each theme or subtheme. This was supported by literature and descriptive analysis when available.

The Coding Manual for Qualitative Researchers was used as a guide in the analysis process which include emerging codes, categories, and themes. The coding process was descriptive coding that contained codes (parent coding) and subcodes (children codes). The process was started by coding the transcripts (i.e., first cycle coding) followed by second cycle coding which is the focused coding process to emerge the categories and the themes from each interview transcript. All these themes and categories have been integrated for discussion and interpretation in the findings section (Saldana, 2015). “In vivo coding” were used in first and second cycles of coding which represent the actual language of participants in their own terms rather than the academic researchers’ terms (Saldana, 2015). Also, “in vivo codes help us to preserve participants’ meanings of their views and actions in the coding itself” (Charmaz, 2006). Also, in phenomenological analysis, it has been argued that the essential general meaning is preferred to be gathered as an “essential meaning structure” rather than separated themes (Sundler et al., 2019). Therefore, the phenomenological representation of the lived experience of the participants will be presented firstly by the extracted themes. Then, phenomenological descriptions will be presented in the final discussion regarding what happened, how the experience happened and the essence of the whole lived experience (Creswell & Poth, 2018).

## 4.5 Findings

Three main themes were generated from the interviews that had been recorded, each theme is divided into categories and subcategories as below

- **Theme 1: Factors underlying skin lightening use**
  - Sociocultural related factors
    - ◆ Society/ cultural standards

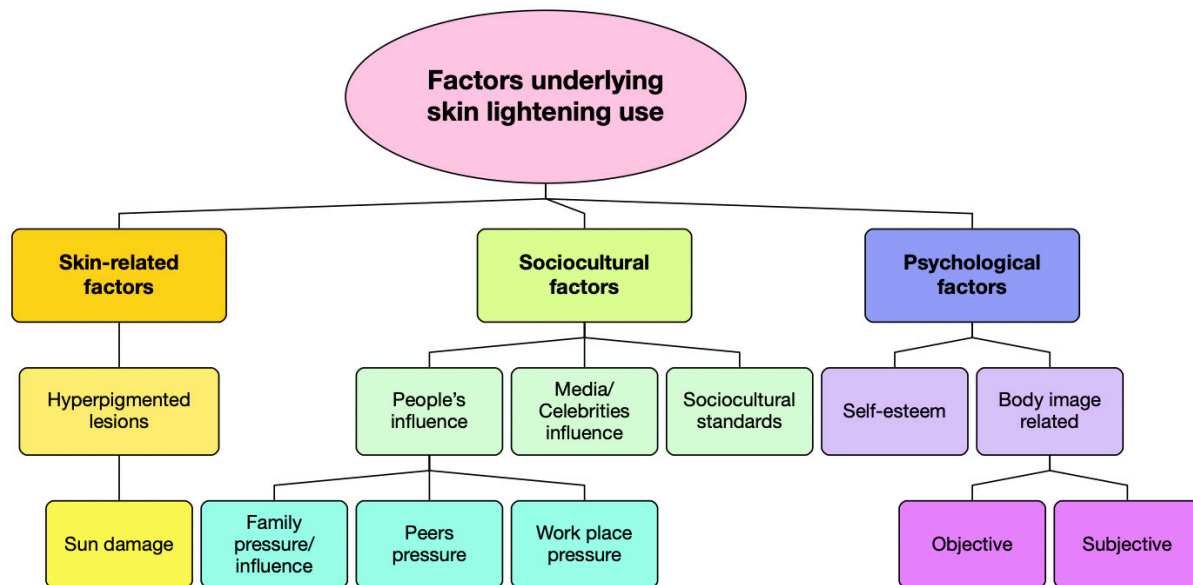
- ◆ People's influence: can be done through {comparison/ pressure/ concerns about others opinion} which happen mainly in:
  - Families
  - Peers
  - Workplace
- ◆ Media/ celebrities influence
  - Skin related factors
  - Psychological related factors
- **Theme 2: Techniques of skin lightening**
  - Topical products
  - Systemic products
  - Laser treatment
- **Theme 3: Body image effects**
  - Work life
  - Social life
  - Psychological wellbeing

### **Theme 1: Factors underlying skin lightening use**

This theme represents factors that drive people to practice skin lightening, which is divided, according to the qualitative data analysis, into three main categories which are: sociocultural factors, skin related factors, and psychological factors. However, they may possibly be integrated with each other.

Figure 4.1 Theme 1 structure.





#### 4.5.1.1 Sociocultural factors

Social and cultural norms have been widely known to affect people's behaviours. However, sociocultural behaviours and thoughts subject to evolution and constant change. The visibility of the skin makes it prone to cultural impact. Cultural factors also play a key role in pathogenesis, presentation, and treatments of dermatologic conditions (Shenoi & Prabhu, 2013).

Research shows that the three most impactful sociocultural factors, which participate in shaping individual's body image are parents, peers, and media. Those factors can influence people through two mechanisms which are internalization and comparison (Cash, 2005; Keery et al., 2004). Internalization is the acceptance of certain standards to the level which affects peoples' attitudes and behaviours.

The sociocultural factors that have emerged from this qualitative data analysis are the sociocultural standards, people's influence, and media/ celebrities' influence.

##### 4.5.1.1.1 Sociocultural standards

Social-cultural factors play a central role in determining the ideal body image in certain cultures and in determining one's satisfaction of their own bodies. Body image can be defined as person's own evaluation of their body attraction compared to the beauty ideals accepted in their culture. Moreover, some people perceive those ideals as criteria to evaluate others attractiveness (Bakhshi & Baker, 2011). So,

there are variations in what considered as beautiful body feature in various cultures. For a certain country, racial, or ethnic group, certain body parts or certain qualities being disliked, while the same features are considered as attractive or desirable to another country, racial, or ethnic group (Ahmed & Saltus 2015; Cash, 2005; Day et al. 2017; Keery et al. 2004; Shenoi & Prabhu 2013). For example, having a fair skin colour is an obsession in most south Asian countries where people aim for a lighter skin colour regardless of their age or gender unlike the idealization of having tanned skin in many western countries (Ahmed & Saltus, 2015; Shenoi & Prabhu, 2013).

*“The majority lighter, people feel”* “So, you should have a clear skin this is basically my idea it doesn’t matter you are dark or light” Sara, originally from India, talked about society preference and her opinion respectively.

*“does it depend on the culture or the background?”* she was asked. *“yes, background and hereditary as well”*, Sara answered.

*“Honestly my personal opinion I don’t think it is more attractive, for me personally, but to society it is”* Natalie, originally from Nigeria, talking about lighter skin tones.

When she was asked *“Do you think that people think lighter skin colour is more beautiful?”* she replied *“absolutely, I’ve seen it myself. So, for example, night clubs, I used to go nightclub all the time when I was younger, and they used to say to us, you can’t come into the VIP because you’re too dark. So, I mean if that doesn’t tell you what society’s standards are, I don’t know what it is”*

It’s obvious from the participants responses that they acknowledge the society or cultural preferences regarding skin tone, even if it is different from their personal preferences, which in turn affect their body image. Regarding skin tone perception, it’s been found that it can be influenced by the congruence between one’s actual skin colour, one’s ideal skin colour, and the cultural ideal colour (Ferguson & Cramer, 2007). Some authors state that personal preference of what considered as attractive is flexible and changeable with their surrounding environment (Ahmed & Saltus,

2015; Tovée et al., 2006), which has been mentioned by one of our interviewees, Stephanie, who is an immigrant from a different culture.

*“The perception back home [Sri Lanka] light skin is more beautiful, but when I came to this country [the United Kingdom], I have seen a lot of white people want to be darker, and also I think darker colour is better as skin, as we are more adaptable to the sun, but before coming here I was on the darker side in Sri Lanka. For example, my sister she was 10 shades lighter than me..... I am considered dark in my country, but my sister was very fine in my country”*  
Stephanie, British, originally from Sri Lanka.

#### **4.5.1.1.2 People’s influence**

Additional to the sociocultural standards, sociocultural factors also include people’s influence and media/ celebrities influence in which the influencers are always from the same culture or ethnicity.

From the coding process and the subsequent emerged themes, it has been found that people’s influence plays a major role in determining body image and skin lightening practice. It has been concluded that people who significantly influence the participants are their family’s members, peers, and colleagues in workplace. Their influence can be applied through one or more of the following mechanisms: appearance comparison, pressure, and concerns about the opinions of other people.

Family factors have also been considered as one of the sociocultural factors which contribute to body image related concerns (Rongmuang et al., 2011) and represent a significant element in determining people’s intentions to lighten their skin. All participants mentioned their families in their interviews and how their upbringing affects their perception about themselves. So, Natalie who suffers from BDD gave a hypothetical scenario regarding her future children she said,

*“if they came as darker as whatever, I just have to instil in them how beautiful they are all the time, you know that kind of thing, and I think unfortunately for me, because my mum is a light skinned, she doesn’t get it. It is not her fault*

*she doesn't get what my problems are, she doesn't know how I feel about myself and even if I try to discuss with her, she thinks I am beautiful. But if I had child Because I know how I felt when I grow up, I'll make sure that they feel beautiful all the time regardless of their shade”.*

The case is different with Stephanie, as she highlighted the importance of her “educated” family in the way that she accepted herself as a darker sibling of a light skinned sister:

*“it was never an issue, but society had some uneducated people sometimes who said how come your sister is fair and you are so dark? And my parents really not into these kinds of questions”.*

Stephanie also added that the level of education in families and their “mentality” affects how their children perceive themselves when she said

*“It depends on their mentality and education so educated people never think like that and it depends on the household you know, I brought up in the family who never assess you on your race, religion or colour and I think the upper class or the upper middle class they don't think these issues as important”*

*“I think also mentality .... I came from very broad-minded family” “My mother always told me the grass is always greener on the other side of the wall so darker ones want to be lighter and for example British people go to our countries to get tanned and because you are dark you want to be lighter”*  
Stephanie followed.

Both participants mentioned their mothers and how the way they brought up their daughters impacted their feelings about themselves. Family support, has also been mentioned in literature, which contributes to the development of “positive body image” in women of African descendant (Buchanan et al., 2008).

Participants in this study cited that they were influenced by their relatives who used some kind of skin lightening products, or they were compared to a family member or

a peer who are from the same background and have lighter skin tone than them. Social comparison theory states that people don't make comparisons with those who are considered as different from them. Therefore, people compare themselves, with other people who have similar qualities e.g., race, skin colour, height, etc. (Frisby, 2004).

Natalie mentioned her cousin's story who lives in Africa. She said,

*"I had an older cousin when I was little, she's about 10 years older than me and she's into skin lightening as of her full body she used to be my complexion and she is nearly your complexion now" "her one looks so good".*

She also said that she admires such people for doing so

*"I mean I've seen some girls went from my complexion to such a dramatic effect and it is really nice. So, I do admire them".*

Sara also mentioned her relative

*"I am influenced by her because I see her looks good and I followed the same thing and I have been using it for many years" "I saw her using it for herself and then I thought why not I try it for myself"*

Stephanie, on the other hand, compared her lighter skinned sister with herself when she said

*"my sister, she was 10 shades lighter than me..... I am considered dark in my country, but my sister was very fine in my country".*

Also, with her friends

*"you know you become conscious about how you look and most my friends where very fair and I was the dark one" Stephanie added.*

*“I don't really like going out with my friends and unfortunately all my friends are fair skinned, I am only the dark-skinned one when we do go out my friends tend to get a lot of attention because they are beautiful girls, but it can make me feel like the odd ball”* Natalie said.

Perceived pressure has been strongly associated with body image and body dissatisfaction. Perceived pressure is always applied by family, friends, partners, or even by the media itself (Cafri et al., 2005).

Sara mentioned her family pressure

*“But my family keep worrying about this they asked me to do an alternative like laser, but I preferred to do the natural way”* and her mother in low comparisons

*“My mother-in-law keeps worrying and asking me when I went there, because she is dark skinned now, and she was fair skinned, because of the sun”*

*“She keeps looking at me and she had a bad experience and bad skin now. So, she doesn't want me to neglect myself”*

Workplace influence can be in a form of pressure on the employees to look in a certain way via putting more makeup

*“I used to work to a retail company and your makeup and appearance is number one, you can be the most foolish women in the planet, and she has appearance and that give you more recognition than anything else you know”*

*“Recently I didn't put make up and my boss said oh what happened to you and she was very upset, but I am the best one selling to the company and bringing the most amount of money, but it didn't matter you know”* Stephanie said.

Pressure can take a form of bullying or discrimination. The development of body image is more influenced during adolescence time especially by the reactions and comments of others. This in turn can lead to body image consciousness, social withdrawal, difficulties in workplace and even psychological disorders (Madhulika A. Gupta & Gupta, 2013).

*“I want to be lighter, I was bullied when I was younger by boys mainly, because I was so dark that they used to say things to me like you would be so pretty if you were lighter... as a child thing like this resonating with you, so it’s stuck”.*

Perceived racial discrimination make black ethnic people or other minorities prone to develop mental health problems such as depression and anxiety (De Maynard, 2009).

*“It always affecting me especially when I was a child, I remember even my diary I used to write about it until now I still have it”* said Natalie.

Race related bullying has been associated with physical or emotional complications which also make some black people become sensitive and preoccupied with potential thoughts of interpersonal rejection (De Maynard, 2009).

*“I have a feel and I know it is not a good feeling that I am going to be discriminated against because of my colour but you know when you have this mentality you will do your own doing, you know that kind of thing, that’s why I kind of feel that I can do all by myself. I can get my own money having my own business then I don’t need anyone to give me an opportunity”.* Natalie.

*“When I used to work in an office, I had a very good friend of me she was South African she was mixed raced” .... “We used to have a similar manager, but the treatment between the two of us was so different she was so nice so accommodating to that girl than into me” ..... “So, I think maybe she accepts her more because she can relate to her more because she’s half white”* Natalie.

Concerns about the opinion of others are going to be discussed in the psychological factors (objective body image).

#### **4.5.1.1.3 Media and celebrities' influence**

Media effect has been considered as a risk factor for body dissatisfaction and development of negative body image. Many studies which examined the effect of media on psychological wellbeing especially body image dissatisfaction showed a relationship between media exposure and body image problems (Cafri et al., 2005; Groesz et al., 2002).

However, one participant reported an advantage to the social media nowadays in affecting young people perception about their skin colour

*“nowadays especially the things like Instagram, there is a lot more positive images of people that they look like me [dark skinned], but when I was growing up, when I looked at the TV, no one was dark skinned. So, you think about that as a child, so, ok, to be famous you have to be light skinned, being successful you have to be light skinned, whereas now in social media what is good I think for the kids that are young and have the problem that I had, they can see beautiful black girls now. So, it is ok to be dark and beautiful”* Natalie opinion about social media.

Evidence shows that celebrities influence represents a significant influence on people's behaviour (Mahler et al., 2010). People generally tend to believe in the effectiveness of products that have been endorsed by celebrities. Moreover, when celebrities lighten their skin tone, they refer to their beauty as an acquired one and skin lightening is an acceptable behaviour in their culture (Hunter, 2011). Certain physical appearance can be indirectly conveyed by celebrities through modelling. It also reinforces the importance of certain traits in appearance and these features are linked to their attractiveness, success, and happiness (Bakhshi & Baker, 2011).



Participants are influenced by celebrities from the same race or ethnicity. It has been found that African American women compare themselves to other African American women rather than other races (Buchanan et al., 2008).

One participant is influenced by celebrities from Africa who do laser treatment to get lighter skin shades and therefore she searched for these cosmetic practices and asked about details. She aimed to have her skin done there despite the expensive prices along with the expenses of flight, travel, and accommodation for all the period of the treatment.

*“The laser treatment, so they do this treatment in Dubai, a lot of African artists they go out there to do it, what they do is they use laser for all over the body and it has the same effects as the injections which make you lightened everywhere not just in a certain area”* Natalie.

*“Yes, especially celebrities not the people around me, especially the Indian one that she was a judge in many reality shows”* Sara replied when she was asked if she compared herself with other people.

#### **4.5.1.2 Psychological factors**

##### **4.5.1.2.1 Body image related factors**

Body image can also overlap with other feelings about ourselves such as: self-worth, or self-esteem. At the same time, some scientists believe that our body image can affect the way other people perceive us (Veale et al., 2012).

*“To look prettier, I feel or hide the flaws like me, or feel more confident .... it counts to so many things in life not only relationships, it boosts your confident to go and face people overall, you feel confident”* Sara’s opinion about why people use skin lightening products.

Our appearance matters and affects our life in a complex way. The objective way (social): our physical appearance to others (physical attractiveness): this is important

in terms of first impressions, making friends, mating, dating, and it even it affects the chances of getting into a relationship or getting employed.

Subjective way: individuals' own perspective of their own appearance which is more powerful in psychosocial terms rather than the objective way which is in other words (the inside view or the body image) (Cash et al., 2004). Both affect the confidence level, the self-esteem, and the whole psychological wellbeing of the individual.

In all the three interviews, people said that their opinions about their beauty are different from the society opinion which represents the difference between the subjective and the objective body image which influence how people feel about themselves, their confidence, and their self-esteem. Therefore, it can be concluded that sociocultural standards interrelated with psychological factors and play a major role in determining peoples body image and their self-esteem.

*“if I am alone, I don't care if I wear it [make up] or not, but if I go with him [her partner] he is very tall I would want to put make up, because people look at me and look at him so any women look at him and anyone not just woman look at him and I am Asian I want them to think wow he is a lucky guy to have a woman like this”* Stephanie replied to her friend when he asked her why you always wear a lot of makeup.

She explained how other opinions are important to her even though these opinions are just predictions.

*“I have a feel and I know it is not a good feeling that I am going to be discriminated against because of my colour”* Natalie said.

*“especially when it comes to the community, it reinforces every day that I shouldn't be considered as beautiful because of my colour”* Natalie.

*“At the same time, it's weird because some people say I am beautiful, but I know other people probably wouldn't base on my skin colour, if I was different colour, they would probably change their mind just based on my skin colour*

*that brings me down”* Natalie’s opinion about what people might think about her (objective body image).

#### **4.5.1.3 Skin-related factors**

Evidence showed that one of the significant factors of using skin lightening products is to have uniform coloured skin and treat underlying skin lesions such as hyperpigmentation lesions, acne, pimples, among others (Hamed, et al., 2010; Kamagaju et al., 2016; Kouotou et al., 2017; Lewis et al., 2010).

*“The issue is my upper lid and under the eyes and in my chin are darker than the rest of the face”* Stephanie said.

*“But after my second pregnancy I started having these pigmentations which started worrying me as they are getting bigger”* Sara

All interviewee mentioned that they had hyperpigmented lesions caused by previous sun damage to their skin and aspired to treat them by different skin lightening products which they used.

*“Most of my skin is darker because of the sun, I never worn skin protection, because I thought my skin is dark, I don’t need it..... so definitely it is a sun damage”* Natalie.

Sara also said *“The lesions in my face got bigger than they used to be I think this is because I didn’t wear any sun block as a child”*

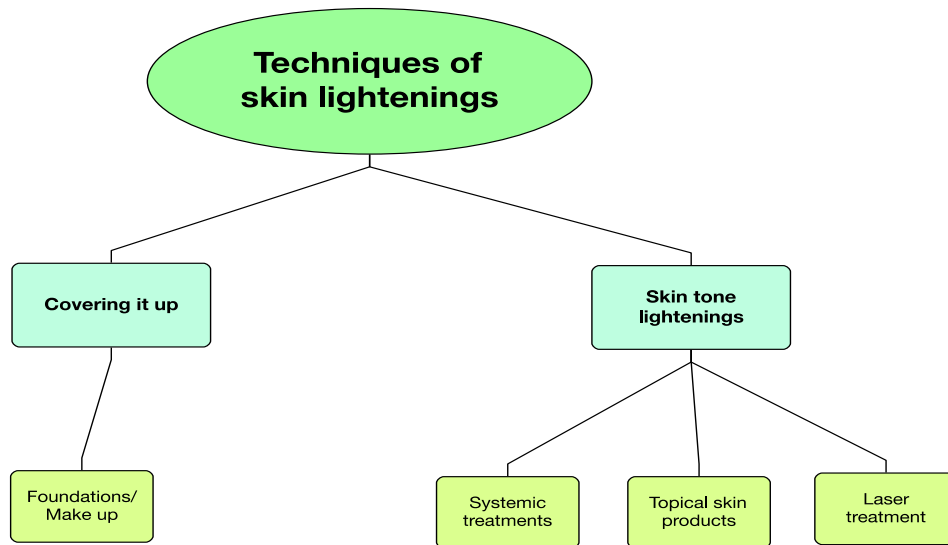
*“I was completely burned as my mother told me I was very fair when I was a baby, but because all my life I swam”* Stephanie.

