(Un)filtered: Cosmetic industry Instagram advertisements affecting purchase intentions, self-esteem, and social comparison

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ABSTRACT

Beauty and skincare brands that fall under the cosmetics industry are one of the leading markets worldwide as well as one of the most influential ones when it comes to female consumers. The online presence of these brands on social media platforms and especially on Instagram has revolutionized not just how brands market their products but also how consumers decide to purchase them. Over-edited online content that focuses on clear and flawless skin is the line that brands follow in order to increase revenue and urge more and more women to purchase their products by highlighting primarily emerging beauty standards. This study focused on the relationship between advertisements and purchase intentions while also attempting to bridge this connection through self-esteem and social comparison, two factors assumed to impact how females react when dealing with photoshopped content. Theory revealed various frameworks that all these aspects can be linked to one another, concentrating mainly on the effect of photoshopped or not content on females' self-perception and further on a product's efficacy and final buying intentions. Finally, self-esteem and social comparison were two aspects that were highly associated with ideal online portrayal and self-identification and were predicted to lead to negative aspects and views of the self.

An online experiment was conducted in order to establish the above relationship. For this reason, 176 female participants were recruited and in a random way allocated to three experimental groups i.e., the control group, the photoshopped group, and the unphotoshopped group. Participants were presented with an advertisement photo based on the group they were distributed and were asked to answer to some questions related to purchase intentions, self-esteem, and social comparison. The findings of the online experiment that was conducted demonstrated no significant effect for none of the variables examined. The only significant association found was between social comparison and purchase intentions, however, this did not validate any of the formed hypotheses. Thus, although the findings did not support the research question, they offered room for further research on this topic and a deeper investigation of the cosmetics industry.

Keywords: Purchase intentions, self-esteem, social comparison, photoshop, cosmetic industry
Word Count: 339

Table of contents

1. Introduction

1.1. Beauty and the cosmetic industry

Within the societal landscape, beauty has been an everlasting trait that establishes, molds, and directs norms and behaviors (Hunt et al., 2011). More precisely, societal, and cultural expectations that people must adhere to specified physical characteristics are known as beauty standards (Yan & Bissel, 2014). Beauty is directly associated with the cosmetic industry, as it is primarily concerned with enhancing or altering an individual's appearance, through the use of makeup, skincare, or haircare products (Mwaisaka, 2017). Cosmetics have been prevalent since ancient times, with records of use in Egypt or Ancient Greece (Hunt et al., 2011), but in recent years they have progressed into one of the most profitable industries worldwide (Taylor et al., 2018).

One basic reason that this industry is triumphing today is that it has the power to create trends and popularize certain styles or looks, further shaping societal expectations of beauty and more precisely femininity (Binwani & Ho, 2019). It is reported that the global cosmetic industry is estimated to be worth over $532 billion, with a global revenue of $93.05 billion for 2022 (Statista, 2022). This further underlines the high demand and need of women to purchase products to improve their appearance and conform to culturally acceptable ideals of beauty (Ringrow, 2016).

This claimed commercialization of femininity and beauty may be considered a significant factor in the emergence of consumerism because of the ongoing need to purchase cosmetic products in order to feel desirable (Ringrow, 2016). Cosmetic companies frequently use social media to advertise unrealistic Westernized beauty regimens that women should follow if they wish to be seen as attractive (Lazar, 2011). Nowadays, perfection is considered to have flawless, glowing facial skin, young features, and a lean, sexy figure (Lai & Perminiene, 2019).

1.2. Instagram and brand presence

Social media platforms have become a hub for brands and companies to showcase, promote, and advertise their products (Binwani & Ho, 2019). In particular, Instagram is one of the most used social media platforms that brands use, as its audience is expected to grow to 1.4 billion users by 2025 (Statista, 2022). Cosmetic brands take over such platforms to advertise their products by creating eye-catching campaigns of attractive models in order to increase their revenue (Quitong et al., 2019). With the rise of s-commerce (social commerce)

and a discretionary expenditure of $75 billion, people are more drawn to online shopping, making Instagram a powerful tool for companies to promote and sell their products to a larger spectrum of customers (Adegbola et al., 2018).

Social media platforms reinforce beauty standards, leading users to compare themselves to what they see and be eager to purchase a product in order to boost their self-esteem (Taylor et al., 2018). However, it is common that social media advertisements frequently feature highly modified images of models with ideal body proportions and flawless skin, creating unrealistic beauty standards, in an effort to elevate the ideal of beauty and the need for consumption (Lv et al., 2022). As Rea (2012) stresses, cosmetic companies excessively use Photoshop and create a false, yet perfect, product efficiency in comparison to its realistic effects, in hopes of boosting customer demand in this way. Overexposure to photoshopped advertisements, primarily those created by models, influencers, and celebrities who advocate for fair and clean skin, instills in females an unconscious need to purchase products in order to feel successful and accepted by others, especially by men (Yang et al., 2023).

Nonetheless, this practice can lead women to experience negative feelings about themselves as a consequence of their massive exposure to these kinds of images, increasing thus their body and facial dissatisfaction and affecting in a great deal their self-esteem levels as they begin to socially compare themselves to these models (Taylor et al., 2018). As the fundamental goal of retouched advertisements is to promote an ideal and commercial way of appearance and beauty, females get highly impacted because they relate their personal way of looking to these standards (Tsai, 2013). As a result, they experience lower levels of self-worth and self-esteem because trying to conform to socially constructed images is divulged to be an unattainable challenge (McBride et al., 2019). Hence, this practice of showcasing highly photoshopped advertisements aims at higher purchase intentions, as consumers are subtly influenced by the advertisement which creates a false necessity of product ownership (Jan et al., 2019). In the study of Taylor et al. (2018) photoshopped advertisements of female models are seen as a positive predictor of body dissatisfaction. Moreover, Guimaraes (2022) investigated the effect of body and skin exposure and imperfections on women's attitudes toward the post but not on their self-esteem levels. Additionally, Tiggerman and Anderberg (2022) found out that when women were exposed to "Instagram vs reality" images their facial dissatisfaction was decreased, meaning that exposure to more realistic images worked as a positive factor in body image. Lastly, although doing thorough research on the cosmetic

market, Ringrow (2016) examines it from a discourse point of view rather than one that emphasizes image and the representation of models.

Given the foregoing, it is clear that research indicates a gap in the literature because the majority of studies that discuss cosmetics advertising concentrate primarily on body image, referring to the body as a whole but not specifically on facial skin. Although Jan et al. (2019) make a reference to facial skin and tries to establish a connection between skincare brands and purchase intentions, they did not connect it to self-esteem levels or social comparison. Purchase intentions are also found to be correlated to e-WOM (Electronic Word of Mouth) and image quality, but once more, they are not directly associated with facial skin (Teo et al., 2018).

This is why the current research paper aims to shed light on three aspects. Firstly, to what extent women's purchase intentions are altered when exposed to advertisements including unphotoshopped and photoshopped facial skin, and the product itself. In addition, the way that their self-esteem and social comparison levels can mediate the above relationship will be studied. For this reason, the following research question was formed:

RQ: *To what extent do cosmetic companies' Instagram posts showcasing models with unphotoshopped facial skin affect consumers' purchase intentions? To what extent is this relation mediated by consumers' self-esteem and social comparison levels?*

1.3. Scientific and societal relevance

This experimental research has both scientific and societal relevance. First, this study will bridge the literature gap and focus more on photoshopped versus unphotoshopped facial skin and purchase intentions, since previous research has stretched the effect of photoshopped images mainly on body image (Taylor et al., 2018). Although there have been studies examining the cosmetic industry as a whole, both from a discourse perspective (Ringrow 2016) as well as from a communicational and commercial one (Rábová, 2014), few studies have acknowledged facial skin and its importance (Guimaraes, 2022; Jan et al., 2019). For this reason, instead of focusing on body image, studying the effects of altered facial images on female's purchase intentions would be useful for comprehending better beauty perceptions and needs for social acceptance, that are based on unrealistic standards promoted through social media (Szczepaniak, 2021). Also, the combination of cosmetics photoshopping and purchase intentions is a topic that is quite understudied, as most of the studies already performed emphasize and connect beauty ideals with body dissatisfaction (Derenne &

Beresin, 2018), Instagram filtering (Evens et al., 2021) or brand awareness and equity (Lee et al., 2018).

Moreover, although Jan et al. (2019) delve into facial retouched advertisements and their impact on the psychology of women, this research will shed light on more specific issues, by examining aspects such as self-esteem and social comparison. These topics are believed to add further depth to the study by providing a more comprehensive psychological analysis along with a possible explanation for why females are drawn to make particular buying decisions. Finally, this study will take into consideration the arguments of Lee et al. (2019) about the lack of investigation of purchase intentions on skincare brands and try to provide a more holistic view of this sector linking it to photoshopped facial advertisements. In addition, from a psychological perspective, behaviorists could use these findings and look deeper into female psychology and motivation for specific purchase decisions. Examining self-esteem and social comparison might serve as the foundation for taking this research a step further and establishing a more tangible link with purchasing products, as well as the motivations, internal sentiments, and external variables that lead to that. As such, this experimental research will concentrate on the facial component and attempt to relate it to women's attitudes in the context of the new digital world and its predominant beauty standards.

On the other hand, from a societal standpoint, this research could also act as a starting point for future research on the topic of advertisement realism and non-objectification of women, either in the cosmetic or broader beauty industry. Female objectification has been a highly normative practice that the beauty industry exploits in order to make a profit and promote conventional images of beauty (Lazar, 2011). Thus, it would make sense to investigate the direction towards which changes are made and how this influences the overall profit and viability of the cosmetic industry.

1.4. Chapter outline

The research paper is structured in a way that will aid in answering the overarching research question and provide useful insights. First, the hypotheses of the research question as well as a more in-depth analysis of the basic concepts will be analyzed in Chapter 2. Within this chapter, the researcher will delve more into the fundamental theoretical ideas and will conceptualize them in a clear and concise way. In Chapter 3 the methodology for this research will be presented, namely the explanation of the research method, the selection of the

sampling population, and the operationalization of the experiment. Moreover, in Chapter 4 the results of the experiment will be presented and explained and will ultimately signal if the hypotheses presented in the theoretical framework are accepted or rejected. Based on the findings there will be a discussion in Chapter 5, where the researcher will try to elicit some results and connections between the dependent and independent variables and provide a detailed analysis. Limitations and implications of the research will also be mentioned as well as future research ideas. Finally, in Chapter 6 a conclusion will be drawn, and the initial research question will be answered.

2. Theoretical framework

2.1. Photoshopped advertisements in the cosmetic industry

2.1.1. The perpetuation of the beauty ideal

The concept of beauty has permeated every society, with marketing establishing beauty standards that both males and females should adhere to (Rahmania et al., 2021). Notwithstanding, beauty has a more critical significance for women since it constitutes a predictor of happiness and social acceptance (Mwaisaka, 2017). Males, in contrast, are less likely to be influenced by body image stereotypes, due to the social convention that their physical characteristics are related to mastering rather than attracting (Groesz et al., 2002). Going back in time, beauty was considered a key feature of women, and a sexual component for male seduction (Etcoff, 2000). Fredrickson and Roberts (1997) developed an approach around this topic with the objectification theory, where female objectification started being a common sociocultural practice, as the female body was regarded and depicted by the media as a mere object that should attract the male gaze. This conceptualization of female status and beauty kept perpetuating and ended up being a characteristic of women's representation, intertwined with virtues such as fairness, compassion, attractiveness, and morality (Gill, 2007).

