

The Role of Media Images on the Psychosocial Experience of Acne

by

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Abstract

Media portrayals of idealized body images have been linked to body image disturbance and reduced satisfaction with appearance. This study sought to determine whether exposure to idealized facial images in the media, particularly those free of acne, resulted in similar negative outcomes. Participants were assigned to one of two groups and shown a series of TV advertisements for acne products. One group viewed advertisements with idealized facial images while the other group viewed advertisements in which all the facial images were removed. There were no significant differences in satisfaction with facial appearance and social appearance anxiety ratings between the groups. Regression analyses identified one variable that may moderate the relationship between exposure to idealized facial images and satisfaction with facial appearance. This study offered empirical support for the modification of two existing scales to assess internalization of cultural messages regarding facial appearance and facial consciousness.

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Chapter I. Introduction

Acne vulgaris, more widely referred to as acne, is the most common skin condition in the United States, impacting an estimated 40 to 50 million people (American Academy of Dermatology, 2015). While the presence, severity, and/or persistence of acne often varies from person to person, it is estimated that nearly 100% of people will experience some degree of acne throughout their lives (American Academy of Dermatology – AcneNet, 2011; Brown & Shalita, 1998). It is observed across genders, racial and ethnic groups, socioeconomic backgrounds, and geographic regions, leaving very few unaffected. Although acne is often viewed as a transitory “cosmetic nuisance” of adolescence (Barankin & DeKoven, 2002, p. 712), research has shown that it can persist well into adulthood (Collier, Harper, Cantrell, Wang, Foster, & Elewski, 2008), with some not seeing a significant decrease until after age 40 (Goulden, Stables, & Cunliffe, 1999). Based on this information, it is clear that acne is not a problem exclusive to adolescence and that it has the potential to impact a wide range of individuals for an extended period of time. Furthermore, recent research has demonstrated that even though acne has been traditionally conceptualized as a dermatological (i.e., medical) condition, a significant portion of its impact appears to be psychological in nature, causing many clinicians and researchers to look beyond the etiology and treatment of the disease and attempt to understand the experience of acne.

The psychological effects of acne were first recognized by Sulzberger and Zaidems (1948), who after witnessing the negative impact of acne on adolescent sufferers’ personality and social development, wrote: “...*there is probably no single disease that causes more psychic trauma, more maladjustments between parents and children, more general insecurity and feelings of inferiority, and greater sums of psychic suffering than does acne vulgaris*” (p. 679). Despite this early observation, research on the psychological experience of acne lay relatively

dormant for many decades, in both psychological and dermatological literature. As expected, scientific inquiry within the dermatological field focused primarily on the biological etiology and treatment of acne, with little investigation into the psychological experience of acne-sufferers. It was not until the 1980s when dermatologists began to note the psychological correlates of acne and inquire about patients' internal (i.e., emotional) experience. These early studies revealed that not only were individuals bothered by their acne, many were deeply distressed, igniting a more focused line of empirical inquiry. To date, acne has been linked to depression (Gupta & Gupta, 1998; Purvis, Robinson, Merry, & Watson, 2006; Uhlenhake, Yentzer, & Feldman, 2010), anxiety (Loney, Standage, & Lewis, 2008; Purvis, et al., 2006), decreased quality of life (Lasek & Chren, 1998; Mallon, Newton, Klassen, Stewart-Brown, Ryan, & Finlay, 1999), lowered self-esteem (Hedden, Davidson, & Smith, 2008; Magin, Adams, Heading, Pond, & Smith, 2006; Papadopoulos, Walker, Aitken, & Bor, 2000), reduced well-being (van der Meeran, van der Schaar, & van der Hurk, 1985), body-image disturbance (Bowe, Doyle, Crerand, Margolis, & Shalita, 2011), body dysmorphic disorder (Phillips, Dufresne, Wilkel, & Vittorio, 2000), impaired social functioning, and even suicidal ideation (Gupta & Gupta, 1998; Halvorsen, Stern, Dalgard, Thoresen, Bjertness, & Lien, 2011; Purvis, et al., 2006). Further, research on the quality of life of acne sufferers has been found to be similar to those experiencing chronic medical conditions such as asthma, diabetes, epilepsy, arthritis, and back pain (Mallon, et al., 1998), further supporting the notion that acne is capable of having a deep impact on sufferers' lives.

Qualitative lines of inquiry have offered greater insight into the factors contributing to psychological distress among acne sufferers. In a study of adults with acne, Murray and Rhodes (2005) identified a number of common themes in their distress, including a perceived sense of powerlessness over their acne (i.e., acne presented regardless of extensive efforts to control it)

and negative impact on their social functioning (i.e., how it is perceived by others and impacts interpersonal interactions). Participants endorsed significant concerns about increased consciousness of acne, including beliefs that others notice and/or stare at their acne and judge them more negatively for it. These concerns were so prevalent for some of the respondents, that they even noted attempts to avoid leaving the house, engaging in eye contact, or drawing any type of attention to themselves (such as speaking up at a work meeting) in order to avoid discomfort. Fortunately, the negative psychosocial impact of acne has begun to garner more recognition, including by organizations such as the American Academy of Dermatology, which has incorporated information regarding acne-related embarrassment and social impairment (e.g., difficulties obtaining significant others) into their online resources. In fact, the National Suicide Prevention Hotline even appears on their webpage about acne, suggesting recognition that sufferers may require more immediate psychological assistance in addition to information about the causes of acne and possible medical treatment options.

Although the aforementioned research has consistently demonstrated a connection between acne and psychosocial disturbance, it is still unclear what other factors may contribute to distress and impairment. Despite its prevalence, acne remains a highly stigmatized condition (Lowe, 1993), particularly for adults (Roosta, Black, Peng, & Riley, 2010); therefore, it may be helpful to examine how sociocultural messages regarding acne and/or having clear skin may contribute to psychosocial difficulties.

One particularly potent source of information regarding sociocultural standards of appearance is the mass media (i.e., magazines, radio, advertisements, television programming, internet, etc.). With this in mind, examination of how clear skin and acne are depicted in the media may offer greater insight into factors contributing to acne-related distress. Television

commercials about acne products (e.g., over-the-counter acne remedies, facial cleansers, etc.), for example, provide a significant source of information regarding social perceptions of acne as well as having clear skin. These advertisements frequently utilize testimonials from former acne sufferers who discuss how acne had “taken the joy out” of their lives (quote from a *Proactiv+*® advertisement, 2010), increased their facial-consciousness (e.g., “I feel like people are having a conversation with my zit;” *Clean & Clear*® TV commercial, 2014), and/or made them feel “insecure” or “out of control” (*Proactiv+*® TV commercials, 2011 & 2014, respectively—see Appendix A). While these advertisements may briefly mention information about the product (e.g., how it works, cost, directions for use, etc.), they appear to primarily capitalize on the psychosocial impact of acne. Simultaneously, many advertisements highlight the positive changes that occurred when acne was ameliorated. For example, the models depicted in the advertisement may discuss the “life-changing” results, such as boosting one’s confidence enough to “go after all the things [they] want” (*Proactiv*®, 2015), feel “free” (*Proactiv+*®, 2014) or allowing one’s “real beauty” (*Proactiv*®, 2012) to shine through. Although these advertisements and messages may accurately reflect the individual’s emotional experience, they may inadvertently reinforce the notion that clear skin is a precursor to beauty, confidence, and other positive outcomes. Furthermore, these messages may suggest that having acne is socially undesirable, thus perpetuating negative stigma.

Another way messages about the positive benefits of having clear skin may be reinforced in media advertisements is through the presentation of idealized facial images (e.g., skin that is absent of acne lesions, scarring, discoloration, dullness, etc.). The viewer is exposed to various images of models with clear, unblemished, idealized skin, that are also shown engaging in various social situations (e.g., engaging with what appears to be friends or romantic partners),

and displaying positive emotions (i.e., verbally describing increased happiness, smiling). Additionally, these models may already be of above-average general attractiveness, further depicting clear skin as an aspirational standard.

While extensive research regarding exposure to idealized images in the media has been conducted in the field of body image (i.e., exposure to the “thin-ideal”), minimal research has been conducted on exposure to idealized facial images in the media in isolation (i.e., separate from one’s body shape and size), particularly regarding the presence of skin-conditions or the lack thereof. As such, little is known about the psychological impact that exposure to idealized facial images in the media may have on viewers. Drawing upon research from the body image literature, the present study examined the impact of idealized facial images as well as potential factors that may moderate one’s response.

Significance of the Research

Research on the psychosocial experience of acne in general is important for a number of reasons. First and foremost, research in this field is still in its infancy, particularly within the field of psychology; therefore, there is still a great deal to be learned about what factors contribute to the development of acne-related distress. Secondly, previous research has shown that the general public’s understanding of acne, including beliefs about its etiology, course of illness, and expectations for treatment are littered with misperceptions and inaccuracies (Choi & Kimball, 2005; Landow, 1997; Tan, Vasey, & Fung, 2001) which may perpetuate stigmatization (Murray & Rhodes, 2005). Research in this domain will hopefully improve the public’s knowledge and understanding of acne, and minimize the surrounding stigma. Additionally, it is hoped that increased knowledge of the psychosocial experience of acne will increase incorporation of mental health components into the treatment of acne and identify “high risk”

patients that have a higher potential for acne-related psychological disturbance (Alharithy, 2011; Fried & Weschler, 2006).

Research on the role of media, in particular, will assist in understanding how acne is perceived within American culture and how the sociocultural messages one receives via media sources may contribute to psychosocial distress (e.g., internalization of beliefs about standards of beauty). In the past, critical evaluation of the media's portrayal of idealized images regarding body image and size have led to invaluable discoveries about the potential for negative impact on viewers, a point which will be discussed in greater detail in Chapter 2. It is the researcher's opinion that many of these principles may be easily applied to images related to acne and clear skin. I hypothesize that the negative impact of idealized images in the media is not exclusive to one's body size or weight and may apply to other appearance-related conditions, such as having clear skin. I posit that similar to the "thin-ideal" in body image literature, a "clear skin-ideal" exists for facial images.

Chapter II. Literature Review

Acne Vulgaris: A Brief Review

Acne vulgaris is a skin disorder of the pilosebaceous unit (Nguyen & Su, 2011), which consists of the hair shaft, follicle, and sebaceous glands. The sebaceous glands produce a substance called sebum, which serves to keep skin and hair moisturized. Occasionally, this substance combines with androgens (i.e., hormones), lipids (i.e., fat and vitamin containing molecules), and bacteria (i.e., *Propionibacterium acne*, or *P. acnes*) causing an increased production of keratin proteins in the follicle, which prevents the natural sloughing of dead skin cells (Nguyen & Su, 2011). This can then lead to a rupture of the pore and a subsequent infection, often causing the redness and/or inflammation frequently observed with acne (Landow, 1997). Although acne on all areas of the body can lead to distress and discomfort, the proliferation of facial acne is often of greatest concern, as this region is most visible in one's outward appearance and cannot be as easily masked by clothes or coverings (Hassan, Grogan, Clark-Carter, Richards, & Yates, 2009; Kellet & Gawkrödger, 1999; Papadopoulos, et al., 2000).

While the exact causes of the aforementioned processes (i.e., sebum production and hypercolonization of bacteria) remains relatively unknown, research has consistently implicated familial genetics and hormone production as the primary factors predicting one's experience of acne (Nguyen & Su, 2010). Despite this information, many individuals (adults included) continue to believe that acne is caused by factors like poor hygiene, inadequate face-washing habits, sweat production, or eating foods that are high in fat or sugar content despite inconsistent, if any, empirical support for these claims (Choi & Kimball, 2005; Davidovici & Wolf, 2010; Landow, 1997). These misperceptions may also be inherently stigmatizing as that they often imply that having clear skin is directly under one's immediate control. As Choi and Kimball

(2005) noted, this may lead to a host of misguided behaviors such as dietary restrictions or decreased physical exercise, that result in no changes to one's acne. They also noted that some behaviors, such as increased face washing can make the condition worse as it can result in aggravation or excessive drying of the skin and a corresponding increase in sebum production.