#### **4.5.2 Theme 2: Techniques of skin lightening**

Skin lightening techniques in our analysis can be divided into using different techniques to lighten the skin tone or using make up to cover the skin lesions, unite the skin colour, and make it brighter. Skin lightening products can also be divided

into topical, systemic, and laser methods. Topical products include products which can be applied on the skin locally, while systemic ones can be subdivided into oral, and intravenous products.

Figure 4.2 Theme 2 structure



#### 4.5.2.1 Skin tone lightening products:

Topical treatments have been used for various hyperpigmented skin lesions, but their efficacy is generally limited. Additionally, some products cause side effects.

*“I tried some home remedies that my mother told me about, turmeric based, or cinnamon based something like that” “I also tried lemon and lime remedies but not helpful actually” Sara said.*

*“the cream they gave me here I used it for my face and neck, but it got me darker” Natalie was talking about 5% hydroquinone cream she was given by a doctor.*

And she mentioned some topical products that she bought from cosmetic shops which caused her some adverse effects

*“it was only dyeing my facial hair blonde and then I stopped using it” “I had irritation and it was itching that’s why I didn’t carry on with it” Natalie.*

Accordingly, systemic treatments are considered. Oral glutathione has been reported as effective and safe. However, IV Glutathione injections have been warned from using in some countries including the U.K, (Juhasz & Levin, 2018). Furthermore, the food and drug administration has banned the use of IV glutathione as skin lightening agent because the reports of accompanied serious side effects (Malathi & Thappa, 2013).

Natalie mentioned her cousin's story of how she lightened her skin. *"I think she used to not only do the creams, but she gets injections as well" "she used to get that religiously as well but obviously that is really expensive, she used to do that with the creams that's why her ones look so good"*.

*"it is available, I went to a private clinic in Harley Street, they provide it, but it's terribly expensive though it's about £5,000" "takes from 18 to 24 months" "I just want to get mine done by the injections, but actually was the dermatologist who told me not to opt for that"* Natalie

*"the difference with the injection why I opted for that, because it is for the whole body from the toe to head, whereas with the creams you might get light there and you might be dark there that's why I was worried of using the creams everywhere"*.

*"The last thing that I looked into, it is the laser treatment... they use laser for all over the body and it has the same effects as the injections which make you lightened everywhere not just in a certain area"* Natalie who wanted to lighten her skin tone everywhere in her body.

*"So, if I want to go for a laser, I will only get rid from the big defect I am not worrying about the small ones"* Sara who suffered from hyperpigmented skin lesions on her face.

#### **4.5.2.2 Covering the problem**

All participants mentioned make up to cover up their flaws or to make their skin tone brighter as mentioned above. They mentioned they use concealers and foundations.

*“I have always used concealers to conceal and cover these darker colours and pigmentations to make it normal skin colour and then put a foundation. I would like to make these pigmented to my normal skin colour as it doesn't look nice”* Stephanie.

*“I tried the natural, organic, or mineral based not the cosmetic based” “So, I don't go for expensive ones as they are again chemical based and I want something natural with these ones I feel good about myself”* Sara.

*“makeup wise, I don't go out without makeup, simply because without makeup you can see my natural skin complexion, but when I put make up on, I can make myself a little bit brighter”* Natalie.

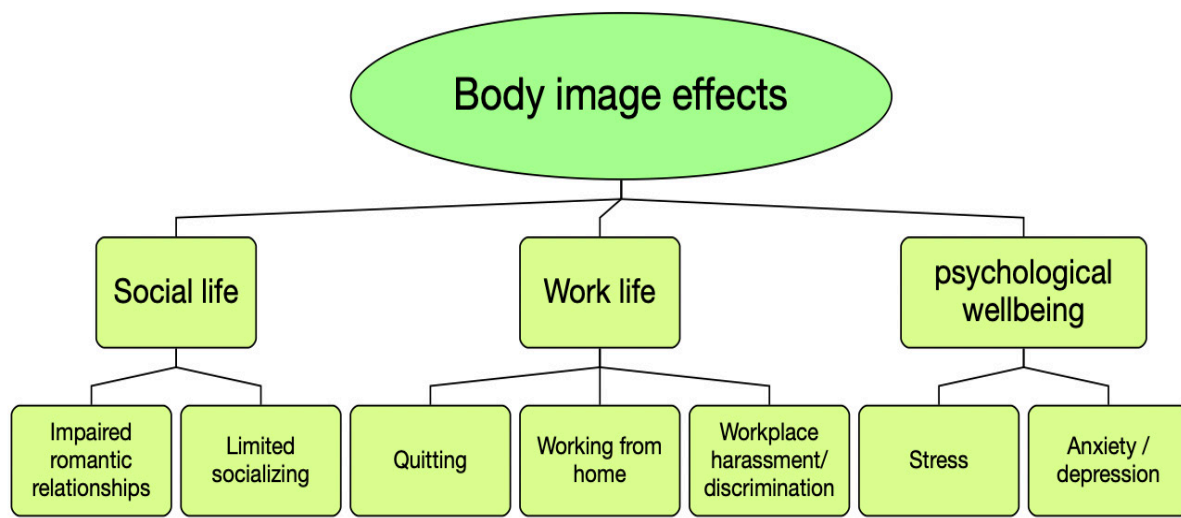
#### **4.5.3 Theme 3: Body image effects**

As mentioned in Chapter 2, body image dissatisfaction is very common and affects people's psychosocial life and daily functions which can range from having no impact to an extreme impairment on their psychosocial life (Cash et al., 2004). So, it does not mean that people who are dissatisfied with their image have body image disturbances. It depends on how this image dissatisfaction affect their psychosocial life and their functionality. Excessive Body image concerns can lead to different scopes of psychosocial complications such as low self-esteem, eating disorders, poor quality of life, social anxiety, BDD, and even depression (de Maynard, 2013). The preoccupations in BDD are uncontrollable, and patients become obsessive. Sometimes, their concerns handicap them, make them isolated, and not able to be functioning or able to face the world (Prabhu et al., 2007).

According to our analysis body image effects have been divided into effects on social life, work life, and the psychological wellbeing. Social life effects range from mild effects to severe ones which prevent the sufferers from socializing and going out,

and they avoid certain activities or practice camouflaging. Work life effects can range from feeling discriminated against, feeling pressurized to look in a certain way or they leave the work and have to work from home to avoid being surrounded by others. Regarding psychological wellbeing, image concerns can cause psychological impairment which range from continuous thinking about it, distress, and even depressive symptoms.

Figure 4.3 Theme 3 structure



#### 4.5.3.1 Social life impairments

One of the main features of patients with BDD is the significant impairment in school, work, and social life (Marques et al., 2011).

*Sara said “I just avoid ... I have got chances to meet more people, but I just tried to avoid” “I give excuses like I have an appointment or something like that and I think they know that I don't want to be mixed with people”*

BDD has always been accompanied with poor psychosocial functioning. Social impairment in patients with BDD is approximately universal. They usually report an increased level of social isolation (Didie et al., 2006). Also, they reported lower psychological-related quality of life than community samples (Phillips et al., 2005).

*“I don't really like going out with my friends and unfortunately all my friends are fair skinned, and I am only the dark-skinned one when we do go out my*

*friends tend to get a lot of attention because they are beautiful girls, but it can make me feel like the odd ball a little bit” Natalie.*

*“For my friend's baby shower, I haven't seen her for ages and then they came to me for a group shot, but I purposely went to toilet at that time because I do not want to be in the photo” Natalie.*

Clarke et al., 2012 stated that people with body image disturbances believe that the way they look is preventing them from doing certain activities and if they change their appearance, they will feel more confident and happier.

*“I do think myself sometimes, I would be probably settled down by now, if I was lighter maybe” “I've always thought I would have everything if my skin was a little bit lighter” Natalie.*

Patients often relieve their anxiety by following some strategies like covering the defects, frequent mirror checking, avoiding the mirror, frequent asking for reassurance, and sometimes they adopt some harmful behaviours (Prabhu et al., 2007).

*“makeup wise, I don't go out without makeup, simply because without makeup you can see my natural skin complexion, but when I put make up on, I can make myself a little bit brighter” Natalie.*

*“I am only here without wear make-up because I came for a dermatologist, but I put my sunglasses when I drove for no one can actually see me. So, I feel comfortable in this regard, but when I have to go anywhere in public, So I have to have my makeup on” Natalie.*

Applying a lot of makeup has been practiced by all the three participants and mentioned in literature as excessive grooming or camouflaging which represents one of the most common physical appearance behaviours that associated with body



image disturbances to improve or cover the “defect” which resulted in preoccupation about their appearance (Phillips, 2004).

*“I cover my skin flaws before I go out to look good” “I feel good, I feel more confident to step out of the house. If I don't, I feel consistently worried” Sara described herself with and without makeup respectively. “it boosts your confident to go and face people overall, you feel confident” Sara.*

Stephanie also talked about her makeup habit *“In gatherings may be, I will be conscious about my pigmentation, so I always carry a little bit of foundation and concealers” “you can't go out to meet friends and you know they are going to put” Stephanie.*

#### **4.5.3.2 Appearance and work life**

It is not uncommonly for people with BDD to quit their job or stop going to school (Phillips, 2004). From Natalie experience, her skin colour affects her job in several ways. Firstly, she thought she was treated differently from her colleagues because of her skin colour in her previous job and that made her feel she is being discriminated against. This led her to quit her job and start working from home.

*“when I used to work in an office, I had a very good friend of me she was a South African, she was mixed raced she has a fair skin, but she is very much identified as a black. We used to have a similar manager but the treatment between the two of us was so different she was so nice so accommodating to that girl than into me .....the treatment was so different. So, I think maybe she accepts her more because she can relate to her more because she's half white”.*

Secondly, Natalie mentioned that she works from home now and she owns her own business as she does not want to work with people.

*“Yes, it [her appearance] has affected my work. I stopped working in the office now and my current work is from home, so no one sees me” Natalie.*

*“me being self-employed because I don't want to be around people....., I don't want people to look at me anymore, because I'm not happy with myself”*  
Natalie.

*“have this mentality you will do your own doing you know that kind of thing that's what I kind of feel that I can do all by myself I can get my own money having my own business then I don't need anyone to give me an opportunity”*  
Natalie.

Thirdly, her current work is also affected,

*“I used to have Instagram account and I posting it all the time but the more I become conscious about my skin colour the less that I have posted” “I used to get opportunities from this account, people used to ask, can you make this for me, can you make that for me, but all these have thrown away because of that thing which bothers me”* Natalie.

Sara also mentioned her experience as her appearance concerns stopped her from applying to jobs.

*“Yes, it stops me from applying to jobs”* she meant her concerns about her skin pigmentation lesions that she had.

Stephanie experience at work was different as she was pressurized by her boss to put make up on.

*“Recently I didn't put make up and my boss said: oh, what happened to you? and she was very upset, but I am the best one selling to the company and bringing the most amount of money, but it didn't matter”* Stephanie described how her appearance affected her work *“It does interfere, I hadn't put anything that day that's why my manager had so many comments that day”*.

Then, she added if she doesn't put enough makeup

*“I am going to think about it continuously. And people will be asking me aww what happened to you? Are you well? You don't look well”* Stephanie.

*“I would be very worried about my appearance when I go to work because they insist that you should have make up ... Even the customers that we have, if you have more makeup, they will approach you and I watched it. So, in the day that I have had less makeup they go for your colleagues who have more makeup”* Stephanie.

From these examples, it can be concluded that appearance affects people's work in many levels from preventing them applying to new jobs, putting extra pressure and concerns about how they look, discrimination based on appearance, quitting jobs, and preferring to work from home.

#### **4.5.3.3 Psychological effects of the image concerns**

Body image problems may associate with other psychological problems such as OCD, social anxiety, depression, and even suicidal thoughts (Veale et al., 2012; Veale & Bewley, 2015). The interviewees admitted that image concerns cause them stress which range from continuous thinking about it, distress, and even depressive symptoms. For example:

*“I consistently thinking about it which makes me distressed and sometimes, I show it in front of my kids”* Sara.

*“It always affecting me especially when I was a child, I remember even my diary, I used to write about it”* Natalie.

*“It keeps me awake because over thinking and overthinking”* “I could be crying for hours about it” Natalie described how image concerns affect her psychological wellbeing.

## 4.6 Discussion

The findings of the extracted themes showed that the interviewees experienced sociocultural pressure regarding the usage of skin lightening product. They do believe that the cultural acceptance of the skin tone is different from their own perception in that it considers the lighter skin tone is more beautiful/ attractive than the darker ones. However, they follow the cultural beliefs rather than their own and tried to lighten their skin whether by makeup, home recipes or by using skin lightening products. They also confirmed the influence of their relatives and friends on their decision of using skin lightening products and concealing makeup products like foundations and concealers. Also, the effect of celebrities on the participants has been reported in terms of the celebrity skin colour or the products they have used/ advertised.

Although living in a multicultural country considered as an advantage for minorities, it can enhance the feeling of skin colour discrimination in workplace or among friends' communities as mentioned in the interviews. Feeling as "an outsider" in the society or among certain group negatively affect psychological health of people which prompt them to alter their skin colour by the available means to feel better or to merge in the society. For instance, all participants emphasized on using camouflaging make up when they go out with their friends. The impact of their skin colour extends to their personal and intimate relationships. Feeling of discrimination against certain skin colour led some participants to quit their jobs or prefer working from home, when possible, to avoid being surrounded by people. However, one participant mentioned that she faced pressure in her workplace to wear makeup in certain ways to avoid her manager's/ colleagues' comments or be more appealing to the customers. Various skin products are being used as a short- or long-term remedies. Makeup has been used to temporarily even out / conceal skin lesions while lightening techniques have been utilized to permanently lighten the skin tone or treat hyperpigmentation.

Some psychological factors interconnect with the sociocultural factors especially those related to body image disturbances or self-esteem issues since sociocultural norms may take part in developing low self-esteem or body image problems. Also,

skin conditions such as hyperpigmentation lesions and previous sun damage are also considered factors influencing the use of skin lightening products/ concealing makeup products to achieve a uniformly coloured skin tone.

The rich qualitative data obtained from the interviews shed light on the effects of body image in their social life, work life, and even psychological wellbeing. As has been revealed from interviewee responses, these effects can range from mild to severe which prevent them from socializing or working with other people and sometimes lead to stress, anxiety, depressive symptoms, or even BDD.

From the discussion above, it can be concluded that using skin lightening products is a multifactorial phenomenon. However, all participants experienced a form of body image disturbance whether it was pathological condition like BDD or only dissatisfaction with their skin appearance. This relationship of body image disturbance and the usage of skin lightening products has not been qualitatively studied in the literature. Future studies, with more participants, will be beneficial to understand this relationship. It can also be concluded that all participants got influenced by others to have lighter skin colour like friends, relatives, or celebrities which, from another perspective, make the role of social media essential in affecting body image and hence skin lightening practices. Social media effects on psychological health have been discussed in other studies (Cohen et al., 2017; Meier & Gray, 2014).

It is essential in dermatology clinical practice to discuss body image disturbances and other psychological consequences associated with skin lightening use. This can help to correctly manage such cases in appropriate practice settings such as psychodermatology or refer to psychiatrist or psychologist which in turn pave the way to the right diagnosis and treatment. Some of the associated psychological conditions could be the cause or the consequence of the skin conditions which may need the cooperation of dermatologists with psychologists or psychiatrists (Al-Sarraf et al., 2018).

## **Chapter 5**

### **Study 4: Investigating skin lightening phenomenon online**

#### **5.1 introduction**

In our contemporary societies, the aspiration to achieve often unrealistic standards of “beauty and perfection” promoted by online platforms may encourage vulnerable individuals to adopt risky behaviours like enhancing their appearance through IEDs (Van Hout, 2014; Dores et al., 2021). The internet not only participates in developing image concerns, but also considered as supportive environment which encourage certain behaviours regarding image enhancement. For example, vulnerable people who engage in embarrassing behaviours and have similar interests and beliefs interact in online fora where people share information, feedback, and reviews. Therefore, image enhancing drugs users feel a sense of community and are able to freely exchange their experience and advice without exposure to risky or embarrassing face to face communication (Tighe et al., 2017).

Due to the significant role of the internet in influencing this practice which has been noticed in the three previous studies/ chapters (via advertisements, online communities, and the availability of the products on the internet), this chapter presents a qualitative internet-based study to address the main objectives of the research from skin lightening users’ online communities. The outcome of netnography studies tend to be descriptive and the analytical results provide an authentic and detailed representation of the online cultural members and their real experiences, beliefs, and attitudes (Kozinets et al., 2017; Langer & Beckman, 2005). Three websites have been chosen according to the listed inclusion criteria to collect and analyse relevant data. A qualitative data analysis software (NVivo 12) was used to systemically organize the data analysis process. Six steps of thematic analysis as described by Braun and Clark, (2006) have been implemented successfully on internet derived data.

## **5.2 Study four objectives**

This chapter aims to explore:

1. The reasons for using online communities and how online fora influence people to practice skin lightening.
2. The motivations of those who use skin lightening products and their influence to use certain products.
3. Skin lightening experience whether it was positive or negative including any physical or psychological side effects they have suffered from.
4. The availability of skin lightening products (local or systemic treatments) online or through other routes.

In order to address the chapters objectives, qualitative data analysis method has been chosen to give more details of skin lightening users' experiences. In addition, this method allows the interpretation of some behaviours within certain communities who share the same goals and interests. Furthermore, qualitative methods allow us to compare fora, and to analyse the causes of such cosmetic behaviours.

The method of selecting the pages to be uploaded and the posts to be analysed was according to our netnography study objectives and questions above. Consequently, the themes which were generated from the codes of this data are also based on these objectives to draw our results and conclusion from.

## **5.3 Research strategy**

The purpose of data analysis is to identify the main categories which are addressed by each of the research objectives. Thematic analysis has been chosen to analyse data which are obtained from online communities and fora. Thematic analysis can be used as a realist or essentialist method of analysis to describe participants' experience, reality, etc. It can also be used as a constructionist method when it is used to describe how participant's realities, experiences, etc. affect certain behaviours in the society (Braun & Clarke, 2006a). Both theoretical frameworks (essentialist and constructionist) were adopted to represent the meaning of participants skin lightening experience and to discover how skin lightening experience impact the behaviours of others in the community respectively. Moreover,

themes can be directly developed from skin lightening raw data by a special coding system in consistent with our study aims and objectives as thematic analysis has been successfully implemented in online fora analysis (Attard & Coulson, 2012).

#### **5.4 Netnography approach**

The last decade has witnessed an enormous increase in internet use and computer-mediated communications. This has led to tremendous increase in communicative activities via this medium. Online communities have become progressively important in research field not only because of increasing growth of using the internet, but also the rich data they provide and the easy access from both consumers and researchers (Belz & Baumbach, 2010). Therefore, the amount of research on online communities have been significantly increased and novel netnographic approaches have emerged.

Netnography is a hybrid term which is originated from the word *internet* mixed with the word *ethnography* to systematically study the internet-based or online communities. Netnography has been adapted from ethnography and it uses the same research methods such as observation to analyse communities through computer-based communications (Belz & Baumbach 2010).

Netnography is also defined as the utilization of social sciences research methods to carry out ethnographic research which encompasses both online and archival communication networks. This type of research is conducted by a regular observation of the web networks to collect, and analyse data from these digital networks (Kozinets, 2015). It is a valuable approach to investigate users motivations, experiences opinions, needs, and interactions (Langer & Beckman, 2005). It has been found that these online constructed communities represent a convenient place where people with the same interests establish a broad and an up-to-date network to meet and share their thoughts and opinions which might not be otherwise possible.

The task of netnographer is thus to scan the online fora archives, to contemplate and to learn from members how to live and interact in this specific community rather than



reading their cultural identification and information as in ethnography (Kozinets, 2010). Therefore, the netnography studies can be described as the study of “the nature of online social experience and interaction” (Kozinets, 2015).