Beauty standards have changed over time, but they have also been influenced by social norms and media representations (Holland & Tiggermann, 2016). For instance, the ideal female shape in the 1920s was slender and theatrical, whereas in the 1970s more natural beauty and makeup became fashionable (Hunt et al., 2011). The diversity of today's beauty standards is very noticeable, emphasizing inclusivity and embracing a wider range of body types, sizes, and skin tones (Lazar, 2011). Nonetheless, media depictions of beauty tend to still promote a certain type of beauty that impacts the way people view themselves and how they want others to view them (Szczepaniak, 2021). The increased use of social media and digital technology has also allowed for the widespread use of filters and photo-editing, further distorting the perception of natural beauty, and generating new benchmarks to compare against (Bridgers, 2016).

Advertising and media representations frequently use standards of perfection that are unrealistic for the majority of women, which causes feelings of inadequacy and low self-esteem (Argo & Dahl, 2017). Because of this, women may utilize cosmetics and other beauty products to assist them conform to these norms, thereby supporting the social expectation that women should constantly appear beautiful (Jan et al., 2019). Although the use of cosmetics is

not necessarily negative, the pressure on women to meet certain standards of beauty can have unfavourable effects, such as increased body dissatisfaction and decreased self-worth (O'Neil, 2014). As Fatima and Lodhi (2015) argue, the beauty industry encourages women to spend money on items that are frequently useless and occasionally problematic while upholding unattainable standards of beauty. Overall, despite efforts made to become more diverse and inclusive, the beauty industry continues to play a significant role in establishing erroneous standards and encouraging the use of cosmetics as a method of obtaining those objectives (Rahmania et al., 2021).

2.1.2. The cosmetics industry

The cosmetics industry is one of the most powerful and profitable industries worldwide, as it is fed by beauty norms and further shapes and promotes them (Lee et al., 2019). This industry specifically encompasses a range of categories including haircare, makeup, skincare, fragrances, and toiletries, with skincare being the dominant category for 2021 (Statista, 2023). Nowadays, females are spending a large amount of money on cosmetics in order to be considered beautiful, which is the main reason why this industry is so lucrative and is leading the market (Bridgers, 2016). For this reason, cosmetic companies in their effort to convince and influence women to buy more products, are using a variety of communication and marketing strategies so as to reach a wide population and achieve higher revenue (Rábová, 2014).

With the advent of social media platforms such as Instagram, the beauty industry has undergone a significant transformation. Social media shape and promote specific beauty standards (Taylor et al., 2018), with the most current one being the "'cyborgian face' with high cheekbones, flawless skin, and catlike eyes" (Szczepaniak, 2021, p.217). Cosmetic brands take advantage of the social media environment to advertise and promote their products through eye-catching campaigns with the aim to lure the audience towards purchasing the product and establishing the belief of attaining the ideal beauty (Rahmania et al., 2021). As Yang et al. (2023) state, the skin ideal that companies tend to promote relates to smooth skin, with no blemishes, while also highlighting a porcelain effect with no aging marks. To be more specific, according to Namira et al. (2021, p.209), the company Garnier in order to promote this ideal beauty in its advertisements decided to include words such as "perfect", "poreless", "pinkish", and "bright".

Through the continual need for women to buy beauty products in order to feel attractive, this alleged commercialization of femininity and beauty can be seen as a major contributor to the rise in consumerism (Ringrow, 2016). This is why cosmetic companies use certain marketing strategies to cultivate in female consumers a persistent desire to look for products that would boost their appearance (Fatima & Lodhi, 2015; Rábová, 2014). They do this, for example, by using catchphrases employed by businesses, such as: "You are more beautiful than you think" by Dove in 2013, "Understanding what makes you beautiful" by Avon in 1994, "Renew your skin with replenishing make-up" by CoverGirl in 1994, "Let's beauty together" by Sephora in 2016 (Weiss, 2021). These techniques aim mainly in perpetuating feminist perceptions and stereotypes of beauty and instilling the idea that beauty should be the ultimate goal (Lazar, 2011).

2.1.3. The Instagram phenomenon

Instagram has redefined beauty standards, and it has created a space where users can share images and videos of their ideal beauty by promoting a perfect look feeling, based on the Westernized beauty spectrum (Szczepaniak, 2021). The platform's influence on beauty standards is evident in the constant rise of beauty trends that have gained popularity among beauty enthusiasts and have become an essential part of the beauty industry (Jan et al., 2019). It is noted that not only it is the platform with the highest conversion rates, but it also facilitates brand-customer engagement (Adegbola et al., 2018). In fact, according to Instagram Business Team (2016), 75% of users act after being exposed to a commercial post, either by engaging with the brand or moving to a purchase.

For this reason, Instagram has become an essential tool for businesses to promote their products and services, including beauty products. Advertising through Instagram is one of the most successful means of product promotion as it heightens brand recognition and association with consumers (Raji et al., 2019). Moreover, online advertising further helps to build an interactive two-way flow communication between the brand and the customer and also increases brand equity, as the brand has the opportunity to build a strong brand image and differentiate from fierce competition (Adegbola et al., 2018; Raji et al., 2019). S-commerce, or social commerce, is the use of social media platforms to sell products directly to consumers (Xu and Liu, 2019). Instagram has become a vital platform for s-commerce, and it has transformed the way businesses market and sell their products (Zhang & Benyoucef, 2016).

The cosmetic industry was the first to grasp Instagram's potential as a marketing tool. The visual aspect of the platform makes it ideal for demonstrating the efficacy of beauty and skincare products through close-up photos of the models' faces and skin (Binwani & Ho, 2019). Cosmetic brands have used Instagram to stimulate interest about new products, with companies promoting their items to their followers through influencers and celebrities (Wulandari & Darma, 2020). Instagram has also enabled the spread of viral beauty trends, such as the Korean skincare routine, which has gained popularity among beauty lovers worldwide and promises a perfect, clean, and dewy skin appearance (Putri, 2021). Finally, these rising trends that consumers are constantly exposed to daily, build a specific image in their minds of how attractive facial skin should look, and imply a compass of appeal and beauty that they should pursue (Smith, 2016).

2.1.4. The photoshop trend

The cultural pressure to conform to idealized beauty standards has pushed cosmetic companies to create advertisements that utilize digital retouching to convey exaggerated appearances that are unreachable to the average person (Taylor et al., 2018). The use of Photoshop to enhance the beauty of models in advertising usually takes the form of airbrushed, blemish-free facial skin, which is incompatible with the daily image of the majority of women (Lv et al., 2022). This approach makes individuals feel drawn to pictures of their desire to appear as models in commercials (Omowale & Ayomide, 2021). However, there is a high possibility that such polished images will act in a negative and damaging way on women's self-esteem and facial image due to this overexposure to filtered images (Bridgers, 2016).

When it comes to beauty and skincare companies, there is a propensity to create advertisements in which models are presented with ideal skin, free of redness, acne scars, or wrinkles, resulting in an altered picture that customers perceive as realistic (Omowale & Ayomide, 2021). As Yang et al. (2023) highlight, these characteristics that define beauty are also connected to societal norms and status and can be predictors of male acceptance, career prospects, and psychological stability. Exposure to such advertising improves female customers' attraction to and purchase of that company's products since extremely attractive models are perceived to be trustworthy, making the brand appear to be so as well, as they reflect social norms and standards (Taylor et al., 2018).

Nevertheless, photoshopped images have adverse implications too, as unrealistic images cause acute body and face dissatisfaction in women, which can induce low self-esteem, eating disorders, or depression (McBride et al., 2019). The tendency to compare to the advertised model with perfect skin and body proportions, makes women feel unworthy and insecure about themselves, as they strive to reach an unattainable and unrealistic appearance (Bridgers, 2016). All these aspects are linked back to the objectification theory, as physical characteristics are seen as predictors of value and are the only ones that women should strive to attain and maintain, creating otherwise insecurity or inferiority syndromes (Taylor et al., 2018). Thus, although there have been attempts to minimize Photoshop use by beauty brands in various countries (Ringrow, 2016), facial retouching and skin smoothness are still a dominant practice in advertising in order to target high beauty standards and equally achieve high revenue (Yang et al., 2023).

2.2. Purchase intentions

2.2.1. Description and categories

Purchase intentions can be described as a person's proclivity and actions toward acquiring a specific product or service (Haghshenas et al., 2013). According to Kim and Ko (2012), purchase intentions are able to predict purchase behaviours and can be assessed through individuals' stance towards a specific brand and can be eventually achieved through high brand equity. These intentions can be triggered either through word of mouth or through social media exposure (Binwani & Ho, 2019). Purchase intentions also include three stages, namely the input stage, process stage, and output stage, where customers are called to make a certain choice regarding the product at stake (Wilson et al., 2017). All these factors can contribute to consumers' perception of a brand or product and hence influence their purchase behaviour towards it. For this reason, when consumers depict a favourable stance toward a brand image or brand communications like advertising or promotion, means that they are keen on a higher purchase intention (Raji et al., 2019).

Purchase intentions can be characterized as behavioural intentions and, most widely nowadays, online user intentions. Behavioural purchase intentions hint at the likelihood of consumers purchasing a product or service based on their past behaviour (Nurhandayani et al., 2019). Contrastively, online purchase intention refers to the possibility that these actions are taken in an online environment and are based on consumers' online behaviour (Ling et al., 2010). However, in order to proceed with an online purchase several factors contribute to this.

14

The first one is trust since online users pay close attention to other users' product evaluations or the overall trustworthiness and credibility of the vendor (Akar et al., 2015). The second factor that might impact purchase intentions is perceived risk, meaning the feeling of insecurity or unfavourable repercussions that may result from a potential online purchase (Akar et al., 2015).

2.2.2. Social Media and purchase intentions

Social media can play a crucial role in shaping and driving purchase intentions as well. More specifically, advertising through social media platforms can influence and enhance purchase intentions, mainly due to emotional reasons that are tied up with exposure to advertisements (Jan et al., 2019). Furthermore, advertisers tend to idealize advertisements to instill in consumers a feeling of a positive attitude toward the brand and further enhance their purchase intentions (Lv et al., 2019). To add to that, the majority of brands employ social media influencers in order to further promote their products and reach a higher consumer base. To achieve this, influencers use their personal accounts on social media and engage with their audience and followers in order to promote brand messaging and products and increase brand awareness and sales (Widyanto & Agusti, 2020). Their messaging is promoted in a variety of methods, such as product reviews, usability of products, and comparison with other similar ones, with the ultimate goal to persuade the audience to purchase these products (Nurhandayani et al., 2019). Finally, it is also noted that when influencers shape a strong and solid bond with their followers, trust and purchase intentions increase (Lee, 2017).

Social media platforms and especially Instagram, entail a great way for brands to advertise their products and generate high revenue. Especially, in the beauty and skincare industry the gains are greater (Jan et al., 2019), as skincare products earn an estimated $292 million more than any other type of cosmetic product (Lee et al., 2019). For this reason, social media content and advertisements are of high importance, because high-quality images not only create a more favourable stance among customers, but they can also increase product likeness and purchase intentions (Teo et al., 2018). As Jan et al. (2019) highlight, a factor that can intensify purchase intention in cosmetic products is aspirational advertisements that entail catchy lines and perfect-like images. Thus, apart from catchy slogans related to beauty, beauty brands aim in creating immaculate advertisements that are digitally retouched so as to attract as many potential consumers as possible. One rationale for doing so is to instil in consumers a

positive attitude toward the brand (Lv et al., 2022), and to entice them to purchase the advertised product through the model's facial attractiveness (Amornpashara et al., 2015).

2.2.3. Photoshop and purchase intentions

Beauty brands make their advertisements with one goal: to target females' wish to be seen as attractive as possible and increase their self-esteem, attractiveness, and confidence through the use of the advertised product (Frisby, 2004). The cosmetic industry is a very competitive field, and that is why marketers are trying to portray and promote products in the most appealing to the eye way, while still considering beauty standards as the highest priority. To be more precise, skincare companies which have an annual growth rate of 3.91% (Statista, 2023), are highly ambitious and try to create advertisements that would increase sales, by making use of filter editing so that models appear poreless and airbrushed (Rhamania et al., 2021).