Misperceptions about acne being due to poor hygiene may also lead to inaccurate beliefs about the treatability and course of acne. Brajac, Bilić-Zulle, Tkalčić, Lončarek, and Gruber (2003), for example, found that many acne sufferers believed their acne would resolve quickly, perhaps even after the first treatment, when in reality many forms of acne can take seven to ten years to fully resolve. This may cause some individuals to invest a great deal of time and/or money into over-the-counter treatments (e.g., cleansers, lotions, or other products) that are ultimately inadequate in resolving the condition. Further, it may delay one from seeking the necessary professional treatment, such as topical or oral prescription medications, not to mention increase the likelihood of permanent scarring (Layton, 2000).

When it comes to the course of acne, it is clear that some individuals will experience much more severe and/or persistent cases (e.g., amount of acne, areas affected, severity of lesions). While it is reasonable to assume that only individuals with more severe forms of acne would experience greater amounts of psychological distress, research has demonstrated that this is not necessarily the case. Similar to those with severe acne, many individuals with mild to moderate forms of acne also demonstrated clinical levels of psychological distress (Gupta & Gupta, 1998). Additionally, while research has historically believed adolescents to be more vulnerable to acne-related concerns, more recent studies have suggested that adults may even experience greater distress (Lasek & Chren, 1998). Uhlenhake, et al. (2009) found that, overall,

patients with acne were twice as likely to experience depression compared to individuals without acne, with the highest rates of depression observed among individuals 36 to 64 years old.

In an attempt to further understand the factors that may contribute to one's negative perception of acne, researchers have pointed to perceived embarrassment (Kellet & Gawkrödger, 1999; Koo, 1995), interpersonal sensitivity (Krejci-Manwaring, Kerchner, Feldman, Rapp & Rapp, 2006; Gupta, Gupta, Schork, Ellis, & Voorhees, 1990), self-consciousness (Hassan, et al., 2009), and socially prescribed perfectionism (i.e., the belief that one is held to standards of perfectionism as defined by his or her significant others; Hanstock & O'Mahoney, 2002). Others have indicated that distress may be the result of other social impairments caused by acne, such as difficulty finding a romantic partner (Halvorsen, Stern, Dalgard, Thoresen, Bjertness, & Lien, 2011; Motley & Finlay, 1992) or obtaining employment (Cunliffe, 1986; Jowett & Ryan, 1985). To date, only one research study has attempted to examine the role of the media images on perceptions of acne (i.e., Magin, Adams, Heading, & Pond, 2011). The present study seeks to expand upon this line of inquiry by experimentally examining the impact of exposure to idealized images of clear skin in television advertisements for acne products.

Body Image: The Role of Media Images

When it comes to understanding the psychological impact of media images, the majority of research has focused on body image and body satisfaction. Although more recent research has indicated that exposure to idealized images (e.g., exceptional muscularity/physical fitness) can also negatively impact boys and men (Daniel & Bridges, 2010; Johnson, McCreary, & Mills, 2007; Mulgrew, Johnson, Lane, & Katsikitis, 2014, for example), the preponderance of research has focused on the ubiquitous portrayal of thin women in American media, often referred to as the "thin-ideal" (McCarthy, 1990). Although Harrison and Hefner (2014) have noted that media

images portray more than just body types, there is a surprising paucity of research regarding the exclusive portrayal of idealized facial images in the media. Studies on beauty, appearance, and attractiveness of women in media images tend to focus on the portrayal of bodily and facial images combined, as opposed to examining facial images in isolation. Considering there is even less information regarding the portrayal of clear skin in media images, the researcher turned to the body image literature as a framework for understanding the role of media images on viewers' psychological processes.

Media portrayals of the thin-ideal have been implicated in the development of body image disturbance and related issues among women for many years (McCarthy, 1990; Silverstein, Perdue, Peterson, & Kelly, 1986; Thompson & Heinberg, 1999). These issues have included body dissatisfaction (Birkeland, Thompson, Herbozo, Roehrig, Cafri, & van den Berg, 2005; Groesz, Levine, & Murnen, 2002), body-focused anxiety (Dittmar & Howard, 2004; Halliwell & Dittmar, 2004), weight concern (Posavac, Posavac, & Posavac, 1998), negative mood states (Birkeland et al., 2005; Hargreaves & Tiggemann, 2004; Pinhas, Toner, Ali, Garfinkel, & Stuckless, 1999; Tiggemann & McGill, 2004), decreased perceived physical attractiveness (Cash, Cash, & Butters, 1983), decreased confidence (Hargreaves & Tiggemann, 2002), decreased physical self-esteem (Martin & Kennedy, 1993; Want, 2009), and increased eating pathology (see Grabe, Ward, & Hyde, 2008). These outcomes are of great concern, considering that factors like body dissatisfaction serve as strong predictors of low self-esteem, depression, eating disorders, and obesity (see Grabe et al., 2008 for review). Previous studies have even demonstrated that brief exposure to media images of the thin-ideal can lead to increases in women's beliefs about the acceptability of eating, purging, or dieting as methods to

lose weight (Hawkins, Richards, Granley, & Stein, 2004), as well as the use of cosmetic surgery to alter one's appearance (Markey & Markey, 2012).

Although research has shown that exposure to thin media images has the potential to produce negative outcomes among women, the effect is not necessarily universal. Champion and Furnham (1999), for example, found no significant differences in body satisfaction ratings between adolescent females that viewed images of thin models versus those that viewed images of overweight models or control objects (i.e., photo of a room). A few studies have even demonstrated that some women may experience a positive reaction to idealized medial images (Henderson-King & Henderson-King, 1997; Posavac, et al. 1998), leading many to investigate potential mediating and/or moderating factors that may better explain the relationship. In addition to factors like trait body dissatisfaction (Heinberg & Thompson, 1995; Posavac, et al., 1998), self-monitoring tendencies (Henderson-King & Henderson-King, 1997), personality characteristics (Roberts & Good, 2010), and preexisting disordered eating patterns (Pinhas, et al., 1999), many have also looked to theoretical explanations for how exposure to idealized media images can lead to negative outcomes (see Lopez-Guimera, Levine, Sanchez-Carracedo, & Fauquet, 2010 for review). Two of these theories are presented here, the social comparison model and the sociocultural model.

Social comparison theory. According to social comparison theory (Festinger, 1954), individuals are driven to assess their skills, opinions, and/or abilities in order to determine if they are adequate and “correct” (p. 118) for their given environment or situation. When objective standards are available, individuals will first look to those or to unambiguous information and ratings in order to assess their performance; however, in the absence of objective information individuals will tend to evaluate their abilities, opinions, etc. by comparing themselves to other

people in their social environment. According to Festinger (1954), when individuals compare themselves to targets that are believed to be less skilled, capable, etc., it is known as a “downward” social comparison. When this occurs, the individual views him- or herself more favorably due to the perception that his or her skills are superior or more developed, for example, than the comparative target. Conversely, when individuals compare themselves to targets that are believed to be more skilled, capable, etc., this is known as an “upward” comparison, and results in a negative or less favorable evaluation of oneself (e.g., dissatisfaction). Based on his belief that individuals are motivated to achieve and protect a sense of superiority, Festinger proposed that dissatisfaction with one’s abilities would result in an increased desire to engage in behaviors that minimize the detected difference between oneself and the comparative target. Others have expanded upon the original theory to include self-improvements (Wood, 1989) and self-enhancement (Martin & Kennedy, 1994). Considering that individuals often seek to compare themselves to targets with whom they identify or share a similar characteristic (e.g., gender; Felicio & Miller, 1994), some have concluded that this may result in looking to mass media sources such as print advertisements, television, movies, etc. (Bessenoff, 2006). When an objective measurement for one’s level of physical attractiveness is unavailable, for example, one may look to images of same-sex models in the media as comparative targets (Want, 2009).

Considering that the individuals depicted in media images, particularly women, tend to reflect above-average or exceptional standards of beauty or attractiveness (Want, 2009), this may lead the average viewer to engage in an upward social comparison (Richins, 1991; Tiggemann & Polivy, 2010). Not only can the detected discrepancy between oneself and the target result in greater negative evaluation of oneself (Want, 2009), it can also lead the viewer to raise his or her expectations regarding what one’s personal appearance ought to be like (Blowers, Loxton,

Grady-Flessner, Occhipinti, & Dawe, 2003). Based on this theory, the multitude of upward social comparisons produced by examining oneself against idealized (i.e., thin) targets in the media serves as the process through which the aforementioned negative outcomes (e.g., body dissatisfaction, etc.) are produced. Stated more explicitly, when women compare themselves to images of unrealistic standards of body shape and weight, they not only feel worse about their own bodies they adopt the belief that looking like the models is a state to which one should aspire to achieve. This process of social comparison is particularly concerning as research has demonstrated that individuals likely engage in social comparisons automatically and without conscious effort. In a study of exposure to idealized media images, Richins (1991) found that female viewers spontaneously reported engaging in social comparison with images of thin women, even when they were not instructed to do so.

In a later article regarding idealized media images, Richins (1995) argued that advertisers capitalize on viewers' tendencies to automatically engage in social comparison in order to increase product demand. She postulated that characters presented in advertisements are often designed to appear relatable in some general way (e.g., based on age or gender), thus making the model and corresponding product seem relevant to the viewer. Richins contended, however, that the models depicted generally represent an idealized version of life (i.e., relatively attractive people in desirable circumstances) thus causing the viewer to engage in an upward social comparison. This not only results in a negative evaluation of oneself and/or one's current circumstances (aka, consumer discontent) but also a desire to reduce the perceived discrepancy. Richins believed that advertisements capitalized on this desire by implying that the only thing needed to achieve this desired standard is the product. Simultaneously, this reinforces the belief that a resolution may be achieved quite rapidly and with minimal effort. As a result, desirability

and demand for the product are created. Considering that Americans are exposed to countless forms of media images every day, many of which may depict an idealized version of individuals and life, Richins (1995) believed the potential for upward comparisons is abundant.

If applied to acne and clear skin, social comparison theory would suggest that individuals look to available targets in their environment to compare and evaluate their own facial skin. This notion has been supported through qualitative research with acne sufferers, with some participants reporting a pattern of engaging in social comparison with the people around them in order to evaluate their own skin and acne (Murray & Rhodes, 2005). When individuals compare themselves to media images, however, they may find that the models, who may already be of above-average levels of attractiveness, also appear free of discoloration, blemishes, and/or acne. If a discrepancy in skin clarity is detected (i.e., due to an upward comparison), the viewer may evaluate his or her own skin more negatively, thus increasing dissatisfaction with one's own appearance. It is important to note that while the images of models with clear skin presented in the media may truly depict individuals with little to no acne or discoloration, it is also possible that additional techniques such as the use of make-up, professional lighting, etc. may have been applied in order to improve the quality of the image. In any case, this discrepancy may lead the individual to engage in behaviors believed to improve or ameliorate acne or blemishes, such as purchasing new or costly products or increase face washing. As previously mentioned, beliefs that acne can be easily resolved through simple alterations to one's daily activities may lead to increased frustration when unsuccessful.

Overall, comparison of one's facial appearance and skin to idealized images in the media may result in negative outcomes similar to those observed when individuals are exposed to idealized body images. These negative outcomes may include, but are not limited to, a more

negative evaluation of oneself, maladaptive behaviors to minimize the perceived discrepancy, and increased misperception that one's facial appearance is malleable and under one's control.