Netnography has been used to get large sampling with deep insight to achieve meaningful results. The data collected tends to be thick descriptive and rich data, with the benefit of providing an authentic and detailed representation of the online cultural members and their real experiences, beliefs, and attitudes (Kozinets et al., 2017; Langer & Beckman, 2005). This method has been successfully used in health related topics, non-medical use of certain medications, and to explore patients’ discussion fora (Tenderich et al., 2018). Although this field has been used in consumer behaviour field since the late 1990, it is not fully used in consumer education by the researchers. Netnography therefore is the way to understand how consumers are participating and learning from these fora of communities (Sandlin, 2007).

## **5.5 Justification of using netnography approach in this research**

Considering, the success of previous studies in the field, a netnographic approach has been selected for this study to obtain the most authentic data generated from real opinions and experiences of the targeted communities.

The observational method of netnography is particularly suitable for researching sensitive or controversial phenomena and also in research topics which intend to improve the persons or public’s welfare (Ulusoy, 2015). Furthermore, online communities provide the access to what is called hard-to-reach communities, which are not available to reach otherwise (Davey, et al., 2012). For instance, through novel netnographic methods Corazza et al., (2013) were able to identify over 650 new psychoactive drugs (NPS) sold on the internet, which were previously unknown.

This was found very relevant in terms of the proposed investigation on skin lightening practice, where experiences, concerns, risks, side-effects are often shared in an anonymous way online among community users rather than with a doctor.

## **5.6 Fora influence as a mutual factor with other online studies**

The online communities have been considered as safe and supportive place for vulnerable people to exchange information and especially helpful for new users and those who experience unexpected results from the enhancement products they use. Several factors influencing the behaviour of users of online fora have been identified throughout this chapter. These factors are summarised in table 5.2 and further detailed in section 5.8.1 and in section 5.7 where individual forum characteristics have been explained in terms of type of posts, participants attitudes, fora influence among other features have been explained.

Many of the identified factors can be applied to other online communities in related fields, including psychoactive drugs and cosmetic practices. While these studies diverged on the main research topic, they converged on how these online fora influence users. For instance, Van Hout (2014) documented the harmful impact of exchanging anecdotal advice among online communities in an online research study on synthetic tanning and highlighted how these communities can counteract the harm reduction initiatives regarding image enhancement drugs. Another study, which discussed the use of unlicensed weight loss drugs among females, has shown that the online community influence can be considered as peer education and there is evidence about users being influenced by others (Germain, 2018).

The use of injectable IV Glutathione for skin lightening have been discussed in (section 5.9.4.2) and in (sections 5.8.2.1 & 5.8.2.2) where fora participants exchange information and experience on injectable glutathione despite FDA warnings of using it. Parallel injectable harmful practices for image enhancement have also been studied in the literature. For example, Hall et al., (2016) tried to explain the motivation behind using synthol, which is an injectable substance, to enhance muscles appearance despite its many adverse effects and found that medical and pharmaceutical online discourses of lay experience have been considered as legitimate resource of information to other users with the absence of reliable knowledge. Similarly, in a study researching DIY Botox and fillers injecting practices Brennan et al., (2018), discussed how forum users acquire the confidence and self believe in taking the risk of injecting themselves DIY products through peer

discussion and the shared success stories in the forum despite the well-known adverse effects of this practice.

It has been mentioned that 61% of people in Europe aged 15-24 years use the internet as information resource on illegal drugs, (Corazza et al., 2012). The risks associated with the availability of recreational drugs online along with the encouraging discources/ videos/ posts on online communities are considered as public health issue in a study on Methoxetamine which is one of the legal highs (Corazza et al., 2012; Kjellgren & Jonsson, 2013).

All these studies, among others, highlight the role played by fora posts, comments, videos, etc. in pushing vulnerable members to try enhancement drugs. Such a phenomenon along with the online availability of these drugs represent a major public health concern. Further, these fora provide members, especially beginners, with a false sense of security and satisfaction in dealing with the side effects and other undesirable results without seeking professional help (Brennan et al., 2018; Corazza et al., 2012; Hall et al., 2016; Kjellgren & Jonsson, 2013; Van Hout, 2014). The deficiency in seeking medical advice will limit healthcare providers' knowledge and experience regarding the discussed topics (Brennan, 2017).

Identifying the common influence aspects of these fora is the first step in limiting and mitigating the harm reflected on its visitors. Next, a "Global Harmful Fora Registry" could be developed and promoted to the related agencies. Mobilizing the internet search engines (like Google and Bing) to label this registry as harmful, illegal, or even hide any search result leading to these websites is a very powerful weapon. Similarly, the role of social media in demoting, warning, or banning any content related to the registry is equally effective. This is equivalent to the global efforts in tackling COVID-19 misinformation with scientific evidence. More research, reviews and collaborative work is urgently needed to develop this registry and pressure the policy makers to adopt it.

## **5.7 Starting the netnography journey**

The goal of this netnographic study was to identify the appropriate websites to conduct the research and collect the most relevant data to the research objectives. In order to do so, the standard netnographic model which comprises four stages was followed (Belz & Baumbach, 2010):

1. Cultural entrance.
2. Data collection and analysis.
3. Using a reliable interpretation.
4. Maintaining the ethics.

### **5.7.1 Cultural entrance and identification of fora for analysis**

The goal of this stage is the identification and the selection of the most related online communities discussing skin lightening practice. During this process which is known as the “entrée and selection”, the inclusion criteria of the fora were considered. This is an essential step to ensure the selection of the most relevant material according to the research objectives, the activity of the forum, and availability of substantial and heterogenous amount of data.

The inclusion criteria for fora selection were:

- Presence of discussions on skin lightening topics.
- Easy accessibility without registration (open fora).
- Content available in English language.
- Active interaction with members taking part in the fora at the time of the investigation.

Specific search terms such as “skin lightening”, “skin whitening”, “skin bleaching” plus words like forum, fora, communities were chosen to carry out the internet search.

The internet search was performed by using the search engine Google where the specified key words were inserted to identify the most relevant websites/ fora/ cultures to our research objectives and questions. The first search term used was

“skin lightening”, the results of this search term revealed about 100,000,000 results and contain websites that sell skin care products in general and also news articles about skin lightening such as BBC, The Guardian, the Sun, the “I news.co.uk” reports on skin lightening products, as well as National Health Service (NHS) official page of skin lightening. Non-of these websites has community to study. After that, the keywords were changed to more specified terms such as “skin lightening forum” which revealed 86 results and “skin lightening community” which revealed about 41 results. The first 20 results of each term were examined carefully, the websites which contain discussion fora/ blogs about skin lightening and met all the listed inclusion criteria were selected whether these websites are specialized for skin lightening or general skin care. Subsequently, only three websites were systematically searched for skin lightening forum and blogs.

### 5.7.2 Data collection and analysis

After selecting the most related fora and websites, the passive and observational online approach has been applied to obtain the original opinions of those who use skin lightening products. In each of the selected website, the key terms “skin lightening”, “skin whitening”, “skin bleaching” were used for the searches. The most related threads and posts to our objectives have been accessed and most related posts contents have been downloaded via N capture extension which saves web contents as rich data including textual and photo contents to export it later to computer assisted qualitative analysis software (N-Vivo 12) which supports this extension. More than 1000 posts from 56 different threads and 135 web pages have been included in the analysis. The number of threads, the included posts, and pages are summarised in table (5.1) below:

Table 5.1 The number of threads, pages, and posts that have been analysed.

<b>Forum</b>	<b>Number of threads</b>	<b>Number of pages</b>	<b>Number of posts</b>
Forum 1	17	83	135
Forum 2	19	20	511
Forum 3	18	32	410
<b>Total</b>	<b>56</b>	<b>135</b>	<b>1056</b>

### 5.7.3 Using a reliable interpretation

Considering the enormous amount of data that emerged from these searches, which would have been difficult to manually handle and organize, NVivo 12, a qualitative data analysis software was used to systemically organize data analysis process. NVivo has been widely used, well-known tool which helps throughout coding process and themes development of a wide range of qualitative data-based research. This software helps particularly in online based research as it allows the researcher to upload the webpages as texts, images, audios, and videos and makes them ready to analyse. Moreover, it organises the processes of coding and themes framework development and also allows the researchers to make their own memos and annotation throughout the analysis process (Brennan, 2017).

The six steps of thematic analysis described by Braun and Clark (2006), which have been implemented successfully on internet derived data (Germain, 2018), were followed for the analysis. These are:

- 1. Familiarise yourself with data:** Although internet generated materials are different from other qualitative data as the researcher didn't collect the data in an interactive way, the selected relevant materials were read in the step of data collection. However, reading data sample were performed again and to have initial ideas about which codes, themes, meaning are going to be generated.
- 2. Generating initial codes:** using N vivo 12 software, initial codes were generated and categorised to be used in next step when themes were developed from these codes.
- 3. Searching for themes:** codes were classified and categorised to be integrated into themes and subthemes, which represent topics that being presented or repeated many times and matches the objectives of our research. Four prominent themes have been generated from the process of coding and recoding. The first prominent themes that attracted the researcher's attention which were subjected to change during recoding and reclassifying in later stages of analysis (reviewing the themes and defining and renaming the themes).

4. **Reviewing themes:** generated themes were reviewed to make sure that the meaning is consistent with each coded data in the theme and the subthemes. Some of the themes and codes were, regrouped, and recategorized to obtain the most meaningful results and a thematic map involving all the important elements of the data including initial themes and their subthemes.
5. **Defining and naming the themes:** after having a meaningful thematic map of the data set, the themes were defined and refined to represent what is the essence of each theme. Four themes were defined which are presented in the results section.
6. **Producing the report:** four themes were written and described accompanied by detailed analysis of each theme and quotes from the original set of data to reflect the full meaning of each theme and its subthemes which all fit together inside the broader meaning of overall story of the research. Defining subthemes is also important in arranging the hierarchy structure of each larger main theme (Braun & Clarke 2006)

#### **5.7.4 Maintaining the ethics**

Although the obtained information were accessible in public websites, all personal information were removed including the URLs (Wilkinson & Thelwall, 2011). In order to minimise any potential damage to the fora users, particularly due to the occasional use of Verbatim quotes throughout this research, every effort was undertaken to ensure the anonymity of all fora posters (Xun & Reynolds, 2010). Therefore, no provision of names, profile pictures and/or comments containing distinguishable information were provided. The final data collection was stored in a password protected online software where data analysis was carried out.

#### **5.8 Overview of the selected online fora**

This section aims to provide an overview on the fora selected for analysis. A description of each forum is presented including the purpose, details on skin lightening community, types of threads and shared information, members interaction, and the influence of this community on members. Table (5.2) summarises the fora overview.

### **5.8.1 Forum 1**

The first forum dedicated to discussing many varieties of topics regarding the skin, skin conditions (physiological or pathological), skin care routines, skin cosmetics and enhancements. It was established in 2006 and is still active and contains one million posts and 79,000 members when last visited in June 2020.

It contains different fora, each forum focuses on one topic such as skin care, skin aging, skin lightening, acne, eczema, rosacea, etc. The most popular forum found in this website is about lightening where members discuss different skin lightening techniques, routines, products, reviews, etc. it was surprising that among all the different topics about skin care, skin lightening forum has the highest number of threads, members, and views which it is dramatically more than common skin diseases like acne, eczema, psoriasis, etc.

This might be attributed to skin lightening as a sensitive topic. So, people seek for a safe community where people have the same interests to declare their intentions, fears, and behaviours. Therefore, people don't seek professional advice when they want to lighten their skin tone, while in acne, eczema, and other skin conditions they seek health care professional opinion. However, we are looking for the causes of using skin lightening online communities rather than other methods.

#### **5.8.1.1 The skin lightening subforum**

The skin lightening subforum had more than 14,000 thread which are 3 times more than the number of the following categories namely anti-aging and basic skin care threads and its dramatically more than common skin diseases like acne or eczema fora. The number of posts in this forum is more than 465,000 posts with more than 120 million views. The following forum is the basic skin care forum which has only 55,000 posts and around 14 million views.

#### **5.8.1.2 Types of threads**

The subforum contains large number of threads which all related to the same topic, but the most visited one contains more than 38,000 posts and more than 2,000,000 views! Members usually discuss how to lighten their skin, peel, exfoliate, and give



advice about products ingredients, effectiveness, recipes, and websites which are selling these products.

### **5.8.1.3 Attitudes towards skin lightening**

In this forum, users are positive towards lightening, and they have certain goals they want to reach whatever their shade or their background.

*“is it possible to lighten around 4 shades”.*

*“Ok guys my goal is lightening about 3 shades”.*

Members are very dedicated and consistent and some of them have been lightening their skin for years. For example:

*“Okay so I’ve been lightening for 4/5 years now. I used carolight cream to get to my goal.”.*

Some of them want to do harsh practices to reach their goals quickly

*“I need to know a trusted skin care product that will take me 3 shades lighter in 3 weeks to 4 weeks. and it has to be strong enough for the neck area”.*

And the answer was

*“There is no guaranteed product that will give quick results. Some products work fast on some ppl others take months. Everybody`s skin is different.”*

### **5.8.1.4 Sharing of experience**

In forum 1, people share experience whether it was negative or positive. They list the products they are using, where purchased products from, and how they apply them. They also disclose the length of time they have been using some products, any side effect they got from certain products, and how effective their products were in bleaching. For instance, one member listed their regime for face and body lightening which is very long and intense for a sensitive skin person as they claim

*"I have sensitive skin so if something starts irritating I stop but I still may be doing too much. PM Body: Dudu soap + Koije San Dream white. If my skin gets annoyed- follow with Dove creamy body wash. If my skin is takes it like its nothing- rub the koije in with my loofah >:B To take a break- Giovanni hot chocolate scrub (omg. heaven.) + dove. My betamix: Carowhite cream + carotein intensive toning gel (want the lighting/fading gel but I really like this 1) + mild lightening serum from amazon + pink G&G lotion. btw i waited 48 hours before I tried this mix again. Just in case. Face: Same soap combo, but I mix a little st ives apricot scrub with my koije if it feels like nothing's going on. Thayers rose water/witch hazel toner (amazing for rebalancing skin) Then a mix of Nadinola + Caroteine + amazon serum. AM Face : St.Ives scrub + Koije + Toner + Bioderma sunblock spray"*

#### **5.8.1.5 Supportive community**

This community is clearly very supportive and helpful for members. There is a special thread for anyone requiring assistance. This thread has the highest number of replies and views on December 2019 which were 39,475 and 3,380,824 respectively distributed on 3950 pages on this thread alone. There is a special thread to help beginners to know how they start and which products they use. there is a reply from a beginner says:

*"The best I've ever read as a beginner. Thank you so much. You've just made a journey of a thousand miles become a stone throw. I'm so happy right now."*

#### **5.8.1.6 Forum influence**

People in this forum ask for help and advice and they follow others advice from others they know it is not a professional one such as

*"Thanks so much for your response. I will wait for my neck to heal then try it once a day like you suggested. Ive been using ..... sunblock but its causing me some acne issues any other suggestions for a good sunblock?"*

From the above examples, it is clear that people influence each other and followed each other's advice and recommendations.

## **5.8.2 Forum 2**

The second top ranking website emerged by the Google search page was forum 2. The whole website is a cosmetic website which discusses a lot of cosmetic problems, techniques and recommend doctors' names according to the speciality and the address as well. People can also ask about body, skin, and hair problems and some doctors (their names and qualifications showed on the website) reply to their questions. Some members post their experience of some problems and products they tried and discuss their experience with others.

### **5.8.2.1 The skin lightening subforum**

The first option of lightening found on the page is the IV glutathione injections. This treatment does not have FDA approval and it has been used to treat different pathological conditions. Statements such as "The FDA specifically called out IV glutathione as causing a "potentially significant safety risk." Additionally, IV glutathione has not been proven, in any other clinical trials, to be effective or safe for skin lightening" were found on the website.

It is claimed by the website that some doctors use IV glutathione for skin lightening purposes, and this should be done over several sessions to achieve the required shade. Then, the process is followed by maintenance doses as the oral glutathione is difficult to be absorbed through the oral route and hardly be effective for lightening. Therefore, it can be understood that this treatment is available and is used by some doctors and customers can use it by their choice.

### **5.8.2.2 Types of posts**

The first post was observed on this website is the experience of a woman who used products from the internet which contained steroids. The product name was searched and a website was found which sells products which contain up to 10% hydroquinone. The website advertises only 5 products. All of them are for skin lightening. This website does not contain the products picture or how they look like, or their packages! It only contains the prices of the products and their claimed

function on the skin. With some products they put some pictures of dark-skinned women before and after using these products as claimed. Only one comment was found which prevent people from using it because it contains steroid, and it thins the skin.

Also, in one thread about glutathione injections, a member of this society who gives feedback after using glutathione injections to lighten her skin tone, but the website that she recommended for these injections could not be reached as it was no longer available. This thread started from 2017 and still (December 2019) post her update and opinion about the treatment she had taken as she had been taking oral supplements along with her injection regimen. This thread has many comments where members ask questions and discuss different issues regarding glutathione regimen including prices, how long it takes and from where they can get it. The member who started this thread claimed that there are no side effects for this lightening method, and she writes long comments and tends to reply to all questions. This dedication might be explained as advertising as they know many people are following the post.

### **5.8.2.3 Attitudes toward lightening**

People who participate in the reviews and comments are those who have lightened their skin, or they want their skin to be lightened. Unlike the previous forum where no one asked for a professional to help them lightening their skin and they depend on each other's information, in this forum, several people asked where they can find a professional in their cities to help them in lightening their skin shade. For instance,

*“Currently looking for a permanent solution to lighten/whiten my skin tone (very dark [ethnicity] skin) Looking for a practitioner preferably in ..... that can assist with the above request!” “I live in ..... and would like to have my skin lightened and or bleached 3 or 4 shades”.*

Moreover, many comments have mentioned certain products and certain websites who sell these products probably for advertisement purposes.

#### **5.8.2.4 Sharing of experience**

Sharing “the real experience” in this forum can be questionable although participants ask others for help, many comments are deleted and replaced by statements from the moderator such as:

*“This comment does not follow the (website) Terms of Service and/or Code of Conduct. We reserve the right to remove any post for any reason.”*

Some people are dedicated to advertising some websites and some email addresses and claim they are happy customers who used certain products before. It’s difficult to tell how legit they are. Finding the same comment in many different posts, it’s very likely to be advertisement and not a real experience.

#### **5.8.2.5 Supportive community**

Overall, the forum community is not as supportive as it was seen in forum 1 as many of the posts ask about a skin problem or ask about a product and the many comments aim to promote products and advertise websites.

#### **5.8.2.6 Forum influence**

Some participants added photos to their posts to show the difference in skin colour after the skin lightening practice. This often impressed other members who were then more likely to follow their advice. For example:

*“I finally have joined the journey! Purchased my Liposomal vit c and glutathione. I’m only 3days in, I know I got a long way to.”*

Even though many of the posts are probably not legit, vulnerable people can get easily influenced by the results shown in their photos and join their way.

### **5.8.3 Forum 3**

The website is forum-based which contains about 4,250 threads, 9,011 messages, and 727 members. The fora contain different topics about the skin. It is mainly divided into three sections which are skin, beauty, and others. The skin fora are

fifteen in number and are discussing different skin conditions. The beauty section presents subjects like makeup, fashion, hair care, among others.

#### **5.8.3.1 The skin lightening subforum**

The subforum which discusses skin lightening is the most common one with 1.2K messages and 327 threads, while the following subforum for general skin care has only 233 messages and 199 threads.

#### **5.8.3.2 Types of the threads**

From the name of these threads, they discuss different topics such as some products for example, Caro white cream and Caro white oil results, Dodo white up, Hydroquinone, among others. Some threads titled by questions. Among all those 310 different threads within the subforum, the first page was chosen to be analysed which is the most recent one and the most common thread have been carefully selected depending on how relevant to our research questions and objectives.

#### **5.8.3.3 Attitudes toward lightening**

In this forum, people are positive towards lightening. They aspire to be “light” and they share their experiences with others.

*“so after 6 months on my Caro white regimen, i can now say with confidence that i am what you would call light skin”*

*“i tried almost all cream i could lay my hands 8% percent compounded hydroquinone mix and caro white cream and caro white oil on”*

From these examples, it is clear that members have tried many products and dedicated to lightening their skin shade.

