

Health System Impacts of Skin-Lightening Practices:

A Scoping Review of Sub-Saharan Africa
and Case Study of Senegalese Women

Inna Fatoumata Kandé

Thesis Submitted to the University of Ottawa
in Partial Fulfillment of the requirements for the
Master of Science in Health Systems

Telfer School of Management
University of Ottawa

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Abstract

Background and objectives

This research explores the trend of skin-lightening in Senegal from an experiential and health systems perspective. Skin-lightening - a practice mostly done by women consisting of topically applying lightening products - is a widespread trend in Senegal, a country still grappling with a colonial legacy of racism and colorism. Although there is growing research on the health impacts of this practice, the impact of widespread skin-lightening practices from a health system perspective remains scarcely explored.

Approach

The main research question is, “what are the health system impacts of skin-lightening trends among Senegalese women?” Three sub-questions were addressed:

1. What are the key health and health care implications of the use of skin-lightening products as identified in the literature?
2. How do these health and health care implications influence the skin-lightening practices of Senegalese women?
3. How can this knowledge inform health care decision-makers in Senegal?

A multi-phased approach consisted first of a scoping review on the topic and second, in-depth interviews with 13 Senegalese women to gather insights on skin-lightening practices and their health system implications.

Results

The findings from the two methodological approaches addressed three main themes: motivations, practices, and effects. Negative and positive motivations for the practice of skin-lightening emerged with some overlapping and nuanced factors which highlighted the complex reality of skin-lightening trends. Skin-lightening practices included two influences: community practices and personal practices of women interviewed. It appears that skin-lightening in sub-Saharan Africa can often be associated with age as it seems to greatly affect younger women. Finally, insights on the effects of skin-lightening highlighted many dermatological problems. Other health concerns were also mentioned including some mental health problems which emphasized dissatisfaction with the practice for long-term users of skin-lightening products.

Conclusion

The knowledge generated from this research highlights existing misconceptions regarding skin-lightening trends in the community. It can support a more informed health system response to the utilization of skin-lightening products and help develop evidence-informed guidance for all relevant actors in this practice

Chapter 1: Introduction

The purpose of this thesis is to explore the trend of skin-lightening in Sub-Saharan Africa, with a specific focus on the West African country of Senegal from an experiential and health systems perspective.

Skin-lightening is a practice that consists of topically applying various products manufactured to whiten, lighten, and bleach the skin. It is mostly done by women, considered by some to be a 'beauty' practice, but one that insinuates a "buying of racial capital" (Hunter, 2011). The literature surrounding skin-lightening has focused on its health effects, primarily from a dermatological perspective. Such cutaneous effects most often appear in the form of rashes (de Souza, 2008), stretch marks, and facial acne (Del Giudice & Yves, 2002). Additionally, other health consequences of the practice involve a higher risk of diabetes (Mahé et al., 2007), high blood sugar (Ly et al., 2017), high cortisol, adrenal insufficiency (Mahé et al., 2007), skin cancer (Hunter, 2011), negative pregnancy outcomes (Mahé et al., 2007), as well as disorders regarding the kidneys (Del Giudice & Yves, 2002; Hunter, 2011), adrenal glands, liver (Hunter, 2011), and neurological system (Mahé et al., 2007). A gap that remains is on the adverse impact of widespread skin-lightening practices from a health system perspective. This aspect has been scarcely studied partially due to the invisibility that surrounds the practice (Del Giudice & Yves, 2002) and consequently renders thorough scientific study challenging.

The main research question of this thesis is what are the health system impacts of skin-lightening trends among Senegalese women? To answer this question, three key sub-questions will be addressed:

1. What are the key health and health care implications of the use of skin-lightening products in Sub-Saharan Africa as identified in the peer review literature?
2. How do these health and health care implications influence the skin-lightening practices of Senegalese women?
3. How can this knowledge inform health care decision-makers in Senegal?

Like other colonized nations, Senegal, a country of French colonial history, is still grappling with a history of racism and colorism that favors lighter and therefore White skin tones over Black ones. This 'beauty' standard has been perpetuated by the media (de Souza, 2008). Interestingly, skin-lightening has only become more widespread in sub-Saharan Africa more recently, a phenomenon that Del Giudice & Yves attribute to increased economic power (2002). Skin-lightening products can be procured over the counter. People who use them thus do not need a prescription from a doctor and can simply 'self-prescribe and administer'. This aspect is what often renders the practice invisible to doctors who do not see it until there are health concerns that arise. In a cultural sense, skin-lightening is additionally not a subject often talked about which reinforces that invisibility.

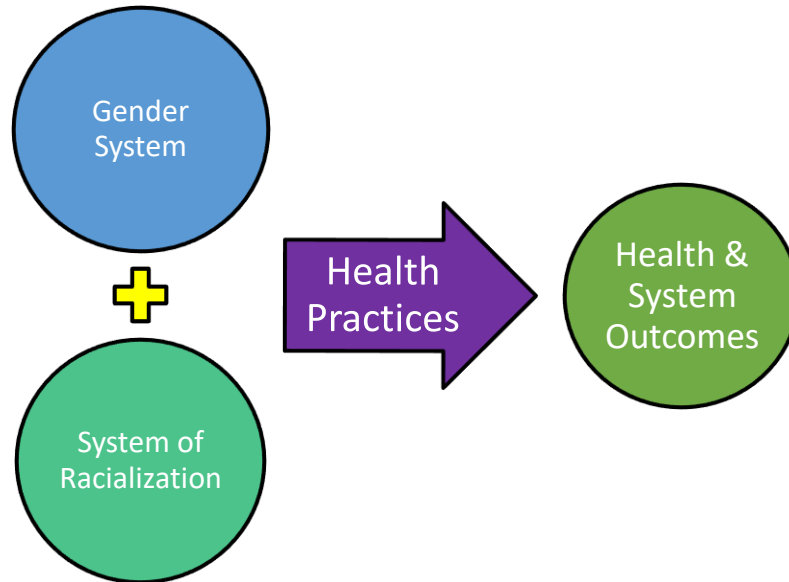
As a developing country, Senegal's emerging economic development has been associated with increased buying power for certain segments of the population, most specifically, those living in urban areas (Duboz et al., 2012). Financial ability is therefore what enables and encourages more women to adopt the practice of skin-lightening. In Dakar, Senegal's capital, and most urbanized area, 52% of the population practices skin-lightening (Jacobs et al., 2016). The significance of this number alone should indicate the need for more health-driven research about skin-lightening. The phenomenon of the increased usage of skin-lightening will undoubtedly cause new health challenges for developing countries still burdened by diseases of poverty and development. Skin-lightening, which we can assume will be exacerbated in sub-Saharan Africa because of urbanization, can be understood as a problem of modernity. It must get addressed before it constitutes a major public health issue.

This thesis will offer insights in support of an informed health system response to the utilization of skin-lightening products. Findings will also be helpful in the development of evidence-informed guidance to health practitioners, decision-makers, and women undertaking this practice.

Background and literature review

As a practice, skin-lightening is facilitated by structural oppression mainly based on gender and race, although it sometimes intersects with age. In Senegal, racial politics can be informed by a post-colonial framework. When combined with contemporary economic realities which increased buying power (Del Giudice & Yves, 2002; Hunter, 2011; Jacobs et al., 2016; Mahé et al. 2007), this historical context creates a setting within which skin-lightening trends can be analyzed. Doing so is essential in understanding the nuanced process of skin-lightening practice in Senegal, and consequently its clinical and health system effects. Figure 1 represents a schematic of the different system influences on the practice of skin-lightening, loosely following a Donebedian (2005) structure, processes/practices, and outcomes model.

Figure 1: A Structure, Process & Outcome Model of Skin-Lightening Practices in Senegal



Structure

Impact of the gender system

The literature on skin-lightening often relies on a gender-based analysis. As a practice, skin-lightening is mainly targeting the female body. Hunter (2011) proposes that at its core, skin-lightening is simply a form of racial capital. She defines racial capital as a resource existing within a racial hierarchy and which is drawn on the body to gain social, symbolic, or economic capital. In this framework, skin-lightening can be understood as a form of racial capital that Senegalese women are more likely to participate in because of the Western beauty standards popularized historically and through the media. The female body has been objectified throughout time and most especially by the male gaze (Fredrickson & Roberts, 1997). This patriarchal structure can explain why the biggest users of skin-lightening cosmetics in Senegal are married women (Del Giudice & Yves, 2002). Often, married women are encouraged to practice skin-lightening if not by their husbands, then by their entourage to help ensure continued spousal attraction. Additionally, Hunter (2011) positions that women in Africa are now more than ever competing in the global job market with equally qualified individuals from all over the world. Often, they hope that lightening their skin will help them be seen and consequently grant them a foot in the door. This reality, however, seemed to be gravely overlooked by policymakers. Hunter (2011) explains that governmental campaigns against the practice too often only address the physical effects of skin-lightening by targeting attitudes and not the root causes of the social hierarchy of skin color. They tend to portray women who use skin-lightening cosmetics as simply vain and lacking both self-esteem and self-efficacy (Hunter, 2011; Jacobs et al., 2016). Not considering the social and political benefits of skin-lightening thus results in victimizing and blatantly blaming women who practice skin-lightening.

Impact of systems of racialization

Representation and celebrity culture

Skin-lightening has emerged as a way for many people of color to have access to the advantages traditionally reserved for people with White or lighter skin (de Souza 2008). Because the West has universalized the idea that Whiteness is superior, the world system often offers up socioeconomic privileges to people that are White (Hunter 2011, Dixon & Telles, 2017). People of color who have European-like features or lighter skin tones are consequently placed higher in this societal hierarchy than their darker-skinned counterparts. de Souza (2008) explains that in Sub-Saharan Africa, job opportunities were often more readily available for lighter-skin-toned Africans throughout colonization. In their case study in Senegal, Del Giudice & Yves (2002) have found that people with higher pigmentation were more likely to use skin-lightening cosmetics. This reality can be explained by the impact of the imagery often seen worldwide. de Souza (2008), Hunter (2011), Jacobs et al. (2016), and Dixon & Telles (2017) all mention that in its exported ads, movies, and other visual means of entertainment, the West constantly markets White beauty as a symbol of modernity and wealth. Hunter (2011) continues by noting that on the rare occasion where people of color appeared aspirational or representative of a beauty ideal, they were of the likes of Halle Berry, with Anglo-Saxon features and a lighter skin tone, primarily there to lure people of color into believing that they were being included and considered. Interestingly, many successful and well-known Black people of darker skin tones have throughout their careers gradually lightened their bodies. Jacobs et al. (2016), who also highlighted the importance of the media in fostering skin-lightening trends, gave the well-known example of Michael Jackson, but also of artists like Beyoncé and Rihanna who many believe have used cosmetics aimed at lightening the skin. That reality not only emphasizes that the world sees Blackness as not enough, but also that continued success is correlated to Whiteness. Celebrity usage of skin-lightening products can be seen as endorsements of the practice which normalizes it and foster public belief in its efficiency and acceptance (Hunter, 2011). The mainstream beauty industry, traditionally controlled by the West as well, has similarly helped market the trend. de Souza highlights (2008), for example, the scarcity of manufactured cosmetics suited to darker skin tones.

de Souza (2008) reminds us, as do Jacobs et al. (2016), that memories of slavery, colonization, and color rating systems against darker skin tones still haunt many formerly colonized African nations. Because of that history, many of these nations are still heavily influenced by what takes place in the West and are facing the effects of globalization through its ability to universalize Western realities. In Senegal, Mahé et al. (2007) have for example noted that many pregnant women who persisted in applying skin-lightening cosmetics during their pregnancy declared when interrogated on their behavior that their goal was to look beautiful for baptism. This association of lighter skin with beauty can be explained by the popularity of magazines that feature White and light models in Senegal (Del Giudice & Yves, 2002). Jacobs et al. (2016) complement that finding by explaining that on top of benefiting from the internalization of global

standards of beauty, skin-lightening trends are enabled by national politics of race and colorism. Similarly, Hunter (2011) insists that the necessity to acquire racial capital can only exist within a framework of both racism and colorism. It does not take much imagination to then understand the appeal of skin-lightening in Africa. The practice positions itself as a way for people with darker skin tones to finally be free, overcome institutional discrimination and experience the pleasure and importance of achieving visibility (Dixon & Telles, 2017) in countries that are still grappling with the effects of White domination.

Economic structure and the modern individual

Del Giudice & Yves (2002) established that skin-lightening has been gaining in popularity within the Senegalese population throughout the years. The authors attribute this trend to increasing economic power which has been instrumental in enabling and encouraging more people to adopt the practice of skin-lightening. Additionally, the capitalist system has created ideologies that help companies sell skin-lightening products to customers eager to shape the circumstances of their life to their liking (Hunter, 2011). Capitalism is an individual-centered system which means it holds people accountable for what they achieve. In this mind frame, socioeconomic success is independent of the individual's environment and dependent on his or her choices alone. Capitalism thus associates manipulating the body with achieving human agency (Jacobs et al., 2016). It suggests that if being lighter correlates with better socioeconomic opportunities and helps one become more beautiful, then the individual determined to have more should take the measures necessary to become lighter. This interpretation correlates with the findings of both Mahé et al. (2007) and Hunter (2011), who demonstrated that for most regular users of skin-lightening agents, light skin not only relates to higher status but also to embracing modernity.

Processes & Practices

Skin-lightening practices reflecting intersectional power structures

Despite the obvious social, economic, and political advantages associated with lighter skin, Del Giudice & Yves (2002) explained that skin-lightening is a practice often hidden and denied within the Senegalese community. According to Hunter (2011), this secrecy can be explained by the goal of skin-lightening, which is to achieve a natural finish and a transformation that does not betray the user's real skin color and identity. To do so is to have the means to use the best products available on the market and dutifully and regularly apply them to the skin. Those products often come from the same Western countries which encourage skin-lightening trends through their influential media portrayal (Hunter, 2011). Their products are made with known and carefully measured ingredients (Hunter, 2011; Jacobs et al., 2016) and work well when used correctly (Jacobs et al., 2016). While the celebrities they look up to can easily purchase such formulas, the average African customer often does not have the means to acquire them on a long-term basis (Jacobs et al., 2016), despite recent economic advancements.

Underground markets are thus where most creams and lotions are purchased in Africa. de Souza (2008) adds that some pharmacies and uneducated and unaware physicians similarly enabled skin-lightening product acquisition for many users. Jacobs et al. (2016) explain that while products purchased in underground markets are more attainable, they are also unregulated, usually enabling the user to apply overly large doses. Mahé et al. (2007) have additionally discovered that many of the ingredients found in the products sold in underground markets are banned from being used in cosmetics manufactured in the West. Furthermore, de Souza's research exposes the dumping of those unsuitable products in the African continent once deemed unsafe and banished from the West (2008).

The imbalanced world power structure thus increases the risk of exposure to dangerous chemicals for customers in countries such as Senegal. Jacobs et al. (2016) add that some poorer customers also often make their mixes at home, using different products acquired in underground markets, thereby increasing their toxicity. Finally, users are also often discouraged from seeking medical help for fear and shame of exposing their usage of skin-lightening cosmetics as the practice can be synonymous with a lack of self-esteem and hatred of Blackness amongst African communities (Hunter, 2011). On rare occasions when users seek out medical advice, it is difficult for doctors to know which chemicals might have affected the patient. The products used most often contain ingredients that are costly and impossible to analyze (de Souza, 2008) thus making it hard for doctors to craft targeted treatment plans.

Outcomes

Clinical health consequences

Existing research on the effects of skin-lightening products on health often focuses on dermatological health issues. This focus is not surprising as most of the products on the market are meant to be topically applied. Their effects on the skin, however, vary drastically and depend on a plethora of factors including, but not limited to, the method of application, the number of products used, and the health history of the user (de Souza, 2008). In the literature, the products researched were mostly composed of hydroquinone (Del Giudice & Yves, 2002; Ly et al., 2017; Mahé et al., 2007) and corticosteroids (Del Giudice & Yves, 2002; Mahé et al., 2007). In one paper, researchers also discovered the existence of mercury in the products tested (Del Giudice & Yves, 2002).

Del Giudice & Yves (2002) conducted their research with a large group of Senegalese women intending to evaluate the extent of the practice in Senegal and the associated cutaneous side effects. Their research consisted of a year-long epidemiologic and clinical study in Dakar, Senegal during which women were questioned about their usage of skin-lightening products and examined for potential adverse skin reactions. Their findings exposed the use of skin-lightening products containing hydroquinone and corticosteroids amongst 249 women, 117 of which presented cutaneous effects. Facial acne was the most common effect with 36% of the women affected. The researchers noted that regardless of age group, a rate of facial acne over 30% is unusual amongst women who do not use skin-lightening

products. They thus felt confident that skin-lightening practice was to account for such findings, especially knowing the very low rate of facial acne in Africa, which is about 5%. Stretch marks unusual in location and number were also noted by the researchers who emphasized that in 63% of cases, women were affected by more than one dermatological problem. This last finding is complemented by de Souza (2008) who highlighted that when used in combination, harsh components such as hydroquinone and corticosteroids could interact with each other, thus causing the skin to develop multiple effects simultaneously. The women she observed as part of her research developed rashes when products comprising such ingredients were used on the skin. In addition, she explained that reducing and/or stopping the usage of skin-lightening products often resulted in the skin reacting from withdrawal and developing further complications. That knowledge makes it very difficult for women to abandon the practice and is very concerning to Del Giudice & Yves (2002) who observed that longer exposure to skin-lightening products resulted in the increase and gravity of cutaneous effects.