Sociocultural model. Another theory often cited in the body image literature is the sociocultural model, which posits that body dissatisfaction is driven by pressures to adhere to societal standards of appearance (Heinberg, Thompson, & Stormer, 1995; Stormer & Thompson, 1996). According to this model, the idealized images depicted in the media are often associated with positive social outcomes, such as happiness and desirability (Tiggemann, 2002), reinforcing the belief that looking like these images produces positive social outcomes or rewards (Engeln-Maddox, 2006). As women are routinely exposed to these images, they may begin to internalize messages about being thin, thus experiencing a sense of pressure to adhere the socially defined standards (Thompson & Stice, 2001). Further, they may experience a sense of inadequacy when they are not met (Stormer & Thompson, 1996). Additionally, the abundance of idealized images in the media, coupled with a lack of non-idealized images, may lead viewers to see the models in the media as depictions of reality (i.e., average people), rather than exceptions (Cultivation Theory, Gerbner, Gross, Morgan, & Signorielli, 2002). This implicitly reinforces the inaccurate belief that unrealistic standards of body size, shape, and weight are easily attainable for the average person.

It is important to note that the degree of internalization of these societal standards appears to be a moderating factor in one's response to being exposed to idealized images. Studies have shown that individuals who endorsed high levels of internalization, meaning they have adopted the belief that looking like the idealized images in the media is a standard to which one should aspire, were more likely to experience a negative reaction to thin images (e.g., increased body anxiety) than individuals that endorsed low levels of internalization (Dittmar & Howard, 2004;

Heinberg & Thompson, 1995; Cusamano & Thompson, 1997; Stice, 1994; Stice, Schupak-Neuberg, Shaw, & Stein, 1994; Yamamiya, Cash, Melnyk, Posavac, & Posavac, 2005). These findings offer some explanation as to why only some women display a negative reaction to idealized media images as opposed to all women.

In an attempt to explain why women appear to be more vulnerable to pressures to adhere to sociocultural standards of appearance (i.e., in comparison to men), Fredrickson and Roberts (1997) posited that it may be, in part, due to women's pervasive experiences of sexual objectification within their sociocultural contexts. According to objectification theory, women are repeatedly exposed to both explicit and implicit societal messages that their value lies within their ability to provide pleasure to others. As such, women are more frequently evaluated as sexual objects - based on their physical appearance - as opposed to being evaluated as a whole person (i.e., including their intellect and/or skills). Due to these pervasive experiences of objectification by others, Fredrickson and Roberts argued that some women become socialized to adopt the observer perspective. In turn, this leads women to evaluate themselves based on their physical appearance (i.e., engage in self-objectification). Sexual objectification is propagated through media images, as they often depict appearance as the foundation of female worth (Augustus-Horvath & Tylka, 2009). Research has demonstrated that after viewing idealized images of the female body, women have a tendency to engage in greater self-objectification (i.e., evaluating themselves based on appearance, rather than abilities or performance) than do men (Wagner-Oehlhof, Musher-Eizenman, Neufeld, & Hauser, 2009). Overall, these findings support the notion that exposure to idealized images can lead to increased internalization of sociocultural messages regarding the value of a woman's outward appearance, even if not explicitly stated.

When applied to facial appearance and acne, the sociocultural model would suggest that media images present a socially desirable standard of facial appearance—namely, one that is free of acne lesions or scars. Qualitative research with acne sufferers has supported the idea that many individuals look to media images as a source of information regarding societal standards of facial skin appearance within Western cultures (Koo, 1995). In a study of Australian individuals (ages 13 to 73) seeking treatment for acne, psoriasis, and/or atopic eczema, Magin, Adams, Heading, and Pond (2011) found that both men and women acknowledged “perfect” skin (i.e., free of dermatological disorders) as an idealized, societal standard of appearance. Consistent with the body image research, women also endorsed a greater sense of pressure to achieve societal standards of beauty as well as a greater (i.e., negative) effect on their self-esteem when they perceived themselves to fall short of said standards. Participants also believed the abundance of images of people with clear skin in combination with the perceived lack of images of people with less-than-perfect-skin contributed to increased stigmatization for individuals experiencing skin-related conditions. As a result, even minor blemishes may seem like a marked transgression from the desired state, thus leading to significant dissatisfaction with one’s facial appearance when acne is present. Interestingly, Magin, et al. (2011) found that even when participants believed media images were manufactured (e.g., photo-shopped, airbrushed) in order to present more idealized skin, the desire to live up to those standards remained. These findings appear to be similar to sociocultural models of media exposure in the body image literature and support the notion that a sociocultural model may be applied to the field’s understanding of media images of clear skin.

Summary

In summary, research on exposure to idealized media images in the field of body image

has pointed to social comparison processes and internalization of sociocultural messages as the likely links between exposure to thin media images and one's negative psychological experience. Some have even suggested that these two processes likely go hand-in-hand. Dittmar and Howard (2004), for example, found that internalization of the thin-ideal and the tendency to engage in social comparison both served as moderating factors in the effect of media exposure, with individuals that were high in internalization and had a tendency to engage in social comparison demonstrating the greatest negative effects from media exposure. Similarly, both processes appear to result in similar alterations in expectations of what one's appearance ought to be like. This suggests that a combination of these processes may similarly influence one's reaction to media exposure.

While the aforementioned studies have provided a much-needed first step, there is still a great deal to be learned about the impact of clear skin facial images in the media. In the present study the researcher examined whether exposure to idealized images in TV advertisements for acne products increases facial skin dissatisfaction and social appearance anxiety among viewers. Additionally, the researcher examined whether this impact may be moderated by internalization of sociocultural messages regarding clear skin, facial self-objectification, and/or social comparison processes. Lastly, the researcher examined whether self-reported ratings of facial skin satisfaction and/or social anxiety are moderated by one's own self-perceived acne severity.

Chapter III. Hypotheses

For the purpose of this study the researcher examined viewers' response to media advertisements (TV commercials) for acne products containing idealized images of clear skin. In addition to presenting numerous images of individuals with idealized, clear skin, these commercials call one's attention to the presence of acne and its potential social impact. The goal of this study was to determine whether exposure to idealized facial images of clear skin in TV advertisements alters individuals' satisfaction with their own facial skin and/or increases social anxiety about their appearance. The researcher also sought to determine whether internalization of societal messages about facial appearance, objectified facial consciousness, and/or comparing oneself to the images in the advertisement contributes to this reaction. Lastly, the present study also sought to determine whether the impact of being exposed to idealized facial images is moderated by whether the viewer reports the presence of acne. The following hypothesis were therefore examined:

Hypothesis 1. Individuals exposed to TV advertisements including images of idealized clear facial skin will report higher rates of facial skin dissatisfaction and social appearance anxiety in comparison to individuals exposed to advertisements without facial images.

Hypothesis 2. The relationship between exposure to idealized clear facial skin images and satisfaction with facial appearance and/or social anxiety regarding one's appearance will be moderated by internalization of societal messages, objectified facial consciousness, social comparison processes, and/or self-reported acne severity.

Chapter IV. Method

Participants

Male and female individuals (ages 18 to 36) were invited to participate in the present study (see Appendix B). Individuals were recruited from two sources: 1) a research participant pool at a large Southeastern university and 2) Amazon Mechanical Turk (AMT), an online paid task recruitment service. Participants recruited via the research participant pool received extra credit in exchange for their participation. Participants recruited through AMT received a participation reward (\$2.00), which was paid directly through an established account in the researcher's name. Selection criteria (i.e., age) appeared in the 'Qualification Required' section of the study description. Individuals that did not meet the age criteria for participation (i.e., indicated being 17 years or younger or 37 years or older) were automatically directed to the end of the experiment and were informed they were ineligible to participate based on the age requirement and that they would, therefore, not receive compensation.

The final sample consisted of 222 participants. That sample was derived from an original sample of 988, which included 257 participants from the university research participant pool and 731 participants from AMT. Three hundred and nineteen of these cases were eliminated immediately because the participant did not complete the entire survey (i.e., dropped out). An additional 53 cases were removed from the sample after the participant failed the video attention test. Of the remaining 616, another 26 cases were removed from the sample based on the participant's response on the write-in behavioral questions. For example, 11 cases were removed because the respondent did not provide a numerical value (e.g., "not sure"). Additionally, 15 cases were removed to prevent data from being skewed by significant outliers. Specifically, four outliers were identified on the 'Money' item (i.e., respondents who identified spending \$5,000;

\$5,000; \$25,000; & \$100,000, respectively). These responses were significantly higher than the median response (i.e., \$10) and were greatly outside the range of all the other responses in the data set (i.e., \$0 - \$1,000). Accordingly, these cases were removed. On the ‘Doctor’s Visit’ item, 11 outliers were identified and removed. These respondents identified visiting a doctor for a skin related issue between 20 and 700 times. Not only were these responses significantly greater than the mode response (0 visits) they also suggested a lack of attention to the item content, as it is unlikely an individual visited a doctor for a skin-related issue every few days.

Of the remaining 593 cases, an additional 11 cases were removed due to a lack of response variability (i.e., respondent appeared to provide the same answer on each question, thus demonstrating a lack of attention to individual item content). Lastly, cases in which a ‘Not Applicable (NA)’ response was provided on any item that interfered with scoring a measure were removed from the data set. A total of 154 cases were removed, leaving an overall sample of 425 participants. This sample was used to conduct the exploratory factor analysis for the purposes of validating the modified measures included in this study (see Appendix C for a full description of the EFA). In order to test the research hypotheses proposed in Chapter 3 of this manuscript, the sample was further reduced following analysis of timing data embedded in the survey (see Preliminary Analysis section of Chapter 5 for full description of this procedure). Following examination of the timing data, a total sample size of 222 participants remained (see Table 1 for an illustration of the step-by-step breakdown of the sample reduction process).

Demographics. The final sample consisted of 222 cases, 29 cases were obtained from the university research participant pool and 193 from AMT. Ninety-four participants (41.8%) were male and 128 (56.9%) were female. All participants were between the ages of 18 and 36. The race/ethnicity distribution for the final sample is depicted in Table 2.

Dependent Measures

Satisfaction with Appearance - Visual Analogue Scale (VAS). The visual analogue scale (VAS) is a continuous horizontal line representing a scale of one to 100. On this line, participants provide a self-reported rating of satisfaction with their facial skin appearance by sliding a bar between two anchored poles, with ‘very dissatisfied’ on the left and ‘very satisfied’ on the right. Participants are asked to mark the location on the line that they believe most accurately represents their current satisfaction with their facial skin appearance. Although the participant does not view the corresponding numerical rating (1 to 100), a number is provided based on the location of the mark. The VAS is a frequently used measure and has demonstrated good reliability and validity in studies of body satisfaction. For example, in a previous study regarding body dissatisfaction, Durkin and Paxton (2002) found the VAS to have good convergent validity with similar validated measures, including the Physical Appearance State Anxiety Scale ($r = -.59$) and the Figure Rating Scale ($r = -.62$). Similarly, Heinberg and Thompson (1995) found VAS ratings of overall appearance and weight satisfaction to be significantly correlated with the Eating Disorders Inventory-Body Dissatisfaction subscale ($r = .76$ and $r = .66$, respectively). Although the VAS is commonly used to detect changes in subjective ratings, previous studies have demonstrated good test-retest reliability when ratings were expected to remain consistent (McCormack, Horne, & Sheather, 1988). For example, de Boer, et al. (2004) found VAS quality of life ratings to have a test-retest coefficient of .87 at a three-week follow-up among healthy individuals.