Nonetheless, Photoshop usage can be an ambiguous topic among consumers. Nowadays, people are more aware of the situation regarding photoshopping and most of the time are able to distinguish when an advertisement has been altered, creating in this way a level of tolerance for Photoshop exposure (Taylor et al., 2018). This means that when advertisements moderately use Photoshop it can have a positive effect on consumers and increase their liking of the image, whereas over-photoshopped images are more likely to enhance in women the feeling of unattainable beauty, causing them to reject the advertised product or beauty brand (Yan & Bissell, 2014). This behaviour stems from consumers' current need for more inclusivity and authenticity when it comes to advertisements, with a realistic depiction of the face being more urgent and prominent (Shoenberger et al., 2020). Many businesses strive for authenticity as it leads to higher customer loyalty and product trust. This indicates that consumers might react favourably to unretouched skin since they can see the actual efficacy of the product (Rea, 2012).

Moreover, when a product is showcased on a model with a natural face, rather than highlighting it alone, purchase intentions can be higher as consumers are able to see its application (Rea, 2012). When beauty brands choose to advertise the product itself, there is a risk that consumers will not self-identify or connect with it on a desirable level. In essence, demonstrating a product's effectiveness on real skin can prove highly relatable to consumers' expectations and can help them identify with the results of the product more easily (Rea, 2012). Thus, advertising only the product may result in a lack of personal relevance and

visual context that would enable customers to visualize the benefits of the product, resulting in a decrease in purchase intentions (Raji et al., 2019). However, as skin is portrayed by the majority of cosmetic companies as soft, without blemishes and redness, the feature of natural beauty is rejected, enhancing more the concept of ideal beauty, which although contributes to the rise of facial dissatisfaction, at the same time it is also constituting the skin ideal that women strive to obtain (Yang et al., 2023).

The cosmetic industry through infiltrating Westernized characteristics of beauty is constantly trying to promote a tireless image of women that is attractive and worthy of admiration, leading consumers to wish to replicate this image to the highest degree possible (Szczepaniak, 2021). For this reason, the use of Photoshop serves not only as an enhancer of beauty but also as an aspiration for females to reach something that without the advertised products would not be feasible (Rea, 2012). That is why, purchase intentions are considered to be greater when flawless skin is depicted through an advertisement, as consumers can link the beautiful face to the product's effectiveness (Bridgers, 2016). Additionally, as Yang et al. (2023) state, although customers notice that an advertisement is digitally manipulated and models are depicted with perfect facial skin, their purchase intentions are actually higher. Based on the above, the following hypotheses were formed:

H1: Purchase intentions are higher when photoshopped skin is portrayed compared to unphotoshopped skin or the product itself
H2: Purchase intentions are higher when unphotoshopped skin is portrayed compared to the product itself

2.3. Self-esteem

2.3.1. Definition

Self-esteem is an intrapersonal characteristic of people that is dependent on many internal and external factors (Paramboukis et al., 2016; Vogel et al., 2014). Rosenberg (1965) has defined self-esteem as a person's positive or negative attitude towards themselves. More specifically, self-esteem is a unique characteristic of people and can range from high to low, depending on societal circumstances (Flynn, 2003). Some additional associations with the level of self-esteem may include certain ideas, mood, and behaviours that can influence individuals. Therefore, the higher the control of the above elements in one's environment, the higher the chances of having high self-esteem (Lyobomirsky et al., 2006). Furthermore, high

self-esteem is correlated to happiness and well-being, whereas low self-esteem is associated with general dissatisfaction and negative emotions (Flynn, 2003). It is also highlighted that, because it is a social trait that is related to acceptability and psychological stability, is quite solid and flourishes with time, but it can also shift based on circumstances and concurrent events (Vogel et al., 2014).

2.3.2. Self-esteem and social media

The concept of self-esteem is highly related to people's feelings and the level that they consider themselves worthy of value and respect (Liao, 2021). Social media platforms are known to affect these feelings, through exposure, comparison with other people, and the type of content that people come in touch with every day (Taylor et al., 2018). As a result, social media can have a direct effect on self-esteem. As Gonzales et al. (2011) note, the aforementioned relationship can be explained through the Hyperpersonal Model theory, which is related to self-representation. According to this theory, social media users tend to present and expose themselves online in a selective manner, by boosting their good qualities and thereby uplifting their self-esteem (Gonzales et al., 2011; Walther, 1996). However, online exposure on Instagram, a platform where users can leave comments and react to images, can also lead to adverse outcomes, as negative comments can lower self-esteem and general well-being (Staniewski & Awruk, 2022). In particular, the exposing character of this platform and the high tendency for social comparison that it promotes, gradually increases in females the sense of social anxiety, as trying to reach certain beauty ideals that are mostly unattainable leads to lower self-esteem and self-worth (Jiang & Ngien, 2020).

Additionally, an aspect that can affect self-esteem is females' body image which is linked to their overall well-being and is something that can be constantly interchanging between positive and negative (Evens et al., 2021). According to Staniewski and Awruk (2022), social media usage and especially Instagram, can affect body image and lead to lower self-esteem, as it is a platform for image-building with picture posting and receiving comments. One reason that Instagram has a negative impact on a female's body, face image, and self-esteem is overexposure to filtered pictures that are derived from the above-mentioned beauty idealization (Guimaraes, 2022). For instance, when women are exposed on a daily basis to advertisements where models are depicted as acne free, with no blemishes or imperfections, they start perceiving this overedited beauty as reality, resulting in low self-esteem and anxiety (Adelabu & Fanjoye, 2021; McBride et al., 2019). It has also been

observed that advertisements tend to accentuate the sexual and perfect-like side of women, making them doubt their unique beauty and experience self-worth and vulnerability issues (Bridgers, 2016). These feelings are augmented even more, when women are not able to resemble these images or reach these beauty standards in any manner possible (Gurari et al., 2010). For this reason, beauty brands shape their advertisements on social media in such a manner that they are highlighting the efficiency and necessity of the product with the end goal of the advertised model's beauty (Bridgers, 2016).

Nonetheless, there have been some markets and brands that are trying to incorporate diversity in their campaigns and include more natural advertisements with limited or no use of Photoshop, such as CVS Beauty or Dove (Hong, 2020). Such advertisements that feature a realistic person advertising the product can offer a diverse representation of beauty and skin in particular, resulting in higher self-acceptance and self-love, as they diverge from external validation instances. That is why advertising the product on a model instead of its own can instil a more relatable image in women and can highlight its usage. Additionally, promoting the product alone might lead to the elimination of diversity and general representation of certain aesthetic characteristics of various skin types, complexions, or ages. When customers do not feel that that they are being represented enough, unpleasant results might emerge resulting in low self-esteem (Evens et al., 2021). Unphotoshopped skin, on the other hand, provides a more inclusive image of beauty, empowering those who would not often see themselves represented in conventional advertising. However, although this representation can act positively in women feeling more confident and powerful in their skin, still the beauty standards and perfection achievement are prevailing both in the beauty and fashion industry and in most consumers' mentality (Lai & Perminiere, 2020). These arguments led to the creation of the following hypotheses:

H3: Self-esteem levels are higher when photoshopped skin is portrayed compared to unphotoshopped skin or the product itself.
H4: Self-esteem levels are higher when unphotoshopped skin is portrayed compared to the product itself.

2.3.3. Self-esteem and purchase intentions

As discussed above, self-esteem levels can vary and shift, depending on the stimuli that individuals are exposed to. For this reason, and to cope with the high competition,

cosmetics companies are trying to create eye-catching advertisements on Instagram to lure as many customers as possible to purchase their products (Rhamania et al., 2021). Projecting highly attractive visual content can lead consumers to wish for acquiring the advertised product, so as to satisfy their personal views and their overall external image (Stuppy et al., 2020). Additionally, this desire to boost one's image gets even more imperative due to the fact that consumers are also exposed to influencer marketing, with influencers highlighting the products' usefulness through their own boosted and occasionally not attainable appearance (Wulandari & Darma, 2020). All these instances can act in a negative way on female's well-being and vulnerability, as they start doubting their body and face image and subsequently, their body esteem, when compared to ideal images online (Rosa et al., 2006). Finally, as Jiang and Ngien (2020) point out, ideal representations of women augment social comparison feelings, as projecting ideal ways of looking and living results in lower self-esteem.

These arguments signify that self-esteem is intrinsically connected to consumer behaviour and actions. In general, it is argued that consumers with low self-esteem are keen to more negative self-views and feelings of inferiority, when compared with high self-esteem consumers that have a more solid and confident idea of their image (Lee et al., 2020). Advertisements on Instagram, not only influence females' view of themselves, but also their purchase intentions in their effort to attain unattainable beauty standards (Staniewski and Awruk, 2022). As a result, purchasing cosmetics allows females to improve their external appearance and win other people's positive comments and opinions and thus turn their feelings of the self from negative to positive (Chen et al., 2011). Moreover, it is argued that purchasing beauty products acts in a positive way for females in order to combat poor self-esteem and self-perception by instilling sentiments of contentment and fulfillment (Bi & Zhang, 2022). In this manner, the urge for self-verification manifests itself in the form of product purchases as a kind of psychological compensation for low self-esteem (Stuppy et al., 2020). Thus, as Lee et al. (2020) argue, consumers presenting low self-esteem are urged to purchase more in order to increase positive feelings of self-worth, whereas consumers with high self-esteem present more confidence and resilience and do not consider purchases as a prerequisite to their overall mood and self-image. Based on that, one more hypothesis was built:

H5: *Self-esteem is mediating the relationship between the type of advertisement and purchase intentions.*

2.4. Social comparison

2.4.1. Definition

Social comparison can be described as people's tendency of looking upon other people's actions and behaviours in order to define and shape accordingly their own (Verduyn et al., 2020). According to Festinger (1954) and the social comparison theory he developed, comparing to other people is an intrinsic need to handle uncertainty and to develop a more comprehensive understanding of their place in society by maintaining a positive self-image. Social comparison can be performed either intentionally or non-intentionally, since comparing to others is sometimes a natural reaction (Smith, 2016).

2.4.2. Social comparison and social media

Social media platforms are laying the ground for performing social comparison, as they are promoting profile creation and exposure of one's appearance, everyday life, or other intimate instances based on societal standards (Schünke, 2022). However, according to Vogel et al. (2014), online social comparison presents differences contrasting to offline, as people are choosing to be presented in an ideal rather than realistic way. More specifically, this kind of false representation is also shaping the focus of the comparison. This indicates that with the promotion of face profiles, like Instagram, females are paying more attention to their face representation and making comparisons related to face and skin, which often leads to facial dissatisfaction (Fardouly et al., 2015). This dissatisfaction and tendency for social comparison is augmented even more with their exposure to advertisements, where models are photoshopped, as they realize their lack of some beauty features that these advertisements highlight as necessary (Lv et al., 2022). Thus, within the online environment, social comparison can be further divided into two more categories, namely upward and downward comparison.

Upward social comparison is image-based and is performed when models in advertisements are considered more admirable and superior to the general audience (Smith, 2016). People who perform this kind of comparison are thought to have a negative view of themselves and lower self-esteem as they feel inferior, with less good qualities (Yang et al., 2018). More specifically, social comparison on Instagram can be characterized as upward online comparison, as people tend to compare and present themselves in line with the ideally constructed lives of other users in an effort to feel equals (Verduyn et al., 2020; Vogel et al.,

2014). This behaviour can be exacerbated through advertisements, as individuals notice their lack of attractiveness in comparison to ideally presented models, leading them to feel worthless and have a skewed image of themselves (Lv et al., 2022).