#### **5.8.3.4 Sharing of experience**

In this forum, people share their positive and negative experiences with other members. They mentioned the products they are using and how they apply them. Typically, they share information on how long they have been using the products, any side effect they got from certain products, and how effective their products were in bleaching. For example,

*“it's really giving me a very nice yellow glow, I only mix the one I use just 2days and mix another when I need. I mix clinic clear, carowhite lotion and Caro oil, then bath with carowhite soap”.*

*“So here is the full list of product that i used to achieve light skin color. 1. Kojie san 2. 8% Hydroquinone Mix 3. Kojic acid powder mix 4. Lactic acid and Glycolic acid 5. Caro white Cream, Caro white soap and Caro white oil”.*

#### **5.8.3.5 Supportive community**

In this community, people help each other by giving advice on how to mix or use some products

*“I never do that. Never mix creams. I use ONE as my base and add to it serums and lightening oils. Sometimes steroid gels. And I use peroxide to off set the stretch marks from the rounds. It's magical!!!”.*

Some members are happy to have the sense of one community and they are not alone

*“Glad to know i'm not alone in this, this winter has been playing games with my skin too.” Members also encouraging each other by giving complements “Your skin looks yummy” and “wow you look very nice”.*

#### **5.8.3.6 Forum influence**

People in this forum get influenced by what others do to lighten their skin or to solve their skin problems or side effects. For example,

*“Thanx for that info! I just see so many people mix their cream, and I thought the more I mix the better results lol” “ill try and use them.... I hope the veins will subside abit..”*

<b>Forum</b>	<b>Type of the forum</b>	<b>Skin lightening subforum</b>	<b>Attitude towards skin lightening</b>	<b>Types of lighteners discussed</b>	<b>Forum influence</b>
<b>Forum 1</b>	Very large forum with 1 million members discussing different topics about skin care	Skin lightening community are very supportive and open regarding their experiences, products they use and results. Some of them publish their bodies photos before and after using certain products.	Most skin lightening users aspire to be lighter in colour and they have their own goals (certain shade) which they want to achieve.	Various kinds of topical and systemic products have been discussed including peeling and exfoliating products. Moreover, glutathione and vit c oral and injectable products are discussed as well.	The forum represents a supportive and influential community for participants to reach their goals, to have answers on their questions about products, ingredients, regimens, side effects, and others.
<b>Forum 2</b>	Cosmetic website that discusses many body shape and skin concerns. It also has blogs that people can exchange their experiences.	There is no specific forum which gathers members who lighten their skin, but there are blogs that contain reviews and experiences of people in which others can comment on.	As this website doesn't have specific threads for certain lightening subjects, people who post their experience they got comments from others. Some of them are positive comments and some of them are	Systemic treatments such as glutathione injections have been deeply discussed as well as other topical creams which have been utilized by members.	By presenting their experiences and photos, people who already lightened their skin encourage others to follow their footprints. However, some members give different advice about certain



			negative.		products.
<b>Forum 3</b>	Large forum contains about 4250 threads, 9,011 messages, and 727 members and discusses different skin problems and solutions.	An established forum with threads discussed different skin lightening subjects, techniques, products, etc.	Members are keen to lighten their skin. They report their experiences to others.	Different systemic and topical lightening agents have been discussed on different threads.	In this forum some members present their photos before and after results and give their feedbacks about the products they used. Also, other members ask questions about these products and where to buy these products which means they got influenced by others' trials and results.

Table 5.2 summarizes the observed characteristics of the selected fora.

## **5.9 Thematic analysis of the selected fora**

Data analysis in netnography encompasses the whole process of transforming different types of collected data from the selected communities; and web-pages into a research representation in a report, or article, or a book (Kozinets, 2010).

The thematic analysis highlights the reasons of using online communities, motivations and causes behind using skin lightening agents along with the side effects they have experienced during use. Data gained from online skin lightening fora is presented as four key themes, each one has its own subthemes according to the aims and objectives which in turn are drawn together to the research conclusion. These themes are:

### **Theme 1: Causes of using online communities**

1. Safe place
2. Supportive environment

### **Theme 2: Motivations for skin lightening products use**

1. Lighter means younger
2. Feeling comfortable/ happy/ confident
3. Getting influenced from others especially celebrities
4. Body image concerns
5. Skin pigmentation treatment
6. Reach certain goals or shades
7. Lighten certain parts of the body
8. Maintain the results they got from bleaching
9. Cultural effects

### **Theme 3: Skin lightening recorded experience**

1. Positive experience
2. Negative experience
  - Psychological impact
  - Bullying
  - Side effects

1. Visible veins
2. Stretch marks
3. Red skin/ irritation
4. Drying/ peeling the skin
5. Patchy discoloration
6. Breaking out/ acne/ pimples
7. Thinning of skin

#### **Theme 4: The availability of skin lightening products**

1. Topical
2. Systemic (e.g., injectable products)

#### **5.9.1 Theme 1 Reasons of using online communities**

This theme investigates why skin lightening users using online fora rather than other means to communicate with others about their interests, goals, problems, etc. online communities have been chosen as a real source of data in which people express their fears, interests, intentions, etc. especially when they discuss a sensitive topic such as skin lightening.

##### **5.9.1.1 Safe: looking for a place where can be open in**

It has been known that people who wish to discuss sensitive topics or illicit behaviours are looking for a safe place to discuss their behaviours rather than being judged in other places when they disclose about their behaviour or intentions in the real life (Germain et al., 2018). Participants seem to be happy and free to discuss their thoughts with other members in these fora rather than other places. For example,

*“I'm happy I can actually discuss my concerns on here because there's not a lot of places you can do that.” Forum 2.*

Comments like “Some of my friends were even asking me what i was using on my skin but i told them i was staying indoor a lot and drinking plenty of water Lol” Forum

3 suggested that some members in these communities don't declare what they are doing to their friends outside the online community.

### **5.9.1.2 Supportive environment**

#### **5.9.1.2.1 Looking for help**

Users are looking for help within communities as they are desperate to find people who really "help" them who can't find in the real life.

*"i live in [city] people in my opinion are too secretive with their good creams and this is the only place that is open enough to help me out please please i am so desperate im at break point and my budget is getting smaller each time please contribute regiems much appreciation."* Forum 1

Using these communities is considered as a source of help for many users who are not sure whether their regimen is right or wrong. So, they seek reassurance about their method of lightening through these fora and then other members respond to their questions and concerns.

*"Can you please check my routine and tell me if I am doing something wrong? At first I thought it was the Amlactin but I quit it a week ago (it made my face a grease bucket!!) and I still got more pimples!! :-( Could it be the retinol? Also, I am not peeling which I hoped would happen. Help!"*

*"This is what I do now, I'd like to know if I'm going overboard with acids/exfoliating. I have sensitive skin so if something starts irritating, I stop but I still may be doing too much"*

*"Good soap yep looks like u on the right track"*

*"oh thanks i was worried i was doing something wrong lol."* Forum 1.

*"I've been using bio claire soap lotion oil and cream for week once a day on my body and face. I see not results. Should I discontinue use? I hear people*

*get 2 shades in two weeks what am I doing wrong do I need to do peels also? Please help! My plan was to use it for a month n switch product Hoping to gain 2 shades” Forum 2.*

*“Is there anything permanent? I am a very dark skin [ethnicity] woman and have used almost every over-the-counter lightening crème & soap and nothing brings me close to my desired complexion. I don’t want to have light skin just lighter and I know how I want to look but don’t know what would work for my pigment or if anything works at all. I hope it is something permanent as well because I don’t want to go through this the rest of my life. The picture doesn’t show how dark I really am but I hope you can get an idea.” Forum 2.*

Then, many users offer this woman help by giving her advice or a specific product to use.

many beginners and first-time users also ask for advice and help from these communities

*“Hello. This is my first post on this forum. Yay!” Forum 1.*

*“can you please advise on what creams to get as a beginner.” Forum 1.*

*“I’m new to this group and thank you for accepting my request. I have hyper pigmentation and oily skin. I need some advice of where I start.” Forum 3.*

*“The best I’ve ever read as a beginner. Thank you so much. You’ve just made a journey of a thousand miles become a stone throw. I’m so happy right now.” Forum 1.*

*“i dont want to lighten my body i just need to lighten my neck area to match.. SO, ma’am what product do you recommed. I have oily skin but its controllable and I have a little bit of sensitive skin. But it can withstand a chemical peel” Forum 1.*

*“So, after the 6weeks n exfoliating I think my skin is worst off from when I started it. So, as a beginner can u advise on what to use that will make my skin pop again”.* Forum 1.

It has also been noticed people seek help if they don't get the intended results from some products

*“I hv been using skin light cream and caro light soap for abt 3 weeks now with no results and since I had a baby 3 years ago it's been hard finding a product dt lightens my skin.”* Forum 3.

*“PLEASE someone help me. I always post but never get answered I feel lost. I haven't gotten any lighter and I don't peel.”* Forum 1.

*“Been using glowing oil for the past 2weeks and havent really seen any significant change even though i have been doing all i am supposed to, seems like i am even getting darker than my normal shade ????? pls helpppppppppp”* Forum 1.

*“Which one is better? Carolight or carotone? I've been using carotone but I'm not really liking the effects. It makes you a yellowish pale color and it dosent seem to really lights things like your knuckles, dark spots on your face that much. Is carolight better?”* Forum 1.

Also, people seek help in these communities if they face unexpected side effects, as they can hide their identity in the forum and admit about their real point of view regarding drugs effects (Corazza, et al., 2014). This is also considered as dangerous behaviour as people hurt themselves by some products, they got it by advice from unprofessional people and want to heal their side effects by unprofessional advice as well.

*“Please I need help. I started using dodo osun on my face and body and it caused me this wierd discoloration on my face. I do not know what to know. I have been using the dodo osun for a week and a half now and it started*

*causing me some discoloration on my face little by little and I taught It was just cleaning my face lol but this is not cute at all. Not to talk about my neck that is so so dark” Forum 1.*

*“nights ago, I decided to do a salt bath (table salt). First I shower with my kojie san with exfoliating gloves (5mins) rinsed then took a warm table salt bath (1/2 cup) for an hour. While I was in the bath a rubbed with my gloves and repeatedly soaked my face towel in water then coved my face. After the bath I showered again with my gloves and Dudu osun soap. Moistured with my diy 15% la lotion (wait 15mins) then applied my lightening mix. The day after I was covered in red itchy painful rashes!!!! I had to stop using my la lotion, lightening mix, gloves and kojie san and I'm still red raw. Guys just a word of advice DO NOT OVER EXFOLIATE!!” Forum 1.*

*“This dodo is really drying my skin.... just 2 days in the sun and my skin is almost going one shade darker.....help” Forum 3.*

*“my only problem is the veins.... Oooh my God !!!..on a very sunny day I think my veins can be spotted as far as 1Km away.... Though on cold days and in the evening I'm just okay coz my legs don't look red when the sun is down ..... Please help on how to reduce the popping veins” Forum 3.*

*“Hello @g..... & @m..... Please I need help. I started using dodo osun on my face and body and it caused me this wierd discoloration on my face. I do not know what to know. I have been using the dodo osun for a week and a half now and it started causing me some discoloration on my face little by little and I taught It was just cleaning my face lol but this is not cute at all. Not to talk about my neck that is so so dark. Please help” Forum 1.*

The tag is for special members in the fora who think they are the most experience in the conditions they are facing.

*“Using Carotone, G&G serum and Kojic cream for the past 3 weeks and now I have spots on my face that are lighter than some areas. They kinda look like liver spots. Please help”* Forum 1.

*“I am irritated to kojic and HQ any other alternatives that work”* Forum 1.

*“My arm is really red now. almost looks like sunburn . but its not im sure. it doesnt hurt . i use HQ and likas soap on it. does it lack moisture ? im starting to put shea butter on it. but can someone explain why it might be red. ?”*  
Forum 1.

Some fora are considered very supportive communities in which members know each other, tag each other in comments and from their posts they enjoy sharing experiences, asking and helping each other.

*“Hello ..... & ..... Please I need help. I started using dodo osun on my face and body and it caused me this wierd discoloration on my face”* Forum 1.

#### **5.9.1.2.2 Sharing results with others**

Users share their results sometimes with their photos about how effective a certain regimen that they have followed or certain product they have used. On the other hand, people who experienced bad effect or tried an ineffective/ faulty product they share it to the community as well.

*“I started the lightening process some months ago; it looks like my skin got a bit lighter but also a bit too "pale", without any "glow". Is it normal? Are these 2 things incompatible? Thank you!”* Forum 1.

*“I'm using Amlactin twice a day 5 days a week and once a day on weekends. So far I haven't had problems. My skin is peeling off but it isn't itchy or irritated, it's just revealing nice looking skin underneath.”* Forum 1.



*“After a week i believed i was still the same shade from my previous compounded hydroquinone mix, i might have gotten a little tan but i didn't think it was very noticeable. This was my result at the end of the week.”*  
Forum 3.

*“My post isn't exactly about lightening the skin because within the last 6 months I've been able to achieve a beautiful complexion using a combination of Kojic acid soap, glutathione soap, and devita sunscreen.”*

The supportive community is where members share their stories and encourage each other, give complements to each other, and support each other.

*“wow you look very nice”*

*“Nice result .....and very lengthy note”*

*“Your skin looks yummy”*

*“Glad to know i'm not alone in this, this winter has been playing games with my skin too.”*

*“so far you're doing great with your regimen”*

*“Thanks. You're simply awesome.”*

*“your regimen seems about right to me. Probably try out supplements to see if you might get that glow. It might be the lightning around you. It happens to me, i look rather dull in my room but in the sun the parts that look light glow up. i am sorry i can't be of any help”* Forum 3.

*“You are absolutely gorgeous the way you look. In my opinion you dnt even need any change”. Forum 2.*

*“I don't know if the OP is still around, but your skin is GORGEOUS. It's so chocolatey and velvety. Please, please, please do not attempt to destroy this beautiful skin that you have”* Forum 2.

*“Your result is nice; it is really hard and expensive to get glutathione here”*  
Forum 3.

Also, people support each other when they face discrimination

*'I'm sorry so many people are dismissive, opinionated and judgmental of your question but keep in mind it mostly stems from hatred towards [ethnicity] and it's a passive aggressive way to tare at you. Don't let it bother you and you shouldn't feel the need to specify whether or not you want to be light skin. You have the right to live and make your own decisions :) God Bless and Good luck" Forum 2.*

### **5.9.1.2.3 Exchange information**

People support each other by giving feedback about the pros and cons of the products they have used. Below are some examples from forum 3:

*..... skin discoloration fade cream feedback*

- *It was too greasy as i have an oily skin type*
- *It didn't really lighten my ears.*
- *My skin was uneven*
- *I got easily sunburned*

*..... cream: Pros:*

- *It lightens very fast in as little as a week*
- *It lighten several shades*
- *It gives a pale tone*
- *It lightens tough areas like knuckles and elbows*

*Cons*

- *It might contain topical steroids*
- *It lightens unevenly*
- *It causes stretch mark*
- *Result fade fast when you stop using the cream*

People in these fora also discuss products which might contain suspicious ingredients for the benefit of other members.

*“Diva Maxima Maxitone Triple Action Fade Milk - Diva Maxitone is made by diva cosmetics in ivory coast. The cream lightened me a lot and very fast. The cream ingredients list shows hydroquinone 2% but people have posted that it contains topical steroids”* Forum 3.

*“It contains unlisted ingredients Shows sign of causing stretch marks It can cause skin thinning”* forum 3.

*“I was also looking at the carrot lotion but saw some horror stories on [website]”* Forum 1.

*“..... has mercury!!!? This means the Labi oil and lotion might probably contain Mercury too. Oh I'm heartbroken!”* Forum 1.

*“Based on what i heard, Labidjanaise has HQ. But others will eventually chime in..”* Forum 1.

*“serum has been rumoured to have 9 % HQ”* Forum 1.

In the supportive community, people describe their fears and worries about some results they got or some products they want to try

*“I am wondering if it is possible to lighten skin with just exfoliation.. I want to try chemical peels would that work? I am also kind of scared of the peeling I don't want uneven skin”.* Forum 2.

*“I don't even know where to start from, I really wanna start my skin lightening journey, I bought carowhite already and the oil but I'm scared of stretchmark”* Forum 2.

*"I am looking to lighten up my dark skin in the safest ways possible. I have heard and seen people whose skin got messed up due to bleaching and that scares me away from anything bleaching. But I really wanna lighten up my skin for various reasons, and I wanna do that in "natural ways".* Forum 1.

*"Pls what's d best regime for someone who's had a bad lightening journey and wants to start afresh???"* Forum 1.

Members also look for those who are nearby in the real life to ask about the availability of some products in some regions or countries. For instance,

*"Can any [country name] members recommend a good Vit C serum 20%? I'm not confident to DIY it."* Forum 1.

*"Where does everyone in the [country name] buy their Tretinoin (retin a cream) - I don't want to get it from adc because I feel like their payment is shady"* Forum 1.

*"And sorry didn't mention it but Im in the [country name] So any let me know if you know any good sites that sell these original products"* Forum 1.

*"I live in the [country name]...where can I purchase retin a. I cant find it anywhere."* Forum 1.

*"Hi im new to this ..... page. Is anyone here from [country name]?"* Forum 1.

On the other hand, some members are very keen to inform others about where they get their products from.

*"U can order the retin-A from ..... directly or join the group orders on here; buy in bulk to save on shipping costs. Glytone has a 4% Hydroquinone gel - .....[the website link]. it is pricey but works very well. I would swap the caro light cream for a vitamin c serum or niacinamide serum - U can buy the powder & DIY or buy a ready made one like this - ..... [the website link]. Cycle the koji san with a mild, moisturising soap or oil cleanser like DHC,*

*dove or cetaphil to avoid drying out your skin & add a light moisturising cream to your regimen". Forum 1.*

*"Question my bff wants to know if there's a legit website that you guys may know of that sell the Carotein nourishing fairness cream?? She was looking at [website name] but I told her not to because they are a bit flakey" Forum 1.*

**Note: Online fora impact**

So, giving the causes above, using these fora has an impact on other members which appears on their conversation below:

"Thank you so much for helping out ..... Will go to my local beauty supply today to get what you recommended." Forum 1

"Thanks so much for your response. I will wait for my neck to heal then try it once a day like you suggested." Forum 1

".....ill try and use them.... I hope the veins will subside abit." Forum 3

"Okay I'm gonna start with it tomorrow. Thanks a lot"

**5.9.2 Theme 2 Motivation for skin lightening products use**

Some users claim to use skin lightening to be lighter in colour. They usually describe their skin shade and share details about the shade they want to be, but they don't declare what drives them to do so. Some of them want to lighten certain part in their bodies, which are darker, or they have hyperpigmented lesions which they want to be faded away. However, some of them use lighteners without having such skin problems. Given that the observational netnography is not an interactive way to obtain specific information like motivational factors, collected data was recorded and coded throughout the thematic analysis process to uncover the reasons behind such behaviours. Results have been summarised below.

### **5.9.2.1 Lighter means younger**

Some women believe that lighter skin tone make them look younger than their real age which has been considered as a cause for using skin lightening products in literature ( Dlova et al., 2014; Hamed et al., 2010).

*“I am irritant to kojic and hq any other alternatives that work and make beautiful baby skin I Am 18 but look older”* Forum 1.

This also has been supported by a study which examined the knowledge and perception toward skin lightening, 70% of participants believed that lighter skin presents a younger look (Peltzer & Pengpid, 2017).

### **5.9.2.2 Feeling comfortable/ happy/ confident**

*“I even got comments on my Facebook page about my smooth light-skin!”* Forum 1.

*“A good exfoliating regimen reduced mine and can go out confidently with tank tops”* forum 3.

Feeling confident has also been listed by a study, in which 15.9% of participants mentioned that lighter skin colour made them feeling more confident (Alghamdi, 2010).

### **5.9.2.3 Getting influenced from others especially celebrities**

Celebrities and famous figures have been mentioned many times in the fora. People’s opinions usually differ about them whether they look good or bad and whether bleaching practice suits them or not. However, some people get influenced and inspired by famous figures and their actions. Evidence shows that celebrities have significant influence on people’s behaviour (Mahler et al., 2010). Certain physical appearance can be indirectly conveyed by celebrities through modelling. It also reinforces the importance of certain traits in appearance and these features are linked to their attractiveness, success, and happiness (Bakhshi & Baker, 2011).

*“Right now, I've gone Jamaican style like my Idol .....”* Forum 1.

*“Not sure what ..... has been using, but there is clearly a Huge Difference in her recent complexion. She had the internet on fire last week!”* Forum 1.

*“I like her both ways myself! I do think her eyebrows were much sexier when she was brown though”*. Forum 1.

*“She claimed a few years back that it wasn't from skin bleaching but just staying indoors out of the sun. This time people are really attacking her saying it's definitely from bleaching! I just feel like who are we to judge anyone? I still think she is beautiful either way!”* Forum 1.