Social Appearance Anxiety Scale (SAAS). The SAAS (Hart, Flora, Palyo, Fresco, Holle, & Heimberg, 2008) is a 16-item measure designed to assess one’s fear of situations that may result in one being evaluated based on their appearance. Respondents are asked to read a

series of statements and provide a rating of how characteristic the statement is of them. Answers are provided according to a five-point Likert scale ranging from 1 (*not at all*) to 5 (*extremely*). Among a large sample of college students, the SAAS demonstrated good internal consistency ($\alpha = .94 - .95$) and test-retest reliability ($r = .84$) at a one-month follow-up. Additionally, the SAAS demonstrated significant correlations with similar measures of social anxiety including the Brief Fear of Negative Evaluation Scale (BFNES; Leary, 1983), $r = .82$, and the Social Interaction Anxiety Scale (SIAS; Mattick & Clark, 1998), $r = .76$. The SAAS demonstrated similar convergent validity with measures of dissatisfaction with one's body image, such as the Body-Image Ideals Questionnaire (BIQ; Cash & Szymanski, 1995), $r = .58$, and the Beck Depression Inventory (BDI; Beck, Steer, & Brown, 1996), $r = .52$. Further, the SAAS provides incremental validity in explaining the variance in social anxiety, beyond what is predicted via negative body image. The SAAS was also found to be a significant predictor of BDI scores after controlling for measures of social anxiety, specifically the BFNE and the SIAS (i.e., squared semipartial correlation of .04, $p = .02$). No modifications were made to this scale for the present study.

Possible Moderating Variable Measures

Sociocultural Attitudes Towards Appearance Questionnaire – 3 – Adapted for Facial Skin (SATAQ – 3). In its original form, the SATAQ – 3 (Thompson, van den Berg, Roehrig, Guarda, & Heinber, 2004) is a 30-item, self-report questionnaire measuring internalization of sociocultural messages of appearance, particularly those found in the media. Responses are rated on a 5-point Likert scale indicating the respondent's perceived level of agreement with the statement ranging from 1 (*definitely disagree*) to 5 (*definitely agree*). The SATAQ – 3 was designed to assess internalization of sociocultural messages regarding appearance (in general) and body shape and weight and has demonstrated convergent validity with other validated

measures of internalization of ideal body standards and eating disorder behaviors (Thompson, van den Berg, Roehrig, Guarda, & Heinberg, 2004).

The original SATAQ - 3 contains four subscales: (1) Pressures, (2) Information, (3) Internalization – General, and (4) Internalization - Athlete. The Pressures subscale consists of seven items (Items 2, 6, 10, 14, 18, 22, & 26) that measure the degree to which the respondent endorses a felt sense of pressure to adhere to cultural standards of appearance (e.g., “*I’ve felt pressure from TV or magazines to change my appearance*”). This subscale has demonstrated good internal consistency ($\alpha = .92$). The Information subscale consists of nine items (Items 1, 5, 9, 13, 17, 21, 25, 28, & 29) and assesses the extent to which the media (e.g., TV, magazines, and movies) serves as a source of information regarding socially desirable standards of appearance (e.g., “*TV programs are an important source of information about fashion and being attractive*”). This subscale has demonstrated good internal consistency ($\alpha = .96$). The Internalization – General subscale also consists of nine items (Items 3, 4, 7, 8, 11, 12, 15, 16, & 27) and has demonstrated good internal consistency ($\alpha = .96$). This subscale measures the degree to which the individual has accepted media messages regarding the thin-ideal and engages in social comparison processes with media targets (e.g., “*I compare my appearance to the appearance of TV and movie stars*”). The items corresponding to the Internalization-Athlete subscale, which assesses internalization of images and messages regarding female athleticism and physique, were not relevant to the present study.

For the current study, items from the SATAQ - 3 were altered from their original form to assess internalization of sociocultural messages regarding facial skin and acne. Specifically, references to “body” and being “thin” were replaced with “facial skin” and “clear,” respectively. For example, “*I’ve felt pressure from TV or magazines to lose weight*” was altered to “*I’ve felt*

pressure from TV or magazines to have clear skin.” A total of ten items were altered, including five items from the Pressures subscale (Items 2, 10, 14, 18, & 22) and five items from the Internalization – General subscale (Items 3, 4, 7, 11, & 12). Items that referenced “being attractive” or “appearance,” in general (i.e., rather than body weight or shape), were maintained in their original form.

Due to the alteration of the items, a series of supplemental analyses were performed to support the use of the adapted version of the SATAQ – 3 in the present study. This included an exploratory factor analysis (EFA), parallel analyses to confirm the factor structures identified via the EFA, and correlational analyses to determine whether the validity of each subscale was upheld after adaptation. Because these analyses were not the primary focus of the current study, a detailed description of the analyses and results is provided in Appendix C.

The final adapted SATAQ – 3 consists of 24 items (see Appendix D for complete list of items). The three factors that emerged were consistent with the three original subscales. The adapted Information subscale consists of all nine of the original subscale items. None of the items on this subscale were altered, thus good internal consistency was maintained ($\alpha = .96$). The Information subscale assesses the extent to which media images are used as a source of information regarding the appearance standards and was used in the present study to assess internalization of sociocultural standards. The adapted Pressures subscale consists of six items and assesses the degree to which the participant endorses pressure from the media to have clear and/or perfect facial skin. The adapted subscale demonstrates good internal consistency ($\alpha = .95$) and was also used in the present study to assess internalization of sociocultural standards of appearance. The adapted Internalization – General subscale, herein referred to as the Internalization subscale, consists of nine items. The adapted items demonstrated high internal

consistency ($\alpha = .91$). Because statements such as “*I compare my appearance to the appearance of TV and movie stars*” and “*I do not care if my facial skin looks like the facial skin of people who are on TV,*” clearly indicate comparative processes, this subscale was used to measure the social comparison processes that potentially moderate the relationship between viewing media images and facial dissatisfaction and/or appearance anxiety.

Because the items corresponding to the original Internalization - Athlete subscale were not included, a total score was not computed. As such, scores on each subscale were analyzed independently.

Objectified Body Consciousness Scale (OBCS) – Adapted for Facial Skin. The original OBCS (McKinley & Hyde, 1996) is a 24-item self-report scale developed to assess objectification of the female body. Using a 7-point Likert scale rating system ranging from 1 (*strongly disagree*) to 7 (*strongly agree*), participants are asked to rate how much they agree with a given statement. An additional response option of ‘Not Applicable’ is provided if the statement does not apply to the respondent. The OBCS measures three dimensions of appearance related concerns, which include body surveillance, body shame, and appearance control beliefs. The Surveillance subscale includes eight items (Items 1, 3, 7, 9, 14, 16, 18, & 20) including “*I rarely compare how I look with how other people look*” and “*During the day, I think about how I look many times*” and measures the individual’s tendency to view his or her body as an outside observer (i.e., how they believe their appearance is perceived by other people). The Body Shame subscale measures the individual’s tendency to feel a sense of shame or embarrassment when the participant does not perceive herself to be meeting socially acceptable standards of appearance. This subscale includes eight items (Items 2, 5, 8, 11, 13, 15, 17, & 22) such as, “*I feel ashamed of myself when I haven’t made an effort to look my best*” and “*I feel like I must be a bad person*

when I don't look as good as I could.” Lastly, the appearance Control Beliefs subscale is used to measure the individual’s beliefs regarding her ability to control her weight or body size pending adequate effort. This subscale consists of eight items (Items 4, 6, 10, 12, 19, 21, 23, & 24). Subscales are scored independently; therefore a total OBCS score is not rendered. The Surveillance subscale has demonstrated good internal consistency in studies of young women ($\alpha = .89$; McKinley & Hyde, 1996) and middle-aged women ($\alpha = .76$; McKinley, 1999). The Body Shame subscale has also demonstrated good internal consistency coefficients ($\alpha = .84$) for undergraduates and ($\alpha = .70$) for middle-aged women (McKinley, 1999). Lastly, analyses of the internal consistency between items on the Control Beliefs Scale subscale have also shown good consistency coefficients among young women ($\alpha = .75$) and for middle-aged women ($\alpha = .73$; McKinley, 2006).

Although many of these questions were originally designed to assess concerns regarding body shape and weight, they lend themselves to understanding the increased facial consciousness and objectification previously noted by acne sufferers in qualitative analysis (Murray & Rhodes, 2005). For the purpose of this study, items including specific references to shape, weight, or size were altered to include references to facial skin and acne (e.g., “When I can’t control my *weight*, I feel like something must be wrong with me” was changed to “When I can’t control by *acne*, I feel like something must be wrong with me”). As a result, changes were made to each subscale, including items 3, 7, 16, and 20 on the Surveillance subscale, items 2, 11, 13, 15, 17, and 22 on the Body Shame subscale, and items 6, 12, 19, 21, 23, and 24 on the Control Beliefs subscale. All other items were maintained in their original form.

Similar to the supplemental analysis procedures described for the adapted SATAQ - 3, an EFA was performed, as well as parallel analyses to confirm the factor structures identified via

the EFA, and correlational analyses to determine whether the validity of each subscale was upheld after adaptation (see Appendix C).

The final adapted OBCS consisted of 12 items (see Appendix E for full list of items). From the remaining items, three factors emerged, which were consistent with the three original OBCS subscales. When adapted for facial skin and acne, the modified Body Shame subscale consists of five items that assessed the degree to which the participant experiences feelings of shame or embarrassment when he or she does not possess clear facial skin or perceives him or herself to not look their best. These items demonstrated good internal consistency (Cronbach's $\alpha = .81$). The adapted Surveillance subscale consists of four items, all of which were maintained in their previous form from the original subscale. These items demonstrated adequate internal consistency ($\alpha = .77$) and assessed the degree to which the participant worries about how he or she looks (in general) to other people. The adapted Control Beliefs subscale consists of three items and assesses the degree to which an individual believes the presence of clear skin is determined by genetics. Although the items from the adapted Control Beliefs subscale demonstrated good internal consistency ($\alpha = .76$), the validity of this subscale was not supported during further analysis. As such, the Control Beliefs subscale was not examined in the current study.

Acne Severity Self-Rating. Participants in the study were asked to provide a self-rating of their perceived acne severity. Answers were provided on a four-point scale: (0) no acne; (1) mild; (2) moderate; and (3) severe (see Appendix F). This self-report rating system is consistent with the suggestion of previous researchers (i.e., Martin, Lookingill, Botek, Light, Thiboutot, & Girman, 2001) who have encouraged the use of patient self-ratings, as opposed to professional/physician ratings, as these more accurately capture the individual's psychological

experience of having acne. This rating system has also been employed by other researchers examining the psychosocial impact of acne (see Loney, Standage, & Lewis, 2008).

Selection of Advertisements and Construction of Altered Videos

The study consisted of two conditions, one involving unaltered video advertisements for facial skin care products and a second condition in which facial images were removed from the advertisements. Videos were located on the public website Youtube (www.youtube.com) during the period of March 1st through 7th, 2015, using the keywords *acne*, *commercials*, and *advertisements*. Commercials were selected based on the following criteria, 1) presence of idealized, clear skin images and 2) reference to psychosocial experience of acne (e.g., negative impact on self-esteem). A total of nine commercials were selected for the present study (total runtime was approximately 11 minutes). This was consistent with previous body image research examining TV commercials (e.g., Bell, Lawton, & Dittmar, 2007; Cattarin, 2000; Hargreaves & Tiggerman, 2002, 2004; and Heinberg & Thompson, 2005), which has consistently exposed viewers to approximately 10 minutes of video in order to strengthen the exposure manipulation. The use of nine separate advertisements also helped protect against narrow stimulus sampling, as many of the advertisements exposed the viewer to numerous models and facial images throughout the video (see Appendix G for detailed information regarding individual video content, including product and runtime).