Downward social comparison, on the other hand, refers to the situation where individuals who are facing negative feelings about themselves are comparing themselves to people inferior in their judgment, in order to enhance their self-esteem (Ha et al., 2023). For instance, they might compare their physical attractiveness to someone that is lacking this feature, creating thus a superior self-image (Knobloch-Westerwick & Romero, 2011). Based on this, when being exposed to an unfiltered advertisement, they might still proceed to a social comparison behaviour, as they either feel contrastively socially superior to the model, or more closely identified with it (Mussweiler et al., 2004). This type of comparison can lead to self-development, as people are in a position to recognize their positive characteristics, but can also bring adverse feelings as well, as they might realize that their comparison is not strong or satisfying enough (Vogel et al., 2014). Nonetheless, this type of comparison can be deemed quite beneficial during self-enhancing moments (Smith, 2016).

The above types are both parts of online social comparison and are related to the body and face satisfaction, self-esteem, and self-view. However, upward social comparison is more commonly studied as part of social media interaction, as users tend to come in touch with idealized content, and that signals feelings of self-doubt (Vogel et al., 2014). Cosmetic companies market their products by implying that women are considered a commodity that always has room for improvement, generating thoughts of an incessant and comparative struggle to seem more feminine than others (Ringrow, 2016). Especially, women are more prone to this kind of comparison, as they are trying to establish a societally acceptable position in the digital world (Wagstaff & Sulikowski, 2022). Based on these arguments, the following hypotheses were formed:

H6: Social comparison levels are higher when photoshopped skin is portrayed compared to unphotoshopped skin or the product itself
H7: Social comparison levels are higher when unphotoshopped skin is portrayed compared to the product itself

2.4.3. Social comparison and purchase intentions

In the digital realm, advertisers aim in creating content that portrays an idealized way of appearance in order to entice customers to purchase a product (Tsai, 2013). These advertisements that females come in touch with appear to affect their overall behaviour, especially content coming from skincare brands (Jan et al., 2019). As customer behaviour is multifaceted and entails plenty of layers, such as physical, psychological, or attitudinal, their purchase behaviour is shaped accordingly to their perceived needs (Haghshenas et al., 2013). Beauty brands, in particular, leverage this attitude when promoting products, as consumers frequently use social media platforms like Instagram to compare their appearance to others and to seek out beauty products that can help them achieve their desired look (Szczepaniak, 2021). Thus, research has shown that high upward social comparison leads to higher purchase intentions, highlighting the importance of social comparison in driving consumer attitudes (Fardouly et al., 2015).

Consumer behaviour and relatively purchase intentions can be influenced by many factors. One important is individuals' online social cycle, as coming in touch with content from friends, social groups, brands, and celebrities or influencers, creates the feeling of comparison, which further takes the form of purchasing desire in order to reach the same levels of satisfaction through consumption (Pillai & Nair, 2021). When females are exposed to this kind of content, they are more prone in performing upward social comparison and proceed to a purchase in order to feel equals and attractive (Lv et al., 2022; Verduyn et al., 2020). As Wagstaff and Sulikowski (2022) state, women are fiercely competitive with one another, and to reach the beauty ideal they purchase cosmetic products aiming to be more attractive. Therefore, as the presentation of perfect facial skin on Instagram is considered to boost their attractiveness, it is considered that high social competition and ideal beauty conquest lead women to higher purchase intentions (Fardouly et al., 2015; Wagstaff & Sulikowski, 2022). According to the above, one final hypothesis was formulated:

H8: *Upward social comparison is mediating the relationship between the type of advertisement and purchase intentions*

2.5. Conceptual Model

Taking the above arguments into consideration this study formed eight hypotheses. Hypotheses 1 and 2 refer to the relationship between the independent variable of advertisement type and the dependent variable, meaning purchase intentions. Hypotheses 3,4 and 5 refer to the mediator of self-esteem in the above relationship. Finally, hypotheses 6,7, and 8 refer to the second mediator of social comparison. Figure 1 illustrates the conceptual model of this experimental study:
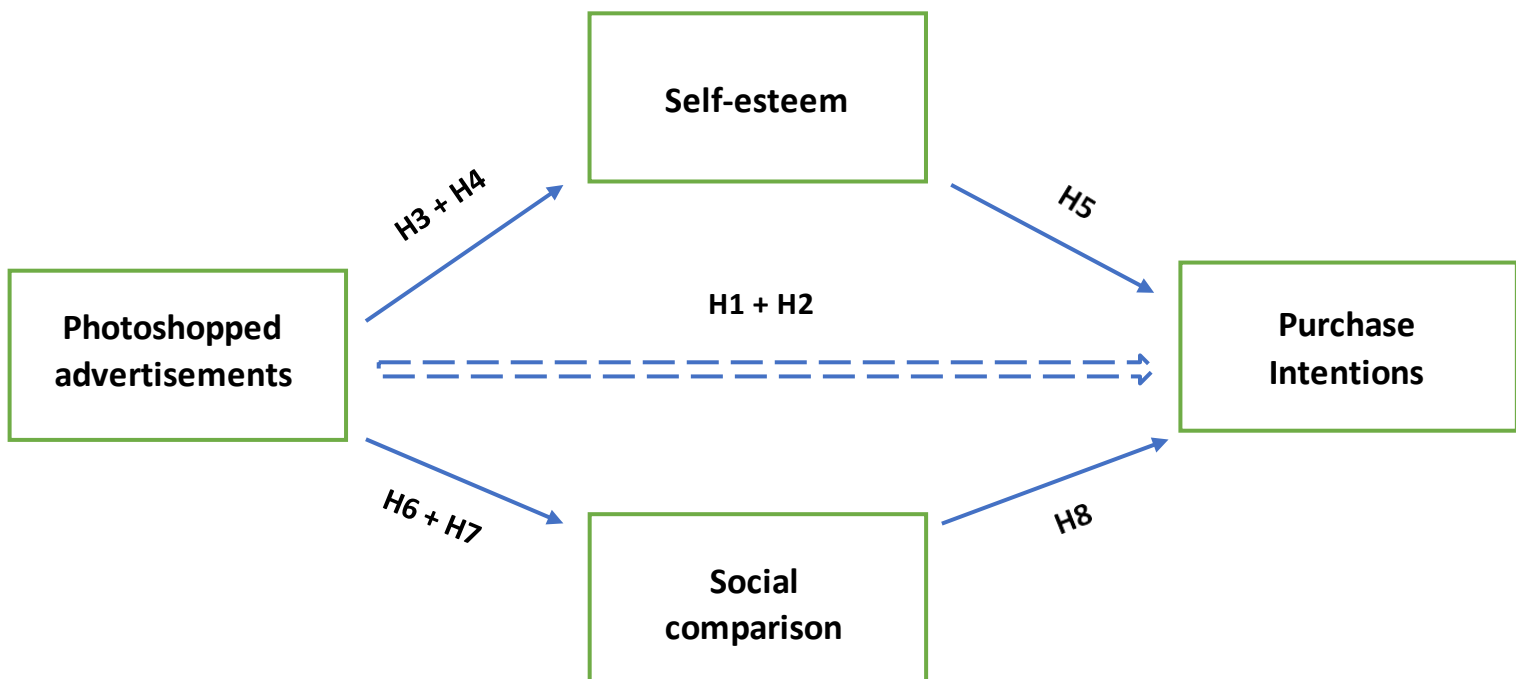
Figure 1. Conceptual Model

3. Research design and methods

This specific chapter is dedicated to the research design and overall methodology that was chosen for this experimental research. First, the choice of the specific research design will be examined. Then, the sampling criteria will be presented, as well as the data collection procedure and the operationalization. Finally, validity and reliability issues regarding the research will be addressed.

3.1. Research design

Taking into consideration the nature of the study and the investigation of the causal relationship between the type of advertisement and purchase intentions, quantitative experimental research seemed like the ideal research method for this topic. The first reason why quantitative research seemed a suitable option is because it addresses cause-and-effect relationships that occur between variables (Holt, 2009). This means that the action of the independent variable will be able to show an effect or consequence on the dependent variable. Through manipulating variables while keeping others controlled, it can be concluded whether the specific manipulation is the cause of change in the measured variable. For this reason, this thesis is built around hypotheses that aim in either accepting or rejecting them by testing their validity by presenting stimuli to the subjects of the experiment (Babbie, 2017).

Moreover, experimental research can measure the relationship between variables and provide results through data and statistical analysis (Holt, 2009). One of the advantages of quantitative research is that it is deductive, meaning that it considers large amounts of data, quantifies it, and through its analysis comes to precise conclusions (Watson, 2015). This analysis aids in the isolation of some variables that are connected to each other and through hypotheses test their causal relationship in a controlled environment (Neuman, 2014). To do so, and to ensure validity of results, subject randomization in groups is performed, in which one or more groups receive the experimental treatment, whereas the other does not (Holt, 2009). In other words, groups are divided into experimental and control, aiming in determining if the treatment has an actual effect on the dependent variable (Neuman, 2014). More specifically, through this experiment, the researcher will be able to test how the independent variable of the advertisement type can have a causal effect on the dependent variable meaning purchase intentions through manipulating experimental groups with the treatment of a photoshopped or not advertisement. Finally, the experiment will help the researcher test the hypotheses stated above by modifications and adjustments to the initial

situation (Neuman, 2014). Exposing participants to an experimental manipulation will aid in identifying the type of relationship between the variables and actual conformity or nonconformity in the situations described above (Hafer & Begue, 2005).

Following the research design of this paper, a unifactorial between-subjects design with three conditions was used. To elaborate, the experiment performed, enabled the manipulation of the independent variable of the type of advertisement to three conditions: one with a photoshopped advertisement, one with an unphotoshopped advertisement, and one with the product itself. As such, participants were randomly allocated to one of the three groups which included 2 experimental and 1 control group, which did not receive any treatment. The allocation happened in a random way, in order to ensure that groups would be unbiased without the researcher's own preference (Neuman, 2014). Furthermore, the use of a factorial design, instead of a single-treatment one, enabled the researcher to see and test the concurrent effect of more than one treatment on the dependent variable of purchase intentions (Neuman, 2014). Conclusively, this particular experimental design will aid in determining if the type of advertisements has a causal effect on purchase intentions and if this relationship is mediated through the variables of self-esteem and social comparison.

3.2. Sampling

3.2.1. Sampling strategy

Regarding the sampling method, non-probability convenience and snowball sampling were used. This specific choice was mainly focusing on two reasons. Firstly, probability sampling might yield better representativeness and generalizability, as everyone has the same chance of being selected, but with non-probability sampling, validity can still be secured and can be achieved with lower costs and in less time (Mohsin, 2016; Sarstedt et al., 2017). Secondly, with non-probability sampling, the researcher will be able to target specifically the population that is right for this research, meaning females, who are above 18 years old and are users of Instagram, which would not be possible with random sampling methods, as the chance of equal inclusion in the study cannot be implemented. Thus, having these requirements in mind, this method seemed like the ideal option, as it allowed for greater accessibility of the population under study (Etikan et al., 2016).

A category of non-probability sampling, meaning convenience sampling, was employed by the researcher as the target population was broad and time was limited. An advantage of convenience sampling is that it enables to approach possible participants that are

easy to be recruited and belong to the immediate connection environment (Sarstedt et al., 2017). Additionally, it is a cost-efficient way to target females that were immediately available to participate in the research and would be convenient for the limited time that the research would take place (Mohsin, 2016).