Outside of these documented effects on the skin, further clinical consequences were discovered, although they remain scarcely studied. For example, Ly et al. (2017) conducted a study on the relationship between hydroquinone application on the skin and capillary blood glucose. Their findings show that after a product containing hydroquinone is applied to the skin, blood glucose is higher in both non-diabetic and diabetic patients. Mahé et al. (2007) similarly noted a connection between continuous usage of skin-lightening products and a higher risk of diabetes. Other chronic afflictions that seem to be exacerbated by the usage of skin-lightening agents are excess cortisol, adrenal insufficiency, hypertension (Mahé et al., 2007), and kidney failure (Del Giudice & Yves, 2002; Hunter, 2011). Failure of the organs specifically is known to originate from poisoning caused by product absorption (de Souza, 2008). Toxicity in products when absorbed can additionally be linked to an increased risk of developing neurological disorders (Mahé et al., 2007), complications with the adrenal glands and liver, and to the development of skin cancer (Hunter, 2011). These discoveries reinforce the necessity to further research the systemic health effects of skin-lightening products as the Senegalese health system is heavily burdened by chronic diseases, especially diabetes and hypertension.

Finally, Mahé et al. (2007) additionally urge more research to be done surrounding the effects of skin-lightening products on children. Their research questioned 99 randomly selected women from six to nine months pregnant about their use of skin-lightening products. Participants also underwent a standard clinical examination, had follow-ups until delivery, and took a morning blood sample for plasma cortisol levels. Although their study on pregnant women did not highlight any pregnancy outcome differences between participants who used skin-lightening products and those who did not, the researchers found that women who used products with steroids specifically had smaller placentas, lower plasma cortisol levels, and more low-weight birth infants. In developing countries, low birth weight correlates with a higher risk of neonatal and infancy mortality. Furthermore, oral steroid absorption in pregnant women can predispose infants to illnesses later in life and research has shown that oral and topical absorption can

have the same effects (Mahé et al., 2007). In the study by Mahé et al. (2007), no mercury was found in the products used but the negative effects of such chemicals on pregnancy outcomes are already well-known and must, therefore, be considered when studying the clinical effects of the practice of skin-lightening. In Senegal, as in most of the developing world, the population is very young, and children's health is therefore critical to protect and improve.

Skin-lightening's clinical effects are difficult to determine as they depend on many factors. The products tested in the literature often contained hydroquinone, corticosteroids, and mercury and have caused dermatological issues ranging from rashes, to stretch marks and facial acne. In some cases, multiple cutaneous effects have appeared simultaneously on the skin and often because of product withdrawal. Longer exposure of the skin to the products is also associated with an increase in the quantity and gravity of the effects noted.

Health System Implications

In Senegal where the health system is overcome by chronic diseases, it is important to have studies on the systemic health effects of skin-lightening which over half of Dakar's population is practicing (Jacobs et al., 2016). The literature scarcely studied how skin-lightening could affect the whole body and mostly took a targeted approach to how isolated parts of the body are affected by the practice. It was noted that the ingredients in many skin-lightening products could have an impact on the user's risk of having diabetes (Mahé et al., 2007) and high blood sugar (Ly et al., 2017), high cortisol, adrenal insufficiency (Mahé et al., 2007), problems affecting the kidney (Del Giudice & Yves, 2002; Hunter, 2011), adrenal glands, and liver (Hunter, 2011). They have additionally been linked to neurological disorders (Mahé et al., 2007), skin cancer (Hunter, 2011), and infant health issues when used during pregnancy (Mahé et al., 2007). These health impacts in turn have health system impacts, however, studies of the latter are less obvious in the literature. This research will help to fill this gap by first undertaking a scoping review of the literature on the topic. Then, it will seek out diverse perspectives by questioning a variety of women about their skin-lightening practices. This proposed 'paired' methodology will address the important gap that exists regarding the systemic health consequences of skin-lightening trends in the case of Senegal.

Chapter 2: Methods

This thesis applies a pragmatic research paradigm (Trochim et al., 2016) which allows it flexibility in selecting the appropriate methodology for answering each research question. It is also rooted in an intersectional and postcolonial framework. I used a multi-phased qualitative approach as my methodology to answer the research questions. It first consisted of *reviewing the literature on the health system implications of the usage of skin-lightening products by women* in Senegal and other African countries. This review complemented an existing biopsychosocial review on the subject (Jacobs et al., 2016). The review by Jacobs et al. (2016) and the scoping review both consider post-colonial structures and explore the impact of western ideologies and the media on skin-lightening trends. However, Jacobs et al. (2016) focused primarily on skin-lightening trends in South Africa while my scoping review was interested in exploring skin-lightening practices in Senegal and countries with similar contexts. My scoping review was also broader than the motivational factors explored in Jacobs et al. (2016). Augmenting this scoping review was the conduct of *one-on-one virtual interviews with Senegalese women both involved and not participating in the practice of skin-lightening*. Such discussions allowed for a more holistic view of the practice and women's perceptions and understanding of it. Gathering this knowledge helped highlight misconceptions of the public and decision-makers regarding skin-lightening trends. These components were undertaken at a distance, respecting directives from the University of Ottawa during the COVID-19 pandemic. A certificate of ethics approval was received in March 2021 by the University of Ottawa Research Ethics Board, before the interviews were conducted.

Phase 1: Scoping Review

Document collection

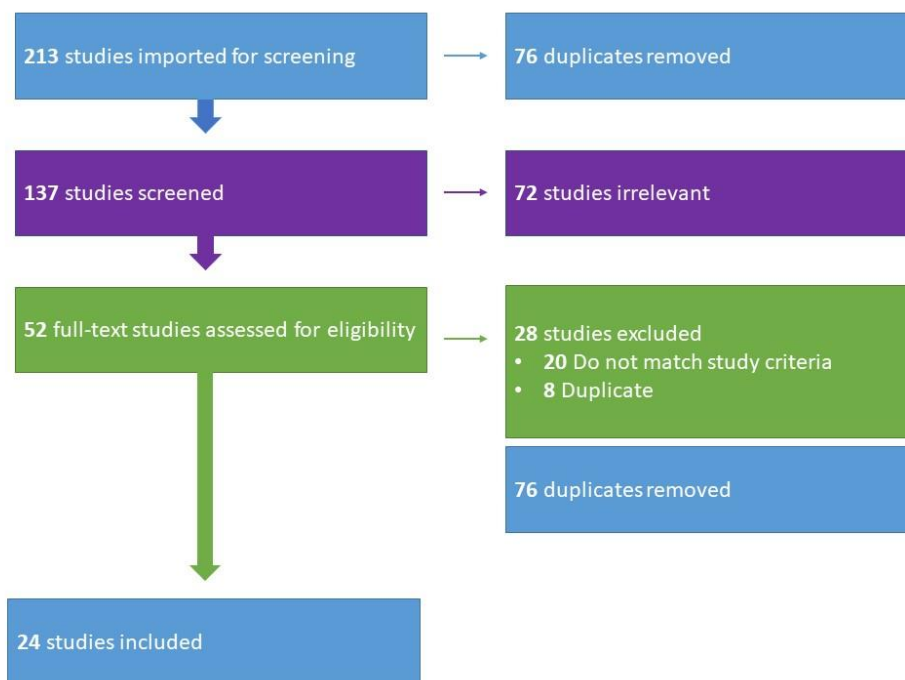
I first undertook a systemic search, selection, and collection of articles in the published literature, using the Arksey and O'Malley framework (Arksey & O'Malley, 2005). Databases used to search for published literature included PubMed, Embase, Medline, Scopus, CINAHL, and the University of Ottawa's Omni search tool. Working with the assistance of a reference librarian at the University of Ottawa, I developed a systematic search strategy that consisted of the following terms: "cosmetic*" OR "skin lightening preparations" OR "skin bleach*" OR "skin lighten*" OR "skin whiten*" OR "depigment*" AND "Senegal" OR "Senegal*". The final search strategy was developed by using PubMed and refining terms based on the results of initial searches on that database. Once specific search terms were determined, the reference librarian suggested using Medline instead of PubMed to get closer and more specific results to the terms searched. The detailed search strategy can be found in Appendix 'B' of this document. I included articles from other African countries to keep the colonial context consistent and considered articles outside of the African continent only if they mentioned African women. I also included both French and English-

language articles. Each of the terms was mapped to the subject heading index of the specific database with the assistance of a uOttawa reference librarian.

Document screening

The search yielded 213 articles, of which 76 were duplicates that were removed in Covidence. The remaining 137 articles were screened first by title and abstract with 65 moving to full-text screening after 72 were deemed irrelevant. Full-text screening excluded 28 irrelevant articles and a further 13 were discarded when complete articles were unable to be located. Finally, 24 articles were extracted for analysis. A research assistant acted as the second screener in Covidence for title, abstract, and full-text screening. A duplicate screening strategy was selected, and the second screener and I both screened every single article at every stage. My supervisor helped with reaching a final decision whenever our screening choices conflicted. The PRISMA data below was exported from Covidence and illustrates the screening process (Figure 2).

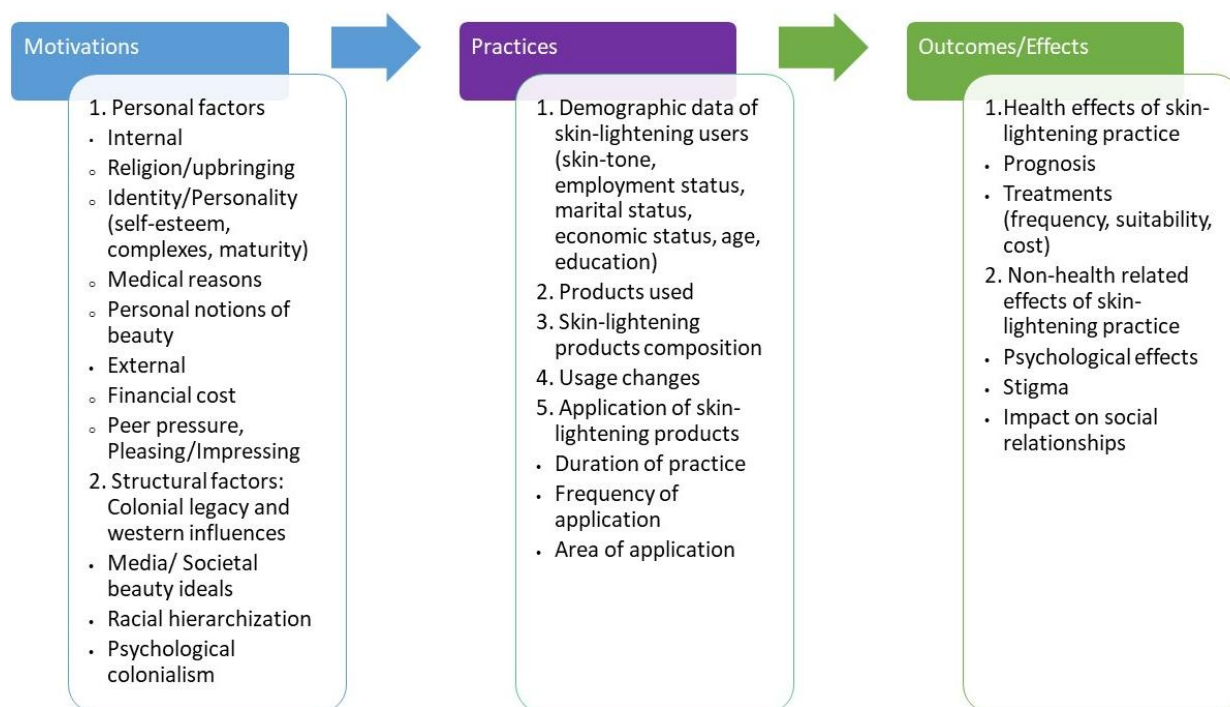
Figure 2: PRISMA diagram



Document analysis

Based on the Arksey and O'Malley framework ((Arksey & O'Malley, 2005). I analyzed the final selected articles systematically using an excel-based literature extraction tool. Details on the study designs and location were extracted. Additionally, columns were created for analysis of each of the articles, drawing upon the components of the analytic framework represented in Figure 3, which consisted of the following themes:

Figure 3: Scoping Review Document Extraction



Summary details and excerpts from the articles were ‘coded’ into these columns and synthesized. Although the literature review was started first, it also required more time to conclude and analyze. As a result, the second research phase of the thesis which consisted of interviews with Senegalese women was analyzed first. Figure 4 was developed earlier to help analyze the results of these interviews. It was then used as a template to create Figure 3. Additionally, a review of notes taken during the full-text screening of the literature helped refine and tailor the categories to this first phase of the research. Further themes were added where applicable.

Phase 2: Experiential interviews with Senegalese women

Data collection

Participants invited to participate in one-on-one virtual interviews included women aged 18 and over, regardless of whether they had or had not used skin-lightening products. A diversity of experiences was sought out for this thesis, hence why women were selected regardless of their skin-lightening practices.

A total of 13 women were recruited to participate, as this was the number for which saturation of the key concepts was reached. Saturation in this case happened when nothing new was apparent or the information became redundant during interviews (Saunders et al., 2018). The recruitment of participants stopped at the point that saturation had been reached such that further data collection was deemed unnecessary. Participant recruitment took a variety of online forms through social media. I posted on

public groups and pages on Instagram and Facebook that already target Senegalese people and individuals of Senegalese descent living abroad. This method was unsuccessful in directly connecting me with potential participants but helped me increase my outreach. Personal connections shared my recruitment messages with others who were interested in participating. The latter reached out to me directly. I then used snowball sampling as a second recruitment method. This method enabled the recruiting of future participants by existing ones from their acquaintances (Trochim et al., 2016). I avoided the recruitment of participants with whom I have pre-existing social relationships. Interviews were conducted in French or Wolof¹ depending on the participants' preference.

Participants were asked to respond to key open-ended questions to get a better idea of their perceptions of their skin. For women who practice skin-lightening, questions regarded how they decided to start the practice, whether they have changed products in the past and why. Those who did not were asked why they have chosen not to practice skin-lightening. In both cases, the questions were asked in a non-directional or non-judgemental way. I also assessed whether women presenting cutaneous effects had attempted to receive medical treatment and whether they knew of other women affected by the same dermatological issues. The interview guide also included close-ended demographic questions to collect data on age, profession, location, marital status, and the number of dependants. Interviews took place over the phone and included audio recordings. The full interview guide was included in Appendix C and thoroughly describes the questions asked during the interviews.

Data analysis

The audio portion of the interviews was transcribed for further analysis. The demographic data and transcripts were entered into NVivo 12 for coding. Identifiers were removed from the data with pseudonyms assigned to each participant. The data was secured with encryptions and passwords during the collection and analysis process and will remain so throughout the indefinite retention period. The data were assessable only by my supervisor and myself.

The initial coding scheme followed from the framework in Figure 3 and the a priori and emergent themes from the literature review. Additionally, an examination of the interview guide helped derive a few broad themes. The themes shortly summarized the questionnaire and were thus very close to the interview guide. They are as follows:

- Motivations behind the practice of skin-lightening or lack thereof
- Length of skin-lightening practice
- Product changes and motivations
- Reasons for stopping the practice

¹ The most widely spoken national language of Senegal

- Influence of spouse²
- Skin-lightening trends noticed by participants
- Unanticipated dermatological effects
- Medical interventions related to product usage effects
- Personal knowledge of women affected by dermatological issues related to the practice of skin-lightening

The initial coding was descriptive and offered direct responses to the questions. It was thus very close to the data and had to be organized. I did so by developing clusters of codes into larger categories that helped me unpack the layers of this phenomenon. To do so, three transcripts were selected at random. I proceeded to carefully read the transcripts, simultaneously listening to the audio recordings to ensure the transcripts were accurate and make changes when appropriate.

Over this process, I color-coded passages of the transcripts to highlight the different themes that were emerging. All these themes could be linked to the a priori ones and none emerged that were not initially anticipated. A codebook was then developed by grouping similar themes together and re-organizing them under broader categories. The codes at this stage were the following:

- Motivations (to practice skin-lightening or not, to stop or not)
- Trends
- Medical effects
- Medical treatments
- Knowledge
- Influence of men
- Non-medical effects
- Usage

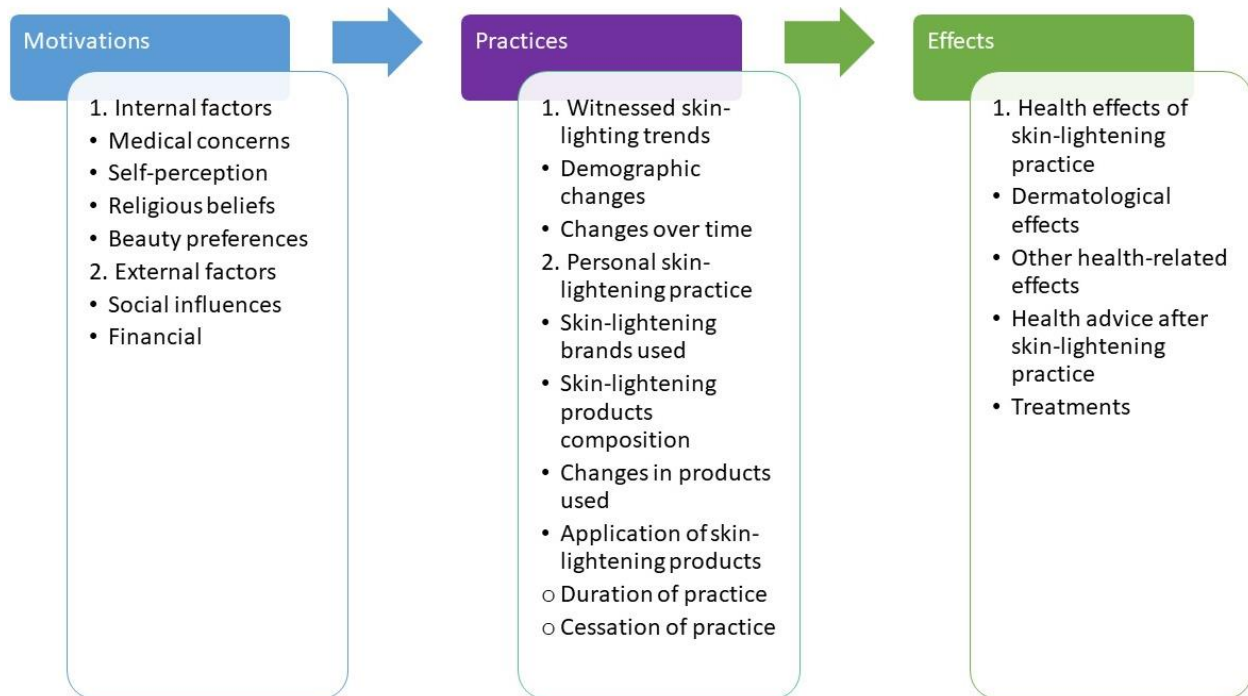
The codes were described in words and short phrases deriving from the transcripts.