When constructing the altered videos, the original audio content was preserved in each commercial. This was done to maintain consistency of the verbal messages between conditions. Visual image content was altered using video-editing software (iMovie) in order to remove facial images for the product-only condition (see discussion below for further description of the experimental conditions). Images of the product, animations of product explanations (e.g., how it

works), and non-facial images of models (e.g., hands using the product) were maintained, in an effort to uphold as much of the original commercial content as possible. Considering that many of the original advertisements included a large amount of facial images, various substitutions were made for these original visual images in order to ensure that the original commercial length was maintained. This included reducing the speed of the non-facial images and the text-only displays from the original videos and replaying the non-facial visual images multiple times throughout the commercial. When an original facial image was accompanied by a text-based message (i.e., text displayed next to the model's face), the facial image was removed, leaving the text. This was done to ensure that the viewers were still exposed to the text-based messages. In one of the original commercials, there was never a time during which a facial image was not displayed. For this case, product-only images were added (and as in other cases, text preserved). For example, product images from one Proactiv® advertisement were reused in another altered Proactiv® advertisement in order to maintain some visual imagery of the product and to ensure identical run-time. The total run-time for each group of videos was 11 minutes and 13 seconds. All edited videos have been archived in order to be available for future viewing or replication.

Procedure

The present study was conducted entirely online. Participants were asked to view nine TV advertisements for skin care products (e.g., facial cleansers, over-the-counter treatments, etc.). They were randomly assigned to one of two advertisement conditions, one containing facial images (product + facial images) and one that did not (product-only). Across conditions, participants were told that the purpose of the study was to evaluate viewers' responses to a variety of different advertisements as part of a marketing research project. Participants were instructed to "watch the videos closely as you will be asked to answer questions about the

advertisements.” After viewing all of the ads, participants were also asked to offer specific suggestions regarding how they believed the advertisements could be improved. The task served to uphold participant’s beliefs that this was a marketing research study and helped protect against suspicions regarding the true purpose of this experiment. Out of the final sample ($N = 222$), 97% of participants provided suggestions for how to improve the commercials, indicating the true purpose of the study likely remained protected. Additionally, participants were asked to answer a yes-or-no question regarding the content of the video (i.e., *Did you see an image of a cat at any point when viewing the commercials?*). Those that responded ‘Yes’ to this question were assumed to have not viewed the commercials accurately, as a cat does not appear in any of the advertisements, and their subsequent responses were dropped from the analysis. Conversely, individuals who responded ‘No’ to this question were assumed to have at least reasonably attended to the commercials and their data were included. Lastly, a time constraint was built into the survey design with individuals taking more than 10 minutes to proceed to the remaining questionnaires after completing the videos being excluded. This procedure was followed under the assumption they might have temporarily abandoned (delayed) the task for a period of time so great as to threaten the internal validity of the study. Participants then proceeded to a series of questionnaires, which assessed the participants’ satisfaction with their facial appearance as well as their social anxiety regarding their appearance. Additional questionnaires were completed to determine if factors such as objectified facial consciousness, internalization of sociocultural messages portrayed in the media, and social comparison behaviors moderated the relationship between viewing idealized facial images and facial satisfaction and/or social appearance anxiety. Lastly, participants were asked to provide a self-rating of their acne severity and answer a number of questions regarding their previous use of acne treatment products and history of

seeking professional assistance for acne-related problems (i.e., from a physician or dermatologist, see Appendix H). Upon completion of the study, participants recruited via AMT immediately received a debriefing statement regarding the purpose of the study. Participants recruited via the university research participant pool were provided the appropriate contact information should immediate queries or concerns arise but were informed that a formal debriefing would be offered at the end of the term in order to prevent response bias among other potential participants. Debriefing statements were sent on January 12, 2016, and May 9, 2016, to students who participated in the study during the Fall and Spring semesters, respectively (see Appendix I for immediate and delayed debriefing statements).

Data Analysis

Descriptive statistics. Prior to testing the hypotheses, additional preliminary analysis was performed to remove participants that did not appear to watch the videos for an adequate amount of time. After this process was completed, descriptive statistics were generated for each of the dependent measures (i.e., Satisfaction with Appearance Rating; SAAS) and the proposed moderating variables (i.e., Adapted OBCS and SATAQ – 3 subscales; Acne Severity Rating) as well as the demographic variables for each group.

Hypothesis 1. Two analyses of the variance (ANOVA) were used to explore possible group differences between individuals exposed to the videos with idealized facial images and the group who was not. A separate ANOVA was performed for each dependent measure (i.e., satisfaction with facial appearance and SAAS total score).

Hypothesis 2. The use of path analysis was originally proposed in order to determine whether any of the proposed variables moderated the relationship between exposure to idealized facial images and satisfaction with facial appearance and/or social appearance anxiety. Due to

significant difficulties obtaining the necessary sample size to conduct this analysis, multiple regression analyses were performed in place of the path analysis.

Table 1

Breakdown of Cases Removed from the Original Sample

Cases Removed	Research Participant Pool	AMT	Total
Original Sample	257	731	988
Did not complete the survey	45	274	319
Failed the video attention check	26	27	53
Behavioral Items	5	21	26
Lack of response variability	6	5	11
Provided “NA” Response	42	112	154
EFA Sample	133	292	425
Timing Analysis	104	99	113
Research Hypothesis Sample	29	193	222

Table 2

Race/Ethnicity Distribution of the Final Sample

Race/Ethnicity	% to Total	N
Non-Hispanic White	67.1	151
Asian or Asian American	15.1	34
Black or African American	5.3	12
Hispanic or Latino	3.1	7
American Indian or Alaska Native	2.2	5
Hawaiian or Other Pacific Islander	1.3	3
Other	4.4	10
Total	100.0	222

Chapter V. Results

Preliminary Analysis

Prior to comparing the group that viewed the commercials with facial images to the group who watched the videos without facial images, timing data embedded in the Qualtrics survey was reviewed to determine if participants viewed the entire video set. The timing information included in the survey documented the amount of time the participant remained on the survey page corresponding to the videos. Participants were instructed to keep this page open while watching the videos via the external Youtube link. After completing the videos, they were instructed to return to the original survey page and progress through the remaining survey questions. Since there was no way to track the amount of time each individual spent watching the videos via the external link, the amount of time the corresponding Qualtrics survey page remained open was used to estimate the amount of time the participant spent watching the videos.

Participants who appeared to spend more than 21 minutes and 59 seconds on the video page before advancing in the Qualtrics survey were removed from the data set. This included one individual from the university research sample and 16 individuals from the AMT sample, for a total of 17 cases. These individuals were removed as they were presumed to have abandoned the task for more than 10 minutes and may have been exposed confounding stimuli. Originally, participants who did not appear to watch the entire video set (i.e., appeared to spend less than 11 minutes watching the videos) were also removed from the data set (229 cases total; 114 from the university sample and 115 from the AMT sample). These individuals were presumed to have not received adequate exposure to the stimulus. After removal of these cases, 179 participants remained.

Due to the large number of participants who did not appear to watch the entire video set, the researcher questioned whether exposure to the full video set was necessary to achieve the desired effect (i.e., adequate exposure to the stimulus). To answer this question, participants who watched the videos for less time (i.e., three minutes to 10 minutes and 59 seconds; $N = 43$) were compared to those that watched the video between 11 minutes and 21 minutes and 59 seconds ($N = 179$). Separate analyses of the variance (ANOVA) were performed to compare these groups across each of the proposed trait variables (i.e., acne severity rating, OBCS and SATAQ subscale scores) as well as each dependent variable (i.e., satisfaction with appearance, social appearance anxiety). These analyses revealed participants who watched the videos for less time did not significantly differ in their responses on any of trait or dependent variables from those who watched the videos for 11 to 21 minutes and 59 seconds. Table 3 illustrates the group means for each variable.

Next, two analyses of the covariance (ANCOVA) were used to determine whether exposure to a specific set of videos (videos with facial images vs. no facial images) was related to participants' satisfaction with appearance and/or social appearance anxiety, after controlling for the time spent watching the videos. Prior to performing these analyses, the Levene's statistic indicated the variances between the experimental groups were unequal on both the satisfaction with appearance ratings ($F(1, 220) = 7.48, p = .01$) and the social appearance anxiety scale scores ($F(1, 208) = 11.278, p = .001$). A Hartley's F_{Max} test, which is a more robust test of homogeneity of the variance, was performed to determine whether the variances between the groups were, in fact, different. The Hartley's F_{Max} test is calculated by examining the ratio between the largest variance and the smallest variance (Field, 2009). This score is then compared to a critical value, which is determined by the number of groups and the sample size of the

groups. When examining the variance ratio between the experimental groups on satisfaction with appearance, the F_{Max} ratio was 1.17, which was less than the critical value of two. When examining the variance ratio between the groups on the social appearance anxiety variable, the Hartley's F_{Max} ratio was 1.16, which was also below the critical value of two. These scores indicated the null hypothesis of equal variances was supported.

After adjusting for the influence of the covariate (i.e., time spent watching the video) the group exposed to the videos without facial images had a mean satisfaction with appearance score of 68.10 ($SD = 2.23$) while the group exposed to the videos with facial images had a mean satisfaction with appearance rating of 62.98 ($SD = 2.61$). This difference was not significant, $F(1, 219) = 2.22, p = .138$. Similar results were found when examining participants' social appearance anxiety scores. After adjusting for the effect of the time spent watching the videos, participants exposed to the videos without faces demonstrated slightly lower social appearance anxiety scale scores ($M = 36.31, SD = 1.38$) than those exposed to videos with idealized facial images ($M = 40.30, SD = 1.59$); however, the difference was not significant, $F(1, 219) = 3.78, p = .053$. Based on the lack of significant differences between the groups, the participants that watched the videos for less time ($N = 43$) were added to the sample of 179 participants, for a total sample of 222 participants. This sample was the final sample used to test the research hypotheses in the current study.

Descriptive Statistics

Mean scores and standard deviations were calculated for each variable measured in the current study. One hundred and seven participants viewed the advertisements without faces, while 115 viewed the advertisements with faces. Table 4 illustrates the mean scores for each group on each of the dependent measures and trait variables.

Overall, participants in each group provided favorable ratings of their satisfactions with their facial skin appearance. Additionally, participants' scores on the SAAS indicated slight to moderate worry or concern regarding their social appearance. On average, participants in both groups indicated having mild to no acne.

Table 5 illustrates the correlations between the variables examined in this study. A strong correlation ($r = .73$) was detected between the SATAQ Pressures and Internalization subscale; however, this was expected given that some of the items corresponding to each scale measure a similar construct. In general, moderate correlations (i.e., $r = .3 - .7$) were detected among many of the other variables. None of the correlations were outside of what was expected based on the content of the scales. For example, satisfaction with appearance was expected to negatively correlate with social appearance anxiety, as individuals that endorse higher satisfaction with their appearance are more likely to endorse lower social appearance anxiety.

Hypothesis 1 – Between Groups Comparison

The goal of this study was to determine whether individuals exposed to images of idealized facial skin in TV advertisements for acne products reported lower satisfaction with their facial appearance and/or higher rates of social appearance anxiety in comparison to individuals who were exposed to TV advertisements without facial images. Using the sample of 222 participants, a one-way analysis of the variance (ANOVA) was performed for each outcome variable to examine possible differences between the groups. No significant differences were detected between the groups regarding satisfaction with one's facial appearance, $F(1, 220) = 2.18, p = .142$. Although the average satisfaction with appearance rating (on a scale of 1 to 100) was slightly higher for the group exposed to videos without facial images ($M = 68.10, SD = 23.01$) when compared to the group exposed to videos with facial images ($M = 62.98, SD =$

28.15), this difference was not statistically significant. There was also no significant difference between groups on the Social Appearance Anxiety Scale (SAAS) total score, $F(1, 220) = 3.76, p = .054$. Although the group exposed to the videos without facial images appeared to demonstrate slightly lower scores of social appearance anxiety on average ($M = 36.31, SD = 13.71$) than the group exposed to the facial images ($M = 40.30, SD = 16.65$), this difference was not statistically significant.