Moving on, snowball sampling was the second method chosen, as it would help spread the survey to more acquaintances. With snowball sampling, participants would be able to reach out to close acquaintances, expanding thus the sampling population (Mohsin, 2016). Expanding the social network of respondents through creating a chain of previous ones, is an effective way to create a more diverse sampling (Etikan et al., 2016). However, this method can be considered discriminatory, as with exponential discriminative snowball sampling it is not guaranteed that participants will spread the survey and recruit more people, narrowing thus the sampling number (Etikan et al., 2016). Nonetheless, although non-probability sampling can be considered as lacking generalizability and being biased as well, it is preferred due to the ease of recruiting participants in a fast way with lower costs (Sarstedt et al., 2017). Hence, as reaching out to a large number of female respondents would not be possible in a limited period of time, snowball sampling would allow the researcher to reach a more diverse sampling and increase the number of valid responses.

3.2.2. Data collection

For this experimental research, participants were recruited online and were asked to complete a short online survey that was created in Qualtrics. The decision to create the online survey through this type of platform was made to achieve anonymity of results and collect responses faster (Rice et al., 2017). Also, through an online survey, the researcher was able to access a larger pool of respondents, thus ensuring higher representativeness and validity of results (Singh & Sagar, 2021). The anonymity of responses and confidentiality of results were clarified from the beginning to achieve transparency of the survey. The researcher did not perform any pretest but rather moved immediately to the actual survey, due to time constraints. Finally, the timeframe that the data collection took place was between 25 March and 12 April 2023.

The main channels via which participants were reached and recruited were email and social media platforms, including Facebook groups, LinkedIn, Instagram, and WhatsApp. More specifically, the researcher shared a link of the survey via email to female participants that were kindly asked to participate in the experiment and if wished, share the survey as well.

Next, the researcher posted the survey to LinkedIn as it is a platform that a lot of professionals use, and this would help increase the number of diverse respondents. The survey highlighted from the beginning that it is addressed to females only and users of Instagram as well, in order to clarify the requirements and avoid answers that would be considered invalid. Then, the particular post was reposted by various friends and was reposted by the researcher a few weeks later to ensure more responses.

Furthermore, the researcher shared the survey on WhatsApp and Facebook groups, which a lot of females were part of, and asked them to share the survey with their acquaintances as well, in order to secure a variety of responses and a desirable number of participants. On Facebook the survey was also reposted by several Facebook friends, targeting thus a variety of ages, from 18 to under 50, and ethnicities, from Greek to Dutch and Scottish. The survey was also posted on Instagram, as it is a platform with a high number of members and also a valid platform, as one prerequisite of the study was for participants to be Instagram users. Finally, the survey was distributed among the personal social network where participants were also asked to distribute the survey to their social network as well, so as to achieve greater representativeness of the sample.

3.2.3. Sample and data cleaning

As the experimental research looked into the cosmetics industry, and more specifically beauty skincare products advertised on a female model, the main sample of the survey was females, that are above 18 years old. The age restriction was placed due to ethical and practical reasons as well, because teenagers' mentality differs significantly from adults, and results could have been biased or invalid. Additionally, as the advertisement would appear on the social media platform of Instagram, it was necessary for respondents to also be Instagram users. For this reason, the online survey was distributed to participants of all kinds of backgrounds, namely ethnic, racial, or cultural, in order to achieve higher representativeness of the sample and a greater variety of responses.

After the online survey was closed, as the minimum number of respondents was achieved, it was exported from Qualtrics to an SPSS file in order to start the statistical analysis of the data. However, before that, the data file needed to be "cleaned" from invalid answers that would not be taken into consideration in the actual data analysis. Thus, the original sample included 218 participants, out of whom 32 did not complete the survey, 7 were male, 3 third gender, and had to be excluded.

The final sample consisted of 176 female respondents (N=176). The age range of the respondents was between 18 and 57 years old with a mean age of 28.08 (SD= 8.38). The respondent sample was ethnically diverse, including 26 ethnicities, with the most dominant ones being Greek with 64.2% (N=113), Dutch with 10.2% (N=18), and German with 4% (N=7). Finally, respondents stated the time that they spend daily on Instagram with 65.3% (N=115) spending an amount between 1-3 hours daily, 25.6% (N=45) spending less than one hour, and 9.1% (N=16) spending more than 3 hours of using Instagram. A more detailed representation of the sampling is provided in Appendix C.

3.3. Operationalization

3.3.1. Experimental design

For the purpose of the experiment the researcher used an advertisement that was an Instagram post of the skincare company called "Topicals", which is an American-based, vegan, cruelty-free skincare brand that specializes in serums, skin treatments, and moisturizers (Topicals, n.d.). In the advertisement, the female model is photographed while holding the product and her skin texture appears with no Photoshop. The researcher decided to use this particular image, due to the fact that the product is integrated into the picture and participants can link it with its effectiveness on the skin. This advertisement was then photoshopped by the researcher and gave the model an airbrushed and flawless effect in order to proceed with the experiment.

Regarding the distribution, all three groups happened in an even fashion, with N=59 being allocated to the control group, N=59 to the unphotoshopped group, and N=58 to the photoshopped group. The control group was exposed to the image of the serum product alone in order to test if the treatment has a causal effect on the dependent variable of purchase intentions or not. The unphotoshopped group was exposed to the advertisement, where the model had unphotoshopped skin and acne scars as well as face texture are visible. Finally, the photoshopped group was shown the image of the facial skincare serum product on a female model with photoshopped skin with no imperfections being visible. All three advertisements featured a brief description in which participants saw what the image was about and were instructed to pay close attention for a few moments since they would be later asked questions regarding this specific advertisement. A more comprehensive overview of the three groups can be found in Appendix A.

3.3.2. Manipulation check

After being introduced to the advertisement, a manipulation check followed, to increase the internal validity of the experiment. By introducing a manipulation check the researcher is able to see if all the conditions of the experiment work correctly as planned initially, and if internal validity is achieved (Neuman, 2014). The manipulation check of this particular experiment was one and aimed at testing participants' thorough observation of the advertisement. More specifically, the manipulation check had the form of a statement saying: "The previous advertisement is in line with modern beauty norms as presented by beauty brands on Instagram". Participants had to answer on a 5-point Likert scale (1= strongly disagree, 5= strongly agree) their agreement or disagreement with this statement based on the image they saw. The type of image displayed would affect their answers and would signify if they indeed noticed the concept of the advertisement and the model's face. The researcher assumed that participants that were exposed to the photoshopped advertisement would answer more positively, whereas participants exposed to the unphotoshopped one more negatively and participants exposed to the control situation would have a more neutral response. This assumption was based on the theory developed above, where photoshopped skin was considered to be ruling the digital world, as it appears to be closer to prevailing beauty ideals that consumers are mainly exposed to (Omowale & Ayomide, 2021; Taylor et al., 2018).

3.3.3. Procedure

Regarding the rest of the survey, it included 25 questions. Additionally, there were 4 more questions related to demographic data, focusing on age, gender, nationality, and hours spent on Instagram, in order to gather some more information about participants' backgrounds. Before starting the survey participants had to give their consent to the survey, which disclosed that their contribution is completely anonymous and voluntary, and they have the right to withdraw at any given point. Next, they were asked if they are Instagram users, as this was a prerequisite for taking part in the survey, and in case of answering negatively, they would automatically be excluded from the survey. Then, they were presented with the advertisement and were asked to evaluate the degree to which it conforms with the majority of beauty advertisements shown on Instagram. Finally, the main questions derived from 3 scales taken from previous studies and slightly altered by the researcher, that are related to purchase intentions, self-esteem, and social comparison.

3.4. Measurements

This part analyzes the measurements that were used in order to build the online survey with the use of existing scales. These scales were validated and taken from previous studies. Next, separate factor and reliability analyses of the scales are presented.

3.4.1. Purchase Intentions scale

The first scale related to the dependent variable of purchase intentions was taken from Baker and Churchill (1977) and included 4 items that were measured on a 5-point Likert scale (1= strongly disagree, 5= strongly agree). As the initial scale included some questions related to attitudes towards a product, the researcher modified the scale to entail only statements related to purchase intentions. Some statements were also rephrased, in order to be answered with an agree/disagree form. Thus, the scale included statements such as "I would like to try this product" or "My overall reaction to the above advertisement is favorable".

Factor analysis was conducted for the 4 items using Principal Component extraction with Direct Oblimin rotation based on Eigenvalue (> 1.00) $KMO = .77$, $X^2(N = 176,6) = 319.25$ $p < .001$. The resultant model explained 69% of the variance of purchase intentions and had a 1-factor solution. Following that, a reliability test was conducted as well in order to see if the items of the scale have a strong correlation to each other. The reliability analysis showed good internal consistency with Cronbach's $\alpha = .85$. When Cronbach's α is above .70 it can be concluded that the scale has great internal consistency and is thus reliable (Shrestha, 2021). Moreover, all arguments referred to the same concept and were relevant to each other leading to the need for one general indication for all. For this reason, as excluding items would lead to a decrease in reliability, these 4 items were put under one scale, with the name *Purchase Intentions*, which would indicate the overall mean of these items and would be later used in the main analyses as one overall factor.

3.4.2. Self-esteem scale

The second scale was derived from Rosenberg (1965) and measured the mediator of self-esteem. The respondents were asked to state their preference on 10 items on a 5-point Likert scale (1= strongly disagree, 5= strongly agree). Although the original scale was measured in a 4-point scale, for the purpose of this study all scales have been altered to a 5-point scale, to include a neutral possibility of answering. The scale measured both positive statements such as "I feel that I have a number of good qualities" and negative such as "At

times I think I am no good at all". Negative-worded statements were later recoded to have the same value meaning as the positive-worded ones. For this reason, 5 statements were recoded.

Factor analysis was conducted for the 10 items using Principal Component extraction with Direct Oblimin rotation based on Eigenvalue (> 1.00) $KMO = .87$, $X^2(N = 176,45) = 679.40$ $p < .001$. The resultant model explained 59% of the variance of self-esteem and had 2 factors solution. The result of 2 factors can be based on the fact that this scale had both negative and positive items that were thus grouped accordingly. Following that, a reliability test was conducted as well in order to see if the items of the scale have a strong correlation to each other. The reliability analysis showed good internal consistency with Cronbach's $\alpha = .86$. Moreover, all arguments referred to the same concept and were relevant to each other leading to the need for one general indication for all. For this reason, excluding items would lead to a decrease in reliability and that is why the 10 items were put under one overall scale, with the name *Self-esteem*, which would indicate the overall mean of these items and would be later used in the main analyses as one overall factor.

3.4.3. Social Comparison scale

Finally, the third scale came from O'Brien et al. (2009) and measured social comparison on a 5-point Likert scale (1= strongly disagree, 5= strongly agree). The scale was slightly modified as well to fit research purposes and included 10 items in total. As the initial scale was divided into two parts entailing upward social comparison and downward social comparison statements, the researcher took into consideration only the statements referring to upward social comparison. That is because, upward social comparison is the type discussed in the theoretical framework as being correlated to social media presence and activity and is thus relevant to the study (Vogel et al., 2014). For this reason, the researcher modified the sentences that refer from body image to facial image. Thus, statements like "I compare my body to people who have a better body than me" became "I compare my facial skin to people who have a better facial skin than me".

Factor analysis was conducted for the 10 items using Principal Component extraction with Direct Oblimin rotation based on Eigenvalue (> 1.00) $KMO = .88$, $X^2(N = 176,45) = 1045.2$ $p < .001$. The resultant model explained 66.4% of the variance of social comparison and had 2 factors solution. Following that, a reliability test was conducted as well in order to see if the items of the scale have a strong correlation to each other. The reliability analysis showed good internal consistency with Cronbach's $\alpha = .90$. Moreover, all arguments referred

to the same concept and were relevant to each other leading to the need for one general indication for all. For this reason, excluding items would lead to a decrease in reliability and that is why these 10 items were put under one overall indication scale, with the name *Social Comparison*, which would indicate the overall mean of these items and would be later used in the main analyses as one overall factor.