*“At least whatever she has done is Even! I love ..... with All my Heart, but she still hasn't gotten her body to match her face? Lol she just needs to get her skin to match and look natural”* Forum 1.

*“I love the glowing look of celebrities with the shimmery, dewy skin- like ..... I've searched and searched for an AFFORDABLE but GOOD body shimmer or bronzer”* Forum 1.

People generally tend to believe in the effectiveness of products that have been endorsed by celebrities. Moreover, when celebrities lighten their skin tone, they refer to their beauty as an acquired one and skin lightening is an acceptable behaviour in their culture (Hunter, 2011).

*“I have a theory that ..... is also a proliQc user of Glutathione because of the change in her complexion and undertone, do you remember when she Qrst entered the limelight she was brown”* Forum 2.

*“people using it for 4-5 years, it is deQnintly the case for that presenter ....., that ..... using gluta since like the 2000s or something, hence why shes soooo white now, but do you think they also use creams on top”* Forum 2.

*“celebrities do that because they live on their image. how they look it’s literally their job”* Forum 2.

On the other hand, some people have another opinion about celebrities who bleached their skin

*“..... looks terrible lol he's certainly nothing to aspire. All the money and he still couldn't get it together”* Forum 2.

*“One thing I noticed after I joined ..... that he just tell you what to do rather than explain why and. plus he's friends with ..... so I don't trust his products I do give him credit because his skin does look good and he does come off as nice but still its a buisness”* Forum 2.

#### **5.9.2.4 Body image concerns**

Body image preoccupations and concerns can be considered as central factor which drive people to use skin lighteners. However, the evidence around the relationship between body image concerns and skin lightening is limited.

*“Im tan skin colored and my inner thighs black were giving me embarrassment. Like how am I supposed to be comfortable with my partner. I literay started turning off lights.....!”* Forum 1.

*“is there anything that can work extra first to lighten my knuckles....darn!!!! i can't even go out on a date without being sensitive about holding a glass..”*  
Forum 3.

*“i kinda have achieved my desired tone, the thing is i can't take photos with my hands showing ....as for my legs, that's a no go zone, i always put on socks because of the discoloured knuckles”* Forum 3.



### **5.9.2.5 Skin pigmentation treatment**

One of the important indications of using skin lightening products is to treat hyperpigmented lesions and lighten the darker areas of the skin which are discussed in the fora. Treated hyperpigmented lesions have been mentioned in literature as a main cause to use skin lightening agents (Alghamdi, 2010; Hamed, 2010).

*"I have been using skin bleaching creams since i was 17 years old to get rid of dark spots on my face during puberty". Forum 2.*

*"My goal is to have a uniform skin town all over my body. Currently the lighter parts of my body have a caramel colour. The dark areas that I want to lighten are my face and neck, area from my belly button to the top part of my thighs (mini skirt cut off area), elbows, and knees" Forum 1.*

*"I have some dark spots on my back and a dark line on the back of my neck. The dark line on neck is not too dark but it sometimes looks like dirt" Forum 1.*

*"tube or lotion that lighten nicely & most importantly gets rid of spots FOREVER" Forum 1.*

*"i dont want to lighten my body i just need to lighten my neck area to match.. SO, ma'am what product do you recommed. I have oily skin but its controllable and I have a little bit of sensitive skin. But it can withstand a chemical peel" Forum 1.*

### **5.9.2.6 Reach certain goals or shades**

In the fora, members usually share what their shades are, and which shades they want to be. They refer to their shades by numbers e.g., NW..., or by famous figures shades and sometimes accompanied by their pictures.

*"I started a shade or 2 darker than ..... and I'm a caramel with yellow undertones. I want to be a light caramel with yellow golden undertones".*

*“Ok guys my goal is lightening about 3 shades”* Forum 1.

*“I need to know a trusted skin care product that will take me 3 shades lighter in 3 weeks to 4 weeks. and it has to be strong enough for the neck area”.*

Forum1.

*“I’m about ..... tone, and I wish to get to about five/six shades lighter?”*

Forum 1.

*“I wanna know the answer also!!. im around same shade and want to get 5 shades lighter”.* Forum 1.

### **5.9.2.7 Lighten certain parts of the body**

Every part of the body can be a target of lightening regimens from face, neck to the sensitive areas. Some members were also interested in lightening small areas, such as eyelids, knuckles, toes among others. Specific parts of the body were mentioned by members more than others. However, some people aspire to lighten their whole body. Some studies showed the most common body part users aspire to lighten is the face (Alghamdi, 2010; Hamed, 2010).

*“I also want to lighten my lips, knuckles and remove the dark eyes”.* Forum 2.

*“stubborn areas that are really difficult to lighten like my underarms,groin area, knees”* Forum 2.

*“am a [ethnicity] with very dark inner thighs and armpits!!!Help!.* Forum 2.

*“my face and neck is very dark compared to my body color”.* Forum 2.

*“my upper neck portion and face is dull”* Forum 2.

*“what products work to lighting the whole body”* Forum 2.

*“What can you use for dark knuckles, knees, elbows? Forum 2.*

*“bleach my nipples” Forum 2.*

*“My feet and stomach are a little dark but are catching up and i have no problem with my hands..”. Forum 3.*

*“The dark areas that I want to lighten are my face nd neck, area from my belly button to the top part of my thighs (mini skirt cut off area), elbows, and knees” Forum 1.*

*“i Have dark feet and knuckles” Forum 1.*

*“How do U lighten the forehead??” Forum 1.*

*“whats a NATURAL product i can use on my eye lids”. Forum 1.*

*“Will using a serum with occlusion lighten knuckles and toes?” Forum 1.*

*“Could anyone suggest the whitening product for my neck and back? I have some dark spots on my back and a dark line on the back of my neck. The dark line on neck is not too dark but it sometimes looks like dirt” Forum 1.*

*“i just need to lighten my neck area to match”. Forum 1.*

*“Does anyone please recommend to me a superb face & neck lightening cream” Forum 1*

#### **5.9.2.8 Maintain the results they got from bleaching**

It has been felt from members conversations that the lightening effect will not last for long period and they must follow another regimen for maintenance.

*"I wanna go 1 shade lighter, especially my face & simply maintain from there. Maintaining has been tricky".*

### **5.9.3 Theme 3 Skin lightening recorded experience**

This theme presents experiences that members of the fora lived while using skin lightening products whether it was a negative or a positive experience.

*" Everyone noticed my result, family, friends and co-workers were commenting on my skin, some positive and some negative remarks." Forum 3.*

#### **5.9.3.1 Positive experience**

Some members describe their satisfaction after using specific products like feeling happy and confident.

*"A good exfoliating regimen reduced mine and can go out confidently with tank tops" Forum 3.*

*"I'll hold off on it for a couple weeks though since I'm already peeling really well all over my décolletage area and on my thighs just from the lotion. Kinda having fun watching it peel" Forum 1.*

#### **5.9.3.2 Negative experience**

On the other hands, many members reported negative physical or psychological experiences related to their skin lightening journey which can leave a psychological impact, or they suffer from temporary or permanent skin side effects. Corazza, et al., 2014

stated that web monitoring is a vital method to gain authentic information of user's real opinions about drug's effects as they can hide their identity.

##### **5.9.3.2.1 Psychological impact**

Some members got a negative experience when they experience side effects which negatively affect their appearance or their psychological wellbeing or they got no results from the products they used.

*“im having such a hard time with skin lightening and im determined not to give up but im so stock and confused on what products to move on to that will help me sucessfully i have tried so much things that only give short term result or either just dont work i have tried a lot of HQ products and i have realised HQ doesnt agree with my skin so i have given up on products that contain that completely i am stock and confused”* Forum 1.

*“Pls what's d best regime for someone who's had a bad lightening journey and wants to start afresh???”* Forum 3.

*“I assumed I had a bad reaction (red marks, stretchmarks, dark spots itchy red acne on legs and back) and assumed i was later allergic and it scared me away from lightening”.* Forum 3.

#### **5.9.3.2.2 Bullying**

For some cultures or ethnicities, those who lighten their skin colour face bullying or discrimination because they chose to change their skin colour.

*“I got a lot of hurtful comments and the one that stuck most with me was that “I was ashamed of myself”. But i didn't let this bother me because i was getting the result i wanted and i know my reason for lightening my skin and it isn't anyone's business what i do to my skin”* Forum 3.

#### **5.9.3.2.3 Side effects**

Users usually spoke about the adverse effects they get with specific products. Sometimes they know certain ingredients cause certain side effects. Steroids and Hydroquinone are usually discussed in the fora. However, they are still used for skin lightening. Members usually admit these products work well on lightening, but cause side effects.

*“I damaged my skin years ago from hydroquinone and steroid mix creams, they lighten fast but cause irreparable damages”.* Forum 2.

Many side effects have been reported by users. Some of them cause permanent damage to the skin such as stretch marks, thinning the skin, visible veins, patchy and uneven skin tone. Moreover, some products cause acute reaction in the skin such as red skin, dryness, irritation, spots, and acne. Common side effects reported by users are:

### **Visible veins**

*“Cons of Dodo White Up 1. It can irritate the skin. 2. It is really drying. 3. It is can cause visible green veins.”* Forum 3.

*“2 years now using dodo... Plainly, with a few mixes here n there.... How do i calm the popping green veins?, Plus i was initially white and fresh when i started ...Now im just high yello... Heeeeeelp anyone”* Forum 3.

*“my only problem is the veins.... Oooh my God !!!..on a very sunny day I think my veins can be spotted as far as 1Km away.... Though on cold days and in the evening I'm just okay coz my legs don't look red when the sun is down ..... Please help on how to reduce the popping veins”* Forum 3.

*“I mix my dodo cream, the jar one with carotone serum half bottle, Makari serum 10 drops,carowhite oil and carotone cream... half jar.... I do t have stretch marks honey ...i only have green veins.....”* Forum 3.

### **Stretch marks**

*“Before I knew about this forum, I bought a cream at the BSS a town over for me. It lightened me great but ..... me up later. I assumed I had a bad reaction (red marks, stretchmarks, dark spots itchy red acne on legs and back)”* Forum 1.

*“bio claire did give some of my friends stretch marks but a very light skin”* Forum 1.

### **Red skin/ irritation**

*"My arm is really red now. almost looks like sunburn"* Forum 1.

*"i do get red easily now. Are you having any side effects from mixing hydroquinone into your caro white ?"* Forum 3.

*"Redness is the issue"* Forum 3.

*"i notice that my skin is getting red and moisturize heavily. I have paused using any exfoliating products because my skin is just flaking by itself and even moisturizer doesn't seem to work."* Forum 3.

*"i bought the skinlite tube cream from alldaychemist about a year ago and used it on my face, it was nice and pale at first then my skin got thin and red"* Forum 1.

*"Cons of Makari EXTREME Carrot & Argan Oil Intense Lightening Toning Milk It can be too strong for certain skin It makes the skin more sensitive, It thins the skin out. It can cause breakout and irritation"* Forum 3.

*"I picked up the ..... AHA cream and have been using it on my face and neck night and day for a few days. Also I used Proactiv dark spot remover which has 2% hydroquinone. My skin is nice and soft and appears brighter. I noticed it stinging quite a bit on my face last night before bed though. When I woke up this morning, I had burning sensation and little red bumps not on my face but on my neck, I think the way I sleep could be causing my neck to occlude. I put lots of Neosporin on it for now. My neck is very dark and my main problem area so I still wanna exfoliate it. Is there any way I still can? Will this reaction I am having cause it to get darker?"* Forum 3.

*"My regimen for fast result was to apply the cream on my skin every morning and night until i got the desired result. i stopped the application of the skinlite cream for some time when i notice that my skin is getting red and moisturize heavily. I have paused using any exfoliating products because my skin is just flaking by itself and even moisturizer doesn't seem to work."* Forum 3.

### **Drying/ peeling the skin**

*"This dodo is really drying my skin.... just 2 days in the sun and my skin is almost going one shade darker.....help"* Forum 2.

*"I will admit that the cream is very strong so i had to mix in a little bit of shea butter to avoid irritation on my skin".* Forum 3.

*"It lightens very fast but makes the skin peel."* Forum 1.

*"I peeled a lot from dodo white up especially on my neck which used to be very dark. Dodo serum and dodo oil are not necessary because the cream is already strong on it own unless you want to damage your skin."* Forum 3

### **Patchy discoloration**

*"Please I need help. I started using dodo osun on my face and body and it caused me this wierd discoloration on my face"* Forum 1.

*"Redness is the issue I'm also having, and dark brown patches whenever I get myself a little injured"* Forum 1.

*"Using Carotone, G&G serum and Kojic cream for the past 3 weeks and now I have spots on my face that are lighter 5han some areas. They kinda look like liver spots. Please help"* Forum 1.

### **Breaking out/ acne/ pimples**

*"I assumed I had a bad reaction (red marks, stretchmarks, dark spots itchy red acne on legs and back)"* Forum 1.

*"it's breaking me out My skin isn't sensitive and I normally don't break out"* Forum 1.



*“I started breaking out too most likely cause of the cream and I want to stop this & remove the pimples”.* Forum 2.

*“too got major pimples and acne breakouts to begin with, I think this is called purging or somethin like that. The pimples went away, but when you are getting those pimples it's a sure Qre sign the gluta is working.”* Forum 2.

*“in the process of taking this glutathione, my acne is skyrocketing. Like I have so much pimples that came out of nowhere, and I suck at keeping my hands off my face, so now I have dark spots”.* Forum 2.

### **Thinning of skin**

*“You can easily get thinned skin with their hand cream”* Forum 3.

*“i use it twice a day on my face and body, tho sometimes once on my body ...i haven't been skin building lately and my skin looks so thin”* Forum 3.

*“You need to stop with the chemicals! It's kikking of your melanin cells and will thin your skin”* Forum 2.

*“i bought the skinlite tube cream from alldaychemist about a year ago and used it on my face, it was nice and pale at first then my skin got thin and red. I guess i used it too much but i think if you use it wisely you should be fine”*  
Forum 3.

Responses to side effects differ in the fora depending on the request, some are positive, and some are negative responses as they represent subjective opinions built on personal experience. However, most comments advise people to decrease the number of times they apply certain products, and they don't warn them about using the products. Below are some examples of how members are responding to those who seek help because of the side effects they suffered from.

*“I don't think u should use the AHA cream twice a day, just at night would work I think. Take it easy for a few days, use a moisturizer that u like and please use sunblock”* Forum 1.

*“u have done a peel recently or applied an exfoliating soap or cream too many times that might be the cause of redness. i don't know what u did but if u did any of the above just reduce the number of times or stop it for 2 days while moisturizing”* Forum 3.

*“Tell her to cut down on the number of times she is applying the cream. One of my cousin is using caro white and she is complaining about the red skin issue”* Forum 3.

Some people ask for more clarification to give the proper advice using their knowledge and experience like this example:

*“Are you exfoliating properly?? What % is in the kojic cream if it states”*

*“I exfoliate every other day using gloves and I have 4% Cape Fear logic cream”*

*“Bentonite clay will fix that and some vitamin E oil five minutes after using the nadinola on your face.”* Forum 1.

Sometimes, members of a community agree about some side effects of a certain product.

*“yeah, the side effects that i've seen are terrible while some people use it with breeze”.*

*“Makari can do some damage indeed if you don't follow their directions”.*

*“I have once used the lotion sometimes 3 years back. My skin was not ok at all especially my legs”* Forum 3.

From all the above adverse effects, it can be concluded that skin lightening products are dangerous practice and might contain harmful ingredients. What make the condition worse, people use these products for a long period of time and several times a day. Moreover, some members don't stop using the product when adverse effects appear. Therefore, these products should be regulated, and the public should be warned about using them.

Note: One of the dangerous behaviours that have been mentioned several times in the posts which might be related to some psychological problems or body image disturbances is the consistency and dedication to lighten the skin. For example, people are using peeling and bleaching products regularly and continuously for several hours for consecutive years and people use harsh ingredients to get fast results.

*"Ok, I'm cont' with the IVs weekly for a full year. Than 2x per month. I already take 3 different lightening supplements" Forum 2.*

*"2 years now using dodo... Plainly, with a few mixes here n there.... How do i calm the popping green veins?í ½í, Plus i was initially white and fresh when i started" Forum 3.*

*"will be using hydroquinone 10 for my next skin lightening compounding as i have already tried hydroquinone 8% with caro white cream the oil and soap, chemical peels and also kojie san. I will be compounding hydroquinone 10 percent. I won't be using any other skin lightening just the hydroquinone 10 percent. I am lucky that i have a supplier that sells the raw powder to me in a very cheap price." Forum 3.*

*"While I was in the bath a rubbed with my gloves and repeatedly soaked my face towel in water then coved my face. After the bath I showered again with my gloves and Dudu osun soap. Moistured with my diy 15% la lotion (wait 15mins) then applied my lightening mix. The day after I was covered in red itchy painful rashes!!!! I had to stop using my la lotion, lightening mix, gloves*

*and kojie san and I'm still red raw. Guys just a word of advice DO NOT OVER EXFOLIATE!!” Forum 1.*

*“Okay so I’ve been lightening for 4/5 years now. I used carolight cream to get to my goal. But I really wanna get off HQ & other creams like that. I started with Fair & White But caro gave me better results”. Forum 1.*

#### **5.9.4 Theme 4: The online availability of lightening products**

- Topical
- Systemic

##### **5.9.4.1 Topical**

In all the selected fora, it seems that most of the mentioned topical products are available online or in local stores. The enhancement drugs are mainly sold online without medical prescription and even with discounted cost (Corazza, et al., 2014). However, some people ask about the availability of certain products in their cities or ask about websites that offer them.

In forum 2 people exchange information about online stores. For example:

*“I bought a peeling lotion on [website name]. Came from [location]. \$20”.*

*“the company is no longer on [website name]. you can Xnd them on [website name]. the store is [store name]”.*

*“I got my cream and serum from [store name]”.*

*“i was recommended to the caimei by my dermatologist and been using it for around 3 years already. i got it at [website name]. i also started using it to lighten my overall complexion a few shades on my face and neck”.*

Also, people use these platforms to advertise products like IV glutathione

*"Hi All if you are looking for the Glutathione IV i am a distributor in [location] contact on [email address] for further information" Forum 2.*

Some members gave their experience with some websites which claim they sell skin lightening products:

*"I just recently got off the message board with the customer service "rep" from [website name]..... She was very much abiling and helpful UNTIL I inquired about Paypal.. Hmmn. . They were offering up products that I found very interesting. Looking to amp up my lightening regime. .. Thing is, the site seems pretty sketchy. No real customer service phone numbers. No real way to track packages. No justifiable way of contact unless its through the Whatsapp!! All this caused me to be wayyy leary and VERY skeptical compounded... Anywho, ive been banned for asking too many questions about mail and money protections. Be on guard. Ve on guard!!! Any horror stories. Id love to hear" Forum 3.*

Some of the used products are available on [website name] as mentioned:

*"You can easily get lactic acid in low concentration on [website name] and kojic acid powder from ebay. I don't really measure my kojic acid powder when i mix it". Forum 3.*

*"You can get carotein on [websites name] but qe1 carrot serum and gng is fine. Please skinbuild twice a week and you can cut down your lactic acid usage to four days a week" Forum 1.*

[website name] has been mentioned many times and in more than one forum

*"bought the skinlite tube cream from [website name] about a year ago and used it on my face, it was nice and pale at first then my skin got thin and red. I guess i used it too much but i think if you use it wisely you should be fine". Forum 3.*

*“You can find Retin A online with [website name]. ” Forum 1.*

In forum 1, there is a place where some people refer to it to buy some products and recommend it for others. However, the authenticity of the products is not guaranteed because their websites links are constantly changing.

#### **5.9.4.2 Systemic products**

Systemic products used for skin lightening can be either intravenous or oral. The most common systemic product is Glutathione. It is an antioxidant which is available in most of human cells which has a function of detoxification of drugs. It has been used as dietary supplement which has antitumor activities, improve some systemic effects in diabetic patients, to protect from viral infections among others. Glutathione has also anti-melanogenic and anti-aging properties which have been linked to lighten and rejuvenate the skin. Oral intake of glutathione has been known as a safe method to take the dietary supplement with no serious side effects recorded (Weschawalit et al., 2017). However, FDA called to increase public awareness against using intravenous glutathione which can be accompanied by systemic severe adverse effects such as transmission of blood borne infectious diseases, septicaemia, and infective endocarditis especially if it is administered by non-qualified people (Davids et al., 2016).