Hypothesis 2 - Moderation Analysis

Due to the limited number of total participants who appeared to watch the videos for an adequate amount of time ($N = 222$), the originally proposed path analysis could not be completed. Possible explanations for the high dropout rates and difficulty obtaining a larger sample size are addressed in the next chapter. Although the path analysis could no longer be completed, the decision was made to examine the role of the proposed moderating variables on the dependent variables using hierarchical regression analysis. The proposed moderating variables (i.e., the adapted SATAQ - Internalization, SATAQ - Pressures, SATAQ - Information, OBCS - Body Shame, and OBCS – Surveillance subscales; Acne Severity Rating) were examined as trait variables as participants' scores on these subscales were believed to reflect consistent dispositional traits of the individual as opposed to temporarily held beliefs.

To determine if any of the trait variables moderated the effect of the video group, separate hierarchical regression analyses were performed to detect a significant interaction effect. This resulted in seven separate analyses for each outcome variable (14 analyses total). In each analysis, the trait variable was entered in the first step and the group variable (i.e., videos with faces vs. videos with no faces) was entered in the second step. The two-way product term between the trait variable and the group variable was entered in the final step in order to detect a

significant interaction between the trait variable and the video set. A significant interaction is detected when the inclusion of the product term in the model results in additional prediction of the dependent variable above and beyond what was already provided by the variables entered into the model earlier.

In almost all of the cases, the trait variable, which was added to each model first, was found to be a significant predictor of the outcome variable by itself. Table 6 illustrates the beta values for the variables included in each of the individual models used to predict satisfaction with appearance. Statistically significant beta values indicate the inclusion of the variable in the model improves the ability to predict satisfaction with appearance. Based on these values, participants' acne severity ratings, as well as their scores on the adapted SATAQ Pressures, SATAQ Internalization, OBCS Body Shame, and OBCS Surveillance subscales all significantly contributed to predicting satisfaction with appearance. The adapted SATAQ Information subscale was the only variable that did not significantly contribute to its respective model.

One significant interaction effect was detected between the SATAQ Internalization trait variable and the group variable. The significant R^2 change value ($\Delta R^2 = .02, p = .043$) indicated that the addition of the product term between these variables offered additional predictive value above and beyond the previously entered variables. This indicated the SATAQ Internalization trait variable acted as a moderator of the group variable. In order to interpret the interaction effect, a test of simple slopes was performed. The test of simple slopes is used to determine whether a significant relationship exists between two variables (i.e., an independent variable and dependent variable) at a particular value of another variable (i.e., moderating variable; Dawson, 2014). For the purpose of performing the test of simple slopes, the group variable was entered as the moderating variable and the trait variable (i.e., Internalization) was entered at the

independent variable. This allowed for easier interpretation of the results given the group variable was categorical and the trait variable was continuous. The results of the test of simple slopes indicated that when the value of the moderator corresponded to the group that was shown the videos with faces, the slope was significant, $t(219) = -5.59, p < .001$. When the value of the moderator corresponded to the group that was shown the videos without faces, the slope was not significant, $t(219) = .246, p = .81$ (see Figure 1 for the corresponding figure). These results indicate that for the participants who were exposed to the videos without facial images, the level of internalization did not significantly impact satisfaction with appearance. For the group that was exposed to videos with facial images, however, participants' level of internalization did impact satisfaction with appearance, with individuals higher in internalization reporting lower satisfaction with their appearance. Table 7 offers additional model statistics for each regression analysis, including the correlation between each variable in the model and satisfaction with appearance (R), the amount of the variance accounted for by each variable (R^2), and the change statistics obtained when each new variable was entered into the model (ΔR^2).

Similar results were found when the regression analyses were performed with social appearance anxiety identified as the dependent variable. When these analyses were completed, all of the trait variables significantly contributed to their respective models, including the participants' scores on the adapted SATAQ Information subscale. In this case, however, no interaction effects were detected between the trait variables and group variable. This indicated none of the trait variables acted as moderators of the group variable. Table 8 illustrates the beta values for the variables included in each of the individual models used to predict social appearance anxiety scores. Table 9 illustrates the model summary statistics for each regression model performed using SAAS total score as the dependent measure.

Table 3

Group Means for Timing Analysis

Variable	Watched Videos 3:00-10:59 (N = 43)		Watched Videos 11:00-21:59 (N = 179)	
	Mean	SD	Mean	SD
Satisfaction with Appearance	67.28	22.83	65.01	26.58
Social Appearance Anxiety Scale	37.72	14.08	38.67	15.74
Acne Severity Rating	1.88	0.63	1.87	0.67
Adapted OBCS – Body Shame Subscale	11.70	6.47	11.36	5.56
Adapted OBCS – Surveillance Subscale	14.83	3.81	14.66	4.65
Adapted SATAQ-3 – Pressures Subscale	14.65	5.71	15.61	6.19
Adapted SATAQ-3 – Information Subscale	25.49	9.05	22.82	8.96
Adapted SATAQ-3 – Internalization Subscale	24.80	7.29	24.79	8.15

Note: No significant differences were detected between groups on any variable. The satisfaction with facial appearance rating was measured on a 100-point scale. The Social Appearance Anxiety Scale (SAAS; Hart, et al., 2008) score were measured on an 80-point scale. Acne severity ratings were calculated on a scale of one to four, with higher scores indicating more severe acne. Scores on the Adapted OBCS – Body Shame subscale were calculated out of a possible 35. Scores on the Adapted OBCS – Surveillance subscale were calculated out of a possible 28. Scores on the Adapted SATAQ-3 – Pressures subscale were calculated out of a possible 30. Scores on the Adapted SATAQ-3 – Information and Internalization subscales were calculated out of a possible 45.

Table 4

Descriptive Statistics for All Measured Variables

	No Faces Video (<i>N</i> = 107)		Faces Video (<i>N</i> = 115)	
	Mean	<i>SD</i>	Mean	<i>SD</i>
Satisfaction with Appearance	68.10	23.01	62.98	28.15
SAAS	36.31	13.71	40.30	16.65
Acne Severity Rating	1.85	0.61	1.89	0.70
SATAQ -3- Pressures	14.78	6.13	16.02	6.03
SATAQ -3- Information	23.20	9.36	23.47	8.72
SATAQ -3-Internalization	23.98	8.31	25.55	7.61
OBCS - Body Shame	10.80	5.25	12.01	6.11
OBCS – Surveillance	14.03	4.58	15.30	4.35

Note: No significant differences were detected between groups on any variable. The satisfaction with facial appearance rating was measured on a 100-point scale. The Social Appearance Anxiety Scale (SAAS; Hart, et al., 2008) score were measured on an 80-point scale. Acne severity ratings were calculated on a scale of zero to four, with higher sores indicating more severe acne. Scores on the Adapted OBCS – Body Shame subscale were calculated out of a possible 35. Scores on the Adapted OBCS – Surveillance subscale were calculated out of a possible 28. Scores on the Adapted SATAQ-3 – Pressures subscale were calculated out of a possible 30. Scores on the Adapted SATAQ-3 – Information and Internalization subscales were calculated out of a possible 45.

Table 5

Correlation Matrix for Variables Tested

	VAS	SAAS	ACNE	SATAQ - PRES	SATAQ - INFO	SATAQ -INT	OBCS -BS	OBCS -S
VAS	-	-.60**	-.41**	-.30**	-.08	-.38**	-.31**	-.36**
SAAS		-	.38**	.44**	.17*	.44**	.45**	.41**
ACNE			-	.28**	.06	.31**	.34**	.25**
SATAQ- PRES				-	.41**	.73**	.38**	.47**
SATAQ- INFO					-	.54**	.29**	.23**
SATAQ- INT						-	.48**	.63**
OBCS- BS							-	.31**
OBCS-S								-

Note. VAS = Satisfaction with Facial Appearance Rating; SAAS = Social Appearance Anxiety Scale; ACNE = Acne Severity Self-Rating; SATAQ-PRES = Adapted SATAQ-Pressures Subscale; SATAQ-INFO = Adapted SATAQ-Information Subscale; SATAQ-INT = Adapted SATAQ-Internalization Subscale; OBCS-BS = Adapted OBCS-Body Shame Subscale; OBCS-S = Adapted OBCS-Surveillance Subscale. * $p < .05$, ** $p < .01$.

Table 6

Moderation Regression Analyses for Satisfaction with Facial Appearance

Trait Variable in Regression Model		<i>B</i>	<i>SE B</i>	β	sr
Acne Severity Rating					
Step					
1	Acne Severity Rating	-16.04**	2.47	-.41	-.41
2	Group (Video)	-4.53	3.18	-.09	-.09
3	Acne Severity Rating*Group	2.33	4.92	-.04	-.03
SATAQ Pressures					
Step					
1	SATAQ Pressures	-1.26**	0.27	-.30	-.30
2	Group (Video)	-3.60	3.34	-.07	-.29
3	SATAQ Pressures*Group	0.51	0.55	.08	.06
SATAQ Information					
Step					
1	SATAQ Information	-0.22	1.93	-.08	-.08
2	Group (Video)	-5.05	3.46	-.10	-.10
3	SATAQ Information*Group	0.16	0.39	.04	.03
SATAQ Internalization					
Step					
1	SATAQ Internalization	-1.22**	0.20	-.38	-.38
2	Group (Video)	-1.21	0.20	-.06	-.06
3	SATAQ Internalization*Group	-0.83*	0.40	-.18	-.13
OBCS Body Shame					
Step					
1	OBCS Body Shame	-1.41**	0.29	-.31	-.31
2	Group (Video)	-3.45	3.33	-.07	-.07
3	OBCS Body Shame*Group	-0.20	0.59	-.03	-.02
OBCS Surveillance					
Step					
1	OBCS Surveillance	-0.21**	0.36	-.36	-.36
2	Group (Video)	-2.57	3.29	-.05	-.05
3	OBCS Surveillance*Group	-0.63	0.73	-.08	-.05

Note. Separate regression analyses were performed for each trait variable. Each step includes the variables previously entered in the model. * $p < .05$, ** $p < .01$, sr = semipartial correlation.

Table 7

Model Summary Statistics for Satisfaction with Facial Appearance Regressions

Trait Variable in Regression Model		<i>R</i>	<i>R</i> ²	ΔR^2
Acne Severity Rating				
Step				
1	Acne Severity Rating	.41	.17	.17**
2	Group	.42	.17	.01
3	Acne Severity Rating*Group	.42	.17	< .01
SATAQ Pressures				
Step				
1	SATAQ Pressures	.30	.09	.09**
2	Group (Video)	.31	.09	.01
3	SATAQ Pressures*Group	.31	.10	< .01
SATAQ Information				
Step				
1	SATAQ Information	.08	.01	< .01
2	Group (Video)	.12	.02	.01
3	SATAQ Information*Group	.13	.02	< .01
SATAQ Internalization				
Step				
1	SATAQ Internalization	.38	.14	.14**
2	Group (Video)	.38	.15	< .01
3	SATAQ Internalization*Group	.40	.16	.02*
OBCS Body Shame				
Step				
1	OBCS Body Shame	.31	.10	.10**
2	Group (Video)	.32	.10	< .01
3	OBCS Body Shame*Group	.32	.10	< .01
OBCS Surveillance				
Step				
1	OBCS Surveillance	.36	.13	.13**
2	Group (Video)	.36	.13	< .01
3	OBCS Surveillance*Group	.36	.13	< .01

Note. Each step includes the variables previously entered in the model. * $p < .05$, ** $p < .01$.