3.5. Validity and reliability

This part discusses the internal and external validity and reliability of the whole experimental research and in particular highlights the decisions made to construct the experimental design and the measurements of the research. Validity refers to the empirical connection between the measurement and the object that is studied (Babbie, 2017). Validated scales used in previous research as well as a carefully constructed questionnaire with closed-ended questions, were factors that ensured the validity of the research (Holt, 2009).

Apart from that, validity can be distinguished between internal and external. Internal validity refers to the establishment of a cause-effect relationship between the independent and dependent variables, with no other influences (Neuman, 2014). As there are many factors that can threaten internal validity, such as selection bias or testing, the researcher ensured to set a randomized allocation of the groups in Qualtrics, so as to have equal groups. Experimental mortality is also a factor that can have a negative effect on internal validity, with participants not completing the whole experiment, and that is why the researcher tailored the survey to last no longer than 5 minutes, in order to avoid participants' withdrawal from the survey (Neuman, 2014). Finally, internal validity was increased through a manipulation check in order to detect if the conditions of the experiment were met successfully through a 5-point Likert scale measurement (Neuman, 2014).

On the other hand, external validity is connected with the generalizability of the findings, meaning implementing the experimental findings to other potential studies (Neuman, 2014). This type of validity is more challenging to achieve as research findings might not be suitable to be incorporated into further research (Babbie, 2017). Reactivity is also a challenging key point, as it is possible that participants were cautious that they were taking part in an experiment and their reaction was different than in a real-life setting (Neuman, 2014). In order to avoid this, the researcher made sure to form questions clearly with simple wording in order not to confuse and at the same time not lead participants to a specific answering pattern.

Reliability can be described as the ability to provide the same results of the same phenomenon when studied multiple times (Babbie, 2017). In this particular experimental research, the use of a questionnaire to collect the required data seemed like a suitable option to ensure reliability, as the three scales that were used were taken from previously studied and hence had been already validated (Holt, 2009). Moreover, all three scales showed Cronbach's α higher than .80, meaning that they indicate a strong internal consistency of the items (Shrestha, 2021). All scales used were measured with a 5-point Likert scale, which provided consistency and is proved to trigger higher reliability, due to giving the option of a neutral answer and does not promote a forced choice as it can happen with 4-point scales (Bertram, 2007). Finally, a last factor that ensured reliability is that all participants were given the same instructions, that carefully guided them throughout the experiment (Neuman, 2014).

4. Results

This chapter is dedicated to the preparation of the collected data and their statistical analysis of the findings through the software of SPSS Statistics. First, the data was retrieved from Qualtrics and imported into SPSS in order to proceed to data cleaning. Next, the manipulation check will be presented and analyzed through one-way ANOVA analysis. To answer the 8 hypotheses presented in the Theoretical Framework separate analyses will follow through one-way ANOVA's and simple regression analyses. Finally, it will be discussed if there is a mediation relationship between the independent variable and the dependent variable, by self-esteem and social comparison respectively. These analyses will help in accepting or rejecting the hypotheses and draw possible connections between the variables and answer the overarching research question of this paper.

4.1. Manipulation check

The manipulation check was introduced after the exposure of participants to the treatment, in this case, the type of advertisement, to verify if they understood what the advertisement was about. For this reason, a one-way ANOVA analysis was performed, to find out which group scored higher on the 5-point Likert scale, with the initial assumption being that the group that was exposed to the photoshopped advertisement would score higher, the group that was exposed to the unphotoshopped lower, and the control group would have a more neutral response.

Results supported the previous assumption as the effect was considered significant. ANOVA analysis revealed a significant main effect of *Condition* on the manipulation check statement, $F(2, 175) = 9.70$, $p < .001$. Tukey post-hoc comparisons revealed that participants that were exposed to the photoshopped advertisement scored higher ($M = 3.74$, $SD = 0.90$), meaning that they thought that the advertisement was more in line with beauty norms presented on Instagram when compared with the group that was exposed to the unphotoshopped advertisement that scored the lowest ($M = 2.97$, $SD = 1.30$), $p < .001$ and the control group that was exposed to the product itself which had an in-between reaction ($M = 3.00$, $SD = 1.00$), $p < .001$. Based on the above results it can be concluded that the manipulation was effective.

4.2. Hypotheses testing

4.2.1. Hypotheses 1 and 2

The first and second hypotheses were suggesting that: a) purchase intentions are higher when photoshopped skin is portrayed in comparison to unphotoshopped skin or the product itself and b) purchase intentions are higher when unphotoshopped skin is portrayed when compared to the product itself. These two hypotheses tested the relationship between the dependent and independent variables of the experiment. In order to test these hypotheses a one-way ANOVA analysis was performed with *Purchase Intentions* being the dependent variable and *Condition* as the factor.

Table 4.1. shows the mean values and standard deviations of *Purchase Intentions* within the three groups. The ANOVA analysis revealed that there was no significant effect of the independent on the dependent variable $F(2, 175) = 1.00$, $p = .355$. Hence, based on the above findings H1 and H2 did not reach significance and are rejected ($\neq$H1, $\neq$H2). This means that the type of advertisement presented on Instagram does not have a direct influence on consumers' purchase intentions.

Table 4.1: Descriptive statistics of groups on purchase intentions

Condition	M	SD	N
Control	2.75	0.83	59
Unphotoshopped	2.83	0.85	59
Photoshopped	2.98	0.92	58

4.2.2. Hypotheses 3 and 4

Hypotheses 3 and 4 suggested that: a) self-esteem scores are higher when photoshopped skin is portrayed in comparison to unphotoshopped skin or the product itself and b) self-esteem scores are higher when unphotoshopped skin is portrayed in comparison to the product itself. The two hypotheses would test the relationship between the independent variable and the dependent variable of self-esteem. In order to test these hypotheses a one-way ANOVA analysis was performed with *Self-esteem* being the dependent variable and *Condition* as the factor.

The ANOVA analysis revealed that there was no significant effect between the dependent and independent variable $F(2, 175) = 1.54$, $p = .858$. Hence, based on the above

findings H3 and H4 did not reach significance and are rejected (≠H3, ≠H4). This means that the type of advertisement presented on Instagram does not have a direct influence on self-esteem.

Table 4.2: Descriptive statistics of groups on Self-esteem

Condition	*M*	*SD*	*N*
Control	3.67	0.57	59
Unphotoshopped	3.65	0.63	59
Photoshopped	3.61	0.68	58

4.2.3. Hypothesis 5

As explained in the theoretical framework, the researcher hypothesized that self-esteem could act as a mediator between the relationship of the independent variable of the type of advertisement and the dependent variable of purchase intentions. The suggestion here was that lower self-esteem leads to higher purchase intentions and can mediate the relationship between the IV and the DV. For this reason, a linear regression analysis was performed to answer hypothesis 5.

This analysis would test the significance between the IV of advertisement type and the mediator of self-esteem and the significance between the mediator and the DV of purchase intentions. If the results were significant, then the significance between the IV and the DV through the presence of the mediator would be tested. However, as presented in the ANOVA analysis above, since the results between the IV and DV did not reach significance this relationship was not tested again. As this relationship turned out to be non-significant according to Barron and Kenny (1986) a mediation analysis cannot be performed. This argument was further supported by the non-significance of the relationship between the IV and *Self-esteem*, as shown in the ANOVA analysis earlier. However, for validation reasons, the researcher tested the relationship between the mediator and the DV through a regression analysis. Results turned out non-significant as well with the relationship between *Purchase intentions* and *Self-esteem* to be $F(1, 175) = 2.31$, $p = .632$, $R^2 = .001$. Since all analyses turned out to be non-significant and no correlation was established, it is considered that a mediation analysis cannot be performed. So, it is argued that self-esteem does not mediate the

relationship between the type of advertisement and purchase intentions. Hence, hypothesis 5 is rejected (≠H5).

4.2.4. Hypotheses 6 and 7

Sixth and seventh hypotheses suggested that: a) social comparison is higher when photoshopped skin is compared to unphotoshopped or the product itself and b) social comparison is higher when unphotoshopped skin is portrayed in comparison with the product itself. The two hypotheses would test the relationship between the independent variable of *Condition* and the mediator of *Social Comparison*. In order to test these hypotheses a one-way ANOVA analysis was performed with *Social Comparison* being the dependent variable and *Condition* as the factor.

The ANOVA analysis revealed that there was no significant effect between the dependent and independent variable F $(2, 175) = 2.75$, $p = .067$. Hence, based on the above findings H6 and H7 did not reach significance and are rejected (≠H6, ≠H7). This means that the type of advertisement presented on Instagram does not have a direct influence on social comparison.

Table 4.3: Descriptive statistics of groups on social comparison

Condition	*M*	*SD*	*N*
Control	3.08	0.92	59
Unphotoshopped	3.21	0.80	59
Photoshopped	3.45	0.88	58

4.2.5. Hypothesis 8

Social comparison was the second independent variable that was considered a mediator in the relationship between the type of advertisement and purchase intentions. The suggestion here was that higher social comparison leads to higher purchase intentions and can mediate the relationship between the IV and the DV. To analyze if the above mediation is correct and if hypothesis 8 is accepted a linear regression analysis was performed.

As the results of the relationship between the IV and the DV turned out to be non-significant as presented in the ANOVA analysis above, it is considered that a mediation analysis cannot be performed. Moreover, the ANOVA analysis done earlier between the IV and *Social Comparison* was considered non-significant as well and was not further analyzed here. However, for validation reasons, the researcher tested the relationship between the other two variables through a regression analysis. The relationship between *Purchase Intentions* and *Social Comparison* turned out to be significant, with $F(1, 175) = 5.26$, $p = .023$, $R^2 = .029$, with social comparison ($\beta = .171$, $SE = .074$ $p = .023$) explaining 2.9% of the total variance. Nonetheless, since two out of three analyses turned out to be non-significant and no correlation was established, it is considered that a mediation analysis cannot be performed. So, it is argued that social comparison does not mediate the relationship between the type of advertisement and purchase intentions. Hence, hypothesis 8 is rejected ($\neq$H8).

Table 4.2 shows an overall overview of the hypotheses presented and analyzed, and if they were accepted or rejected.

Table 4.3.1*: Results of hypothesis testing*

Number	Hypothesis	Confirmed/ Rejected
H1	Purchase intentions are higher when photoshopped skin is portrayed compared to unphotoshopped skin or the product itself.	*Rejected*
H2	Purchase intentions are higher when unphotoshopped skin is portrayed compared to the product itself.	*Rejected*
H3	Self-esteem levels are higher when photoshopped skin is portrayed compared to unphotoshopped skin or the product itself.	*Rejected*
H4	Self-esteem levels are higher when unphotoshopped skin is portrayed compared to the product itself.	*Rejected*
H5	Self-esteem is mediating the relationship between the type of advertisement and purchase intentions.	Rejected
H6	Social comparison levels are higher when	*Rejected*

	photoshopped skin is portrayed compared to unphotoshopped skin or the product itself.	
H7	Social comparison levels are higher when unphotoshopped skin is portrayed compared to the product itself.	*Rejected*
H8	Upward social comparison is mediating the relationship between the type of advertisement and purchase intentions.	*Rejected*

5. Discussion

Beauty has always been a signature trait of identifying femininity and has been conceptualized through societally acceptable skin type, body shape, or overall appearance (Lazar, 2011). Mass media has played a vital role in infiltrating women with these norms, mainly through promoting facial attractiveness qualities that they should adopt if they desire to be considered attractive (Yan & Bissell, 2014). Cosmetic companies take advantage of this situation in the need to promote their products either online or offline and create higher revenue. Consumers buy a lot of cosmetic and skincare products in order to be viewed as attractive, despite being aware of the industry's overly polished, unrealistic, and marketed aspects and the fact that it seldom promotes unphotoshopped advertisements (Ringrow, 2016). However, these actions can have a detrimental consequence on how individuals feel about themselves, as they can experience feelings of low self-worth mainly due to high comparison tactics and stereotyping (Bridgers, 2016). For this reason, this thesis focused on the effect of advertisements on purchase intentions. In addition, self-esteem and social comparison serve as mediators in this relationship. Hence, the following research question was proposed: "*To what extent do cosmetic companies' Instagram posts showcasing models with unphotoshopped facial skin affect consumers' purchase intentions? To what extent is this relation mediated by consumers' self-esteem and social comparison levels?*"

This section provides a holistic view of the key findings of the research and the connection between the different concepts that were examined. It also gives a response to the research question stated above. Moreover, the implications and limitations of the study will be highlighted, as well as commenting on the theory and research method used. Finally, the chapter concludes with several recommendations for potential future study areas.