However, people in skin lightening fora appear to know clinics and people who offer glutathione injections. Some of them advertise/ encourage visiting certain clinics or contacting certain suppliers. This is considered one of the serious and dangerous behaviours that have been discussed over the fora.

*“The stockist/clinic you purchase from must be 100% legit and genuine. My friend and myself buy our glutathione injections from a stockist/clinic based in ....., they're services are brilliant. They're called [clinic name], feel free to search them up. They're 100% genuine company”.*

*“glutathione has no bad side effects and is actually used for health reasons by many and for skin care by all ethnic groups” .*

*"I do get some IV treatment from a ..... I have done 5 treatments of 4000mg and have seen literally no results".*

*"the lady I see in ....., is someone i know personally and she is happy to do it for me. she just buys the syringes and needles etc from the place she works in".*

*"I'm not too sure about the ..... because I don't live there, but I do frequent ....., and I'm of the understanding the supplier I bought does ship to most countries".*

*"Hi ....., you can contact ..... clinic for your Glutathione. Easy and simple to use everyday without any issue".*

*"Bear in mind, the place I buy from is a global supplier so the price I paid is a bulk purchase for 5 boxes to last me for a good six months (pretty reasonable price!). I was super happy with their customer service, and I reckon I will stick with them for life. I would recommend them if you are looking for somewhere to get quality authentic IV gluta injections. They dont supply any of these over marketed brands, only pharmaceutical supplies, so thats all good".*

*"I got them done and bought from a very reputable stockist/clinic based in ..... called ..... They're service was amazing, and my products arrived super quick too. I sent the lady an email with a photo of my current shade color and the color I'd like to get to and she recommended me the right dosage and the product that would help me achieve it. I would suggest looking into them if you are really serious about lightening!" Forum 2.*

The systemic treatment with IV Glutathione has side effects which have also been discussed. Most people find getting treated with glutathione is expensive and time-consuming practice as it should be continued for a long time.

*“IV treatments because it is too expensive, and I know that I cannot be consistent” .*

*“IV Glutathione therapy, it works very effectively but it can be costly, and time consuming” .*

*“Hi darling I didn't use the IV for a very long time as it was too expensive for me” .*

*“The IV was good but I felt like it only worked so well if i took extra supplements with it, I would literally glow and get light for daysss when I took the IV + liposomal + pills. It got too expensive for me, maybe if i found a good but cheaper one I would consider it again” . Forum 2*

And some people give a good advice which may some people more wary of using the dangerous intravenous route for lightening.

*“for having the iv 5X a month, girrrlll, let me tell you know, thats going to destroy your veins, it did to me and quite a few other people” Forum 2*

Also, a participant claims that the product doesn't work.

*“I do get some IV treatment from a ..... I have done 5 treatments of 4000mg and have seen literally no results” . Forum 2*

## **5.10 Concerns about online resources**

There were frequent posts expressing concerns and controversial thoughts about two websites. Some examples are reported below:

*“[Website name] is Not A Scam At All. I have ordered and used their products before and They Do Work!”*



*“Which ones? Ive gotten earfulls from folk who say thier products darkened thier skin. And these are seasoned lighteners... Not to mention the continuous bad reviews that are everywhere online”.*

However, some other comments were found in support of these websites and despite the potential harms associated with the products being sold:

*“No I've Never Darkened from the ones that I used..... I used a few of their products. The 60% Hydro Cream really worked on my lower body well. It will actually peel your skin it's so Strong! I also used their 100% Hydro Serum. It was working real good on my face. Made it really smooth no bumps. I even got comments on my Facebook page about my smooth light-skin! I stayed away from .....However I will be ordering More 60% Hydro Cream for my lower body soon”.*

*“60% Hydroquinone”!!!*

*“I truly believe it's mostly lotion mixed with the Hydroquinone. It's probably really like 20%. I'm really getting good results with ..... practices so I doubt I'll need anything else anytime soon”.*

*“Do you use it on your face too”.*

*“Yes, at the time I was. I got some really good results too. Even my Mother asked me “Son what are you using on your skin”?! Lol But to be honest I've been thinking a lot about going the natural route”*

This member was using hydroquinone 60% which is very dangerous for their skin and health. However, they said it might be 20% which is still a very high percentage of this ingredient which should not be available without medical prescription.

Therefore, these websites were visited, and they were active. The first one was and the first page contains white gallons without labels, they assume name it as “natural” and “strong natural”.

Also, the website advertised pictures of a lady with two different skin tones (dark skin/ extreme white) and there was no picture for the product nor a list of ingredients.

At the bottom of the page, a footnote advised the customers, if the product that they are looking for is not available on the website, they should contact the team and they will make it available!

Then, one of the products was checked to see if they explain the ingredients or offer further information, they claim it is safe for all skin colours and in the ingredient section which contain melanin inhibitors and melanin stoppers!! Which can't be specified.

The second website that was mentioned in this discussion advertised raw ingredients which people use to lighten their skin. The same bottle picture was shown for all the products without a clear label.

It can be concluded from the last section that the majority of skin lightening products are available online, but not every product can be found easily. However, the online fora and communities represent safe platforms where people can ask about the unavailable products and get the answers from other members about the availability in certain areas or websites.

Accordingly, online communities and websites which offer dangerous products and advice are posing a challenging public health concern. So, as has been stated by Corazza et al., 2012 the emergence of these substances on the internet raised concerns not only in public health sector, but also in pharmacology, toxicology, drugs regulations, and substance addiction research.

## **5.11 Discussion**

In this chapter, netnography research was carried out to explore the importance of online platforms and its effects on users' experiences. Three fora have been selected according to the defined inclusion criteria. Relevant data have been downloaded and analysed by qualitative data analysis software (NVivo 12).

Thematic analysis has been conducted and four themes have been generated from the analysis process which are: causes of using online communities, motivations for skin lightening products use, skin lightening recorded experience, the availability of skin lightening products. Each theme has its own subthemes as described in detail in the chapter above.

While all the extracted themes and subthemes are essential in understanding the online experience of skin lightening users, the cause of using online communities is the most influential theme. Feeling secure, anonymity, trust in other fora members, sharing personal experience and products availability are the main motives behind using these online communities.

These communities often underestimate the dangerous aspects of sharing advice and experiences without health care recommendations or scientific data related to their safety. Many users encourage the use of untested products or home remedies despite having side effects and reactions to the ingredients. Similar trend with promoting “effective skin lightening products” with undefined ingredients or safety labels. These communities represent a major public health issue that require urgent attention.

Internet wide availability and ease of access facilitate the promotion, distribution, and exchange of skin lightening information to dangerous extents. This threat requires a collaborative work among policy makers, public health, and health care professionals to create guidelines and enact regulations to counteract the dangerous online campaigns.

# Chapter 6

## Discussion

### 6.1 Introduction

This chapter discusses the major findings of this research on skin lightening phenomenon and its associated risks according to the key objectives. It also includes briefs about the major movements and campaigns aiming to raise awareness and boost self-esteem. Next, the policy implications and preventive strategies followed by further research. Then, the strengths and limitations of the undertaken research work along with a final reflective essay have been presented.

### 6.2 Research overview

This doctoral research has presented original mixed methodology studies which together explore the phenomenon of skin lightening in terms of risks, motivations, patterns, experiences of users, among other features in multicultural populations. This research contributes to enhance the knowledge and the existent literature of the skin lightening practice and its fast-moving trends within its communities. It has also examined for the first time the association of this practice with potential underlying harmful psychological reasons. The obtained results will pave the way for future research about these understudied phenomenon and mostly previously unknown psychopathological associations.

Findings have emerged from four interrelated studies. The first one was the literature review (Study 1/Chapter 2), which mainly investigated the origin of the problem and how it relates to the concept of body image, taking into account the complicated interplay of sociocultural and psychological factors behind it. It also provided further evidence on the poorly understood association with body image disorders, self-esteem, and psychological problems (Al-Sarraf et al., 2021).

Study two consisted of a cross-sectional investigation on the population and their baseline characteristics to formulate a general understanding of the research issue and contributes in achieving our objectives. Overall, 500 responses were collected

from clinical and non-clinical populations. 315 responses were collected from online distributed surveys (the non-clinical population) and 185 responses were collected from clinical population in multicultural regions in London.

The third study presented additional qualitative elements derives from three semi-structured interviews, which helped to contribute to a deeper understanding of the understudied such a phenomenon.

The fourth study presented a novel netnographic, which provided an in-depth assessment of internet fora of skin lightening users' communities. It was able to uncover unrestricted data conversations and opinions from real users without any possible bias resulting from the social pressure or the attendance of the researcher.

### **6.3 Results of studies according to the research objectives:**

The objectives of the study have been achieved via the interpretation and the integration of the findings from these four studies and will be outlined and discussed according to the results obtained from each study below.

#### **6.3.1 Objective one: Identification of the most at-risk group.**

The initial literature review revealed that females are more likely to use skin lightening products than males (Peltzer & Pengpid, 2017; Rusmadi et al., 2015). However, recent studies highlighted how the ratio of males who use skin lightening products has also increased to the level about 80% of Indian male (Pillaiyar et al., 2017). Such results have been confirmed by the cross-sectional investigation among multicultural clinical and non-clinical population which found that about 81.9% of skin lightening users were females. However, males also formed a significant ratio, which is 17.3% of users. The 25-34 age group seem to the be the most vulnerable constituting the 59.1% of users followed by 18-24 age group (22.8% of users). These results are also consistent with previous literature findings according to which the major consumers of skin lightening products in south Asian societies were females from 16 to 35 years old (Glenn, 2008). Regarding marital status, married people showed no significant difference from those who are unmarried which form 51.2% and 36.2% respectively. Those who have medium skin colour

form 44.9% of users which is significantly higher than the following categories which are brown and olive skin coloured who formed 15.7% and 13.4% respectively. Asian ethnicity is revealed to be a significant predictor of skin lightening use among other ethnicities which form 54.3% of all users (95% CI: 2.16 – 3.41). Regression analysis from the whole sample of 500 participants results reveal that Asian, females, who are 25 to 34 years old with medium coloured skin are the most likely group to use skin lightening products among other participating users.

### **6.3.2 Objective two: Exploration the skin lightening experience of skin lighteners including skin lightening techniques, patterns, side effects, among other features.**

Various complications related to skin lightening products have been reported in literature 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 & 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). However, some users continue to use these products despite the adverse effects which, in their opinion, is not serious and the outcome overweigh the drawbacks (Darj et al., 2015). This mainly due to the availability of these products without medical prescription and the use of harmful or unlisted ingredients in it.

Findings of the cross-sectional study (Chapter 3) showed that creams were the main

method used for skin lightening while scrubs were the second most common method. The majority of skin lightening users bought their products from pharmacies and supermarkets. A significant portion of the participants obtained their products through online platforms which has been considered as an immediate method for image enhancement despite the ambiguity around its legality, safety, and ingredients (Corazza, et al., 2014).

Most participants applied products to the face compared to other body parts which has also been described in another study about topical lightening agents (Alghamdi, 2010) followed by hands, neck and upper chest. Alarmingly, a substantial number of users (51.8%) reported some sort of side effects. Skin redness and irritation were the most experienced side effects.

In the thematic analysis of the interviews (Chapter 4), skin lightening techniques were categorised into the products that cover the skin up (make-up) and skin tone lightening which were divided into systemic products, topical products, and laser treatment. Although all participants use topical skin lightening products, they aimed for systemic ones since they think these products are more effective than the topical ones. Two of the interviewees applied the lightening products on their faces while the third one aimed to lighten her whole body. Overall, all three experiences were considered negative as the anticipated results were not achieved using topical techniques.

Both positive and negative experiences have been recorded from online communities (Chapter 5). Reported negative experiences were either side effects from the products on their skin such as visible veins, stretch marks, red/ irritated skin, dry/ peel the skin, patchy discoloration, acne/ pimples, thinning of the skin (which are all discussed in study 4) or negative effect on their psychological wellbeing or getting no results from the products used. For example,

*“I assumed I had a bad reaction (red marks, stretchmarks, dark spots itchy red acne on legs and back) and assumed i was later allergic and it scared me away from lightening”.* Forum 3.

*“I damaged my skin years ago from hydroquinone and steroid mix creams, they lighten fast but cause irreparable damages”*. Forum 2

### **6.3.3 Objective three: Investigation of the motivational factors behind this practice.**

Findings from study 1 concluded that the skin lightening phenomenon is complex and multifactorial in nature with most of the underlying motivational factors being sociocultural in nature. It is also tightly related with the desire to achieve a uniformly coloured skin.

In harmony with existing literature, results from the cross-sectional study (Chapter 3) revealed that two of the most common reasons behind skin lightening practice are “being beautiful” (39.1%), and “feeling more confident with my body” (35.9%). Remarkably, advertisements and media influence were chosen by 14.3% of users which highlights the effect of media and advertisements (and the internet could be the source of it) on customer choices. Pressure from family, partners, and peers came after which form 9.4% of answers. However, only 4.7% of them have mentioned that they used skin lightening products because they had been bullied in the past.

The results of thematic analysis of the interviews are consistent with the statistical analysis of the study 2 (Chapter 3). Themes emerged from qualitative data in study 3 considered that sociocultural standards can be tightly linked to the concept of “beauty” in different cultures and “feeling confident” which have been found as the main motivations in study 2. Peoples influence and media influence have been identified as subthemes in study 3 and have been chosen as causes to use skin lightening products by 9.4% and 14% of users in study 2 respectively.

Skin related factors which are mostly caused by hyperpigmented lesions represent a subtheme which called “skin pigmentation treatment” in study 3 and It is the second most common reason in study 2 “having hyperpigmentation lesions” which have been chosen by (36.7%) of users.



*“I have been using skin bleaching creams since i was 17 years old to get rid of dark spots on my face during puberty”. Forum 2*

*“My goal is to have a uniform skin town all over my body”. Forum 2*

Investigating skin lightening phenomenon online revealed that motivations of skin lightening are divided into 8 themes which are:

- 1: Lighter means younger which was chosen by (11.7%) of participants in study two.
- 2: Feeling comfortable/ happy/ confident which has been chosen by 75% of participants in study two.
- 3: Getting influenced from others especially celebrities can be compared with media and advertisement influence in study two which has been chosen by 14.1% from users.
- 4: Skin pigmentation treatment has been known as one of the most common causes behind skin lightening use which has been proved in literature (study one) and in study two and three.
- 5: Reach certain goals or shades.
- 6: Lighten certain parts of the body.
- 7: Maintain the results they got from bleaching have only been found throughout coding and themes generation steps of the internet based study (study four).
- 8: Body image concerns which will be discussed in the fourth objective below.

#### **6.3.4 Objective four: Examining the association of skin lightening practice with self-esteem and body image disturbances e.g., BDD and CBID in clinical and non-clinical settings.**

The results from the proposed literature review clearly highlight how the relationship between skin lightening practice and mental health problems is a relatively new field and poorly investigated topic of study (Al-Sarraf et al., 2021). Very limited evidence has linked skin lightening to low self-esteem, body image, and previous exposure to trauma (Charles & McLean, 2017; James et al., 2016). Although the concern about body image might play a crucial role among users, the association of skin lightening products use with body image problems, and psychological risk factors are inconclusive and limited to specific populations and regions.

Psychological measures have been used in the cross-sectional study to investigate this poorly studied relationship. It can be concluded that skin lightening users are more likely to have self-esteem issues. To our knowledge, this is the first study that directly examined the link between self-esteem and skin lightening practice. However, other studies proposed this relation according to other variables related to poor mental health (Charles, 2010; Peltzer & Pengpid, 2017). Skin lightening users and non-users did not reveal statistically significant difference in BDDQ and CBIS. These results mean that skin lightening users didn't suffer from BDD. Also, among current literature, this is the first study which examined the direct relation of skin lightening practice with the BDD and CBID. However, these results do not exclude the association of other body image problems with the phenomenon as it has been shown in thematic analysis of study 3 and 4.

The results emerged from the proposed thematic analysis of interviews revealed that psychological factors can be related to body image factors.

*"I have a feel and I know it is not a good feeling that I am going to be discriminated against because of my colour"* Natalie said.

Body image concerns have also been classified under the motivations theme in the internet-based study where people are too sensitive and have concerns when the dark areas of the skin appear to others.

*"is there anything that can work extra first to lighten my knuckles..... i can't even go out on a date without being sensitive about holding a glass.."* Forum 3.

*"i kinda have achieved my desired tone, the thing is i can't take photos with my hands showing ....as for my legs, that's a no go zone, i always put on socks because of the discoloured knuckles"* Forum 3.

## **6.4 Activism: Black = White & Dark = Light**

While the roots of colourism, and skin lightening, can be traced back to ancient Egyptians, it only transformed into a concerning phenomenon during the expeditions, colonialism, and slavery era. In the early 1900s, the cosmetic industry exploited the vulnerable societies by promoting their skin whitening products through false messaging campaigns which only rubbed salt into the wound. The issue is so deeply integrated in the modern communities that even the simplest actions, to counteract this conception, can achieve measurable results albeit deficient.

During the last century, many movements, locally and globally, have emerged to shed the light on the issue and adopt a course of action by raising awareness, boosting self-acceptance, or by compelling local authorities/ cosmetic companies to adopt new policies.

### **6.4.1 Black is Beautiful**

In 1960s, “Black is Beautiful” was one of the first campaigns that encourage black people to accept their skin tone, tight curled hair, and full features while raising awareness against using skin whiteners and hair straighteners to change their natural form. Later generations of African Americans embraced these thoughts as shown in 1969 when Stoney Carmichael, black power activist, said that ‘stop being ashamed of being black’ and ‘we are black and beautiful’. Thereafter ‘Black is Beautiful’ became a common slogan in the media. Also, in 1968, James Brown released the song of “say it loud I am black, and I am proud” which reached to wide audience and contribute to the spread of “Black is beautiful” movement. Such cultural actions induced a reduction in skin lighteners advertisements. So, “Black is beautiful” emboldened the acceptance of African beauty standards.

In 1970, “Black Consciousness” (BC) activists began to critique cosmetic companies for selling skin lighteners and hair straighteners. The first documentary that criticized skin lighteners dated back to 1972 by James Mathew a writer and activist born in Cape town. The BC activists utilised “Black is Beautiful” momentum to counter practices which express the psychological refusal of black women to their natural

look. Eventually, “Black is Beautiful” was successful in increasing the self-esteem of black women especially in South Africa.

Also, Black is Beautiful consciousness had reflected on some students’ organizations work in late 1980s which acted to “restoring pride and confidence” among black communities. As a result, considering skin lighteners and hair straighteners as products of racial imitation and prohibiting them were essential political actions. Also, in 1980s, activists in south Africa and Kenya criticized the use of skin lighteners with the increase of dangerous side effects. After that, the advertisements of skin lighteners had been dropped.

#### **6.4.2 Dark is Beautiful**

Similarly, “Dark is Beautiful”, a campaign started in India in 2009 by women of worth organization to acknowledge the beauty of all skin tones and protest the concept of considering fairer skin people more beautiful than darker ones. This campaign started to spread the message of “a person’s self-worth does not depend on the colour of their skin”. they succeeded in collect 3000 signatures for a cosmetic corporation called Emami, to withdraw an advertisement for Fair and Handsome cream which was considered as a “discriminatory advertisement”. The company refused to withdraw the advertisement. However, the campaign reached to the advertisement council in India in order to regulate advertisements that promoted fair skin products (Olumide, 2016).

Also, many local and individual attempts have emerged to fight/ challenge the racist messages and combat skin lighteners use. For instance, some African women raised the awareness against using skin lighteners such as Kenyan artist Ng’endo Mukii in her short film yellow fever, and Ncoza Dlova, a dermatologist from south Africa, who run educational events to raise the awareness against using skin lighteners. Amira Adawe a Somali American activist who founded the beauty well organization which aims to combat skin lightening practices and harmful chemicals exposure. This foundation with collaboration of Sierra club in Minnesota succeeded to collect 23000 signature and deliver the petition to amazon Minnesota to pull toxic skin lightening products from their platforms (Thomas, 2020) and also they escalate the issue to

federal government in USA which in turn allocate \$2 million to the FDA and CDC in order to increase the awareness against using skin lightening products and to conduct more research about the health effects of using these products (Peters, 2020).