A further three transcripts were then read, while their matching audio recording played. At this stage, I was interested in finding new words and phrases that could be applied to the existing codes. As no new themes emerged upon these last reads, I proceeded in improving the description of the different codes and in condensing them further. The codes were first listed by order of appearance in the first three transcripts I read. Then, I ordered all codes addressing motivations by teasing apart internal and external motivation factors. Skin-lightening practices constituted a second layer of codes. Finally, all codes addressing the effects of skin-lightening practice were clustered together, creating a third layer of codes.

² At this point, the themes were only based on the questionnaire, and I only anticipated responses about the influence of spouses.

The final version of the coding scheme is presented in Figure 4. Excerpts of the quotes included in the findings chapter were translated into English from French or Wolof as required.

Figure 4: Interview Themes



Positionality

My interest in this topic stems from my lived experience in a context where the practice of skin-lightening is normalized, but scarcely the topic of discussion or research. Having grown up in Senegal situates me as an interested researcher able to understand the cultural framework upon which skin-lightening trends have evolved in the country. The qualitative approach of this thesis made me, as the researcher, the main instrument. I understand that it is impossible for me to fully separate myself from the research. My lived experience, race, gender, and nationality had an impact on the responses I received from the participants. On one hand, women were probably more willing to engage in an open and transparent dialogue with a fellow Senegalese woman, which was essential in gaining a better understanding of the often-hidden practice of skin-lightening. At the same time, I had to maintain reflexivity throughout the process by continuously self-monitoring the impact of my biases and beliefs on the research and focusing on sensitivity (Berger, 2015). As such, I endeavored to not impose my personal views and values on the participants or their responses. Working with my thesis supervisor and committee helped in implementing a systematic approach throughout the thesis writing process ensuring the trustworthiness of the findings.

Chapter 3: Scoping Review Findings

The scoping review undertaken consists of 24 peer-reviewed articles in English and French. Table 1 displays the data from these 24 articles about the objectives, participants, products, location, health, and other outcomes.

The studies included in the scoping review were concerned with a variety of topics. Most were interested in either understanding the motivations surrounding skin-lightening practice (or not) or understanding the health effects of the practice. While some articles only focused on dermatological effects, others included various general health effects with a few articles specifically targeting the link between skin-lightening and pregnancy, cancer, vascular function, ocular lesions, the adrenal glands, and capillary glucose and ketone levels. Other topics included the economic impact of the practice and the psychosocial aspects of skin-lightening.

In terms of the range of methodologies represented, there were four systematic reviews and four qualitative studies included. Three articles were case reports, and three more were randomized controlled trials. There were also two of the following: case-control studies, cross-sectional studies, and prospective studies. There was also one descriptive multicenter study, one prospective descriptive study, one cross-sectional, quantitative, and descriptive study, and one case series.

In terms of location, 17 out of the 24 studies were focused on Senegal, one of which was a collaborative French and Senegalese study. Two additional studies were French-based. One collaborative study between the United States and Canada was included and finally Malaysia, Tanzania, Togo, and Cameroon, all accounted for one study each. The four studies not based in Senegal were all systemic studies that discussed skin-lightening trends in various sub-Saharan African countries, and three of them specifically mentioned Senegal. As such, they were deemed relevant for this scoping review.

Apart from the systematic studies, all other 20 studies relied on participants, most of which were patients of various hospitals, dermatology clinics, maternity units, diabetic centers, emergency and outpatient departments, and ophthalmology services. A few studies randomly selected female participants in Tanzania, Togo, and Senegal while one study only focused on Cameroonian university students. Most of the studies only focused on female participants, although three studies included both male and female participants. The age range of participants varied depending on the study, but on average they were often in their thirties.

Table 1: Summary of the studies reviewed

	Problem/Objectives	Participants	Intervention (Product)	Context (Location)	Outcomes
Bouché et al., 2015	Reporting false detection of high capillary glucose and ketone levels	2 women aged 37 and 42	Hydroquinone-based creams	France (participants were African women)	Careful handwashing can prevent misleading results
del Giudice & Yves, 2002	Evaluate the extent of skin-lightening trends	685 women aged 20 to 45	Mostly hydroquinone and corticosteroid-based products	Senegal	Reporting health effects of skin-lightening
Diongue et al., 2013	Evaluate the economic impact of skin-lightening products on household income in Senegal	65 women on average in their thirties	Mostly hydroquinone and corticosteroid-based products	Senegal	Indirect costs (transportation to clinic, examination, treatments) are more expensive than direct costs (purchase of product)
Kouotou et al., 2017	Assessing the knowledge, attitudes, practices, and motivations of female university students vis-a-vis skin whitening	620 women aged 16 to 46		Cameroon	Women who practice skin-lightening do not consider it a good trend. Knowledge of Black skin, the role of the dermatologist, and the health effects are barely known.
Kpanake et al., 2010	Examine the basic motives underlying the practice of skin bleaching among Togolese people	219 women and 81 men aged 15 to 50		Togo	Motives are to appear important, to look attractive, because they enjoyed their light-colored skin, and because skin bleaching was fashionable.
Ladizinski et al., 2011	Evaluate the medical and psychosocial aspects of skin-lightening practice	154 articles	Mostly corticosteroid-based products	The United States/ Canada (included studies based in Senegal)	Various dermatological and general health outcomes
Lewis et al., 2011	Investigating motivations for women's skin bleaching in Tanzania	355 women mostly in their mid-twenties	Creams	Tanzania	Treat dermatological issues, have soft skin, remove adverse effects of skin bleaching, satisfy/impress/attract, and be White and European-looking
Ly et al., 2007	Study the aesthetic problems associated with the cosmetic use of bleaching products	86 women aged 15 - 50	Mostly hydroquinone and corticosteroid-based products	Senegal	Hyperpigmentation, striae atrophicae, skin atrophy, cutaneous mycosis, acne, profuse scabies, erysipelas, decrease in quality of life, and stigma

Ly et al., 2010	Report two cases of squamous cell carcinoma (SCC) in two Black women (phenotype VI) using bleaching compounds for cosmetic purposes	2 women aged 45 and 47		Senegal	Squamous cell carcinoma
Ly et al., 2012	Analyze the motivations, arguments, and explanations of Senegalese women who refused to engage in the act of skin bleaching	50 women		Senegal	Black skin as an identity medium, the link between Black skin and beauty, the ambivalence of self-esteem and Black skin in Senegal
Ly et al., 2017	Determine the impact of hydroquinone-based body milks to measure capillary glycemia in diabetic women of Senegal	52 women	Hydroquinone-based creams	Senegal	Handwashing before measuring capillary glycemia ensures accurate results in diabetic women who use hydroquinone-based products
Ly et al., 2018	Describe the epidemiological, clinical, and pathological aspects of the carcinomas observed during skin lightening	8 women aged 37 to 63	Hydroquinone and corticosteroid-based products	Senegal	Cutaneous squamous cell carcinoma
Mahé et al., 2003	Increase the knowledge about the dermatological consequences of skin-lightening in Dakar	599 women aged 16 to 70	Niuma Extra Cream, Skin Light cream, Akagni cream, Sivocclair cream and milk, Top-tone cream, Dermovate, and Peau Claire cream. Products are mostly hydroquinone or corticosteroid-based.	Senegal	Dermatological effects can usually be reversed by stopping the practice and appropriately treating the dermatological lesion
Mahé et al., 2005	Conduct a systemic review of the non-dermatological risks of skin-lightening	13 articles	Soaps, creams, and milks are usually composed of hydroquinone, corticosteroids, and rarely mercury	Senegal/ France	Risk for hypertension and diabetes, especially with longer usage
Mahé et al., 2007	Evaluate the frequency of skin-lightening practice during pregnancy, as well as its eventual consequences on pregnancy	99 pregnant women	Often Hydroquinone and corticosteroid-based, rarely composed of caustic agents	Senegal	Increased frequency of low placenta, low plasma cortisol levels, and birth weights for women using highly potent steroids
Mahé, 2014	Review of the literature on complications of cosmetic skin-bleaching	75 articles	Milks, creams, gel creams, and soaps. Products usually composed of hydroquinone	France (included studies based in Senegal)	Various dermatological complications. Glomerulonephritis and neurological complications, mercury intoxication of babies, induced hypercorticism, adrenal insufficiency, risk of

			and corticosteroids, rarely of mercury and caustic agents		hypertension and diabetes, altered blood glucose, and ketone fast measurements of diabetic patients.
Mbengue et al., 2017	Evaluate the vascular function in depigmented Senegalese women	72 women mostly in their thirties	Half of the products studied contained corticosteroids. Other products contained hydroquinone or a combination of hydroquinone and corticosteroids	Senegal	Various dermatological outcomes. High arterial pressure, increase in triglycerides, hyperglycemia, hypertension, and dyslipidemia. The last three listed effects can be exacerbated in diabetic women or those who suffer from high blood pressure.
Ndiaye et al., 1996	Conduct a preliminary study on the association tinea faciei and the usage of corticosteroids-based skin-lightening products	20 women aged 19 to 50	Products studies contained corticosteroids and hydroquinone	Senegal	Tinea faciei
Ndiaye et al., 1999	Present 30 cases of crusted Norwegian scabies over 4.5 years	17 men and 13 women	Corticosteroid-based products were used by some of the women included in the study	Senegal	Contagious Norwegian scabies
Ndoye Roth et al., 2015	Evaluate the type and frequency of the ocular lesions found in patients practicing artificial depigmentation	108 women aged 20 - 63	The products studied contained hydroquinone and corticosteroids	Senegal	Glaucoma, cataracts, exogenous ochronosis of the lid, conjunctival ochronosis, and other ocular lesions.
Niang et al., 2007	Determine the epidemiologic and semiological characteristics of DPN, and the aesthetic results of DPN exeresis	21 women and 9 men aged 25 - 70	8 women used products containing corticosteroids	Senegal	Sessile papules, pediculate lesions, and confluent lesions. The aesthetic effects of these lesions caused psychological problems and inhibited social relationships.
Perret et al., 2001	Assess transcutaneous absorption of glucocorticoids	24 women aged 31 to 59		Senegal	Partial inertia of the HPA axis
Reynaud et al., 2001	Clarify prevalence data on the use of depigmenting agents in a female population in Senegal and report the incidence and main features of adverse skin reactions in addition to possible associations with diabetes, hypertension, and renal insufficiency	147 women aged 15 to 60		Senegal	Dermatological outcomes, diabetes, and hyperpigmentation were noted. No difference was noticed regarding renal insufficiency between skin-lightening users and non-users.
Wahil et al., 2019	Determine user awareness of health effects from skin whitening applications	31 articles		Malaysia (included studies based	N/A

				in various sub-Saharan countries but not Senegal)	
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Motivations

Motivations regarding the practice of skin-lightening were mentioned in nine articles. Five discussed both personal and structural factors, while the remaining four only mentioned personal factors. Personal factors were further categorized as internal or external. Internal personal factors dealt with beauty, identity, and medical reasons. External personal factors included social influences, financial costs, and religion.

Personal factors

Internal

Most articles mentioning internal personal factors dealt with notions of beauty. In a study conducted by Kouotou et al. (2017), female Cameroonian university students declared being motivated to practice skin-lightening by a desire for a uniform skin tone for the whole body (39.1% of participants), a desire for soft skin (29% of participants), a desire for a uniform skin tone for the face (23.2% of participants), and a desire to change the skin color (1% of participants). These results were echoed by both Wahil et al. (2019) and Lewis et al. (2011). In the latter's Tanzania-based research, a few of the skin-lightening users they interviewed also mentioned using skin-lightening products to "have soft skin" (Lewis et al., 2011, p.33). In a Senegalese study composed of 68 skin-lightening pregnant users, "twenty-nine users declared they wanted to have clear skin at baptism³, most indicating they wanted to 'look beautiful' on that day" (Mahé et al, 2007, p. 185). Although beauty encourages some women to pursue the practice, it can also be a dissuading factor for others. For those who do not practice skin-lightening, there is an aspiration for a different version of beauty, one described as natural and healthy, and exemplified by undamaged skin (Ly et al., 2012). Beauty and Black skin are intrinsically linked in an ambivalent way for some women who desire to preserve their darker skin tones but also admitted admiring the effects of a good and clean skin-lightening practice (Ly et al., 2012). Opposition to skin-lightening is therefore not always linked to a preference for darker skin, but rather for undamaged, clear, and healthy skin.

In their study, Ly et al. (2012) further explain that notions that define one's identity can be deterrent motivations to the practice of skin-lightening. Particularly prevalent in testimonials was the notion of Blackness as encompassing one's identity, understanding of the world, culture, and history. Women who did not practice skin-lightening explained that Black skin represented a symbol and proudly displaying it reflected self-esteem. They viewed those who use skin-lightening products as women with frail personalities. They attributed their ability to resist the temptation of skin-lightening to their high self-esteem, strong personalities, maturity, and upbringing. Many of those qualities were rooted in a glorification of Black skin. Interestingly, Black skin itself created certain uncertainties for the same women.

³ A ceremony that usually takes place a week after birth amongst Muslim Senegalese, and which celebrates both mother and child

While they supported Blackness as a core concept tied to their identity, they also found it difficult to evolve in a society that mostly promotes fair skin.

Medical reasons constituted another personal factor influencing the practice of skin-lightening. Ladizinski et al. (2011) found that many women attempt to treat existing dermatological issues through skin-lightening. In Senegal, the main issue treated this way is hyperpigmentation as noted by Mahé (2014). Lewis et al. further elaborated with their interviews conducted in Tanzania where the following reasons were mentioned by women who practice skin-lightening: "...remove pimples, rashes, and skin disease (17% of the sample), ...remove the adverse effects of extended skin bleaching on the body (e.g., uneven skin tone and dark patches) (2%)" (2011, p.33). This often-well-meaning practice can be dangerous as skin-lightening products are often self-medicated (Diongue et al., 2013) and thus unregulated.

External

The main external personal factor regarded social influences, particularly peer pressure and the desire to please and impress. Mahé (2014) and Kpanake et al. (2010) identified peer pressure as motivating Senegalese women to practice skin-lightening. Similarly, Lewis et al. (2011) noted that 22% of their sample declared starting the practice to both satisfy and impress peers. Diongue et al. (2013), confirmed these findings with 17% of their participants admitting to being socially influenced to practice skin-lightening. "...Information from friends, relatives, and peers, influence from family members" (Wahil et al., 2019, p. 29) thus greatly impacts engagement with skin-lightening practice. Similarly, the practice is used as a means of seduction (Kouotou et al, 2017; Kpanake et al. 2010). Tanzanian women associated the practice with helping satisfy their partner and/or attracting men (Lewis et al., 2011), a finding confirmed by Kpanake et al. (2010) and Diongue et al., who found that in Senegal, 35% of their participants used skin-lightening to seduce and 2% because of spousal influence (2013). Wahil et al. also discussed skin-lightening users' "...needs for social recognition in terms of physical attractiveness" (2019, p.29).

This need and desire to ascend in society, please, impress and seduce is enabled by another personal factor, financial cost. As highlighted by Mahé et al. (2005) and Wahil et al. (2019), skin-lightening products are often reasonably priced, specifically in Africa where they can be found in many lower-end markets. Mahé et al. (2003) noted that on average, Senegalese women spent 5 Euros per month on skin-lightening products, which is compared to a monthly minimum wage of 70 Euros. Ly et al. (2007) confirmed this finding by determining the monthly spending of 6.22 Euros.

Finally, religion was briefly noted by Ly et al. (2012) as a deterrent to skin lightening as it is seen as an alteration of divine creation by women who are opposed to the practice.

Structural factors: colonial legacies and western influences

The most noted structural factor motivating the use of skin lighteners (or not) was also the most difficult one to tease apart. It deals with the media and its impact on fashion trends, cultural perceptions of

beauty, and social hierarchies, all of which are situated within a post-colonial structure where western influences persist. Kouotou et al., (2017) mentioned how the media and advertising glorify fairer and lighter skin, which Wahil et al. further elaborated on, establishing that "... the use of fair-skinned models to market skin whitening products to dark-skinned consumers..." (2019, p. 29) impacts cultural notions of beauty and societal elevations of lighter skin. These media and advertising campaigns have resulted in lighter skin tones being understood as fashion statements (Diongue et al., 2013; Kpanake et al., 2010). This finding was confirmed by another Senegal-based study by Mahé (2014), who positioned that aggressive portrayal of lighter skin on ads positioned the skin tone as a symbol of higher social status so much so that skin-lightening practice is sometimes used to denote one's position at important events such as baptisms and weddings. Kpanake et al. (2010) similarly identified that skin-lightening is used to achieve social domination. Lewis et al. encapsulated this phenomenon by establishing that "western media has played an active role in reinforcing the perception that lighter skin is more beautiful and powerful in Africa..." (2011, p.35).

In the authors' Tanzanian study, a desire to be "to be White, beautiful, and more European looking" (Lewis et al., 2011, p.33) was thus mentioned by 38% of their sample as a reason to practice skin-lightening. This finding demonstrates the impact of racial hierarchization and a form of psychological colonialism, the latter of which is explained as "... a social psychology and an African consciousness of submission and imitation" (Lewis et al., 2011, p.30). Together, these concepts constitute the second structural factor highlighted in this review. Lewis et al. position that race was less relevant in the pre-colonial African landscape and that psychological colonialism brought the construct of race to Africa and its native population. The authors note that equating lighter skin with superiority can be argued as a concept that preceded colonialism in Africa but they position that the notion was exacerbated by the colonial state. Psychological colonialism of Africans thus led to a legacy of "...inferiority, poor identity, and low self-esteem..." (p. 30) in Africa, complexes which they associate with skin-lightening trends within the continent.