5.1. Key findings

A total of eight hypotheses were formulated to help answer the research question. Regarding the first and second hypotheses, it was expected that they would answer the relationship between the type of advertisement and purchase intentions and would establish a connection to the first part of the research question. These predictions were rejected by the findings of the analysis, which indicated that the adjustment of skin appearance in advertisements does not directly affect consumers' intentions to make purchases. These findings are contrary to past theories, which predicted that photoshopped advertisements would increase females' propensity to buy (Lv et al., 2022; Yang et al., 2023). Despite the

notion that females buy more products because they can relate the product's effectiveness to the model's immaculate skin look (Bridgers, 2016), this claim does not appear to be supported by the current data. One explanation could be that females may grasp the negative effects of edited images on their self-perception, or may only tolerate a moderate amount of Photoshop, after which, opposite attitudes start to emerge (Taylor et al., 2018). Finally, as Lai and Perminiene (2019) argue, the prevailing notion of diversity goes against perfection standards and can encourage consumers to deviate from beauty standards and feel more at liberty to express themselves. This is yet another justification for the fact that there was no discernible difference between photoshopped and unphotoshopped advertisements on purchase intentions. This means that participants' views on how the skin is portrayed do not affect their overall purchase intention toward the advertised product.

Hypotheses 3 and 4 were suggesting that self-esteem would be higher when connected to photoshopped skin rather than unphotoshopped or the product itself. Results showed that a significant relationship was not established between these two variables, which again came in contrast with theoretical arguments. The research did not reveal a connection between self-esteem to advertisement type, although it was argued that advertisements on Instagram can negatively affect females' self-esteem and self-worth levels (Liao, 2021; Staniewski & Awruk, 2022). In addition, the argument that photoshopped advertisements can act negatively on women's self-esteem and general well-being seemed to also not be supported by results (Guimaraes, 2022; Taylor et al., 2018). Also, it may be considered that users choose to follow cosmetic brands that resonate more with their sense of identity and enable them to retain more positive feelings that correspond to higher self-esteem levels (Smith, 2016). This argument can be further explained through the self-verification process that individuals go through, where the validation and positive expression of the self are two important factors that can boost self-esteem and at the same time enhance the consumer-brand connection (Smith, 2016).

Hypothesis 5 which would test the mediation role of self-esteem and would establish a mediating connection between advertisement type and purchase intentions was rejected as well. As presented by H3 and H4, self-esteem was not connected to the advertisement type. The analysis demonstrated that self-esteem is not connected to purchase intentions, and it does not overall mediate the connection between the independent and dependent variables. The supportive argument that consumers tend to purchase more when they are facing lower self-esteem levels, aiming in boosting their positive feelings (Lee et al., 2020) turned out to not be strong enough to validate that self-esteem can act as a mediator. Thus, it could be

assumed that self-esteem is a predictor that has a connection to social media presence and exposure to idealized images but is not directly associated with the above relationship.

Hypotheses 6 and 7 which were expected to draw a connection between social comparison and the type of advertisement were similarly rejected. Results revealed that social comparison levels are not significantly connected to the advertisement type. This outcome comes in contrast with theoretical assumptions, where it was suggested that upward social comparison is an emerging type of comparison and can lead to high facial dissatisfaction due to high comparison between negative and positive qualities of women (Fardouly et al., 2015; Yang et al., 2018). Moreover, another basic argument that females tend to compare themselves with models' facial appearance due to societal standards was not supported by the findings of the study. A possible explanation of why a connection was not established is that social comparison can also be linked to social status and general activity on Instagram, and less to external appearance, leading thus to different associations of comparison (Schünke, 2022). This implies that online users might compare themselves to other online profiles based only on idealized portrayals of their living conditions, social position, and other life achievements, and ignoring thus more personal qualities such as beauty (Vogel et al., 2015). Finally, hypothesis 8 which would test the mediation role of social comparison and would establish a mediating connection between advertisement type and purchase intentions was rejected. As stated above, a mediation analysis could not be proven because hypotheses 1, 2, 6, and 7 were all rejected. Although there was a correlation between social comparison and purchase intentions, the mediation function of this variable could not ultimately be accepted. Previous research showed that online edited content that beauty brands promote can augment females' upward social comparison and purchase intentions in their need to appear as attractive as possible (Lv et al., 2022; Pillai & Nair, 2021). Thus, as results demonstrated, social comparison can affect purchase intentions since the ongoing demand for self-validation can lead to heightened purchases. Nonetheless, an overall mediation link could not be supported.

5.2. Theoretical and practical implications

The research employed various literary sources and academic evidence that would support the overall study and would provide a validated resonance behind the arguments made. However, several implications regarding the theoretical background and practical standpoint need to be addressed.

Overall, the findings of the study failed to support the assumption that the type of advertisement can influence purchase intentions of Instagram female users. These findings come in contrast with literature arguments as explained above, that suggested that purchase intentions can be modified by a variety of factors, including photoshopped content promoted by cosmetic brands. One of the main arguments that was rejected was that females' purchase intentions are thought to be greater when they are exposed to online edited content by cosmetic brands, as in this way they are trying to conform with existing beauty trends and attractiveness standards (Szczepaniak, 2021; Yang et al., 2023). In other words, brands that are adopting a more natural approach with realistic skin portrayal would operate as a negative predictor to purchasing the advertised products, mainly due to images that are incompatible with modern beauty norms. Nonetheless, social media platforms can host a versatility of content which can include both edited and unedited pictures. As it is unclear which type of content participants are mostly exposed to, it would seem reasonable that the advertisement type was found as a non-significant factor for purchase intentions. One possible explanation could be that participants either did not resonate with the brand advertisement, or they did not think that the degree of editing of the skin could affect their buying intentions.

Despite contrary assumptions, another intriguing research finding was that self-esteem did not appear to be related to females' exposure to cosmetics advertisements and also act as a mediator. Based on previous research, it appears that self-esteem can be a concept that is attached to photoshopped images, as constant exposure to perfectly-like advertisements is shown to have a negative effect on females' self-esteem and overall well-being (Vogel et al., 2014). However, there was no theoretical evidence suggesting what the study's findings revealed, meaning that self-esteem is not connected either to online advertised content or to purchase intentions. These findings could be associated with the general lack of identification with the skincare brand or the overall skin condition of the model, that would ultimately affect purchase intentions.

The same theoretical implications apply to social comparison as well, since findings demonstrated a non-significant relationship between the type of advertisement and an overall non-mediating connection as well. One important controversy was that although theory supported that advertising of beauty brands is mainly based on heightening females' need for comparison of appearance (Ringrow, 2016; Smith 2016) results did not reveal a solid relationship. This could be linked to the fact that the scale that was used focused mainly on skin appearance and not overall beauty and that might not resonate with participants on an equal level. On the other hand, though, social comparison was found to be connected to

purchase intentions, verifying the theory that supported that the higher the social comparison, the greater the urge to purchase products (Lv et al., 2022). This is an interesting result since it was the only positive connection established in the research, and it supports the argument that females tend to purchase more beauty products because they compare themselves to others and desire to appear more attractive (Wagstaff & Sulikowski, 2022).

Regarding the practical implications of the study, beauty and skincare brands could be encouraged to investigate the effect of their advertisements on females' purchase intentions and draw possible conclusions. More specifically, these brands could delve more into the effect of their online advertising on consumer activity and behavior and figure out what practices affect their likeness of a product or brand and why this occurs. As Photoshop was not found to be a determining factor to purchase intentions, it would be interesting to investigate if the product value is more important than the edited advertisement. Understanding what each audience likes to follow and support could help brands engage more actively with them, while at the same time embracing values that will turn out to be more beneficial to their exposure and profits, which is their ultimate goal.

Moreover, the influential role of social comparison to purchase intentions could assist consumers in evaluating the true essence of their online image and activity. Since social media is the ideal platform to be exposed to a variety of content that cosmetic brands promote, it can be challenging not to proceed to physical comparison. As this kind of comparison can lead to a heightened urge for purchasing cosmetics it would be interesting for females to reevaluate their criteria of following specific brands but also consider what is exactly the aftermath of this behavior. Hence, being more alert about the role of online advertising on consumers' social comparison tendency could be a helpful realization that would assist them in developing a more critical stance and filtering better their actual need of purchasing cosmetic products (Wagstaff & Sulikowski, 2022).

5.3. Research limitations

Even though some theoretical and practical implications were acknowledged above, there are also some research limitations that may have contributed to the presented results. First of all, the sampling method chosen, meaning non-probability convenience and snowball sampling, although facilitated the research mainly due to time issues, could carry some drawbacks as well. One of the possible problems could be that convenience sampling limits the possible participants and enhances the chances that these participants will carry common

characteristics, such as ethnicity, education level, or cultural similarities (Sarstedt et al., 2017). This means that the sampling can be considered as biased and non-representative of the whole population (Sarstedt et al., 2017). Moreover, as the online survey was distributed among the researcher's close network, it can be concluded that the sample was not representative enough, as more than 50% of the participants had Greek nationality and their age was mainly 25 to 28 years old. Finally, the total sample of valid responses was 176 participants, which is an acceptable number for this study, but if it was higher, it could have provided different results and greater generalizability of the findings. Generalizability could have also been achieved if the study had been replicated, as this could yield less bias as well, but due to time limitations, this was not plausible (Sarstedt et al., 2017).

Another limitation worth mentioning is the construction of the survey. Although the questionnaire was well-structured, with clear statements that were not misleading or worded in a non-comprehensive way, the advertisement images that were chosen could have contributed to different responses. That is, if the model in the advertisement was portrayed with skin more visually unedited, meaning having more redness or no makeup at all, then the distinction could have been greater between the photoshopped advertisement. Furthermore, even though the scales used were taken from previous studies and were thus validated, their modification by the researcher might have influenced the progress of the study. This means that excluding parts of the scales and using only specific ones with slightly different wording as well, might have influenced the overall responses when compared to presenting the scale as a whole.

5.4.   Future research

Future research directions are highlighted in regard to the findings of the current study and literature gaps as identified above. Digitally altered advertisements by cosmetic companies are an emerging phenomenon in the digital commercial world and are undeniably affecting a lot of online users, mostly through instilling self-view concerns (Qiutong et al., 2019; Szczepaniak, 2021). Although the study's findings indicated that purchase intentions are not associated with these types of advertisements, it would be interesting investigating the topic on a deeper level and provide a potential explanation. For instance, given the scarcity of current research, focusing just on this interaction with skincare products might be an intriguing subject (Jan et al., 2019). As skincare companies constitute the leading sector of cosmetics, it would be interesting to focus on this sector, since the term "cosmetics" can be

viewed as overly general and conjure up diverse representations in the minds of customers. Moreover, skin care is solely connected to the skin condition and its improvement, making the connection with advertising portrayal even more prominent. Additionally, as discussed above, because the main sample of the research consisted primarily of Greek females, it would be intriguing to examine this relationship across a wider range of ethnicities. It is considered that the Greek culture is undergoing a transitional phase regarding buying intentions and priorities when choosing a product, which can make their purchasing criteria varying and diverse (Papafotikas et al., 2014). This indication is verified by the non-significant results of the research and that is why a sample consisting of more ethnicities on an equal level could lead to different results and provide greater generalizability. Finally, studies have shown that adolescent girls can be particularly vulnerable to online triggering content (Tiggemann, 2013), so looking into the effects of advertisements on different ages, specifically between adolescents and adults, may also yield different results.