### **6.4.3 Black Life Matters (BLM)**

In 2020, Black life matters awakened the skin lightening industry when big manufacturers joined the global stand against racism/ colourism which has been explained as hypocritical by critics. For example, Olay wrote on its Instagram page “We stand against racism and injustice. We believe Black people should have the right to live without fear.” At the same time, they promote their whitening products in Asia and middle east “White Radiance Light Perfecting Essence”. Analytics criticized such actions and described it as “total hypocrisy”. (Thomas, 2020; Van Hout & Wazaify, 2021). However, Olay representative defended the corporate position by comparing skin lightening with tanning and wearing makeup by saying there is a need to “more diverse and inclusive standard of beauty,”.

Unilever, the manufacturer of the well-known lightening product in Asia and middle east “Fair and lovely” also posted on Instagram “We have a responsibility for racial justice,” this post followed by many annoyed comments which considered this position as hypocritical, and some blamed such companies for promoting racism and colourism. For example, “Stop making and selling fairness and skin lightening products across the world,” one person wrote. “You have done enough damage to us dark skinned Indian women. Just stop.” “it promotes the inherent racism that still exists in our country.” The author and TV host Padma Lakshmi posted on Instagram: “Anyone else out there sick and tired of being told that fair=lovely? Because I sure as hell am. I ve been hearing this crap since my girlhood and it did a number on my self-esteem” “Colorism is a persistent social force in India, and many South Asian countries. I know it made me feel insecure growing up. We need to dismantle this harmful relic of colonialism through representation for all skin-tones” (Rajagopalan, 2020).

Many women who grew up in India, Pakistan, or Bangladesh, believed fair skin tone is better than the darker tones. The media messaging has always linked lighter skin tone to success in all walks of life. Advertisements of skin lightening products and Bollywood play a critical role in reinforcing this message (Hossain, 2014). However, some Bollywood stars stand with such movements. For instance, Bollywood filmmaker and actor “Shekhar Kapur” started a campaign with hashtag #adswedontbuy. He defined this campaign as “our health and self-esteem is important to us” to counter different irresponsible advertisements influencing vulnerable people. Within the first 24 hours of this campaign, millions joined the hashtag discussion on twitter. Skin lightening creams advertisements were at the top of all other ads in this campaign and described by Kapur as “ads designed to make you lose yourself worth” (Kapur, 2012; Olumide, 2016).

Because of the mentioned criticisms on skin lightening manufacturers, Johnson and Johnson dropped a product sold in Asia called "Fine Fairness Overnight Brightening Cream" while L'Oréal announced to remove the words “light”, “white”, “fair” from its products (Thomas, 2020; Van Hout & Wazaify, 2021).

These measures are insufficient to tackle skin lightening harmful effects which require governments to strengthen the enforcements of skin lightening regulations and challenging the inherent standards of beauty including increase public awareness (Thomas, 2020). However, the enforcement of such regulations is usually challenging. In south Africa, the government closed down the local producers, whereas illegal imports were able to enter the country and illicit trade thrived amid economic liberalization policies.

Nevertheless, local and international campaigns and individual efforts are usually fruitful. Movements like BLM played a critical role in promoting racial equality and raising consumer awareness about skin lightening industry and decrease their related harms. Also, a collaborative societal works will lay the foundation to challenge the concurrent racist beauty ideals through acceptance and representations of all skin tones in society (Van Hout & Wazaify, 2021).

## 6.5 Policy implications and preventive strategies

The key issues that have been identified in this research reinforce the fact that skin lightening is a common and dangerous practice. By identifying those most at risks and shedding new lights on the underlying risks factors, it provides some initial and unprecedented evidence to inform current practice, policies, and regulations.

The major arguments which deserve attention in order to safeguard public health are summarised below:

- *Widespread and unsolicited interaction on discussion fora.* This study highlights the major role of online fora in sharing information and experiences of participants. Unfortunately, some of these online posts contribute to the spread of incorrect information and harmful advice about some products/ experiences which may cause serious physical or psychological damage to others. Awareness campaigns to counteract the misinformation circulating on the web is urgently needed. One of the most effective means in fighting misinformation is to engage the social media platforms to “ethically” label, hide, or warn about the harmful aspects of these posts and fora. Similar approach has been adopted by social media platforms to fight COVID-19 misinformation. This is more sustainable and provides longer exposure than the conventional paid campaigns and targeted advertisements.
- *Product accessibility.* The ease of access to skin lightening products through online channels, where they are often advertised without any clear labelling or ingredient list is worrying. Strict regulations should be put in place to ensure the safety and the accurate labelling of these products. This can be done by only allowing these products to be listed on “licensed websites” that are highly regulated and monitored similar to prescription drugs.
- *Emergence of side-effects.* Approximately half of the users have experienced some sort of side effects. It can be reasonably concluded that should these products are properly labelled to warn about the possible side effects, the number of users might have dropped significantly. It is not unreasonable to

require these products to be labelled by direct messaging on the packaging like the “tobacco warning”.

- *Vulnerability of users.* The fact that these products are available for purchase from different types of stores and are easily accessible for all age groups including minors, patients and other vulnerable individuals poses another risk of skin lightening phenomenon that requires the attention of policy makers. Similar to alcohol, age restriction can be imposed on the purchase of these products. Also, an adult consent can be mandated to sell these products to minors.
- *Lack of awareness among professionals.* By identifying the population at risk, this research provides useful insights to health care professionals, and supports the necessary evidence-based to update guidelines and promote a faster recognition of the problem among skin lightening users. Multidisciplinary seminars and workshops can help propagate the awareness between the respective societies. *Collaborative work such as joint clinics* is essential among dermatologists, plastic surgeons, psychiatrists, and psychologists to detect and treat any unrecognised psychological problems which usually present outside the psychiatric practice (Al-Sarraf et al., 2018).
- *Getting the right diagnosis.* Those who engage in this practice in a dangerous way without medical consultation. For example, people who have been practice lightening for years, or those who apply these products on sensitive areas or large surface areas of the body, should be referred to specialized care in order to investigate the history of their behaviour and any associated skin, systemic, psychological, or even psychiatric correlates.
- *Lack of self-esteem.* An association between skin lightening practice and low self-esteem, which can cause body image problems and other mental issues, has been established in this research. This association has been abused by the beauty industry to promote their products to vulnerable groups. It is very important to pressure the cosmetic industry to change their advertising tactics.



Simple steps like adding positive self-accepting statements on the packaging can boost customers self-acceptance. While the BLM movement had a limited success in pushing the industry to change the labelling and supplemental messaging of their products, it is crucial to have official policies and regulations for the beauty industry to abide by.

- *Prevention campaigns* among at risk population should be implemented by raising public awareness of the harming effects of skin lightening and encouraging body image acceptance especially in multicultural communities. This can be achieved by short films, social media posts, trendy hashtags, billboards, etc.

## **6.6 Further research**

This is just the start of a new field of study, future key priorities in terms of research are:

- Larger-scale studies involving more participants with more diverse backgrounds are needed to further investigate the underlying motivations behind skin lightening phenomenon.
- Additional multinational research is required to better understand the cultural and ethnic factors affecting skin lightening. This can help clear contradicted evidence and add robustness to the current evidence.
- Comprehensive face to face data should be obtained and analysed to better understand the sensitive and personal experiences of skin lighteners. This information is difficult to gain otherwise.
- Future research about the relation between the different aspects of body image disturbances and skin lightening is necessary.
- More evidence into the association between self-esteem and skin lightening practice can help pave the way for understanding any other mental health correlates.
- Further evidence is essential in developing specialized tools to identify and investigate probable skin lightening factors.

## 6.7 Strengths and limitations

### 6.7.1 Strengths

- It is based on a solid and comprehensive literature review to identify the key features of the skin lightening phenomenon.
- The research validity and reliability have been boosted by using the mixed methodology approach which advanced our understanding of the extent of skin lightening practice. By conducting online fora analysis in addition to qualitative and quantitative methods led to a deeper understanding of the problem and how it disseminated throughout the internet.
- The multicultural and international aspect of this study allowed us to identify a generalised “at risk group” which can be representative of many ethnic groups or cultures.
- It provides for the first-time evidence of skin lightening use among dermatological patients. The choice of dermatology clinics in the UK was selected on the basis that the region has diverse races and ethnic groups each having different skin shades and different sociocultural norms. This feature added power to our research as most of the existent studies were conducted in countries with single ethnic group or race.
- An important part of this research is the effect of self-esteem and body image on skin lightening usage. This helped draw a clearer picture about the underlying psychological factors and enhanced the limited existing evidence, which are very insightful to enhance current clinical practice in dermatology and psychiatry.
- This research shed light into developing a recommendation set for health care professionals to identify patients at risk of skin lightening use and those who suffered from associated complications.

- The results of this study highlight the need for new regulations, policies, and guidelines to control skin lightening products and minimize misinformation and false advertisement.

### **6.7.2 Limitations**

- Results from the cross-sectional study are based on self-reported experiences with no clinical validation
- Some patients didn't answer all the questions in the paper-based questionnaire which led to misleading information. However, questionnaires with missed key information were excluded from the study.
- The qualitative interviews were carried out with only three patients. This was because the inclusion criteria and the limited time frame to get the qualified participants.
- In netnography study, the large quantities of collected data prevented the search for personal details and attitudes of online users throughout threads or fora. Also, it was not possible to get the demographic features of the users in fora due to uncertain information provided by them. However, netnography study has added a qualitative value to our research and in depth understanding to a sensitive topic.

## **6.8 Reflections on the PhD journey**

I didn't expect my PhD to be such a personal and emotional journey. As a medical doctor, with a background in dermatology, I was no stranger to skin lightening and had a limited knowledge about the issue. After commencing the investigations, special feelings started to develop about the experiences of so many individuals harming themselves to look good. The further I went into researching the issue, the stronger I felt about it and more committed I became. Then, a personal aim to help the affected communities was established.

### **6.8.1 Study One**

Starting the work with a literature review helped me to see the extent of the existent evidence about my specific research subject, and better understand how I can best contribute to expand the knowledge. It opened my eyes on the different aspects of skin lightening in multiple disciplines such as medicine, psychology, dermatology, cosmetic, drugs, pharmacy, sociology, history among other literature. However, this made the task of specific information searching extremely challenging. So, I narrowed the scope of my search to involve the main question of my research which was looking for motivations and the psychological factors behind the skin lightening practice. Throughout the research process, I discovered how the history of colonialism, slavery, colourism, and racism in certain communities negatively affected the cosmetic standards of these communities. It is very hard to ignore the available literature about the documented harms and painful practices experienced by some of the darker skinned nations among others. The damages have lasted for many years, and some are still going on. Furthermore, immigration from these countries to the western countries didn't seem to change their emotions, goals, or practices towards their skin tones.

I have presented the results as a narrative review which has never been done before in literature. I was so pleased when I was able to publish it in "emerging trends in drugs, addictions, and health" journal. The literature review not only increased my knowledge towards the subject, but also helped me choose the methods in the following steps of my research.

### **6.8.2 Study Two**

Conducting the survey questionnaire was the first practical step in this research. Distributing the survey in clinical setting with dermatologists/ researchers and other health care providers expanded my knowledge in a theoretical and practical ways. I have seen diverse dermatological patients suffering from different skin problems, sometimes associated with psychological issues, that made me think of a possible psychological connection with skin lightening. I have seen people from different age groups, backgrounds, and educational levels who practice skin lightening and who believe that the lighter the skin tone, the more beautiful the person can be.

### **6.8.3 Study Three**

Conducting interviews was an integral part of my research because I was looking for deep descriptive qualitative data to add richness and validity to the research. I was very worried that I would not get a participant due to the inclusion criteria of the interview. It took me more than a month to get the first participant. She was so honest with me and frankly talking about her body image issues and how she wants to hide herself from being seen. She wishes to change her skin colour just to feel more beautiful and more blended in the society. I was saddened to see a beautiful dark-skinned lady feeling that way and wondering about the amount of damage that must be reversed by boosting her confidence and self-esteem. After this interview, I realized the importance of the qualitative data, compared to the quantitative data, as it opened my eyes towards the deep-down emotions and the psychological issues of patients which can never be obtained by surveys or quantitative data. The second interview was different from the first one as the participant was not as elaborative as the first one. However, I felt her emotions when she described how she was feeling about her skin lesions and how these lesions affected her psychological wellbeing even when she was home with her family and how she wishes to treat them. The third interview was over the phone which was a new experience for me, and the participant was very frank, helpful, and happy to help as she appreciated the research work. So, she answered all my questions with details, and I felt that I experienced a new research skill, and I was very happy with the details that she gave me. she described how the sociocultural differences affect the body image in societies and how she was forced to wear makeup in a certain way in her workplace which surprised me as these behaviours invoke body image and self-esteem issues which shouldn't be practiced in workplace.

### **6.8.4 Study Four**

Conducting internet-based research has its advantages and disadvantages. One of the advantages is gaining the information that is difficult to get by other research methods. Throughout the internet study, I got information about skin lightening practice that I have never known before. So, I realized how wide the skin lightening practice is as a sociocultural problem and how it relates to psychological health in different parts of the world. I found people from America, Europe, Africa, and Asia,

who gathered in communities and collaborated to lighten their skin colour. By browsing the users posts and comments, I recognized how users exchange information and how they influence each other. However, one of the drawbacks of the internet-based research was the huge amount of available data, the time required for reading, and selecting the most relevant data.



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# Appendix A: The survey questionnaire

## Skin and Wellbeing Survey

We would like to invite you to take part in our study about the skin and related psychological wellbeing. Our study will involve participants over 18 years old. Results of this work will enhance the knowledge in this field and improve clinical practice. The survey should take approximately 10 minutes to complete. All information that you will kindly provide are anonymised and confidential that you cannot be identified from your responses or from any reports which will result from the study. Accepting to take part in this survey does not mean that you have to complete it; you have the right to withdraw at your convenience any time without giving a reason. Your participation is entirely voluntary and it is greatly appreciated. There is no right or wrong answer and we are interested to know your own personal experiences and perspectives. If there is anything unclear or that you would like to discuss, please do not hesitate to contact the researcher Dr. Alaa Al-Sarraf by phone or email using the details below. This study has been approved by the Health Science Engineering & Technology Ethical Committee with Delegated Authority (ECDA) University of Hertfordshire Protocol number: aLMS/PGR/UH/03609(1)

We greatly appreciate your support. Dr. Alaa Al-Sarraf, Depart. of Clinical and Pharmaceutical Science, University of Hertfordshire, College Lane Hatfield, AL10 9AB, Phone: 01707 281334, Email: a.al-sarraf@herts.ac.uk

By clicking the button below, you confirm that you have read and understood the above information and agree to take part in this study.

- I have read and understood the information above, and I agree to participate in the study

### **About yourself**

What is your age?

- 18-24  
 25-34  
 35-44  
 45-54  
 55-64  
 65-74  
 75 or older

What is your gender

- Male  
 Female  
 Prefer to use my own terms \_\_\_\_\_

Which of the following terms best describes your relationship status?

- Married  
 Widowed  
 Divorced  
 Separated  
 Never married  
 Other/ please specify \_\_\_\_\_

What is your country of origin?

\_\_\_\_\_

What is your ethnic group? **White**

- Black or African American
- American Indian or Alaska Native
- Asian
- Native Hawaiian or Pacific Islander
- Other/ please specify \_\_\_\_\_

What is the highest level of schooling you have completed?

- No schooling completed
- Primary school
- Secondary school
- Bachelor/ undergraduate degree
- Post graduate degree
- Other/ please specify \_\_\_\_\_

Which of the following best describes your employment status?

- Student
- Employed
- Not employed, looking for work
- Not employed, not looking for work
- Retired
- Unable to work
- Other/ please specify \_\_\_\_\_

Which of the following can best describe your skin colour?

- Very Fair (always burns, cannot tan)
- Fair (usually burns, sometimes tans)
- Medium (sometimes burns, usually tans)
- Olive (rarely burns, always tans)
- Brown (rarely burns, tans easily)
- Dark brown (never burns, always tans)

**About your skin lightening experience**

Have you ever used skin lightening products or any other methods of skin lightening?

- Yes
- No

What is/are the technique/s that have you ever used to lighten your skin? (you can choose more than one answer).

- Creams
  - Toners
  - Scrubs
  - Soaps
  - Recipes that you do it yourself/ homemade mixtures
  - Facial/ body wash
  - Injections
  - Oral pills
  - Chemical peels
  - Laser treatment
  - Others/ please specify \_\_\_\_\_
- 

Why do/ did you practice skin lightening? (You can choose more than one answer).

- feeling more confident with my body
  - Be more beautiful/ attractive
  - Increase chances of being in a relationship
  - Increase chances of getting hired/ employed
  - Look younger than the real age
  - Having hyper-pigmented (dark) skin lesions
  - Having hypo-pigmented (light) skin lesions
  - Family/ partners/ peer pressure
  - Advertisements or media effects
  - Having been bullied in the past
  - Other/ please specify \_\_\_\_\_
-

Where did you get skin lightening products from? (You can choose more than one answer).

- Pharmacy
- Supermarket
- Small cosmetic store
- Beauty salon
- Online
- Other (please specify) \_\_\_\_\_

How much do skin lightening products/ techniques cost you every month? (approximately)

- £0-£30
- £30-£60
- £60- £120
- £120- £250
- £250- £500
- More than £500

How did you find out about those skin lightening products/ other techniques that you have used? (You can choose more than one answer).

- Doctor's prescription
- Beauty therapist advice
- Advertisements
- Social media pages (you tube, facebook, instagram, snapchat, etc.).
- Family/ friend's recommendation
- Other/ please specify \_\_\_\_\_

How long have you used skin lightening products/ other techniques for?

- Less than a month
- 1 to 6 months
- 6 to 12 months
- 1 to 3 years
- 3 to 5 years
- more than 5 years
- Other/ please specify \_\_\_\_\_

How often do/ did you apply/ use them?

- Twice daily
- Daily
- 2-3 times a week
- Weekly
- Twice a month
- Monthly
- Other/ please specify \_\_\_\_\_

How do/ did you use them?

- Continuously
- When required
- For a while then stopped
- If you stopped, why did you stop using them? \_\_\_\_\_

What are the body parts that skin lightening products/ other techniques have been used on? (You can choose more than one answer).

- Face
- Hands
- Legs
- Arms
- Neck and upper chest
- Underarms
- Knees and elbows
- Intimate parts
- Other/ please specify \_\_\_\_\_

Have you consulted a healthcare professional before, throughout using, or after using them?

- Yes
- No

What kind of medical advice did you receive?

- Doctor
- Pharmacist
- Nurse
- Other/ please specify \_\_\_\_\_

Have you noticed any of the following side effects while or after using them? (You can choose more than one answer).

- Skin redness
- Skin itching
- Skin irritation
- Light spots
- Dark spots
- None of the above
- Other/ please specify \_\_\_\_\_

Has using skin lightening techniques/ products made a difference to your mood?

- Yes
- No

What difference has it made?

\_\_\_\_\_

**About your general feeling about yourself**

Below is a list of statements dealing with your general feelings about yourself. Please indicate how strongly you agree or disagree with each statement.

On the whole, I am satisfied with myself.

- Strongly agree
- Agree
- Disagree
- Strongly disagree

At times I think I am no good at all.

- Strongly agree
- Agree
- Disagree
- Strongly disagree

I feel that I have a number of good qualities.

- Strongly agree
- Agree
- Disagree
- Strongly disagree



I am able to do things as well as most other people.

- Strongly agree
- Agree
- Disagree
- Strongly disagree

I feel I do not have much to be proud of.

- Strongly agree
- Agree
- Disagree
- Strongly disagree

I certainly feel useless at times.

- Strongly agree
- Agree
- Disagree
- Strongly disagree

I feel that I'm a person of worth, at least on an equal plane with others.

- Strongly agree
- Agree
- Disagree
- Strongly disagree

I wish I could have more respect for myself

- Strongly agree
- Agree
- Disagree
- Strongly disagree

All in all, I am inclined to feel that I am a failure.

- Strongly agree
- Agree
- Disagree
- Strongly disagree

I take a positive attitude toward myself

- Strongly agree
- Agree
- Disagree
- Strongly disagree

**About your physical appearance**

Please read each question carefully and choose the answer that best describes your experience. Also write in answers where indicated.

Are you very concerned about the appearance of some part(s) of your body that you consider particularly unattractive?

- Yes
- No

Do these concerns preoccupy you? That is, you think about them a lot and wish you could think about them less?

- Yes
- No

What are they? Examples of areas of concern include: your skin (e.g., acne, scars, wrinkles, paleness, redness); hair (e.g., hair loss or thinning); the shape or size of your nose, mouth, jaw, lips, stomach, hips, etc.; or defects of your hands, genitals, breasts, or any other body part.