Practices

Skin-lightening practices were discussed in 23 out of the 24 articles included in this review. Practice-based data included the demographic characteristics of skin-lightening users, information on the products used, their composition, usage changes, and application of the products.

Demographic characteristics of skin-lightening users

In the studies reviewed, skin-lightening users were as young as 15 years old, as noted by Kpanake et al. (2010) in their Togo-based study, and Mahé et al. (2007) who focused on Senegal. On the other hand, Niang et al. (2007) who also based their research in Senegal, had the sample with the oldest skin-lightening users, aged 70 years old. On average, most skin-lightening users were in their thirties (Diongue et al., 2013; Mahé et al., 2003; Mbengue et al., 2017; Ndiaye et al., 1996; Reynaud et al., 2001), which is

not surprising considering that the population in sub-Saharan Africa is mostly young. Only two studies based in Senegal mentioned the age at onset of use, which was 20 years in the research of Raynaud et al. (2001) and 23 years according to Diongue et al. (2013).

Occupation was the next most noted demographic factor. In the study by Diongue et al. (2013), over half of the sample were merchants, although housewives, civil servants, and students were also mentioned. Maids and merchants composed the sample of Ndiaye et al. (1996), while Lewis et al. (2011) found that a variety of Tanzanian women practiced skin-lightening. Their occupations ranged from vendors and merchants to beauty professionals, finance workers, secretaries, entertainers, teachers and educators, and consultants. Some women were also unemployed. On the other hand, Ly et al. (2012) who were interested in better understanding the motivations for women opposed to skin-lightening interviewed fashion designers, model makers, doctors, pharmacists, artist composers, jurists, lawyers, painters, students, housewives, and members of associations. The difference between the occupations of skin-lightening users and non-users would suggest that those who practice skin-lightening are more likely to have lower incomes than women who do not practice it. This proposition would correlate with the findings of Ndiaye et al. (1996) who noted that their sample lived in the poorer neighborhoods of Dakar. Similarly, Diongue et al. (2013) confirmed that over 80% of the skin-lightening users they interviewed had a low income of less than 100 000 FCFA or USD 204.

In the study by Ladizinski et al. (2011), findings suggested that most skin-lightening users were illiterate, but this was not correlated in any of the other articles reviewed. Tanzanian women who practiced skin-lightening were almost all educated with nearly half of them finishing secondary school (Lewis et al., 2011). In Togo, Kpanake et al. (2010) found that 70% of their sample of skin-lightening users attended school, although only 38% of them had finished secondary school. Diongue et al. (2013) had similar numbers in Senegal where 74% of the women interviewed had some form of schooling with only 31% finishing secondary school. Additionally, del Guidice & Yves (2002) confirmed that in Dakar where their study was based, skin-lightening users often had French-speaking abilities which suggest at least some form of schooling. None of these studies included data on post-secondary schooling, and many of them found that although skin-lightening users were often educated, only a minority had finished secondary school. The lower levels of education reached could thus explain the data highlighted by Ladizinski et al. (2011).

Marital status and skin tone were also noted in respectively four and two of the studies reviewed. In their articles, del Guidice & Yves (2002) and Ladizinski et al. (2011) mention that most skin-lightening users are married women. However, the study by Lewis et al., (2011) found that single women were more likely to use skin-lightening products. Diongue et al. (2013) noted the same pattern although the numbers were less disparate in their study (57% single women and 43% married women). Finally, skin-lightening users were more likely to have darker skin tones (Ladizinski et al., 2011) or be from “ethnic groups with hyperpigmentation” (del Guidice & Yves, 2002, p.70).

Skin-lightening products and composition

Women who practice skin-lightening often use body creams as reported in various studies by Bouché et al. (2015), Lewis et al. (2011), Ly et al. (2017), Mahé et al. (2003), Mahé et al. (2005), and Mahé (2014). The following body creams used by skin-lightening users were mentioned in the Senegalese study conducted by Mahé et al.: “Niuma Extra Cream, Skin Light cream, Akagni cream, Sivoclair cream and milk, Top-tone cream, Dermovate, and Peau Claire cream” (2003, p. 148). The researchers also noted that these products were all acquired

“...in specialized non-medical shops, without any medical prescription. With the exception of certain steroid-based compounds having a pharmaceutical presentation (e.g., Dermovate), most brands had a purely cosmetic presentation with no or imprecise warnings about possible adverse effects and contraindications. According to the packaging, they had been manufactured in various regions of the world (Africa, Europe, North America, Middle East, etc.)”. (Mahé et al., 2003, p. 495)

Soaps seemed to be the second most used form of skin-lightening product after body creams (Mahé et al., 2005) (Mahé, 2014).

The products studied were mainly composed of either hydroquinone or corticosteroids, the latter being often labeled as highly potent (Mahé et al., 2007) or “class 1” (Mahé et al., 2003, p.148). Hydroquinone was found in concentrations exceeding 5% (Mahé et al., 2007; Mahé, 2014) even in cases where the product’s label claimed to only contain 2% hydroquinone (Mahé et al., 2003). The compound is banned in the European Union due to its mutagenic potential and photosensitizing effect (Mahé et al., 2005). Despite this knowledge, hydroquinone-based skin-lightening products barely ever contain sunscreen. Del Guidice & Yves (2002) found no sunscreen in any of the products they analyzed in Dakar, Senegal. Although hydroquinone and corticosteroids were sometimes the sole active ingredients in the skin-lightening products studied, they could also be found combined in one product (Diongue et al., 2013; Ly et al, 2007; Ly et al., 2017; Mahé et al., 2003; Mbengue et al., 2017; Ndiaye et al., 1999; Ndoye Roth et al., 2015).

Other components were also found in the products, albeit in smaller traces. They were carotene (Mahé et al., 2003), hypochloride sodium (del Guidice & Yves, 2002), vegetable extracts (Ly et al., 2007; Mahé et al., 2003), detergents (del Guidice & Yves, 2002), caustic products (Ly et al., 2007; Mahé et al., 2003; Mahé et al., 2007) such as lemon juice and salicylic preparations which help lighten the hands and feet (Mahé, 2014), and mercury (del Guidice & Yves, 2002; Mahé et al., 2003; Mahé et al., 2005; Mahé, 2014). Mercury was noted to be a very rare component found, a discovery that Mahé et al. (2005) attributed to the renal complications due to mercury usage widely known within the community. Finally, unidentifiable ingredients were analyzed to no avail in various studies in Senegal (del Guidice & Yves, 2002; Ly et al., 2007; Diongue et al., 2013; Mahé et al., 2007).

Duration, frequency, application, and changes in usage

The duration of skin-lightening practice varied greatly depending on the study, but the widest range noted in Senegal was from one month (Mahé et al., 2003) to 37 years (Ly et al., 2017). At the time of the studies, most women interviewed had been practicing skin-lightening for about ten years (Diongue et al., 2013; Mbengue et al.; 2017; Ndoye Roth et al., 2015; Raynaud et al., 2001). Mahé (2014) mentions that stopping the practice results in rapid reversibility of the lightening effect on the skin, which can explain why once started, the practice is done over a lengthy period. Only three studies conducted by Mahé et al. (2003), Raynaud et al. (2001), and Mahé et al. (2007), included participants who declared having stopped the practice in the past.

The application of skin-lightening products was further described in terms of frequency and area of application. Skin-lightening products were applied anywhere between every other day (Raynaud et al., 2001) to over two times a day (del Guidice & Yves, 2002; Raynaud et al., 2001). Most often, products were however applied once or twice daily (Mahé et al., 2003; Mahé et al., 2007; Mahé, 2014; Raynaud et al., 2001). Application of skin-lightening products was additionally almost always done on the whole body (del Guidice & Yves, 2002; Mahé et al., 2003; Mahé et al., 2007; Mahé, 2014; Raynaud et al., 2001) with one to four tubes of products being used every month (Mahé et al., 2003). However, Mahé et al. (2007) discovered that some women did not apply the products to their abdomen during pregnancy. Their research showed that most pregnant women did decrease the frequency and area of application of skin-lightening products

“...probably because of the known risk in the lay community of poor healing of the skin after eventual cesarean section in those using certain compounds (i.e., steroids).” (Mahé et al., 2007, p. 185)

Health effects of skin-lightening practice

All 24 articles mentioned the effects or outcomes of skin-lightening. Health effects were noted in terms of prognosis and treatments, the latter including frequency, suitability, and cost. Most effects studied were dermatological although general health effects were also mentioned with brief comments on the mental health effects of skin-lightening.

Dermatological effects

Dermatological complications of skin-lightening were widely mentioned in the studies and seemed to be the most researched effect, perhaps because of their visibility. Mahé (2014) mentioned that half of the women who consulted a dermatologist in Dakar did so for skin-lightening complications. In del Guidice & Yves' (2005) research, 62.5% of the participants experienced at least one dermatological effect. Longer usage of skin-lightening products correlated with more dermatological effects. Many of the effects they

highlighted were confirmed by other studies. Contact dermatitis, which they linked to hydroquinone usage, was also noted by Knapake et al. (2010). The allergic or irritant reaction usually manifests as an itchy rash. Other variations of rashes included intertrigo (Raynaud et al., 2001), which shows up between the folds of skin where the skin rubs together, and the less commonly found facial pseudo-lupus eruptions⁴ (Mahé, 2014).

Skin atrophy⁵, associated with corticosteroid usage (Ly et al., 2018), was similarly mentioned by Knapake et al. (2010) and in both studies by Ly et al. (2007) and Raynaud et al. (2001). Mahé (2014) noted that the condition could complicate the healing of surgical wounds by thinning the skin (Lewis et al., 2011) and reducing its elasticity (Knapake et al., 2010). This condition can lead to serious complications and can be fatal during child delivery as the natural healthy skin is destroyed (Ly et al., 2012).

Del Guidice & Yves (2001) also mentioned stretch marks which were confirmed by three other studies (Mahé, 2014; Mbengue et al.; 2017; Raynaud et al. 2001). Similarly, ochronosis⁶ was studied by del Guidice & Yves (2001), Mbengue et al. (2017), and Raynaud et al. (2001) although the latter study only noticed ochronosis in patients who practiced skin-lightening for over ten years. In addition, Del Guidice & Yves (2002) listed leukomelanoderma⁷, hypertrichosis, and facial acne, the latter of which was also noted by Raynaud et al. (2001), where 30% of their participants experienced acne, compared to less than 5% of African women (del Guidice & Yves, 2002). The apparition of acne on the skin was linked to glucocorticoid usage by Mahé et al. (2003), Mahé (2014), and Ly et al. (2007). In the former study, acne was found to be seriously inflammatory in 29% of cases (Mahé et al. 2003). The authors similarly linked infectious skin diseases, which were also mentioned by Raynaud et al. (2001) and Mahé (2014), to corticoids. The chemicals seemed to increase the risk of developing scabies⁸ as well (Ly et al., 2007; Mahé et al., 2003; Mahé, 2014; Raynaud et al., 2001), especially Norwegian scabies⁹ which is extremely contagious (Ndiaye et al., 1999).

Hyperpigmentation of the joints (Ly et al., 2007), and the area around the eyes were mentioned as an effect of stopping the usage of skin-lightening products (Raynaud et al., 2001), especially those composed of hydroquinone (Mahé, 2014). Eczema, an inflammatory skin condition noted by Mahé et al. (2003) and Ndiaye et al. (1999) was also consequential in stopping the practice (Raynaud et al., 2001). Also inflammatory, eyelid dermatitis (Raynaud et al., 2001) was noted to target the thin sensitive area around the eyes.

⁴ Lupus is a butterfly-shaped rash across the cheeks and bridge of the nose

⁵ Decreased thickness of the dermis

⁶ Discoloration of the skin and cartilage

⁷ Pigmentation disorder that can lead to both hypopigmentation and hyperpigmentation

⁸ Infestation of the skin by the human itch mite

⁹ A severe form of scabies

Other skin issues mentioned included mycoses¹⁰, (Ly et al., 2007; Mahé, 2014), telangiectasia¹¹, (Raynaud et al., 2001), and various skin lesions (Raynaud et al., 2001) which mostly started in the face and neck before extending to photo-exposed areas (Niang et al., 2007). Additionally, dermatological issues could also be observed in babies whose mothers use mercury-based products (Kpanake et al., 2010),

Finally, Ly et al. (2018) extensively researched cutaneous squamous cell carcinomas¹², a condition rarely seen in Black skin tones. In their study, carcinomas were always located in photo-exposed areas where skin lesions were already appearing. They attributed this finding to the destruction of melanin caused by skin-lightening products. The consequential reduced sun protection, combined with the carcinogenicity of hydroquinone, would enable the development of carcinomas on the skin. Carcinomas would thus be directly related to sun exposure and UV radiation (Ly et al., 2010). Other factors of carcinomas could be immunosuppression and skin aging induced by UV rays and corticosteroid usage.

Other health effects

Although discussed less often, 19 of the 24 studies researched or mentioned other health effects of the practice of skin-lightening. Such effects included false blood tests readings, complications of various organs, growth suppression in children, viral infections, hypertension, dangerous glucose, and cholesterol levels, affected adrenal glands, diabetes, affected eye health, negative pregnancy outcomes, high blood pressure, affected cortisol levels, adrenal insufficiency, high triglycerides, and mental health issues.

The studies by Bouché et al. (2015) and Mahé (2014) discovered that hydroquinone usage can lead to false readings of capillary blood results, a problem fixed by careful hand washing before the blood test. In diabetic women, lower blood glucose levels were noted after hand washing (Ly et al., 2017). Other conditions mentioned were not so easily remedied. For example, Kpanake et al. (2010) noted that corticosteroids and mercury both correlated to kidney issues such as renal dysfunction (Mahé et al., 2007), but not renal insufficiency (Raynaud et al., 2001). Kidney problems, in general, were mentioned by three other studies conducted by del Guidice & Yves (2002), Mahé et al. (2003), and Mahé (2014). Kpanake et al. (2010) also linked mercury usage to both psychiatric and neurological disorders, the latter of which was confirmed by Mahé et al. (2007), and Mahé (2014).

Corticosteroids' usage correlated with adrenal insufficiency (Mahé et al., 2007; Mahé, 2014), endocrinologic problems, growth suppression in children (Kpanake et al., 2010), and HPV infections (Ly et al., 2018). Another less mentioned form of infection was cellulitis which Ly et al. (2018) did not specifically correlate to specific chemical usage. Chronic glucocorticoid excess was also associated with hypertension, chronic hyperglycemia, and dyslipidemia; all effects which can be exacerbated in diabetic

¹⁰ Fungal infections of the skin

¹¹ Condition in which widened blood vessels cause threadlike lines or patterns on the skin

¹² A common form of skin cancer

women or those suffering from high blood pressure (Mbengue et al., 2017). Perret et al. (2001) also suggested that partial inertia of the HPA axis which links the brain and the adrenal glands could be induced by high absorption of corticosteroids. The frequency of skin-lightening products' applications, the surface area of the skin treated, and pre-existing cutaneous lesions also play a role in this condition which can in turn present a risk for metabolic complications.

Additionally, hypertension and diabetes were both heavily mentioned by Mahé et al. (2007), Mahé (2014), and Raynaud et al. (2001). Mahé et al. (2005) found that after ten years of skin-lightening practice, women were at high risk of developing these systemic complications. Ophthalmological issues were similarly linked to long-term skin-lightening practice. In the Senegalese study by Ndoye Roth et al. (2015), 50% of the participants developed ocular lesions after 20 to 30 years of skin-lightening practice. After 30 years of practice, all patients developed lesions. Kpanake et al. (2010) associated such problems with glucocorticoid usage, and Ndoye Roth et al. (2015) confirmed that when used in combination with hydroquinone, glucocorticoids increased the risk of developing glaucoma. Hydroquinone alone was linked to cataracts and conjunctival ochronosis.

Mahé et al. (2005) studied skin-lightening practices among pregnant women and established that they could lead to risky pregnancies. In a later study, Mahé et al. (2007) further contributed to this knowledge and noted that significant differences could be found between non-users of skin-lightening products and women using products containing highly potent steroids. The latter were more likely to have low-lying placentas, low plasma cortisol levels, and low birth weights. Additionally, the usage of mercury-based products could cause intoxication in babies (Mahé, 2014).

Other less mentioned effects included high blood pressure, cortisol-related effects such as Cushing syndrome (Mahé et al., 2007; Mahé, 2014; Ly et al., 2018), adrenal insufficiency (Ly et al., 2018), and high triglycerides (Mbengue et al., 2017). Finally, Niang et al. (2007) mentioned the mental health effects of skin-lightening, positioning that skin lesions resulting from the practice, caused anxiety for 60% of their study's sample. Women were said to develop a fear of having cancer and had professional concerns. The practice inhibited the social relationships of a few women. Additionally, it resulted in a decrease in the quality of life of some users because of the stigmatizing nature of the practice (Ly et al., 2007).

Treatments: frequency, suitability, and costs

Although many health effects were mentioned in the articles, treatments for those health effects were scarcely studied. Diongue et al. (2013) noted that often, treating skin-lightening effects is more costly than the initial purchase of the products. While the latter usually involves minimal financial burden, the cost of skin-lightening products combined with transportation to the clinic, and treatment of effects can amount to 19% of a family's income (Diongue et al., 2013). When it comes to scabies or mycoses, the cost can significantly increase as these conditions can be transmitted to the spouse or sometimes the entire family of the skin-lightening user affected. In those cases, every direct contact must be treated, which can be

difficult in African urban settings (Ndiaye et al., 1999). Norwegian scabies, for example, can be treated with Ivermectin and a topical treatment, but due to their extremely contagious nature, patients very often experience relapses (Ndiaye et al., 1999).

Other health effects are just as complicated to treat. Carcinomas, for example, are very rare, and rarely prompt women to seek out professional help. Once diagnosed, patients are asked to undergo a biopsy, but the prognosis is usually quite poor with a mortality rate of 25% (Ly et al., 2018).