The findings of the study could assist cosmetic businesses in reevaluating beauty standards and their campaigns, by making them more inclusive towards women (Tiggerman & Anderberg, 2022). As diversity and inclusion become increasingly dominant within the marketing realm, and more and more companies are adjusting their policies into (Oliver, 2021), it would be important to embrace and normalize facial skin with its imperfections and lead female consumers to higher facial satisfaction and acceptance. However, this argument is still in a premature phase, since dismantling beauty stereotypes requires more time and effort because beauty brands are becoming increasingly profitable by perpetuating these (Tiggermann & Slater, 2014). Furthermore, future research could look at this topic from a qualitative point of view as well, in order to approach it from a more in-depth stance. That is, it could investigate more extensively the visual aspects of cosmetics advertisements and analyze whether specific elements are more prevalent and whether they can influence purchase intentions (Jan et al., 2019).

6. Conclusion

The cosmetics industry is flourishing in many aspects nowadays, as it is becoming one of the most influential industries worldwide with rising revenue every year. Through social media presence and user interaction, businesses maintain lucrative revenue while expanding their audience and influence. This study sought to emphasize this emerging reality and adopt a more comprehensive perspective by examining purchase intentions and factors that might influence them. The main focus was on unphotoshopped advertisements of cosmetics companies and the extent to which they can affect females' purchase intentions. Self-esteem and social comparison were proposed as mediators of the aforementioned relationship since existing literature was suggesting a connection between these variables. For this purpose, an online experimental survey was conducted with 176 female participants, which was later on analyzed through statistical analysis.

Overall, based on the research analysis and insights, unphotoshopped advertisements on Instagram did not seem to be positively correlated with purchase intentions. This means that the first part of the research question is rejected, as statistical analyses of the findings did not make a significant connection between these two variables. Hence, participants did not seem to be affected by the type of advertisement that they are exposed to online, meaning whether it is photoshopped or not, and base their purchase decisions solely on that criterion. Additionally, mediation analysis revealed that self-esteem does not mediate the aforementioned link, despite the fact that previous research has shown that female users are more inclined to have poor self-esteem after being exposed to overly edited advertisements, which may have an impact on their subsequent purchase intentions (Gurari et al., 2010; Lee et al., 2020). Finally, social comparison mediation analysis failed to show a correlation between advertisements and purchase intentions. Although social comparison was linked to purchase intentions, the overall mediation was rejected. Thus, these results are thought to reject the overall research question, since no connections were verified. Based on these findings, more elaborated research is required, in order to establish stronger linkages and arguments related to the cosmetic industry.

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Appendix A

Experimental manipulations

Condition 1: Control group. Did not receive the manipulation but saw the product, meaning the facial serum itself.

Condition 2: Experimental group- Unphotoshopped advertisement. Received the treatment of the unphotoshopped advertisement. The model has natural facial skin and is holding the product in a visible sight.

Condition 3: Experimental group- Photoshopped advertisement. Received the treatment of the photoshopped advertisement. The model has digitally altered facial skin, that appears smooth and poreless, and is holding the product in a visible sight.

Appendix B

Survey

Introduction

Dear respondent,

Welcome!

Thank you for taking the time to participate in this research. My name is Chara Tsioumperi, I am a Master student in Media and Business at Erasmus University Rotterdam, and I would like to invite you to fill out this survey. I am studying how beauty products are advertised on Instagram. I would like to ask you some questions about yourself and your perception towards the advertisement you will see.

All research data remain completely confidential and are collected in anonymous form. We will not be able to identify you. There are no foreseeable risks or discomforts associated with participating in this research. This survey will take around 5 minutes to complete and there are no right or wrong answers. Your participation is completely voluntary, and you have the right to withdraw your consent or discontinue participation at any time without penalty. Your individual privacy will be maintained in all published and written data resulting from the study.

If you have questions about this research, in advance or afterwards, you can contact me in the following email: 625578ct@eur.nl. If you understand the information above and freely consent to participate in this study, click on the "I agree" button below to start the questionnaire. Thank you for your participation.

I agree
I disagree

Section 1

Are you a user of Instagram?
Yes

No – *if no is selected then survey ends*

Section 2

Advertisement is shown (option 1/2/3 from above)

Here you can see an Instagram advertisement of a skincare company advertising a facial serum. Please, spend some time and pay close attention to the following advertisement as later on you will be asked some questions based on this image.

Section 3

Manipulation check (Likert scale 1-5)

Please, choose on the scale from strongly disagree to strongly agree based on the extent you agree with the following statement.

1. The previous advertisement is in line with modern beauty norms as presented by beauty brands on Instagram.

   - Strongly disagree
   - Somewhat disagree
   - Neither agree nor disagree
   - Somewhat Agree
   - Strongly agree

Section 4

Purchase intention (Likert scale 1-5)

The following part contains questions about your purchase intentions based on the advertisement you previously saw. Please, choose on the scale from strongly disagree to strongly agree based on the extent you agree with the following statements.

1. My overall reaction to the above advertisement is favorable

   - Strongly disagree
   - Somewhat disagree

- Neither agree nor disagree
- Somewhat Agree
- Strongly agree

2. I would like to try this product

- Strongly disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat Agree
- Strongly agree

3. I would buy this product if I happened to see it in a store

- Strongly disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat Agree
- Strongly agree

4. I would actively seek out this product in a store in order to purchase it

- Strongly disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat Agree
- Strongly agree

Section 5

Self-esteem (Likert scale 1-5)

The following part contains questions about your self-esteem. Please choose on the scale from strongly disagree to strongly agree based on the extent you agree with the following statements.

1. On the whole, I am satisfied with myself

- Strongly disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat Agree
- Strongly agree

2. At times, I think I am no good at all

   - Strongly disagree
   - Somewhat disagree
   - Neither agree nor disagree
   - Somewhat Agree
   - Strongly agree

3. I feel that I have a number of good qualities

   - Strongly disagree
   - Somewhat disagree
   - Neither agree nor disagree
   - Somewhat Agree
   - Strongly agree

4. I am able to do things as well as most other people

   - Strongly disagree
   - Somewhat disagree
   - Neither agree nor disagree
   - Somewhat Agree
   - Strongly agree

5. I feel I do not have much to be proud of

   - Strongly disagree
   - Somewhat disagree
   - Neither agree nor disagree
   - Somewhat Agree

- Strongly agree

6. I certainly feel useless at times

   - Strongly disagree
   - Somewhat disagree
   - Neither agree nor disagree
   - Somewhat Agree
   - Strongly agree

7. I feel that I'm a person of worth, at least on an equal plane with others

   - Strongly disagree
   - Somewhat disagree
   - Neither agree nor disagree
   - Somewhat Agree
   - Strongly agree

8. I wish I could have more respect for myself

   - Strongly disagree
   - Somewhat disagree
   - Neither agree nor disagree
   - Somewhat Agree
   - Strongly agree

9. All in all, I am inclined to feel that I am a failure

   - Strongly disagree
   - Somewhat disagree
   - Neither agree nor disagree
   - Somewhat Agree
   - Strongly agree

10. I take a positive attitude toward myself

   - Strongly disagree

-   Somewhat disagree

-   Neither agree nor disagree

-   Somewhat Agree

-   Strongly agree

Section 6

Social comparison (Likert scale 1-5)

The following part contains questions about your tendency of social comparison. Please choose on the scale from strongly disagree to strongly agree based on the extent you agree with the following statements.

1. I compare myself to those who are better looking than me rather than those who are not

    -   Strongly disagree

    -   Somewhat disagree

    -   Neither agree nor disagree

    -   Somewhat Agree

    -   Strongly agree

2. I tend to compare my own physical attractiveness to that of the model in the advertisement

    -   Strongly disagree

    -   Somewhat disagree

    -   Neither agree nor disagree

    -   Somewhat Agree

    -   Strongly agree

3. I find myself thinking about whether my own appearance compares well with models and movie stars

    -   Strongly disagree

    -   Somewhat disagree

- Neither agree nor disagree
- Somewhat Agree
- Strongly agree

4. At social events, I wonder if my facial skin is as attractive as the people I see there with very attractive facial skin

- Strongly disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat Agree
- Strongly agree

5. I tend to compare myself to people I think look better than me

- Strongly disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat Agree
- Strongly agree

6. When I see a person with a great facial skin, I tend to worry how I 'match up' with them

- Strongly disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat Agree
- Strongly agree

7. When I see good-looking people, I wonder how I compare to them

- Strongly disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat Agree

- Strongly agree

8. At parties or other social events, I compare my physical appearance to the physical appearance of the very attractive people

   - Strongly disagree
   - Somewhat disagree
   - Neither agree nor disagree
   - Somewhat Agree
   - Strongly agree

9. I find myself comparing my appearance with people who are better looking than me

   - Strongly disagree
   - Somewhat disagree
   - Neither agree nor disagree
   - Somewhat Agree
   - Strongly agree

10. I compare my facial skin with people that have a better facial skin than me

   - Strongly disagree
   - Somewhat disagree
   - Neither agree nor disagree
   - Somewhat Agree
   - Strongly agree

Section 7
Demographics

1. What is your age? (Example: 18)
2. What is your gender?
   1. Male
   2. Female
   3. Non-binary/ third gender

    4. prefer not to say

3. What is your ethnicity? (Example: Dutch)

4. How many hours do you spend daily on Instagram?

    1. Less than an hour

    2. Between 1-3 hours

    3. More than 3 hours

Section 8

Do you have any additional comments or remarks?

Appendix C

Demographics distribution

Appendix C1.

Ethnicity of participants

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Arab	2	1.1	1.1	1.1
Belgian	2	1.1	1.1	2.3
British	1	0.6	0.6	2.8
Bulgarian	1	0.6	0.6	3.4
Croatian	1	0.6	0.6	4.0
Dutch	18	10.2	10.2	14.2
Egyptian	1	0.6	0.6	14.8
Finish	1	0.6	0.6	15.3
German	7	4.0	4.0	19.3
Greek	113	64.2	64.2	84.1
Hispanic	1	0.6	0.6	84.7
Indian	2	1.1	1.1	85.8
Iranian	1	0.6	0.6	86.4
Italian	5	2.8	2.8	89.2
Mixed Race	3	1.7	1.7	91.5
Moldovan	1	0.6	0.6	92.0
Pakistani	1	0.6	0.6	92.6
Polish	3	1.7	1.7	94.3
Portuguese	1	0.6	0.6	94.9

Scottish	1	0.6	0.6	95.5
Slovak	1	0.6	0.6	96.0
Surinamese	1	0.6	0.6	96.6
Tunisian	1	0.6	0.6	97.2
Turkish	2	1.1	1.1	98.3
Venezuelan	1	0.6	0.6	98.9
White	1	0.6	0.6	99.4
White Portuguese	1	0.6	0.6	100.0
Total	176	100.0	100.0	

Appendix C2.

Age of participants

	N	Minimum	Maximum	M	SD
What is your age?	176	18	57	28.08	8.385
Valid N	176				

Appendix C3.

Hours spent on Instagram

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than 1 hour	45	25.6	25.6	25.6
	Between 1-3 hours	115	65.3	65.3	90.9
	More than 3 hours	16	9.1	9.1	100.0
	Total	176	100.0	100.0	