Table 8

Moderation Regression Analyses for SAAS

Trait Variable in Regression Model		<i>B</i>	<i>SE B</i>	β	sr
Acne Severity Rating					
Model					
1	Acne Severity Rating	8.86**	1.47	.38	.38
2	Group (Video)	3.79	1.91	.12	.12
3	Acne Severity Rating*Group	-2.47	2.96	-.07	-.05
SATAQ Pressures					
Model					
1	SATAQ Pressures	1.10**	0.15	.44	.44
2	Group (Video)	2.66	1.87	.09	.09
3	SATAQ Pressures*Group	-0.44	0.31	-.12	-.09
SATAQ Information					
Model					
1	SATAQ Information	0.28*	0.11	.17	.17
2	Group (Video)	3.91	2.03	.13	.13
3	SATAQ Information*Group	0.04	0.23	.02	.01
SATAQ Internalization					
Model					
1	SATAQ Internalization	0.84**	0.12	.44	.44
2	Group (Video)	2.69	1.87	.09	.09
3	SATAQ Internalization*Group	0.31	0.24	.11	.08
OBCS Body Shame					
Model					
1	OBCS Body Shame	1.20**	0.16	.45	.45
2	Group (Video)	2.57	1.86	.08	.08
3	OBCS Body Shame*Group	0.17	0.33	.04	.03
OBCS Surveillance					
Model					
1	OBCS Surveillance	1.41**	0.21	.41	.41
2	Group (Video)	2.24	1.91	.07	.07
3	OBCS Surveillance*Group	0.16	0.43	.03	.02

Note. Separate regression analyses were performed for each trait variable. Each step includes the variables previously entered in the model. * $p < .05$, ** $p < .01$, sr = semipartial correlation.

Table 9

Model Summary Statistics for the SAAS Regressions

Trait Variable in the Model		<i>R</i>	<i>R</i> ²	ΔR^2
Acne Severity Rating				
Step				
1	Acne Severity Rating	.38	.14	.14**
2	Group	.39	.15	.01
3	Acne Severity Rating*Group	.40	.16	< .01
SATAQ Pressures				
Step				
1	SATAQ Pressures	.43	.18	.19**
2	Group (Video)	.44	.19	.01
3	SATAQ Pressures*Group	.45	.20	.01
SATAQ Information				
Step				
1	SATAQ Information	.12	.03	.027*
2	Group (Video)	.21	.04	.02
3	SATAQ Information*Group	.21	.04	< .01
SATAQ Internalization				
Step				
1	SATAQ Internalization	.44	.19	.19**
2	Group (Video)	.45	.20	.01
3	SATAQ Internalization*Group	.45	.21	.01
OBCS Body Shame				
Step				
1	OBCS Body Shame	.45	.20	.20**
2	Group (Video)	.45	.21	.01
3	OBCS Body Shame*Group	.46	.21	< .01
OBCS Surveillance				
Step				
1	OBCS Surveillance	.41	.17	.17**
2	Group (Video)	.42	.18	.01
3	OBCS Surveillance*Group	.42	.18	< .01

Note: Each step includes the variables previously entered in the model. * $p < .05$, ** $p < .01$.

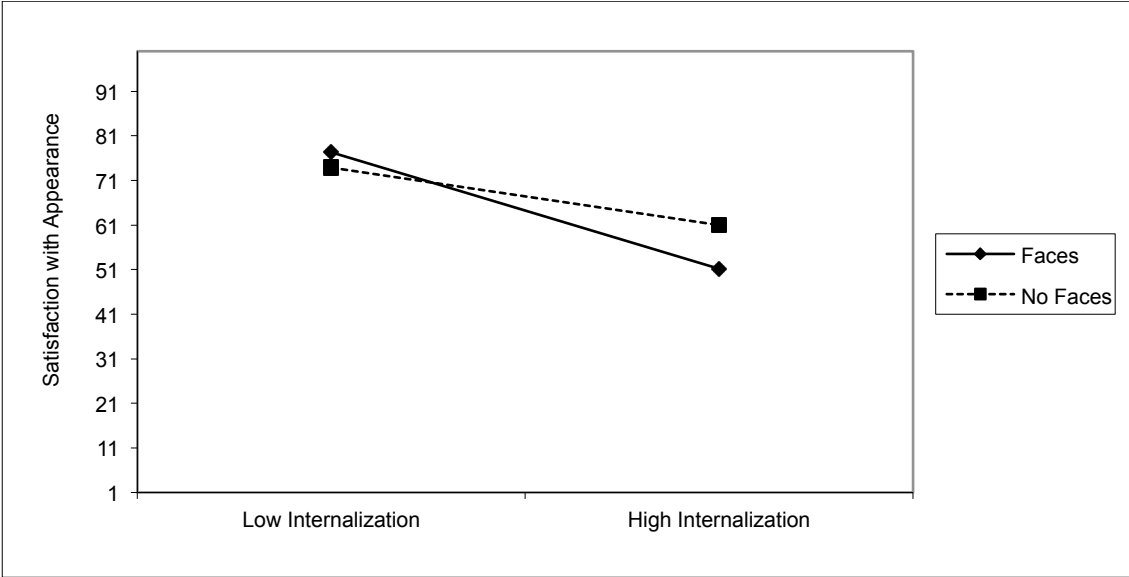


Figure 1. The interaction between internalization and video set (i.e., faces vs. no faces) when predicting satisfaction with appearance.

Chapter VI. Discussion

The purpose of this study was to examine whether individuals exposed to images of idealized facial skin in TV advertisements for acne products reported lower satisfaction with their facial appearance and/or higher rates of social appearance anxiety in comparison to individuals who were exposed to TV advertisements without facial images. Additionally, this study sought to determine whether the relationship between exposure to idealized facial images and either of the dependent variables was moderated by a number of trait variables, such as the participant's own acne severity. Other variables believed to potentially moderate the relationship included the degree to which participants have internalized cultural messages regarding ideal facial appearance (i.e., "perfect" skin), the tendency to think about how one's facial skin and appearance looks to others (i.e., facial consciousness), as well as tendency to compare one's facial appearance to media targets. These variables have been identified as moderators in the relationship between exposure to idealized body images in the media (i.e., the "thin ideal") and body dissatisfaction. The present study sought to determine whether these variables had a similar effect when focusing on exposure to idealized facial images in the media.

Based on research in body image literature, which has consistently demonstrated lower body satisfaction among individuals exposed to idealized body images (see Grabe, et al., 2008; Groesz, et al., 2002), it was predicted that participants exposed to commercials with idealized facial images would report lower satisfaction with their appearance. Similarly, the current study predicted participants exposed to the idealized facial images would report higher rates of social appearance anxiety in comparison to individuals exposed to TV advertisements without idealized facial images. The results of this study did not support either hypothesis. There were no significant differences in satisfaction with facial appearance or social appearance anxiety

between the experimental groups.

One possible explanation for these findings is that participants are so accustomed to seeing images of people with idealized facial skin in the media, that they did not experience an adverse reaction to watching the advertisements. Although the majority of research regarding exposure to idealized images in the body image literature has demonstrated negative effects of exposure, some studies have reported different findings. For example, Owen and Spencer (2013) suggested the pervasiveness of idealized images in the media may have led individuals in their study to become habituated to seeing thin models; therefore, experimental exposure during a study did not produce changes in their anxiety levels. It is possible participants in the current study were so accustomed to seeing idealized facial images in the media, the idealized images presented in the advertisements were not viewed as atypical or remarkably ideal.

It is also possible that exposure to idealized facial images had a positive impact on viewers' satisfaction and social appearance anxiety. Myers and Biocca (1992), for example, found exposure to idealized body images in weight loss advertisements actually made participants in their study feel thinner. They hypothesized viewers may have interpreted messages of "You can be thin" featured in the advertisements, as "I am getting thin" and/or "I will be thin" (p. 127), leading them to believe their ideal body image was more attainable and less discrepant from their current state. While their finding was inconsistent with the preponderance of the existing literature regarding media exposure, it is possible a similar process occurred during the present study. Similar messages regarding the viewer's ability to have clear skin were included in the acne product advertisements presented in this study. Because the original audio content from each commercial was preserved, both groups were exposed to audio messages emphasizing the viewer's ability to have clear skin by using the product. Thus, both

groups may have believed having clear facial skin was attainable and less discrepant from their current facial appearance. Measurements of participants' satisfaction with their facial appearance and social appearance anxiety were not collected prior to exposure to the advertisements; therefore, one cannot draw definitive conclusions regarding whether an increase in satisfaction and/or reduction in social appearance anxiety actually occurred. With that said, the results of this study indicated participants' generally held positive perceptions of their appearance. On average, participants in each group rated their satisfaction with their facial appearance positively (i.e., > 60 on a scale of one to 100), indicating participants were generally satisfied with their appearance. Similarly, participants' social appearance anxiety scale scores were generally low (i.e., below 48 out of a possible 80) across groups, indicating participants generally experience only slight to moderate levels of social appearance anxiety. It is possible that different results may be obtained from a sample that identifies as being less satisfied with their appearance from the outset. Although it is possible exposure to idealized facial images does not result in the same negative effects as exposure to idealized body images, other explanations for these findings must be considered.

It is possible the experimental manipulation (i.e., exposure to idealized facial images) was inadequate. This may be attributable to confounding variables, such as exposure to "less than ideal" facial images in the advertisements. Although the advertisements with idealized facial images often featured highly attractive models and/or celebrities, many of the commercials also included facial images of individuals presented as "real life" product users. These individuals often provided testimonials about the perceived effectiveness of the product. Occasionally, this included images of the individual before and after using the product. Although the "real life" individuals featured in the commercials were often attractive and possessed clear

skin, they may have been viewed as less “ideal” than the models or celebrities. As a result, exposure to these less than ideal facial images may have weakened the exposure to the ideal images. Posavac, et al. (1998) found that when participants in their study were shown pictures of attractive real-life college students as opposed to advertisement models, the “realistic beauty” (i.e., college students) images were not as likely to induce concerns about one’s own appearance. They opined when participants compared themselves to the “realistic beauty” targets they perceived less of a discrepancy between themselves and the image as opposed to when they compared themselves to the models. Based on social comparison theory, the smaller the perceived discrepancy in the “upward” social comparison, the less likely the individual will experience dissatisfaction with his or her own appearance. Thus, exposure to a “realistic” target does not produce the same negative self-evaluation as an ideal target. It is possible a similar process occurred during the current study. Participants may have perceived a smaller discrepancy between themselves and the “real life” product users, mitigating the larger perceived discrepancy between themselves and the idealized images.

Another potential explanation for the lack of differences between the groups is participants’ prior familiarity with television advertisements. Many of the commercials used in the present study, or similar advertisements, have appeared on television. It is possible that individuals assigned to the “no facial image” condition had already been exposed to idealized facial images in TV advertisements for acne products in their personal lives and were able to recall what they typically see (i.e., idealized facial images). In this case, recollections of idealized facial images may have persisted even when exposed to advertisements without facial images during the present study.

In an effort to determine whether the relationship between exposure to idealized facial

images and either of the dependent measures was moderated by any of the trait variables, the present study sought to examine the moderation effects using a series of hierarchical regression analyses. Based on the results of these analyses, none of the proposed trait variables appeared to moderate the effect of exposure to idealized images on participants' social appearance anxiety ratings (i.e., SAAS scores). However, participants' scores on the adapted SATAQ Internalization subscale did appear to moderate the relationship between exposure to idealized facial images and satisfaction with facial appearance. In the present study, the adapted Internalization subscale was used to examine social comparison processes between oneself and media targets, as many of the items reference comparing one's facial appearance to media images. The findings of this study suggest that individuals who endorse greater levels of comparing themselves to media targets may experience decreased satisfaction with their facial appearance after being exposed to idealized facial images in the media in comparison to individuals who endorse engaging in less social comparison.

Implications for Practice, Research, and Theory

Although there is still a great deal of research to be done regarding the psychosocial experience of acne, this study provided an important first step in examining how the media influences beliefs about facial appearance and acne. The current study offers support for the application of theoretical perspectives originally developed in the body image literature (i.e., social comparison theory, sociocultural model) to the investigation of the link between exposure to idealized facial images and negative outcomes. Even though no significant differences were detected between the group exposed to idealized images and the group that was not, the present study provided some insight into trait a variable that may moderate the relationship between exposure to idealized images and satisfaction with one's own facial appearance.