Successfully treating skin-lightening effects is also often dependent on the patient's willingness to stop the practice, which is difficult for long-term users. Tinea faciei, a fungus infection of the face, can be successfully treated with local antifungal treatment, but the condition is likely to reappear if the patient does not completely stop using skin-lightening products (Ndiaye et al., 1999). Similarly, while hyperpigmentation resulting from skin-lightening is usually definitive, the skin can gradually improve if the practice is stopped (Mahé, 2014). In the study by Niang et al. (2017), dyschromia – a condition involving a change in the color of the skin or nails – was treated by performing excision biopsies, sometimes after applying a local anesthetic or numbing cream. 45 days after the procedures, women who did not use skin-lightening products had better outcomes than those who continued the usage.

Due to the popularity of skin-lightening and the difficulty in treating its effects, some authors have suggested further research on alternatives, and the importance of increasing the knowledge of clinicians on the practice. Ladizinski et al. (2011) proposed researching alternatives to the toxic chemicals found in most skin-lightening products and have highlighted that some natural extracts can help lighten the skin with less negative effects. They have also urged for increased skin-lightening knowledge in dermatology as melasma¹³ and hydroquinone-induced exogenous ochronosis are often confused. The researchers also encouraged dermatologists to be careful when prescribing products containing skin-lightening ingredients. On the other hand, Ly et al. (2017) voiced the importance of educating patients and recommended that clinicians better inform diabetic patients who use products with hydroquinone to help them make informed choices. Kouotou et al. (2017) similarly advocated for further education about skin-lightening as their findings suggested that many people who practice skin-lightening knew very little about Black skin tones, the role of the dermatologist, and the potential issues that the practice could lead to.

¹³ A form of hyperpigmentation that manifests in patches of skin discoloration

Conclusion

Several key findings across the motivations, practices, health, and other effects emerged from this knowledge synthesis. In brief, the personal factors that motivate skin-lightening practice are numerous and can be considered internal or external. Some factors like beauty can both motivate and dissuade women to practice skin-lightening. Personal beauty notions can be particularly dissuasive when they derive from an identity rooted in the concept of Blackness. Medical reasons were always highlighted as contributing to female engagement with skin-lightening, but on the contrary, religion is always perceived as a discouraging factor. External personal factors were social influences, financial cost, and religion. While the first two enable the practice of skin-lightening, religion was noted as discouraging the practice of skin-lightening.

Structural factors that emerged from the studies explain how the media and advertising drive engagement with skin-lightening. Additionally, the impact that Western media and advertising have in Africa can be traced back to the second structural factor which deals with Africa's legacy of racial hierarchization and psychological colonialism. Interestingly, both structural factors can be associated with the personal factors highlighted above as they impact perceptions of beauty and social influences. The concept of Blackness as an identity can also be seen as a response to these two structural factors of skin-lightening.

Demographic data on skin-lightening users as noted in the studies reviewed, demonstrated that skin-lightening is a practice taking place among a broad age group of women. The women who used skin-lightening products in the studies were aged 15 to 70 years old, although most of them were in their thirties. Most of the women were also working, although their occupations were not often ones that generated high income. These findings correlated with their lower socioeconomic backgrounds as highlighted by the studies. Skin-lightening users were also often educated but did not seem to have reached high levels of schooling. There was no conclusive evidence on whether single or married women were more likely to practice skin-lightening. Additionally, skin-lightening users often had darker skin tones or hyperpigmentation.

In terms of skin-lightening practices studied, these often involved the use of body creams, although soaps were also purchased to this effect. The products are most often composed of high percentages of hydroquinone or corticosteroids, but the ingredients can also be combined in one product. Other ingredients are also found in skin-lightening products, albeit in smaller quantities. Often, the product labels do not properly inform women on what their components are, which is concerning especially when it comes to hydroquinone which is banned in numerous countries and should not be used without sunscreen.

Women were rarely found to practice skin-lightening for less than a decade and usually applied their products once or twice daily on the whole body. Very few of them stop the practice, but their change in

usage is often related to pregnancy when most women decrease the frequency and area of application of their products. This reveals an implicit recognition of their health effects.

Finally, the effects and outcomes of the practice were largely studied with dermatological effects being the most mentioned. Other health effects were studied less often but seemed to be correlated to the duration of the practice as longer practice put women more at risk of experiencing health complications. Mental health effects were briefly discussed, and it was also shown that skin-lightening could impact women's professional lives, social relations, and quality of life due to its stigmatizing nature.

Treatments of skin-lightening effects were barely mentioned in the selected articles, with more focus put on the treatment of dermatological effects. They are usually more easily remedied than general health concerns, although treatments can be costly, and their efficacy is largely dependent on the patient stopping the practice entirely. Researchers have urged for more studies on natural alternatives to skin-lightening chemicals, increased education of clinicians on skin-lightening, and increased education of women undergoing the practice.

As we shall see, a number of these findings were corroborated in the experiential data gathered from the interviews with Senegalese women.

Chapter 4: Findings from Interviews

This phase of the research consisted in interviewing 13 Senegalese women about their skin-lightening practices. The participants were aged between 26 and 56 years old and were all employed. They worked in the cooking industry, the education sector, and in-house cleaning services. The participants had varied experiences regarding skin-lightening with seven of them never having used skin-lightening products. The remaining six participants had all used the products in the past. Half of them had definitively stopped the practice before the interviews whereas the other half still practiced skin-lightening although having intermittently halted the practice in the past. The duration of the practice of these six participants ranged between a week and 40 years.

Table 2 displays a few key characteristics of the participants

Table 2: Characteristics of the participants

Pseudonym	Age	Occupation	Skin-lightening practice
Adama	43	Teacher	Never practiced skin-lightening
Amina	35	House cleaner	Practiced skin-lightening for 6 years, stopped 14 years before the interview
Cathy	33	Teaching assistant	Unknowingly used a skin-lightening cream for about a week
Coumba	26	Teaching intern	Never practiced skin-lightening
Khadija	30	House cleaner	Never practiced skin-lightening
Madina		Foodservice cook	Never practiced skin-lightening
Marie	39	Foodservice cook	Never practiced skin-lightening
Mathy	56	Teacher	Has been practicing skin-lightening for about 40 years, has stopped practice intermittently in the past
Nafissa	32	House cleaner	Has been practicing skin-lightening for about a year, temporarily stopped once
Rama	37	Teaching assistant	Never practiced skin-lightening
Salma	49	Teacher	Never practiced skin-lightening
Sophie	55	Teacher	Practiced skin-lightening for 20 years, stopped two years before the interview
Thioro	46	Teacher	Has been practicing skin-lightening for almost 30 years, stopped 3 times in the past

The interviews highlighted three different themes relating to skin-lightening. The first one focuses on the motivations surrounding the decision to participate in skin-lightening practices or not. The second identified theme dealt with skin-lightening practices as identified in the community and as carried out by the participants. Finally, a third theme highlighted the effects of skin-lightening and how they were treated.

Motivations

Motivations can be divided into two types of factors: some were more internally motivated, and others were more externally motivated, though there was overlap.

Internal

Internal factors considered by women can be categorized into medical concerns, self-perception, religious belief, and beauty preferences, the latter of which was the most frequently mentioned. The first three factors all resulted from negative perceptions of skin-lightening, while the last highlighted both negative and positive views of the practice.

Whenever mentioned, medical concerns were a dissuading factor to women's engagement in skin-lightening. To understand this factor, participants were questioned about health-related issues thought or known to be caused or exacerbated by skin-lightening practice. Over half of the participants mentioned medical concerns as a deterrent to the practice of skin-lightening. Most of them never used skin-lightening products for fear of the health issues they could bring down the line. They often mentioned dermatological problems such as rashes and acne and only one of them noted fear of having skin cancer. One 26-year-old woman mentioned avoiding the practice partially because "...it is not good for your health. I have heard that it can cause diseases like cancer." [COUMBA]

Other women however highlighted medical concerns as the reason they stopped the practice of skin-lightening. Although they all also noted skin problems, their responses additionally included non-dermatological issues as exemplified by the testimony of one 55-year-old participant who stopped the practice of skin-lightening 20 years ago as she encountered fertility issues. She expressed:

"I would often hear people say that it could lead to skin cancer, but also gynecological issues. I once consulted a gynecologist whose first advice for me was to stop using the products. So, I needed to stop." [SOPHIE]

The next factor, self-perception, can be defined as how one perceives their qualities or flaws and how this in turn influences skin-lightening choices. This factor was only mentioned by three respondents, two of which never used skin-lightening products. They vocalized their opinion of women who practice skin-lightening, noting that they believe they were driven to the practice by a lack of self-esteem or ingrained complexes. Interestingly, a participant who stopped the use of skin-lightening products also mentioned

this factor by saying "...it feels like you're not satisfied with who you are, just as you were made."

[SOPHIE] She notes that coming to that realization was a catalyst for her to stop using the products.

Religious belief, although the least mentioned factor – only two of the 13 participants noted its influence – remains an interesting concept for this study as religion and particularly the teachings of Islam and Christianity hold importance for a sweeping majority of the Senegalese population. It was interesting to discover that participants' interpretation of their religion's teachings about body alteration was a dissuading factor to engage in skin-lightening. One 33-year-old participant who does not use skin-lightening products noted "...this is how God created me, I would rather keep my skin as it is." [CATHY]

The first three internal motivations all exclusively relate to *negative* perceptions of skin-lightening, but beauty preferences seem to both encourage or discourage female participation in skin-lightening. The different notions and perceptions of beauty to which women adhere to constitute the most mentioned factor with over 75% of participants commenting on their beauty preferences. Women who do not use skin-lightening products mention a preference for natural beauty and two participants specifically noted finding darker skin tones prettier. One 39-year-old however commented: "... I am already light-skinned, to begin with, so I don't really need it in the first place" [MARIE] suggesting that should she have had a darker skin tone, she would have been open to the practice.

Half of the non-users who mentioned beauty preferences linked them to skin damage after long-term use of skin-lightening products. They highlighted their interest in aging beautifully, which they did not deem concurrent with skin-lightening practice. One 26-year-old noted:

"Well, sometimes you'll see older women who used to practice skin-lightening, and now their skin is all damaged. I don't like that." [COUMBA]

Another participant, who stopped the practice, simply said: "...the more you use the products, the uglier you get." [SOPHIE] It would seem the feeling is shared with some women who are still practicing skin-lightening as a respondent who attempted multiple times to stop, mentioned her sister refusing to use skin-lightening products because "... she doesn't want to end up with my skin tone." [THIORO] The participant then described her skin tone as non-uniform and presenting both some light and dark spots as well as multiple scars. Interestingly, hiding existing scars and pimples to enhance beauty was mentioned by a different woman as to why she chose to use skin-lightening products.

Finally, one participant mentioned using skin-lightening as a fashion statement, only dabbling into the practice as a beauty treatment in preparation for an important event. She explained: "I wanted to lighten up a bit. You know. Women things. When you're getting married, you want that ... you wear your clothes, they look so nice with light skin." [AMINA] A different respondent added that friends and family members would often get into skin-lightening to prepare for a baptism or wedding but would then find it difficult to stop.

External

Finally, participants gave insight into how the people around them have influenced their skin-lightening decisions. Social influences were mentioned by over half of the respondents. Those who refuse to use skin-lightening products and have darker skin tones noted pressure from family and friends to lighten their skin, whereas another respondent admitted to never getting such pressure probably because she naturally has a lighter skin tone. Two women started the practice after other women in their lives encouraged them to do so. One was influenced by an older sister, but the second respondent noted purchasing a product her friend recommended without knowing that it was a skin-lightening product. She further explained that her well-meaning friend, a skin-lightening user herself, positioned it as a good product that would give her "...a nice brown skin tone". [CATHY] The participant stopped using the product as soon as she noticed it lightening her skin as that was never of interest to her.

Another woman who started practicing skin-lightening in her thirties admitted that she believed it would make her more valued by men, explaining that it was an erroneous thought as "... there are men who actually prefer women with natural skin tones." [SOPHIE] She also confirmed that her husband never encouraged her to use the products. Her response correlated with that of a woman who started lightening up her skin for her wedding, despite having not received encouragement from her husband-to-be. On the other hand, some participants have mentioned being influenced to stop the practice of skin-lightening. One woman recalls: "My parents really didn't like me using "Peau Claire", especially my dad, so I stopped." [MATHY] Another remembers receiving negative feedback from her family when she first started using skin-lightening products in her late teens, saying:

"...nobody encouraged me, everybody was against it be it, my father, my mother or sisters...I ended up putting the product in a different pot to hide it from my mom who would always throw it in the trash..." [MATHY]

Similarly, to beauty preferences, the last external factor analyzed either motivated or prevented the skin-lightening practice of the participants. Financial situations that can hinder or facilitate skin-lightening usage were measured. Only a few respondents mentioned the economical aspect of skin-lightening. Two of them admitted to purchasing products ranging from 2000 FCFA to 5000 FCFA (\$4.36 to \$10.90), which they claimed was not an expensive purchase. Another participant, who does not use skin-lightening products, questioned the economic sustainability of the practice, positioning that should financially hard times come around, the practice would no longer be feasible.

Practices

Skin-lightening practices constituted the second theme of the data collected from interviews. First, participants were questioned about skin-lightening trends they witnessed in their communities. Their

responses dealt with both demographic changes and changes over time. Then, they addressed their skin-lightening practices and offered a variety of perspectives on the matter.

Community practices

Demographic changes, or the relative age of most skin-lightening users, were mentioned by over half of the respondents. Most of them thought that currently, younger women practice skin-lightening more than older ones. One participant noted “Kids can’t do without it these days,” [CATHY] adding that she had seen girls as young as 13 practice skin-lightening. Another respondent confirmed this and mentioned that women and girls now start the practice at earlier ages than they did in the past. Only one participant’s views contradicted these observations. The latter instead positioned that there was a desire to maintain natural skin tones nowadays, especially amongst young women. Another participant believed that the practice could not be viewed in terms of age, as young and older women alike used skin-lightening products.

Just as most participants agreed that skin-lightening especially affects younger women nowadays, they also admitted that overall, the practice was declining. Changes over time included a surge or decline of skin-lightening trends as noticed by participants and once again, only one participant believed the practice was increasing in her community. All other participants affirmed that they noticed it less in their surroundings. One 35-year-old participant was more concerned about the changes in the products available in the market, saying that “...there is this rapid product they sell now. One week and you’re white as snow...” [AMINA] She confirmed that the product in question was a face cream and additionally mentioned the availability of skin-lightening injections and expressed her concern about this new product.

The input received about community practices was further enriched by the more detailed and personal accounts shared by participants who used skin-lightening products.

Personal practices

Products

Women who practiced skin-lightening were additionally interrogated on product changes, the duration of their skin-lightening practice, and formulation and/or brands of products used. All six women who had used or were still using skin-lightening products shared some information on their skin-lightening practices.

Half of the users of skin-lightening products shared the brands they used. For one 35-year-old, Neoprosone was the only brand she ever used. Although she was not sure of the products’ composition, she mentioned purchasing them as a set containing a soap and cream. She declared never changing her routine as it worked well and “...changing all the time is no good for your skin.” [AMINA] A second respondent is faithful to the brand Les Fleurs d’Orient which she purchases at her local pharmacy. The

brand manufactures three creams of varied strengths. The participant declared having used all three on her face and neck. One 46-year-old respondent used multiple products throughout her practice of skin-lightening. She mentions starting at age 18 with a brand called Peau Claire but switched to other brands as she became aware of the negative effects of hydroquinone. She commented:

“I am specifically trying to go for organic products right now... I am trying out products from Uniparco made here... Right now, I am using a collagen-based lotion.” [THIORO]

The participant also confirmed having used skin-lightening soaps in the past. Two more women mentioned having used lotions but did not confirm the brands. One of them changed lotions in an attempt to try out a different product.

Duration and cessation

Duration and cessation of the practice varied greatly amongst participants. One 35-year-old stopped 14 years ago after six years of using skin-lightening products while another 33-year-old only used a lightening agent for a week without knowledge of what it was. She subsequently stopped its use when she realized it lightened her skin. One 32-year-old participant is a recent user, only starting the practice last year. She declared stopping once when she was ill and did not have time to properly apply her products. A 55-year-old woman who stopped three years ago and never changed products practiced skin-lightening for about 17 years. The participants who used skin-lightening products the longest, 28 years and 40 years respectively, stopped the practice on multiple occasions. The first one recalls stopping three times, once to please her father. She says about her next two attempts:

“The first time was because of laziness. It was taking up too much time while I needed to work. The second time was because of rashes that started appearing on my skin due to the heavy mixing of products. I stopped completely for two years that time.” [THIORO]

She started practicing skin-lightening again believing that she was completely cured of the rashes. The second respondent stops her practice even more often, declaring:

“I have stopped numerous times. I generally don't use any products during the hot periods of the year. I don't use them during vacation and when I don't need to go anywhere. I'm not ashamed of going out. I don't care about it that much.” [MATHY]

She further explains that the products do not feel “...comfortable with the heat”, [MATHY] but that she goes back to the practice when she visibly looks darker.

Effects of skin-lightening practice

The third theme which emerged from the collected data regards the effects of skin-lightening. A great number of participants mentioned the dermatological effects of the practice, but a few also gave insights into other health effects of skin-lightening.

Health effects of skin-lightening practice

Dermatological effects

Almost every woman mentioned the dermatological effects of skin-lightening. Outside of the desired effect of lightening the skin, all unwanted skin changes that are attributed to the practice of skin-lightening were considered. Whether they experienced it or observed it in others who use skin-lightening products, the appearance of acne was mentioned by five different women. Similarly, skin-lightening users were often described as prone to having dark patches that resembled burnt skin after long-term usage. One participant who stopped the practice over a decade ago, but is still getting treated for some of its effects said:

“I would see these women at the hospital. I don’t know them personally, but they do have other problems. For some of them, the skin on their face is all burnt, all dark. They have *thiéré* [Wolof term used to describe a cluster of small pimples]. I can’t even look at them. I’ve seen them at the hospital, visiting the dermatologist.” [AMINA]

She added that she had also experienced darkening of her skin tone right after stopping the use of the products, but that this effect slowly reverted and that she now has the same skin tone as she did before she started the practice. Another participant, who used skin-lightening products for longer and still stops intermittently, confirmed that the skin darkens drastically once the application of the products ceases.