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What specifically bothers you about the appearance of these body part(s)? Explain in detail:

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Is your main concern with your appearance that you aren't thin enough or that you might become too fat?

- Yes
- No

What effect has your preoccupation with your appearance had on your life?

Has your defect(s) caused you a lot of distress or emotional pain?

- Yes
- No

Has it significantly interfered with your social life?

- Yes
- No

How?

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Has your defect(s) significantly interfered with your school work, your job, or your ability to function in your role (e.g., as a homemaker)?

- Yes
- No

How?

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Are there things you avoid because of your defect(s)?

- Yes
- No

How?

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---

How much time do you spend thinking about your defect(s) per day on average? (add up all the time you spend)

- Less than 1 hour a day
- 1–3 hours a day
- More than 3 hours a day

***Your general feeling about your skin***

Using the following scale, please rate each of the following items with one number between "0" to "9" that best describes your response.

	Click to write Scale point 0 (Not at All)	click to write scale point 1 (Slightly)	Click to write Scale point 2 (Slightly)	Click to write Scale point 3 (Slightly)	Click to write Scale point 4 (Moderately)	Click to write Scale point 5 (Moderately)	Click to write Scale point 6 (Moderately)	Click to write Scale point 7 (Markedly)	Click to write Scale point 8 (Markedly)	Click to write Scale point 9 (Very Markedly)
I like the overall appearance of my skin	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I like my complexion or overall colour of my skin	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I like the appearance of the skin of my face	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I like the complexion or the overall colour of the skin of my face	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am very satisfied with my hair	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am satisfied with the appearance of my fingernails	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am satisfied with the appearance of my toenails	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Thank you very much for completing our survey. We value the information you have given. Your answers will greatly contribute to our research results.

# Appendix B: The participant information sheet

**UNIVERSITY OF HERTFORDSHIRE  
PARTICIPANT INFORMATION SHEET**

**Title of study**

*"Investigating motivational factors of skin lightening phenomenon and related psychological and body image related disturbances"*

**Introduction**

You are being invited to take part in a study. Before you decide whether to do so, it is important that you understand the study that is being undertaken and what your involvement will include. Please take the time to read the following information carefully and discuss it with others if you wish. Do not hesitate to ask us anything that is not clear or for any further information you would like to help you make your decision. Please do take your time to decide whether or not you wish to take part. The University's regulations governing the conduct of studies involving human participants can be accessed via this link:

<http://sitem.herts.ac.uk/secreq/upr/RE01.htm>

Thank you for reading this.

**What is the purpose of this study?**

The purpose of this research study is to assess the motivational factors behind skin lightening phenomenon and investigate the relationship of the use of different skin lightening techniques with the underlying physical or psychological wellbeing.

**Do I have to take part?**

It is completely up to you whether or not you decide to take part in this study. If you do decide to take part you will be given this information sheet to keep for future reference. Accepting in taking part in the study does not mean that you have to complete it. Feel free to withdraw at any stage if you would like to do so without giving any cause. A decision to withdraw at any time, or a decision not to take part at all, will not affect any treatment/care that you may receive.

**Are there any age or other restrictions that may prevent me from participating?**

If you are over 18 years old, you can participate. We would be grateful if you could help us carrying out this research.

**What will happen to me if I take part?**

After reading this information, if you accept to participate, the researcher will ask you a set of questions about your experience and perspectives regarding skin lightening practice. This will take approximately 30 minutes of your time.

**What are the possible disadvantages, risks or side effects of taking part?**

No adverse events should occur during or after completing the interview. However, if you do feel distressed or discomfort throughout responding or after finishing the interview, please let the

researcher know immediately as she will be able to help you get over it. The contact details of the research team are also available on this information sheet should you need further help/ advice.

**What are the possible benefits of taking part?**

This study will shed new light about the factors behind using skin lightening products, investigate their side effects and identify any underlying body-image related problems. This research will contribute to improve the recognition and management of some hidden physical or psychological problems, while increasing public and health care professional's awareness of this widespread phenomenon. Your participation will contribute to enhance the knowledge about this subject and thus improve the future of clinical practice.

**How will my taking part in this study be kept confidential?**

Your participation is completely voluntarily and confidential. The identities of all participants will remain strictly confidential. The interview is anonymous. Only the research team will have access to the data. Your anonymity is protected throughout the research and after finishing the study. No personal identifiable data will be collected and stored for this study.

**Audio-visual material**

If you agree, interviews will be video/voice recorded for research purposes only and not shared with anybody else outside the research team. All the audio/video material will be stored in password protected files in university computers and destroyed within 6 months. If you don't wish so, let the researcher know prior to the start of your interview.

**What will happen to the data collected within this study?**

- The data collected will be stored electronically, in a password-protected environment, for 10 years, after which time it will be destroyed under secure conditions;
- The data collected will be stored in hard copy by the University of Hertfordshire in a locked cupboard for 6 months, after which time it will be destroyed under secure conditions;
- The data will be anonymised prior to storage.
- The data will not be used in any further studies.

**Who has reviewed this study?**

- The University of Hertfordshire Health, Science, Engineering and Technology Ethics Committee with Delegated Authority.  
The UH protocol number is <TBC>

**Factors that might put others at risk**

Please note that if, during the study, any medical conditions or non-medical circumstances such as unlawful activity become apparent that might or had put others at risk, the University may refer the matter to the appropriate authorities.

**Who can I contact if I have any questions?**

If you would like further information or would like to discuss any details personally, please get in touch with the researcher, by phone or by email:

Dr. Alaa Al-Sarraf  
Depart. of Clinical and Pharmaceutical Science  
University of Hertfordshire  
College Lane  
Hatfield  
AL10 9AB

E-mail: [a.al-sarraf@herts.ac.uk](mailto:a.al-sarraf@herts.ac.uk)  
Phone: 01707 281334

**Although we hope it is not the case, if you have any complaints or concerns about any aspect of the way you have been approached or treated during the course of this study, please write to the University's Secretary and Registrar at the following address:**

Secretary and Registrar  
University of Hertfordshire  
College Lane  
Hatfield  
Herts  
AL10 9AB

**Thank you very much for reading this information and giving consideration to taking part in this study.**

# Appendix C: The Consent form

**UNIVERSITY OF HERTFORDSHIRE  
ETHICS COMMITTEE FOR STUDIES INVOLVING THE USE OF HUMAN  
PARTICIPANTS  
(‘ETHICS COMMITTEE’)**

**CONSENT FORM FOR THE STUDY ENTITLED “INVESTIGATING MOTIVATIONAL  
FACTORS OF SKIN LIGHTENING PHENOMENON AND RELATED PSYCHOLOGICAL AND  
IMAGE RELATED DISTURBANCES”**

This study has been approved by the Health Science Engineering & Technology ECDA  
University of Hertfordshire

Protocol number: **LMS/PGR/UH/03609**

Interview reference number:.....

I, the undersigned *[please give your date of birth, in the format DD/MM/YYYY]*

.....  
.....

*[please give contact details here, sufficient to enable the investigator to get in touch with  
you, such as a postal or email address]*

.....  
.....

hereby freely agree to take part in the study entitled “*Investigating motivational factors  
of skin lightening phenomenon and related psychological and image related  
disturbances*”

**1** I confirm that I have been given a Participant Information Sheet (a copy of which is attached to this form) giving particulars of the study, including its aim(s), methods and design, the names and contact details of key people and, as appropriate, the risks and potential benefits, how the information collected will be stored and for how long, and any plans for follow-up studies that might involve further approaches to participants. I have also been informed of how my personal information on this form will be stored and for how long. I have been given details of my involvement in the study. I have been told that in the event of any significant change to the aim(s) or design of the study I will be informed, and asked to renew my consent to participate in it.

Form EC3 – 1 August 2017



**2** I have been assured that I may withdraw from the study at any time without disadvantage or having to give a reason.

**3** In giving my consent to participate in this study, I understand that voice recording will take place and I have been informed of how/whether this recording will be transmitted/displayed.

**4** I have been given information about the possibility of emotional distress caused by some questions. I have been told about the aftercare and support that will be offered to me in the event of this happening.

**5** I have been told how information relating to me (data obtained in the course of the study, and data provided by me about myself) will be handled: how it will be kept secure, who will have access to it, and how it will or may be used.

**6** I understand that my participation in this study may reveal findings that could indicate that I might require medical advice. In that event, I will be informed and advised to consult my GP or any other specialist services. If, during the study, evidence comes to light that I may have a pre-existing medical condition that may put others at risk, I understand that the University will refer me to the appropriate authorities and that I will not be allowed to take any further part in the study.

**7** I understand that if there is any revelation of unlawful activity or any indication of non-medical circumstances that would or has put others at risk, the University may refer the matter to the appropriate authorities.

**8** I have been told that I may at some time in the future be contacted again in connection with this or another study.

Signature of participant.....Date.....

Signature of (principal) investigator.....Date.....

Name of (principal) investigator [*in BLOCK CAPITALS please*]  
.....

## Appendix D: The interview guide

*“Investigating motivational factors of skin lightening phenomenon and related psychological and body image related disturbances”*

### Interview Guide

Interview reference number: .....

Date: .....

Time the interview started: .....

Time the interview finished: .....

Consent form signed:    Yes    No

### Introduction

We would like to invite you to take part in our study about the skin, related psychological wellbeing, and body image disturbances. Our study will involve participants over 18 years old who has used any form of skin lightening. Results of this work will enhance the knowledge in this field and will take part in developing the future clinical practice.

Would you mind if I audio-record our conversation so that I do not have to write everything down?

Do you have any question before we begin?

What are the body parts that skin lightening products/ other techniques have been used on?

Have you consulted a healthcare professional before, throughout using, or after using them?

What kind of medical advice did you receive? Is it from doctor/ pharmacist/ nurse?

Have you noticed any side effects while or after skin lightening use? For example, itching, irritation, redness, white or dark spots, etc.

Is your skin tone now being lighter than how it used to be?

Are you satisfied with your current skin tone or do you want to continue lightening?

Do you have a certain tone/ shade that you would like to be like?

Has using skin lightening techniques/ products made a difference to your mood?

What difference has it made?

Do you feel happier? more confident? more satisfied? more productive?

**Part 3. Body image concerns (including skin concerns)**

**BODY DYSMORPHIC DISORDER DIAGNOSTIC MODULE – ADULT VERSION DIAGNOSING BDD ACCORDING TO DSM-5 DIAGNOSTIC CRITERIA (attached)**

**This is a validated measure will take approximately five minutes to complete.**

# Appendix E: Body Dysmorphic Disorder Diagnostic

## BODY DYSMORPHIC DISORDER DIAGNOSTIC MODULE – ADULT VERSION DIAGNOSING BDD ACCORDING TO DSM-5 DIAGNOSTIC CRITERIA

### CRITERION A

“Are you very worried about your appearance in any way?” *OR*, “Are you unhappy with how you look?”

*If yes, “What is your concern? Do you think (fill in body area) is especially unattractive?”*

“Are you unhappy with any other aspects of your appearance, such as your face, skin, hair, nose, or the shape, size, or any other aspect of your body?”

*If yes, “Do these concerns preoccupy you? How much time would you estimate that you spend each day thinking about your appearance, if you add up all the time you spend?”*

A. Preoccupation with one or more perceived defects or flaws in physical appearance that are not observable or appear slight to others. 1 2 3

*NOTE: Give some examples of body areas even if patient answers no to these questions.*

Examples include: skin concerns (e.g., acne, scars, wrinkles, paleness), hair concerns (e.g. thinning), or the shape/size of the nose, jaw, lips, etc. Also consider perceived “defects” of hands, genitals, or any other body part.

*NOTE: List all body parts of concern.*

### CRITERION B

“Is there anything that you do over and over in response to your appearance concerns?”

“Do you do anything else to try to check, fix, hide, or be reassured about your (fill in disliked body areas)?”

B. At some point during the course of the disorder, the individual has performed repetitive behaviors (for example, mirror checking, excessive grooming, skin picking, reassurance seeking) or mental acts (for example, comparing his or her appearance with that of others) in response to the appearance concerns. 1 2 3

*NOTE: Specifically ask about these examples and any other repetitive behaviors done in response to the appearance concerns.*

### CRITERION C

“How much distress do these concerns cause you?”

“Do these concerns interfere with your life or cause problems for you in any way?”

C. The preoccupation causes clinically significant distress or impairment in social, occupational, or other important areas of functioning. 1 2 3

*NOTE: Ask about resulting anxiety, social anxiety, depression, panic, shame, hopelessness, guilt, and suicidal thinking.*

*NOTE: Ask about effects on work, school, and various aspects of role and social functioning (for example, caring for family, relationships, intimacy, social activities,*

# Module- Adult version

*household tasks, and other types of interference).*

## CRITERION D

*If concern is secondary to Anorexia Nervosa or Bulimia Nervosa, score "1."*

D. The appearance preoccupation is not better explained by concerns with body fat or weight in an individual whose symptoms meet diagnostic criteria for an eating disorder. 1 2 3

## SPECIFIERS

### Muscle Dysmorphia Specifier

"Are you preoccupied with the idea that your body build is too small or that you're not muscular enough?"

**Specify if: with muscle dysmorphia:** The individual is preoccupied with the idea that his or her body build is too small or insufficiently muscular. This specifier is used even if the individual is preoccupied with other body areas, which is often the case. 1 2 3

### Insight Specifier

"What word would you use to describe how bad these body areas -- *(fill in all disliked areas)* -- look?"

Indicate degree of insight regarding BDD beliefs:

- **Good/fair insight:** The individual recognizes that BDD beliefs are definitely or probably not true 1 2 3

*Elicit a global belief about the perceived defects rather than asking about specific body areas.*

- **Poor insight:** The individual thinks that BDD beliefs are probably true. 1 2 3

"How convinced are you that these body areas look *(fill in patient's global descriptor)*?"

- **Absent insight/delusional beliefs:** The individual is completely convinced that BDD beliefs are true. 1 2 3

*If patient has difficulty choosing a word, "Some people use words like ugly, deformed, hideous, unattractive.... do you think any of these apply to you?"*

1 = absent

2 = sub-threshold

3 = threshold or true

The format and scoring of this diagnostic measure are similar to those used by the Structured Diagnostic Interview for DSM. Questions to be asked are on the left; diagnostic criteria are on the right. All items must be coded 3 to meet diagnostic criteria for BDD. Italics indicate instructions to the interviewer.

These questions can also be asked for past concerns (by using past tense)

Katharine Phillips, M.D. 3/20/95; updated 2016

KatharinePhillipsMD.com

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# Appendix F: Confirmation of ethical approval



HEALTH SCIENCE ENGINEERING & TECHNOLOGY ECDA

## ETHICS APPROVAL NOTIFICATION

**TO** Alaa Al-Sarraf  
**CC** Dr. Ornella Corazza  
**FROM** Dr Simon Trainis, Health, Science, Engineering & Technology ECDA Chair.  
**DATE** 31/01/219

---

**Protocol number:** LMS/PGR/UH/03609

**Title of study:** "Investigating motivational factors of skin lightening phenomenon and related psychological and image related disturbances"

Your application for ethics approval has been accepted and approved by the ECDA for your School and includes work undertaken for this study by the named additional workers below:

**This approval is valid:**

**From:** 01/02/2019

**To:** 30/06/2020

**Additional workers:** no additional workers named

**Please note:**

If your research involves invasive procedures you are required to complete and submit an EC7 Protocol Monitoring Form, and your completed consent paperwork to this ECDA once your study is complete. You are also required to complete and submit an EC7 Protocol Monitoring Form if you are a member of staff. This form is available via the Ethics Approval StudyNet Site via the 'Application Forms' page <http://www.studynet1.herts.ac.uk/pil/common/ethics.nsf/Teaching+Documents?Openview&count=9999&restricttocategory=Application+Forms>

Any necessary permissions for the use of premises/location and accessing participants for your study must be obtained in writing prior to any data collection commencing. Failure to obtain adequate permissions may be considered a breach of this protocol.

Approval applies specifically to the research study/methodology and timings as detailed in your Form EC1A. Should you amend any aspect of your research, or wish to apply for an extension to your study, you will need your supervisor's approval (if you are a student) and must complete and submit form EC2. In cases where the amendments to the original study are deemed to be substantial, a new Form EC1A may need to be completed prior to the study being undertaken.

**Should adverse circumstances arise during this study such as physical reaction/harm, mental/emotional harm, intrusion of privacy or breach of confidentiality this must be reported to the approving Committee immediately. Failure to report adverse circumstance/s would be considered misconduct.**

**Ensure you quote the UH protocol number and the name of the approving Committee on all paperwork, including recruitment advertisements/online requests, for this study.**

**Students must include this Approval Notification with their submission.**

# Appendix G: Confirmation of the modification of ethical approval



HEALTH SCIENCE ENGINEERING & TECHNOLOGY ECDA

## ETHICS APPROVAL NOTIFICATION

**TO** Alaa Al- Sarraf  
**CC** Omella Corazza  
**FROM** Dr Simon Trainis, Health, Science, Engineering & Technology ECDA Chair  
**DATE** 16/04/2019

---

**Protocol number:** a.LMS/PGR/UH/03609(1)

**Title of study:** Investigating motivational factors of skin lightening phenomenon and related psychological and image related disturbances

Your application to modify and extend the existing protocol as detailed below has been accepted and approved by the ECDA for your School and includes work undertaken for this study by the named additional workers below:

**Modification:** detailed in EC2.

This approval is valid:

From: 16/04/2019

To: 30/06/2020

**Additional workers:** no additional workers named

**Please note:**

If your research involves invasive procedures you are required to complete and submit an EC7 Protocol Monitoring Form, and your completed consent paperwork to this ECDA once your study is complete. You are also required to complete and submit an EC7 Protocol Monitoring Form if you are a member of staff. This form is available via the Ethics Approval StudyNet Site via the 'Application Forms' page <http://www.studynet1.herts.ac.uk/plikcommon/ethics.nsf/Teaching+Documents?Openview&count=9999&restricttocategory=Application+Forms>

**Any conditions relating to the original protocol approval remain and must be complied with.**

Any necessary permissions for the use of premises/location and accessing participants for your study must be obtained in writing prior to any data collection commencing. Failure to obtain adequate permissions may be considered a breach of this protocol.

Approval applies specifically to the research study/methodology and timings as detailed in your Form EC1/EC1A or as detailed in the EC2 request. Should you amend any further aspect of your research, or wish to apply for an extension to your study,



**you will need your supervisor's approval (if you are a student) and must complete and submit a further EC2 request. In cases where the amendments to the original study are deemed to be substantial, a new Form EC1A may need to be completed prior to the study being undertaken.**

**Should adverse circumstances arise during this study such as physical reaction/harm, mental/emotional harm, intrusion of privacy or breach of confidentiality this must be reported to the approving Committee immediately. Failure to report adverse circumstance/s would be considered misconduct.**

**Ensure you quote the UH protocol number and the name of the approving Committee on all paperwork, including recruitment advertisements/online requests, for this study.**

**Students must include this Approval Notification with their submission.**

## Appendix H: Barts Health Trust permission

Barts Health   
NHS Trust

**DERMATOLOGY  
WHIPPS CROSS HOSPITAL  
ROYAL LONDON HOSPITAL  
LONDON  
E11 1NR**

Direct Line: 020 8535 6734  
Main switchboard: 020 8539 5522  
Fax: 020 8535 6897

Alaa Al-Sarraf  
PhD Candidate- Post-graduate Medicine  
Department of Clinical and Pharmaceutical Sciences  
School of Life and Medical Sciences  
University of Hertfordshire  
College Lane  
Hatfield, Herts  
AL10 9AB

Date: 28.3.19

Dear Alaa,

**Re: Investigating motivational factors of skin lightening phenomenon and related psychological and body image related disturbances**

Thank you for submitting the protocol of your audit and informing us about how it will be conducted. I am pleased to tell you that this study has been approved and you will be able to access the dermatology Dept at Barts Health in order to carry out your study.

I understand that you have submitted your protocol for ethics committee approval at the University of Hertfordshire, and that this has been approved.

We would be grateful to receive a follow up reports on the progress of the study.

Yours sincerely,



**Dr Anthony Bewley FRCP**  
Consultant Dermatologist

Barts Health NHS Trust: Newham University Hospital, The London Chest Hospital,  
The Royal London Hospital, St Bartholomew's Hospital and Whipps Cross Hospital