Other effects often mentioned included the appearance of rashes, the development of an uneven skin tone, allergic reactions, and the appearance of hyperpigmentation spots. One 35-year-old participant additionally admitted to her nails getting darker than they used to be, and to developing scabies years after stopping the practice. Another associated the appearance of stretch marks on her body with skin-lightening usage. Women also observed dark circles, scars, and mycoses on skin-lightening users. The following testimony given by one 46-year-old participant demonstrates the varied effects skin-lightening products can have on the skin:

“... I am suffering from melasma now...I can no longer use detergents such as OMO [a popular brand of cleaning products in Senegal]. I used to clean with Madar powder [detergent], but it started giving me pimples between the fingers and I couldn’t even pick things up for about two weeks. It was exhausting...On top of that, I am very sensitive to sun rays, and they burn my skin whenever I am exposed for too long.” [THIORO]

The participant attributed some of these effects to “heavy mixing of products” and finally added that hydroquinone specifically gave her “...itchy skin and small pimples ...It also left a burning sensation on some parts of my body.” [THIORO]

Not all affected women possessed this participant’s medical understanding and terminology, but her experience as described above exemplified many of the effects highlighted by the skin-lightening users questioned.

Other health-related effects

Although less talked about than the dermatological issues mentioned earlier, over half of the participants highlighted some other health-related effects of the practice. One that seems to be common knowledge within the community concerns the risk of having cancer, especially skin cancer. A 35-year-old participant confirmed that this was knowledge widely shared by the medical community in Senegal. Similarly, many women seemed to have heard that skin-lightening usage could make the skin more fragile. One woman who stopped the practice at the urge of her doctors explained:

“While I was pregnant, people at the hospital told me to stop skin-lightening. My skin was fragile, and they couldn’t get in needles. They told me I needed to stop or else they couldn’t do their job properly.” [AMINA]

This issue was mentioned by two other participants who specifically talked about caesareans and how difficult and dangerous they became when practiced on pregnant skin-lightening users due to the fragility of their skin. One of the participants expressed concern for the women and their children when undergoing the procedure.

One participant mentioned having heard that skin-lightening could increase the risk of having diabetes although she did not specifically know how it did. Another confirmed experiencing fertility issues due to her skin-lightening usage and finally, one non-user expressed her concerns regarding the lack of understanding of the systemic effects of skin-lightening practice on health within the community. She said:

“You have to wash your hands after using any of these products. Are women aware of that? They are going straight to the kitchen [after applying skin-lightening products], to cook. A cousin of mine has a cook who uses skin-lighteners. The cook washes the dishes as well, but does she clean her hands before touching utensils and ingredients? Infections can happen.” [SALMA]

There was also a range of mental health effects of skin-lightening usage mentioned only by those who used these products. Three women shared their experiences with regret, shame, and stress, all emotions they attributed to their practice of skin-lightening.

One 56-year-old participant who struggles with stopping the practice expressed regret that she ever started it to begin with. When asked why she feels regret, she explained:

“Because I now think I could have simply let the pimples be. They could have been juvenile ones, that disappear with time but wanting to get rid of them at that time ended up pushing me towards skin lightening. So yes, if I could go back and change how it went, I would avoid making the same mistake.” [MATHY]

Another woman expressed:

“At a certain age, I personally felt ashamed of using skin-lightening products. I have not regretted my choice [of stopping]. When you practice skin-lightening, you’re first always stressed. You’re always checking, buying. You’re always thinking. Is it working? Did my skin get lighter? Should I change products? Should I increase my usage? It’s stressful. It’s a lot of stress you can take off your shoulders by stopping the practice. I feel better now that I have stopped. I have fewer concerns.” [SOPHIE]

All the women who talked about these mental health effects happen to be mothers or mother figures to younger girls. Apparent in their interviews was a desire to prevent their girls from ever getting into the practice of skin-lightening. They championed women who preserved their natural skin tones, encouraged positive perceptions of darker skin, and talked about the necessity to protect younger generations from harmful skin-lightening products.

Health advice and treatments

Women offered insights into the professional help they sought out for the health effects of skin-lightening as well as how such effects are treated by clinicians. Three of the six skin-lightening users interviewed mentioned having seen a doctor at some point regarding a medical concern they had. One of the participants initially suffered from fertility issues and was made aware by her doctor that her usage of skin-lightening products could have exacerbated the problem she was facing. The other two women sought out medical counsel for dermatological issues they directly developed because of the practice. One of them mentioned being on year three of her treatment plan. She goes to her local hospital regularly for check-ups and indicates having to purchase creams targeting the skin issues she faces. She did not know what exactly the dermatological problems were called or what the creams were composed of, but she expressed her belief in the treatment as she had seen great results so far. The participant had stopped the usage of skin-lightening products before receiving medical treatment and attributes her stopping the practice to being instrumental in aiding her healing process. The other participant admitted to still using skin-lightening products all the while getting treated for dermatological issues. She consulted a dermatologist twice and indicated about her melasma: “I took multiple injections as treatment, but they ended up leaving me with black scars. I continued the treatment anyway.” [THIORO] She added that she

had also been to "...a beauty institute and spent a considerable amount of money to no avail." [THIORO]. The participant treats rashes as well and said:

"I have seen a dermatologist but without any result coming out of it. They did tell me that those weren't easy to treat and that I should be patient." [THIORO]

Another user who also experiences dermatological problems in the form of facial acne seemed defeated by the difficulty of treating skin-lightening effects. She decided not to consult a medical professional and expressed: "...the products they give you to treat things like this are always skin-lightening ones, even those doctors prescribe themselves." [MATHY]

Finally, one more treatment mentioned by a participant concerned eczema for which an injection is available at the Service national de l'Hygiène in Dakar, an agency operating directly under the Ministry of Health and Social Action. The injection mentioned probably refers to Dupilumab which has recently been shown to be effective in improving eczema symptoms on skin of color (Grayson & Heath, 2020).

In brief, the interviews highlighted the numerous motivations, practices, and effects that explain skin-lightening trends in Senegal. Several motivations were noted, some internal and others external. While the former motivations almost always dealt with a negative perception of skin-lightening, beauty practices were notably difficult to tease apart as they served to encourage and dissuade different women from practicing skin-lightening. External motivations were all nuanced in the same way. These different perspectives led to equally varied skin-lightening practices. Most women agreed that the practice of skin-lightening in their community widely affected younger age ranges although in decline overall. Women who practiced skin-lightening additionally provided personal accounts of the practice, mentioning the usage of creams and soaps. The duration of the practice varied greatly, ranging from a week to 40 years with most women having stopped the practice at some point in the past. Health effects mentioned included a variety of dermatological complications, fertility issues, negative pregnancy outcomes, a higher risk of having diabetes, toxic absorption of products, and mental health effects.

Chapter 5: Discussion

The main objective of this research was to explore skin-lightening trends in Senegal through an experiential and health systems lens.

Key findings from the scoping review and interviews

The scoping review and interviews highlighted the motivations, practices, and effects linked to skin-lightening trends. Motivations could be personal and structural, and while some deterred women from the practice, others encouraged it. Some motivations were more nuanced as they could mean different things to different people. Although many motivations were similarly captured in the scoping review and interviews, findings from both sources complemented one another in various ways. For example, when studied separately, the scoping review and interviews only highlighted narrow versions of identity - racial identity (Ly et al., 2012), and personal identity respectively. When combined, the findings however captured a broader version of this notion. Similarly, while medical reasons showed that self-medication motivated skin-lightening practice in both the scoping review (Ladizinski et al., 2011; Mahé, 2014; Lewis et al., 2011; Diongue et al., 2013) and the interviews, the latter also demonstrated that some women's fear of potential medical issues could prevent them from practicing skin-lightening. Social influences were additionally enriched by the interviews which demonstrated that they are not always encouraging skin-lightening practices.

Skin-lightening practices regarded demographic characteristics of skin-lightening users, product composition, duration, frequency, application, and usage changes. Practices were similar across both sources, but the women interviewed shared their observations on community practices which complemented the scoping review findings. They thus concluded that skin-lightening was declining. They also shared that the practice is highly time-consuming and can be uncomfortable depending on the season.

Finally, dermatological, general health, and mental health outcomes of the practice were discussed in both the scoping review and interviews. Some of these issues were only captured by the scoping review, while others were only noted in the interviews. In a few cases, findings from both sources correlated and were further enriched. For example, the interviews captured that skin-lightening can be a burden to medical professionals who can have trouble treating patients with extensive skin damage, a condition that was noted in the scoping review (Knapake et al., 2010; Ly et al., 2007; Raynaud et al., 2001; Mahé, 2014; Lewis et al., 2011; Ly et al., 2012). Additionally, the interviews complemented a health system implication touched upon in the scoping review. A participant vocalized that some doctors could be prescribing skin-lightening products to treat existing dermatological conditions. This knowledge broadens the understanding that self-medication often leads to skin-lightening practice as established in the scoping

review (Ladizinski et al., 2011; Mahé, 2014; Lewis et al., 2011; Diongue et al., 2013). In a sense, women's self-medication could be a result of the initial prescription of skin-lightening products.

Motivations

The scoping review identified different motivations linked to the practice of skin-lightening, some personal and other structural in nature. All personal factors were reflected by the interviews, while structural factors were only captured through the scoping review.

Whether through the scoping review or the interviews, identity was always a deterrent factor to the practice of skin-lightening. The concept highlighted how Black identity, maturity (Ly et al., 2012), and a strong sense of self all enabled women to resist the appeal of skin-lightening. While the notion of identity was similarly positioned in the scoping review and the interviews, the latter bypassed the broader sense of Black identity captured in the scoping review (Ly et al., 2012) and identified personal notions of identity such as a sense of self. These two components of identity, one broader, the other more personal, enrich our understanding of this concept.

Both the scoping review and interviews similarly established that religious practice was deemed contradictory to a skin-lightening practice as the latter is seen as an alteration of divine creation (Ly et al. (2012). On the other hand, findings from both sources supported that financial cost always encouraged skin-lightening practices as the required products can often be purchased at low cost (Mahé et al., 2003; Mahé et al., 2005; Ly et al., 2007; Wahil et al., 2019).

In the scoping review, medical reasons always encouraged skin-lightening practice. The scoping review explored how self-medication was used to correct existing dermatological problems (Ladizinski et al., 2011; Mahé, 2014; Lewis et al., 2011; Diongue et al., 2013). In the interviews, two women referenced this idea, indicating that they initially started practicing skin-lightening to treat hyperpigmentation and hide scars. However, most non-users of skin-lightening found medical reasons to be discouraging as they feared negative health effects. Skin-lightening users also sometimes stopped the practice when negative medical outcomes were experienced. These additional insights from the interviews help demonstrate that medical reasons can either encourage or discourage women from the practice depending on personal situations.

The scoping review also established that social influences always encouraged skin-lightening (Mahé, 2014; Lewis et al., 2011; Diongue et al., 2013; Wahil et al., 2019; Kpanake et al., 2010). This understanding was enriched by the interview participants who determined that relatives and friends had various opinions of the practice. While some women were inspired to start skin-lightening their skin by peers and family, others faced opposition. This knowledge offers a more complete portrait of the social influences of women practicing (or not) skin-lightening.

The most mentioned factor in both the scoping review and interviews was beauty preferences, which is quite nuanced. Beauty was interpreted differently depending on the person's identity, skin, and social influences. Consequently, it was an underlying theme in other factors, and its impact could either motivate or discourage skin-lightening practices.

Finally, two structural factors were identified in the scoping review only and dealt with the influence of the media (Kouotou et al., 2017; Wahil et al., 2019; Mahé, 2014; Lewis et al., 2011); and the impact of colonization (Lewis et al., 2011). Difficult to tease apart, these last factors also impacted how beauty is perceived and defined in the sub-Saharan African landscape.

Practices

Findings from the scoping review and interviews supported that skin-lightening is practiced across a wide age range, although it often starts in the late teenage years or early twenties. To further understand the intersection of skin-lightening and age identified in the scoping review, the interviews studied community practices. Overall, women perceived the practice to be in decline in their community. Across the scoping review and interviews, women practicing skin-lightening often lived in neighborhoods associated with lower socioeconomic status (Ndiaye et al.; 1996), and they usually worked in areas that earned lower income (Diongue et al., 2013; Ndiaye et al., 1996). They were most often educated (del Guidice & Yves, 2002), although they did not always attain high educational levels (Lewis et al., 2011; Kpanake et al., 2010; Diongue et al., 2013). Skin-lightening users in both phases of the research also often had darker skin tones (Ladizinski et al., 2011; del Guidice & Yves, 2002) and their marital status did not seem to determine the likelihood of practicing skin-lightening.

Usually, women across the scoping review and interviews used creams purchased in both non-medical shops and pharmacies (Mahé et al., 2003). Soaps (Mahé et al., 2005; Mahé, 2014) and lotions were also used, and the interviews further determined the existence of new methods of skin-lightening as well as stronger products on the market. Hydroquinone and corticosteroids are the most often found components of the products used in the studies reviewed and sometimes both chemicals were discovered combined in one product (Diongue et al., 2013; Ly et al, 2007; Ly et al., 2017; Mahé et al., 2003; Mbengue et al., 2017; Ndiaye et al., 1999; Ndoye Roth et al., 2015). Other chemicals were also discovered in smaller traces (Mahé et al., 2003; del Guidice & Yves, 2002; Ly et al., 2007; Mahé et al., 2007; Mahé et al., 2005; Mahé, 2014; Diongue et al., 2013). In the interviews, only one woman mentioned the chemical composition of her products. Thanks to her literacy – the participant is a teacher – and the fact that she purchased her products in higher-end stores, she had more knowledge and understanding of the product label and its implications on her health. However, depending on where they are acquired, skin-lightening product labels can provide only limited information on components. Products purchased on unregulated markets present a higher risk for safety as they are most likely to be purchased by women of lower socioeconomic backgrounds and literacy who might not understand their impact. The technical knowledge skin-lightening

users have is thus most often garnered from their experience with health effects as opposed to having prior knowledge.

Women used skin-lightening products for varied lengths of time, although often for at least a decade (Diongue et al., 2013; Mbengue et al., 2017; Ndoeye Roth et al., 2015; Raynaud et al., 2001) as very few stopped the practice definitively. This finding was concurrent in both the scoping review and interviews. Similarly, both phases of the research concluded that products were most often applied once or twice daily to the whole body (Mahé et al., 2003; Mahé et al., 2007; Mahé, 2014; Raynaud et al., 2001) although the scoping review specifically noted that pregnant women usually decreased the frequency of their applications (Mahé et al., 2007). The interviews further described that available time, and the weather can both impact skin-lightening practice, thus further enriching the scoping review findings on skin-lightening practices. Women interviewed mentioned that when ill or busy, it is difficult to find the time necessary to properly apply the products. Additionally, they added that skin-lightening practice can cause discomfort during the warmer periods of the year when applying thicker products such as creams is difficult.

Effects

Dermatological effects of skin-lightening were widely mentioned in both the scoping review and the interviews. Both established that acne (Raynaud et al., 2001; del Guidice & Yves, 2002; Mahé et al., 2003; Mahé, 2014; Ly et al., 2007), stretch marks (del Guidice & Yves, 2002; Mahé, 2014; Mbengue et al., 2017; Raynaud et al., 2001), mycoses (Ly et al., 2007; Mahé, 2014), scabies (Ly et al., 2007; Mahé et al., 2003; Mahé, 2014; Raynaud et al., 2001; Ndiaye et al., 1999), darkening of the nails (Niang et al., 2017), and hyperpigmentation (Del Guidice & Yves, 2002; Ly et al., 2007; Mahé, 2014; Ladizinski et al., 2011) were common effects resulting from the practice of skin-lightening. Scoping review and interview findings also established that skin-lightening practice could destroy natural healthy skin (Knapake et al., 2010; Ly et al., 2007; Raynaud et al., 2001; Ly et al., 2012), and fragilize it thus complicating the healing of surgical wounds (Mahé, 2014; Lewis et al., 2011). This effect seemed to be common knowledge among the community as many of the women interviewed discussed complicated Caesarians of skin-lightening users, an issue highlighted by Ly et al. (2012). The interviews further captured that this damage to the skin also disables medical professionals from easily putting IV needles in sick patients who practice skin-lightening. This information helped complement the existing knowledge in the studies reviewed. Findings exclusive to the scoping review included rashes, pigmentation disorders, skin infections and inflammations, telangiectasia, and various skin lesions. The interviews also noted sun sensitivity and burning of the skin as other dermatological effects. These findings correlate with the scoping review's conclusion that photosynthesizing ingredients like hydroquinone should not be used without sun protection.

General health effects were less mentioned although both the scoping review and interviews captured the probability of having skin cancer (Ly et al., 2018), which is also dermatological and being at risk of developing diabetes (Mahé et al., 2005). The scoping review additionally addressed the impact of skin-lightening on blood test results, various organs, children's growth, hypertension, glucose and cholesterol, eye health, maternal health, cortisol, high blood pressure, the adrenal glands, and triglycerides. On the other hand, the interviews highlighted fertility issues resulting from skin-lightening practices. This finding correlates with the study by Ly et al. (2018) which determined that skin-lightening could increase the risk of HPV infections. Interviews also noted that poor hygiene during skin-lightening practice could lead to the contamination of others through the toxic absorption of chemicals.

Mental health effects were also discussed in both phases and included fear of developing cancer and the impact of the practice on professional and social relationships (Ly et al., 2007). The scoping review and interviews also established that skin-lightening can decrease quality of life due to the stigma it is attached to (Ly et al., 2007). To further illustrate these findings, women interviewed expressed experiencing regret, shame, and stress because of the practice.

Findings across both sources also established that treating skin-lightening effects is usually costly (Diongue et al.; 2013), requires a time commitment, and a willingness to stop the practice (Ndiaye et al., 1999; Niang et al, 2017; Mahé, 2014), all of which are difficult in a sub-Saharan African context. Treating non-dermatological effects is more complicated and was barely mentioned in the scoping review and interviews.

Comparison of research's findings to the broader literature

The initial review of the broader literature conducted in the introductory chapter of this thesis demonstrated that skin-lightening is a practice intersecting with gender, race, and age. The results of this thesis supported this as most of the research on skin-lightening concerns women of non-European descent, many of which start the practice as teenagers or young adults. Gender and race specifically intersect in the idea of racial capital, a resource described by Hunter (2011) as being drawn on the body to gain either social, symbolic, or economic capital. In Africa, racial capital can be traced back to the colonial state and its popularization of Western beauty ideals, ideals still perpetuated today by the media (Hunter, 2011). Women are more likely to utilize racial capital, as they are most often less advantageously positioned in society (Fredrickson & Roberts, 1997). The findings supported that in Senegal, skin-lightening can be used as a form of racial capital, increasing the social status of women who practice it at major social events such as weddings (Mahé, 2014). Skin-lightening was also described in the broader literature as a tool used by women to compete in the job market (Hunter, 2011). The practice was however not correlated to any economic advantage or job opportunities in the findings of this thesis. The scoping review made no mention of this relation. Furthermore, the interview questionnaire did not specifically aim to understand this aspect and only asked women to describe their motivations for

practicing (or not) skin-lightening. All interview participants were also employed, which can help explain why this information was not captured in the second phase of the thesis either.

In addition to gender, race, and age, skin-lightening was also positioned in the broader literature as a practice mostly affecting married women and those with higher pigmentation within a racial group (Del Giudice & Yves, 2002). The latter statement was supported in the results of this thesis as an interviewed woman with a lighter skin tone noted that she might have practiced skin-lightening if she had naturally darker skin. However, the results of this thesis could not confidently support that marital status impacted skin-lightening practice. Studies reviewed had different opinions on the matter (del Giudice & Yves, 2002; Ladizinski et al., 2011; Lewis et al., 2011; Diongue et al., 2013), and the skin-lightening users interviewed were similarly not predominantly married women. The broader literature explained that skin-lightening helped women maintain spousal attraction. It did not consider that single women could also practice skin-lightening to attract men, a factor mentioned in two interviews and various scoping review studies (Lewis et al., 2011; Wahil et al., 2019; Kpanake et al., 2010). This discrepancy in the results of this thesis thus does not conflict with the broader literature, but instead helps complement its understanding. Additionally, while the broader literature noted that capitalist ideologies of individuality and agency helped push forward the trend of skin-lightening in Africa (Hunter, 2011; Jacobs et al., 2016), the results of this thesis did not align with this. First, the scoping review studies did not touch on the impact of this global economic structure. The interview questionnaire also did not capture this idea although the responses received indicated that most often, women did practice skin-lightening on their terms despite external influences.

In the broader literature, the implication of gender and race in skin-lightening was largely ignored by health policy makers targeting the practice (Hunter, 2011; Jacobs et al., 2016). Without an understanding of the nuances surrounding skin-lightening, policies often aimed to alleviate health care concerns without targeting the root causes of the practice (Hunter, 2011). Policies were not explored in the findings of this thesis, but women interviewed supported that skin-lightening is often addressed from a health effects perspective which only targets women's attitude vis-à-vis the practice and fails to address the broader structures that frame it.

On one hand, the broader literature established that skin-lightening could be associated with increased economic power (Del Giudice & Yves, 2002; Duboz et al., 2012). The results of this thesis demonstrated that most women who practice skin-lightening are employed (Diongue et al., 2013; Ndiaye et al., 1996; Lewis et al., 2011), which supports that claim. Additionally, the results of this thesis completed this knowledge by adding that although skin-lightening users often work, their income is not particularly high (Diongue et al., 2013). The sample of non-users included in the study by Ly et al. (2012) exposed the status differential between women who practice skin-lightening and those who do not. Therefore, in the results of this thesis, financial ability correlated with skin-lightening practice, but higher socioeconomic status did not. If interviews were conducted with another sample of women, this result could vary. Overall,

however, skin-lightening products can often be found at very affordable prices (Mahé et al., 2003; Mahé et al., 2005; Wahil et al., 2019; Ly et al., 2017), thus finances are rarely a barrier to the practice. On the other hand, the broader literature also established that skin-lightening products were found to be largely unregulated (Jacobs et al., 2016) with many of them originating from all over the world, including some Western countries in which the ingredients used are banned (de Souza, 2008). The scoping review aligned with this as Mahé et al. (2003) discovered that many Senegalese women acquire skin-lightening products with erroneous product labels manufactured from all over the world.

Despite these enabling factors, one barrier to the practice was identified in the broader literature and involved its stigmatizing nature as skin-lightening is seen as needing to appear natural and seamless (Del Giudice & Yves, 2002; Hunter, 2011). The results of this thesis corroborate this hypothesis as women have mentioned that when well done, they could appreciate the look of skin-lightening practice (Ly et al., 2012). Consequently, the deterrent to skin-lightening is often the skin damage that can occur, not always the lightening of the skin. Such damage can be indicative in part of the quality of the products and their usage.

The broader literature described that because of the stigma associated with skin-lightening, women often avoided seeking medical help (Hunter, 2011). The results of this thesis however contradict this by positing that women do not purposefully avoid consulting professionals (Mahé, 2014) and that some effects are simply difficult to detect (Ly et al., 2010). When effects target the skin, women are likely to consult professionals, with most Senegalese patients at dermatology units in Dakar consulting for skin-lightening effects (Mahé, 2014). Perhaps because stigma is more likely to result from the visibility of the practice, women are eager to get treated for skin issues that would betray skin-lightening practice.

Stigma was identified in the broader literature as also resulting from the fact that skin-lightening is associated with a lack of self-esteem and hatred of Black skin tone (Hunter, 2011). The results of this thesis supported that many women opposed to skin-lightening see others who use the products as lacking self-esteem (Ly et al., 2012). However, they did not seem to think users hated their Black skin tones. Black identity was only used to explain why some women chose not to use skin-lightening products (Ly et al., 2012). Women who practiced skin-lightening were seen as not content with the way they were naturally “made”, but not necessarily with a lack of or opposition to Black identity.

Health effects of the practice were similarly noted in the broader literature and the results of this thesis with dermatological issues most written and talked about. They varied depending on the application, products used, and user’s personal health history, but were most often caused by hydroquinone and corticosteroids. Acne (Raynaud et al., 2001; del Giudice & Yves, 2002; Mahé et al., 2003; Mahé, 2014; Ly et al., 2007), rashes (Knapake et al., 2010; Raynaud et al., 2001; Mahé, 2014; de Souza, 2008), and stretch marks (del Giudice & Yves, 2002; Mahé, 2014; Mbengue et al.; 2017; Raynaud et al. 2001) were widely mentioned in both the broader literature and the results of this thesis. As well, longer exposure to the products correlated with an increase in the number and gravity of these effects (del Giudice & Yves,

2005), and stopping practice also came with its own set of complications (Mahé, 2014; de Souza, 2008). The results of this thesis further identified such complications as varying degrees of hyperpigmentation (Ly et al., 2007; Raynaud et al., 2001), thus complementing the existing literature on the topic.

Other health effects mentioned in both the broader literature and the findings of this thesis included a higher risk of developing diabetes and hypertension (Mahé et al., 2007; Mahé, 2014; Raynaud et al., 2001; Mahé et al., 2005), affected cortisol (Mahé et al., 2007; Mahé, 2014; Ly et al., 2018), kidney failure (Del Giudice & Yves, 2002; Mahé et al., 2003; Mahé, 2014; Mahé et al., 2007; Raynaud et al., 2001; Hunter, 2011), skin cancer (Ly et al.; 2018; Hunter, 2011) – also a form of dermatological effect -, and adrenal insufficiency (Mahé et al., 2007; Mahé, 2014). Additionally, the broader literature and the findings of this thesis identified that absorption of toxic ingredients in skin-lightening products was linked to neurological disorders (Kpanake et al.; 2010; Mahé et al., 2007) and organ failures (Kpanake et al., 2010; de Souza, 2008). Effects on children of skin-lightening users were studied in the broader literature, but the findings of this thesis identified that steroids were specifically linked to a few complications (Mahé, 2014) which warrants further research.

Contribution

Key contribution of the research

Following the modified Donebedian (2005) framework, the thesis contributes to the existing literature on the topic by demonstrating how gender and race affect the health practices of Senegalese women. Furthermore, the thesis explores how these practices in turn have health and health system outcomes.

The literature on skin-lightening is still minimal, and its focus is rarely put on sub-Saharan countries like Senegal. The existing knowledge on the topic framed skin-lightening as a tool used to gain racial capital (Hunter, 2011). While the concept was useful for understanding many layers of skin-lightening in this research, Hunter (2011) emphasizes that it can only exist within a structure of both racism and colorism (Hunter, 2011). Senegal's post-colonial history positions the country in such a structure, but it should be noted that neither racism nor colorism has been experienced similarly by all colonized African nations. Therefore, when Hunter (2011) positions that skin-lightening is used by Black women to compete with women of other races and ethnicities on the job market, it is important to frame South Africa as an example given to illustrate that account. The country's particular history and current landscape however differ from Senegal, which explains why these findings by Hunter (2011) could not be supported by the thesis. Dixon & Telles (2017) have also primarily used East-African countries to argue that skin-lightening could be used to address institutional discrimination, something that was not supported by the findings due to contextual differences. Similarly, the results of this thesis did not indicate that women who practice skin-lightening were viewed in their communities as disliking Black skin tones, an idea suggested in the broader literature (Hunter, 2011). Identifying these discrepancies indicates the importance of this study as its post-colonial framework not only highlights an existing gap in the literature in regards to the

representation of countries like Senegal, but also reinforces that the experience of racism and colorism is not a monolith, and it is thus important to conduct various research on the topic of skin-lightening across the African continent to represent its equally varied landscapes.

This research also reframes existing beliefs about women who practice skin-lightening. In the broader literature, the trend was intrinsically linked to existing patriarchal structures, and women's desire to impress and seduce men. While seducing men certainly motivates some women to practice skin-lightening (Kouotou et al, 2017; Kpanake et al., 2010; Lewis et al., 2011; Diongue et al., 2013; Wahil et al., 2019), the research's application of an intersectional framework demonstrated that women most often than not decided on their terms to use skin-lightening as a tool to this effect. Men themselves played a minimal role in influencing the skin-lightening trends of the women around them. This finding fills a knowledge gap by contradicting the popular idea that women who practice skin-lightening lack self-efficacy (Hunter, 2011; Jacobs et al., 2016).

Furthermore, this research highlights that while Western influences and post-colonial legacies influence skin-lightening trends (Kouotou et al., 2017; Wahil et al., 2019; Diongue et al., 2013; Mahé, 2014; Lewis et al., 2011), the importance of these influences in the sub-Saharan African context enables the emergence of a sense of identity deeply rooted in the idea of Blackness (Ly et al., 2012). The broader identity of Blackness that emerged from the scoping review and interviews constitutes a new way to frame skin-lightening practices that warrant further study. It offers a holistic understanding of how one's identity influences skin-lightening practices through its application of a post-colonial framework to the case study of Senegal.

Health system implications of the findings

The findings of this thesis highlight how skin-lightening practice often complicates everyday tasks for clinicians. Skin atrophy, a common side effect of the practice was noted to decrease skin elasticity (Knapake et al., 2010) and healing (Lewis et al., 2011). In turn, inserting IV needles in patients practicing skin-lightening can become a difficult undertaking. The condition complicates the healing of surgical wounds (Lewis et al., 2011), a factor that burdens the health care system in otherwise non-dangerous caesarian cases which can become fatal for both mothers and children (Ly et al., 2012).

In addition to requiring more preparation and knowledge from clinicians, the practice of skin-lightening can also be highly costly for both patients (Diongue et al., 2013) and treatment units. Skin-lightening was shown to present a risk for contagious diseases such as mycoses (Ly et al., 2007; Mahé, 2014) and scabies ((Ly et al., 2007; Mahé et al., 2003; Mahé, 2014; Raynaud et al., 2001; Ndiaye et al., 1999). Treating such conditions is often more costly than the initial purchase of skin-lightening products for many skin-lightening users. Treatments must be applied to the patient as well as all his or her contacts (Ndiaye et al., 1999). This often includes the spouse but can also implicate an entire family (Ndiaye et al., 1999).

Because of the contagious nature of the diseases, relapses are common (Ndiaye et al., 1999), thus requiring various costly visits and many health care resources.

Even in cases in which the condition is not contagious, treating skin-lightening effects often requires long-term treatment plans, some lasting for over three years. Additionally, treating some effects such as melasma can create other issues – in this case, heavy scarring of the skin – which then necessitates further treatments. Similarly, fertility problems resulting from long-term skin-lightening practice can require a longer treatment period. Often, treating these complications effectively requires patients to fully stop the practice, something that is rarely done amongst skin-lightening users. This factor can further lengthen the implication of skin-lightening users in the health care system.

Skin-lightening can put women at higher risk for diabetes and hypertension (Mahé et al., 2007; Mahé, 2014; Raynaud et al., 2001), two very common chronic conditions in Senegal. Women practicing skin-lightening for over ten years were noted to be at most risk (Mahé et al., 2005). Additionally, glucocorticoid usage is associated with hyperglycemia and dyslipidemia, conditions that can be exacerbated by diabetes (Mbengue et al., 2017). Skin-lightening products containing hydroquinone can also affect blood glucose measurements in diabetic patients (Bouché et al., 2015; Mahé, 2014), making it difficult for clinicians to efficiently perform regularly needed tests on such patients.

Limited knowledge of skin-lightening practice presents multiple barriers to targeting its widespread effects. First, some skin-lightening effects like carcinomas are difficult to diagnose as they are very rarely seen in Black skin tones (Ly et al., 2018) and other conditions like melasma and exogenous ochronosis can be easily confused (Ladizinski et al., 2011). These difficulties can largely hinder the efforts of clinicians. The latter can also indirectly contribute to the problem as it appears clinicians sometimes prescribe products designed to treat existing skin conditions, but which seem to contain skin-lightening ingredients. These medications can lead women to practice skin-lightening. Without proper hygiene and knowledge, women practicing skin-lightening can also inadvertently infect others. Not properly washing the hands after product application can for example leave residues on food that can be absorbed by others who consume it.

Finally, the mental health effects of skin-lightening can be burdening for the user (Ly et al., 2007). Treating such effects is difficult in Senegal as there is some stigma surrounding mental health. Skin-lightening can thus create effects that the health system is not equipped to treat.

Limitations

As with all research, there are several limitations experienced during this research. First, concerning the scoping review, there were a few instances of articles that we were unable to include. Secondly, the lack of funding for this kind of research impacts the number of studies published for review. Concerning the interviews, there are limitations in terms of the recruitment, participation, and analysis of the data. The

stigma surrounding skin-lightening could have influenced responses received in the interview phase of the thesis. Women are not always open to discussing skin-lightening practices and it is thus possible that participants could have concealed some information regarding their skin-lightening usage. I am however hopeful that talking with a fellow Senegalese woman may have helped limit the influence of this factor by allowing women to feel more at ease. Additionally, my understanding of the cultural aspects of skin-lightening trends should have aided in deepening the analysis of the responses given in the interviews. Throughout this research phase, I aimed to not impose any personal opinions on the participants and their responses. A risk of sampling bias should also be noted as snowball sampling was the main recruitment method used for the interviews. There may be limitations that emanate from the conduct of the interviews being on the phone. Not conducting interviews in person prevented me from interpreting visual cues that could have enriched the findings. Finally, I was not able to assess the health system implications directly rather these are derived from that which has been published and drawing conclusions based on the health impacts the women revealed in the interviews.

Areas for future research

Because of the popularity of skin-lightening trends, further research should aim to inform dermatologists on how to treat existing skin-lightening effects, and how to recognize rare symptoms and distinguish them from symptoms of other known diseases. It will additionally be interesting to identify why some dermatologists seem to be prescribing skin-lightening products. An investigation targeting the origin of such products could help identify if doctors are prescribing unknowingly and whether there exist alternatives on the market. New skin-lightening formulations were also briefly mentioned in this research, and it could be useful to better understand the impact of “rapid creams” and skin-lightening injections. Further research could be done on alternative natural products that can help lighten the skin without some of the negative effects associated with the practice. In Senegal, further research should be done on the long-term health system impact of skin-lightening practices in diabetic patients as the disease is common within the community. The mental health impact of the practice and contamination through absorption could similarly be explored from that perspective. Additional areas of reflection include the effects of the practice on children of skin-lightening users, professional and social relations, as well as quality of life. Finally, treatments regarding non-dermatological effects warrant more knowledge as they were only briefly mentioned in the findings.

Conclusion

Skin-lightening practice in Senegal is deeply woven into an existing gender and racial structure. The impact of the trend on women's lives is also largely dependent on identity, religion, finances, medical reasons, social influences, beauty, the media, and the country's post-colonial structure; all factors that motivate and/or dissuade the practice. Although in decline, the practice still takes place amongst a wide variety of women who usually start it at a young age. They are mostly from lower socioeconomic and

educational backgrounds and have darker skin tones. The practice usually takes place for at least a decade and relies on the daily usage of body creams and soaps acquired in non-medical shops and often containing dangerous levels of hydroquinone and corticosteroids. Usage changes are usually due to pregnancy, a lack of time, or discomfort in warmer weather. Common effects of the practice are dermatological, and while some are widely known within the community, others are more difficult to identify. Skin-lightening can also create general and mental health issues. It can often hinder the work of health professionals. It also presents a risk for contagious diseases that are costly and lengthy to treat and can be burdensome for health professionals. Chronic diseases can additionally be exacerbated by the practice. Making a prognosis on effects is very difficult, often leading to erroneous diagnoses and treatments, some of the latter involving prescribed products containing skin-lightening ingredients. The health system is also affected by widespread contamination through the practice. To understand skin-lightening and better target its effects, policies should be exploring the deeply rooted phenomena that motivate skin-lightening usage, as well as its systemic consequences.

References

- Arksey, H., & O'Malley, L. (2005) Scoping studies: towards a methodological framework. *International journal of social research methodology*, 8(1), 19-32.
<https://doi.org/10.1080/1364557032000119616>
- Berger, R. (2015). Now I see it, now I don't: researcher's position and reflexivity in qualitative research. *Qualitative Research*, 15(2), 219–234. <https://doi-org.proxy.bib.uottawa.ca/10.1177/1468794112468475>
- Bouché, C., Garnier, J., Choukem, S., Gautier, J. (2015). Falsely elevated capillary glucose and ketone levels and use of skin lightening creams. *British Medical Journal*, 351, h3879-h3879.
<https://doi.org/10.1136/bmj.h3879>
- de Souza, M. M. (2008). The concept of skin bleaching in Africa and its devastating health implications. *Clinics in Dermatology*, 26(1), 27-29. <https://doi.org/10.1016/j.clindermatol.2007.10.005>
- Del Giudice, P., & Yves, P. (2002). The widespread use of skin-lightening creams in Senegal: a persistent public health problem in West Africa. *International Journal of Dermatology*, 41(2), 69-72.
<https://doi.org/10.1046/j.1365-4362.2002.01335.x>
- Diongue, M., Ndiaye, P., Douzima, P., Seck, M., Seck, I., Faye, A., Diagne, M., Leye, M., Niang, K., Tal, A. (2013). Economic impact of skin-lightening products on household income in sub-Saharan Africa: the case of Senegal. *Médecine et Santé Tropicales*, 3(2), 308-3012.
- Dixon, A.R., & Telles, E.E. (2017). Skin Color and Colorism: Global Research, Concepts, and Measurement. *Annual Review of Sociology*, 43(1), 405-424. <https://doi.org/10.1146/annurev-soc-060116-053315>
- Donabedian, A. (2005). Evaluating the Quality of Medical Care. *The Milbank Quarterly*, 83(4), 691-729.
<https://doi.org/10.1111/j.1468-0009.2005.00397.x>
- Duboz, P., Chapuis-Lucciani, N., Boëtsch, G., & Gueye, L. (2012). Prevalence of diabetes and associated risk factors in a Senegalese urban (Dakar) population. *Diabetes & metabolism*, 38(4), 332-336.
<https://doi.org/10.1016/j.diabet.2012.02.011>
- Fredrickson, B.L., & Roberts, T. (1997). Objectification Theory: Toward Understanding Women's Lived Experiences and Mental Health Risks. *Psychology of Women Quarterly*, 21(2), 173-206.
<https://doi-org.proxy.bib.uottawa.ca/10.1111/j.1471-6402.1997.tb00108.x>
- Grayson, C., & Heath, C. (2020). Dupilumab Improves Atopic Dermatitis and Post-Inflammatory Hyperpigmentation in Patient With Skin of Color. *Journal of Drugs in Dermatology*, 19(7), 776-778. <https://doi.org/10.36849/JDD.2020.4937>

- Hunter, M. L. (2011). Buying racial capital: Skin-bleaching and cosmetic surgery in a globalized world. *The Journal of Pan African Studies*, 4(4), 142-164.
- Jacobs, M., Levine, S., Abney, K., & Davids, L. (2016). Fifty shades of African lightness: a bio-psychosocial review of the global phenomenon of skin-lightening practices. *Journal of public health in Africa*, 7(2), 67-70. <https://doi.org/10.4081/jphia.2016.552>
- Kouotou, E., Nansseu, J., Adegbidi, H., Mebara, T., Ndam, E. (2017). Skin whitening among Cameroonian female university students: knowledge, attitudes, practices and motivations. *BMC Women's Health*, 17(33), 1-5. <https://doi.org/10.1186/s12905-017-0385-z>
- Kpanake, L., Teresa, M., Sastre, M., Mullet, E. (2010). Skin bleaching among Togolese: a preliminary inventory of motives. *Journal of Black Psychology*, 36(3), 350-368. <https://doi.org/10.1177/0095798409353759>
- Ladizinski, B., Mistry, N., Kundu, R. (2011). Widespread use of toxic skin lightening compounds: medical and psychosocial aspects. *Dermatologic Clinics* 29(1), 111-123. <https://doi.org/10.1016/j.det.2010.08.010>
- Lewis, K., Robkin, N., Gaska, K., Njoki, L. (2011) Investigating Motivations for Women's Skin Bleaching in Tanzania. *Psychology of Women Quarterly* 35(1), 29-37. <https://doi.org/10.1177/0361684310392356>
- Ly, F., Ebelle1, C.C., Sylla K., Sarr, A., Diop, A., Ndiaye Diop, M.T., Sall Diop, N., Diouf, A., Hakim, H., Sy, E.A., & Kane, A. (2017). 018 IMPACT OF COSMETIC PRODUCTS WITH HYDROQUINONE ON THE MEASURE OF CAPILLARY BLOOD SUGAR IN DIABETIC SENEGALESE WOMEN: CASE CONTROL STUDY. *Journal of Investigative Dermatology Symposium Proceedings*, 18(2), S87-S87. <https://doi.org/10.1016/j.jisp.2016.10.020>
- Ly, F., Kane, A., Déme, A., Ngom, N., Niang, S., Bello, R., Rethers, L., Dangou, J., Dieng, M., Diousse, P., Ndiaye, B. (2010). First cases of squamous cell carcinoma associated with cosmetic use of bleaching compounds. *Annales de Dermatologie et de Vénérologie*, 137(2), 128-131. <https://doi.org/10.1016/j.annder.2009.12.008>
- Ly, F., Soko, A., Dione, D., Niang, S., Kane, A., Bocoum, T., Dieng, M., Ndiaye, B. (2007). Aesthetic problems associated with the cosmetic use of bleaching products. *International Journal of Dermatology*, 45(S1), 15-17. <https://doi.org/10.1111/j.1365-4632.2007.03456.x>
- Ly, F., Vasseur, P., Fecky, A., Verschoore, M. (2012). The refusal of skin bleaching the other side of "xessal". *International Journal of Dermatology*, 51(S1), 57-60. <https://doi.org/10.1111/j.1365-4632.2012.05568.x>

- Ly, F., Dioussé, P., Ndiaye, C., Dème, A., Diatta, B., Ndiaye, M., Diallo, M., Diop, A., Kebe, A., Fall, F., Kane, A. (2018). Cutaneous squamous cell carcinomas (SCC) associated with cosmetic skin whitening: 8 cases reported in Senegal. *Annales de Dermatologie et de Vénérologie*, 145(2), 83-88. <https://doi.org/10.1016/j.annder.2017.10.010>
- Mahé, A. (2014). The practice of skin-bleaching for a cosmetic purpose in immigrant communities. *Journal of Travel Medicine*, 21(4). 282-287. <https://doi.org/10.1111/jtm.12106>
- Mahé, A., Ly, F., Aymard, G., Dangou, J. (2003). Skin diseases associated with the cosmetic use of bleaching products in women from Dakar, Senegal. *British Journal of Dermatology*, 48(3), 493-500. <https://doi.org/10.1046/j.1365-2133.2003.05161.x>
- Mahé, A., Ly, F., Perret, J. (2005). Systemic complications of the cosmetic use of skin-bleaching products. *International Journal of Dermatology*, 44(S1), 37-38. <https://doi.org/10.1111/j.1365-4632.2005.02810>
- Mahé, A., Perret, J. L., Ly, F., Fall, F., Rault, J. P., & Dumont, A. (2007). The cosmetic use of skin-lightening products during pregnancy in Dakar, Senegal: a common and potentially hazardous practice. *Transactions of The Royal Society of Tropical Medicine and Hygiene*, 101(2), 183-187. <https://doi.org/10.1016/j.trstmh.2006.06.007>
- Mbengue, A., Coly, M., Diaw, M., Ouedraogo, V., Sow, A., Tiendrebeogo, A., Seck, A., Houndjo, S., Toure, M., Ba, A., Samb, A., Akpo, G., Deme, H., Diop, O., Mbdji, M., Ba, F., Sarr, F. (2017). Evaluation of vascular function in depigmented black women: Comparative study. *National Journal of Physiology, Pharmacy and Pharmacology*, 7(4). 420-424. <https://doi.org/10.5455/njppp.2017.7.1233202012017>
- Ndiaye, B., Develoux, M., Dieng, M. (1999). Crusted (Norwegian) scabies in Dakar (Senegal). *Cahiers Santé*, 9(4), 243-248.
- Ndiaye, B., Develoux, M., Ndiaye, M., Dieng, M., Ndir, O. (1996). Tinea faciei in Senegal, a common complication related to the cosmetic use of bleaching agents with corticosteroids in African adult female. *Journal de Mycologie Médicale*, 6(3).142-144
- Ndoye Roth, P., Ly, F., Kane, H., Bissang, A., Wane A., Sow, A., Ndiaye, J., Nguer, M., Ba, E., Ndiaye, M. (2015). Ocular lesions of artificial depigmentation. *Journal Français d'Ophtalmologie*, 38(6). 493-496. <https://doi.org/10.1016/j.jfo.2014.11.013>
- Niang, S., Kane, A., Diallo, M., Choutah, F., Dieng, M., Ndiaye, B. (2007). Dermatitis papulosa nigra in Dakar, Senegal. *International Journal of Dermatology*;46(S1). 45-47. <https://doi.org/10.1111/j.1365-4632.2007.03465.x>

- Perret, J., Sane, M., Gning, S., Ba, K., Rohou, G. (2001). Partial functional hypothalamo-pituitary-adrenal inertia with bleaching agents in Senegal. *Bulletin de la Societe de Pathologie Exotique*, 94(3). 249-252.
- Raynaud, E., Cellier, C., Perret, J. (2001). Dépigmentation cutanée à visée cosmétique: Enquête de prévalence et effets indésirables, dans une population féminine sénégalaise. *Annales de dermatologie et de vénéréologie*, 128(6-7). 720-724
- Saunders, B., Sim, J., Kingstone, T., Baker, S., Waterfield, J., Bartlam, B., Burroughs, H., & Jinks, C. (2018). Saturation in qualitative research: exploring its conceptualization and operationalization. *Quality & Quantity*, 52(4), 1893-1907. <https://doi.org/10.1007/s11135-017-0574-8>
- Trochim, W. M., Donnelly, J. P., & Arora, K. (2016). *Research Methods: The Essential Knowledge Base* (2nd ed). Wadsworth Publishing.
- Wahil, M., Ishak, M., Daud, F. (2019). Awareness of health effects from skin whitening product usage: a systematic review. *International Journal of Public Health & Clinical Sciences*, 6(6). 20-32. <https://doi.org/10.32827/ijphcs.6.6.20>

Appendix 'A' – Certificate of Ethics Approval

08/03/2021

Université d'Ottawa

Bureau d'éthique et d'intégrité de la recherche

University of Ottawa

Office of Research Ethics and Integrity

CERTIFICAT D'APPROBATION ÉTHIQUE | CERTIFICATE OF ETHICS APPROVAL

Numéro du dossier / Ethics File Number

S-09-20-6050

Titre du projet / Project Title

Health System Impact of
Skin-Lightening Trends: A Case
Study of Senegal

Type de projet / Project Type

Thèse de maîtrise / Master's
thesis

Statut du projet / Project Status

Approuvé / Approved

Date d'approbation (jj/mm/aaaa) / Approval Date (dd/mm/yyyy)

08/03/2021

Date d'expiration (jj/mm/aaaa) / Expiry Date (dd/mm/yyyy)

07/03/2022

Équipe de recherche / Research Team

**Chercheur /
Researcher**

Affiliation

Role

Inna KANDÉ

École de gestion Telfer / Telfer School of Management

Chercheur Principal / Principal
Investigator

Ivy BOURGEOULT

Département de sociologie et d'anthropologie / Department of
Sociology and Anthropology

Superviseur / Supervisor

Conditions spéciales ou commentaires / Special conditions or comments

550, rue Cumberland, pièce 154 550 Cumberland Street, Room 154
Ottawa (Ontario) K1N 6N5 Canada Ottawa, Ontario K1N 6N5 Canada

613-562-5387 • 613-562-5338 • ethique@uOttawa.ca / ethics@uOttawa.ca
www.recherche.uottawa.ca/deontologie | www.recherche.uottawa.ca/ethics

Université d'Ottawa

Bureau d'éthique et d'intégrité de la recherche

University of Ottawa

Office of Research Ethics and Integrity

Le Comité d'éthique de la recherche (CÉR) de l'Université d'Ottawa, opérant conformément à l'*Énoncé de politique des Trois conseils* (2014) et toutes autres lois et tous règlements applicables, a examiné et approuvé la demande d'éthique du projet de recherche ci-nommé.

L'approbation est valide pour la durée indiquée plus haut et est sujette aux conditions énumérées dans la section intitulée "Conditions Spéciales ou Commentaires". Le formulaire « Renouvellement ou Fermeture de Projet » doit être complété quatre semaines avant la date d'échéance indiquée ci-haut afin de demander un renouvellement de cette approbation éthique ou afin de fermer le dossier.

Toutes modifications apportées au projet doivent être approuvées par le CÉR avant leur mise en place, sauf si le participant doit être retiré en raison d'un danger immédiat ou s'il s'agit d'un changement ayant trait à des éléments administratifs ou logistiques du projet. Les chercheurs doivent aviser le CÉR dans les plus brefs délais de tout changement pouvant augmenter le niveau de risque aux participants ou pouvant affecter considérablement le déroulement du projet, rapporter tout événement imprévu ou indésirable et soumettre toute nouvelle information pouvant nuire à la conduite du projet ou à la sécurité des participants.

The University of Ottawa Research Ethics Board, which operates in accordance with the *Tri-Council Policy Statement* (2014) and other applicable laws and regulations, has examined and approved the ethics application for the above-named research project.

Ethics approval is valid for the period indicated above and is subject to the conditions listed in the section entitled "Special Conditions or Comments". The "Renewal/Project Closure" form must be completed four weeks before the above-referenced expiry date to request a renewal of this ethics approval or closure of the file.

Any changes made to the project must be approved by the REB before being implemented, except when necessary to remove participants from immediate endangerment or when the modification(s) only pertain to administrative or logistical components of the project. Investigators must also promptly alert the REB of any changes that increase the risk to participant(s), any changes that considerably affect the conduct of the project, all unanticipated and harmful events that occur, and new information that may negatively affect the conduct of the project or the safety of the participant(s).

Germain ZONGO

Responsable d'éthique en recherche / Protocol Officer

Pour/For **Barbara GRAVES** Président(e) du/ Chair of the **Comité d'éthique de la recherche en sciences sociales et humanités / Social Sciences and Humanities Research Ethics Board**

550, rue Cumberland, pièce 154 550 Cumberland Street, Room 154
Ottawa (Ontario) K1N 6N5 Canada Ottawa, Ontario K1N 6N5 Canada

613-562-5387 • 613-562-5338 • ethique@uOttawa.ca / ethics@uOttawa.ca
www.recherche.uottawa.ca/deontologie | www.recherche.uottawa.ca/ethics

Appendix 'B' – Search Strategy

Pubmed (Medline)

("cosmetic"[MeSH Terms:noexp] OR "Skin Lightening Preparations"[MeSH Terms] OR ("skin bleach"[Title/Abstract] OR "skin lighten"[Title/Abstract] OR "skin whiten"[Title/Abstract] OR depigment*[Title/Abstract])) AND ("Senegal"[MeSH Terms] OR "senegal"[Title/Abstract])

EMBASE

((("skin whiten*" or "skin lighten*" or "skin bleach*" or depigment*) and senegal*).m_titl.

Medline (Ovid)

((("skin whiten*" or "skin lighten*" or "skin bleach*" or depigment*) and senegal*).m_titl.

SCOPUS

(TITLE-ABS-KEY ("skin bleaching") OR TITLE-ABS-KEY ("skin lightening") OR TITLE-ABS-KEY ("skin whitening") OR TITLE-ABS-KEY (depigmentation) AND TITLE-ABS-KEY (senegal*))

CINAHL (EBSCO)

TI "skin whiten*" OR TI "skin bleach*" OR TI "skin lighten*" OR TI depigment* AND TI senegal*

Omni

Title contains "skin whiten*" OR "skin lighten*" OR "skin bleach*" OR depigment* AND senegal*

Appendix 'C' – Interview Guide

Interview guide

What made you decide to start the practice of skin-lightening?

How long have you been using skin-lightening products?

Have you changed products in the past? If so, why?

Can you explain why you have chosen not to practice skin-lightening? Have you used products to that effect in the past?

Why did you stop?

Would you use skin-lightening products if prompted to by your husband?

What have you noticed in your immediate environment?

Have you noticed any dermatological changes to your skin apart from the desired effect since you started applying skin-lightening products?

Have you ever sought out medical advice for a side effect you believe was caused by your skin-lightening products of choice?

Do you know of other women affected by the same dermatological issues?

Please provide your age, profession, location, marital status, and your number of dependants.

Pourquoi avez-vous décidé de commencer la pratique de l'éclaircissement de la peau ?

Depuis combien de temps utilisez-vous des produits éclaircissants pour la peau ?

Avez-vous changé de produit dans le passé ? Si oui, pourquoi ?

Pouvez-vous expliquer pourquoi vous avez choisi de ne pas pratiquer l'éclaircissement de la peau ?

Avez-vous utilisé des produits éclaircissants auparavant ?

Pourquoi avez-vous arrêté ?

Utiliserez-vous des produits éclaircissants si encouragé par votre époux ?

Qu'avez-vous remarqué dans votre environnement immédiat ?

Avez-vous remarqué des changements dermatologiques sur votre peau en dehors de l'effet recherché depuis que vous avez commencé à appliquer des produits éclaircissants ?

Avez-vous déjà demandé un avis médical pour un effet secondaire que vous pensez avoir été causé par les produits éclaircissants de votre choix ?

Connaissez-vous d'autres femmes touchées par les mêmes problèmes dermatologiques ?

Veillez donner votre âge, profession, lieu, état matrimonial et le nombre de personnes à votre charge.