Additionally, this study provided empirical support for the modification and validation of two existing measures. This addresses an important need for assessment tools designed specifically for facial skin and acne within the field of psychology. These measures may assist future researchers in better understanding factors that contribute to the various negative outcomes associated with acne, such as decreased self-esteem, depression, and/or anxiety. These measures will also assist researchers in understanding how the media informs cultural beliefs about aspirational standards of facial appearance by assessing whether individuals use media images as a source of information or a comparative target regarding desired facial appearance.

Regarding the practical implications, the findings of this study may be used to help identify individuals at greater risk for developing negative beliefs about their facial appearance and/or acne-related distress. Additionally, the results of the present study may be used to develop clinical interventions for individuals seeking mental health treatment for psychodermatological issues. These interventions may target beliefs or behaviors that may be contributing to one's distress, such as maladaptive social comparisons with idealized media images.

Limitations and Future Directions

One limitation of this study that must be addressed is the high dropout rates among participants. It is possible that the participants that dropped out of the study may have differed from the participants that completed the survey in a meaningful way. Thus, the results of the study may have been different had all of the original participants remained in the sample. While the individuals who dropped out were not included in the between-groups analysis, it is important to consider how this issue may be avoided in the future. In their article about conducting research using Amazon Mechanical Turk, Mason and Suri (2012) acknowledge attrition rates are generally higher for online studies as opposed to studies conducted in a

laboratory. They noted that attrition can also occur in Amazon Mechanical Turk if the individual abandons the task for too long, loses internet connectivity, or is simply not very serious about the task. They suggested assessing interest level at the outset of the task in order to avoid attrition. It is possible that any, or all of these factors contributed to the high dropout rates during the current study.

When considering why some participants only watched a small portion of the video set (i.e., less than three minutes), it is possible participants realized they could advance before the videos ended. The current study did not include a minimum requirement for the amount of time participants remained on the page corresponding to the videos. In the future, timing requirements may be embedded in the survey prohibiting participants from advancing until all of the videos were complete or discontinuing the individual's participation in the remaining portion of the survey if all the videos were not viewed. It is also possible participants were simply not invested in the task and were thus, unmotivated to watch the entire video set. Interest in the task may have also diminished due to the number and relative similarity of the advertisements. Participants may have believed the remaining advertisements would contain similar content to what they had already viewed and thus did not feel the need to watch the entire video set before providing feedback. Inserting a brief attention check question between each advertisement may help to retain viewers in the future.

Another limitation of this study is the reduced severity of acne among the sample. Approximately 85% of the participants in the entire sample identified having mild to no acne. Although this is likely representative of the population for this age group, it does not allow for more extensive examination of individuals with severe forms of acne. It is possible individuals with more moderate to severe forms of acne may respond differently to the commercials, or

demonstrate a different set of predictive trait variables. Future studies may recruit individuals seeking dermatological treatment for more severe forms of acne in order to examine potential differences.

Another limitation of the current study is that dispositional ratings of facial appearance satisfaction and social appearance anxiety were not collected prior to exposure to the experimental manipulation. Therefore, the current study is only able to draw comparisons between groups. In their meta-analysis of studies that examined the effects of experimental presentation of media images, Groesz, et al. (2002) found exposure to idealized media images had a greater negative impact on individuals who already endorsed higher levels of dispositional body dissatisfaction. Additionally, Heinberg and Thompson (1995) found that individuals with low levels of dispositional body dissatisfaction demonstrated an improvement in their body satisfaction following exposure to idealized media images. Future studies may include a pre- and posttest assessment of participants' satisfaction with facial appearance ratings to better understand the immediate effects of exposure to idealized facial images.

Future research may also examine the role of age and gender in exposure to idealized images. Groesz, et al., (2002) found individuals 19 and younger appeared to be more negatively affected by idealized body images in the media; therefore, it is possible similar age differences may be observed in relation to exposure to idealized facial images. Future research may also examine potential gender differences in viewers' responses to idealized facial images in the media. Magin, et al. (2011) found that women seeking treatment for acne and other skin-related conditions endorsed a greater sense of pressure to adhere to societal standards of "perfect" facial skin appearance than did men. Future studies may examine whether gender differences exist regarding cultural ideals for clear skin or if exposure to idealized facial images in the media

affects men and women differently. Additionally, future studies may also examine other forms of media, such as printed advertisements (e.g., magazines). It is possible that viewers may respond differently to printed images, particularly considering that printed images may be more conducive to additional enhancement techniques (i.e., photoshop), which may manipulate the image to appear more ideal. It is also possible that viewers may have more time to evaluate a single image as opposed to the multiple facial images that appear in a television advertisement.

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Appendix A

Commercials Highlighting the Psychosocial Impact of Acne

Product	Video Title	Video Title & Web Address	Year Published
Clean & Clear®	See the Real Me – Acne Spot Treatment Commercial	http://youtu.be/Z8ufCGSQIG8	2014
Proactiv®	Julianne Hough Commercial	https://www.youtube.com/watch?v=TRMjvSxe1x8	2010
Proactiv®	Katy Perry’s Skin Care Secret – Get Free Proactiv Sample Here!	https://www.youtube.com/watch?v=dP3r3SPXgKs	2011
Proactiv+®	Julianne Hough – Proactiv+ TV Commercial	https://www.youtube.com/watch?v=r0_hhoFnsxk	2014
Proactiv+®	New 2015 Feat. Adam Levine Proactiv Commercial	https://www.youtube.com/watch?v=qFvhE8zrhBI	2015
Proactiv+®	Proactiv+ UK Advert starring Nicole Scherzinger	https://www.youtube.com/watch?v=qFvhE8zrhBI	2014
Proactiv®	Julianne Hough Loves the Proactiv Refinig Mask	https://youtu.be/YT8LCWaG-uo	2012

Appendix B

Information Letter to Enable Informed Consent

Purpose of the study:

You are invited to participate in a marketing research study to investigate the effectiveness of television advertisements. The purpose of this study is assess viewers' opinions of existing media advertisements and provide feedback regarding possible areas of improvement. Participants will view a series of television advertisements for a variety of products within a particular domain (e.g., household cleaning products, skin care, cosmetics, etc.) and will be asked to briefly describe what they believe could be improved. After viewing the advertisements, participants will also be asked to answer a series of questions regarding beliefs, topics, and behaviors that may possibly be of interest among potential product-users. Feedback will be used to identify factors contributing to effective advertising across product domains. Please WATCH THE VIDEOS CLOSELY, as you will be asked to provide feedback on specific aspects of the advertisements.

Requirements for participation:

Participants must be between the ages of 18 and 36. Individuals that do not fall in this age category will be ineligible to participate, redirected to the end of the survey, and will NOT receive compensation.

Benefits of this study:

Participants recruited via institutional subject pools will be offered extra credit for their participation in the present study. Participants recruited via the online service Amazon Mechanical Turk (AMT) will receive direct compensation for their participation in the amount of \$2.00.

Anticipated risks or discomfort:

No greater or additional risk of discomfort than what is typically encountered by viewing media advertisements is anticipated from taking part in this study.

Withdrawing from the study:

Participants may choose to withdraw from the study at any time without penalty. It should be noted, however, that once your responses have been submitted, they will become part of the overall data set and used in the current study.

Confidentiality:

Your responses will remain completely confidential. No identifying information will be requested during your participation in this study. Participants will be asked to provide their email address upon completion of the study strictly for the purposes of compensation. Survey responses will not be connected to the email address provided. Instead, email addresses will be connected to an assigned participant number, which will be stored in a password-protected document and destroyed upon completion of data collection. Survey responses will only be viewed by the primary researcher.

How the findings will be used:

A full description of the study will be provided at a later date (i.e., once all data is collected). This is done to minimize discussion of the advertisements between potential participants until all responses have been collected.

Contact Information:

If you have any questions or concerns about this study, please contact the primary investigator Amanda Miles at acm0036@tigermail.auburn.edu.

If you have concerns about your rights as a participant in this experiment please contact the Auburn University IRB at 334-844-4784.

By entering the survey, you acknowledge that you have read this information and agree to participate with the knowledge that you are free to withdraw your participation at any time without penalty.

Appendix C

Exploratory Factor Analysis and Validation of Modified OBCS and SATAQ-3

Participants

The sample was comprised of 425 (239 females, 186 males) participants originally obtained from the primary research experiment. Of this sample, 133 participants (31.3%) were collected from the University research participant pool and 292 (68.7%) were collected from Amazon Mechanical Turk (AMT). The race/ethnicity distribution for each group and the total sample are illustrated in Table C.1 of this Appendix. All participants included in the sample identified as being between the ages of 18 and 36.

Procedure

Two existing measures, the OBCS and SATAQ – 3, were modified from their original versions in order to examine internalization of cultural ideals for facial skin and appearance, comparison of facial skin to media targets, and facial consciousness. References to body shape and/or weight on each measure were replaced with references to facial appearance and acne. Exploratory factor analyses (EFA) were performed for each modified measure to determine which items should be retained and if the original factor structure was upheld following modification. Drawing from existing literature in the field, specifically Herbozo and Thompson (2006), the following factors were considered for retaining items in factor analysis: 1) a minimum loading of .40 on the primary factor, and 2) a separation of at least .20 between the item's loading on the primary factor and any other factor. Items not meeting criteria were eliminated. Additionally, factors that emerged with only one or two item loadings were eliminated due to the lack of evidence supporting the factor. The final factors were determined by examining the scree plot, factor loadings, eigenvalues, and the cumulative variance accounted

for by the model after rotation. Parallel analyses (PA) were also used to determine which factors should be retained. A Cronbach's alpha was calculated for each identified subscale to measure the internal consistency of the items following modification.

Next, correlational analyses were performed to determine whether the validity of the adapted subscales was upheld after modification of the original measure. A total subscale score was calculated for each of the modified subscales identified from the EFA. These scores were then correlated with the participant's total score on three theoretically convergent scales (i.e., Fear of Negative Appearance Evaluation Scale (FNAES), Body Image Disturbance Questionnaire (BIDQ), and the Dermatology Life Quality Index (DLQI), as well as three behavioral items, which included: 1) the estimated amount of money spent on acne-related skin products in the last month (aka 'Money'), 2) the number of visits to a doctor or professional for an acne-related problem over the past year (aka 'Doctor's Visits'), and 3) the average amount of time spent looking at one's facial skin in the mirror (aka 'Mirror Gazing').

Measures

OBCS – Adapted for Facial Skin. The original version of the adapted OBCS included 24 items. Items were adapted from the measure developed by McKinley and Hyde (1996) to include references to facial skin and acne. Participants were asked to rate how much they agree with a given statement using a 7-point Likert scale rating system ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). An additional response option of 'Not Applicable' is provided if the statement does not apply to the respondent.

SATAQ - 3 – Adapted for Facial Skin. The original version of the adapted SATAQ – 3 included 25 items. Items were adapted from the measure developed by Thompson, et al., (2004) to include references to facial skin and acne. Participants were asked to rate their perceived level

of agreement with each statement using a 5-point Likert scale ranging from 1 (*definitely disagree*) to 5 (*definitely agree*).

Body Image Disturbance Questionnaire (BIDQ). The BIDQ (Cash, Phillips, Santos, & Hrabosky, 2004) is a seven-item questionnaire assessing one's mental preoccupation and appearance-related concerns, specifically regarding a perceived defect in one's appearance. After establishing the presence of an appearance-related concern, respondents are asked to rate the level of perceived impairment, emotional distress, and behavioral avoidance believed to be the result of the perceived defect. Higher scores reflect greater concern and disturbance. The BIDQ has demonstrated good internal consistency ($\alpha = .89$) for college-aged men and women as well as convergent validity with measures of body image dissatisfaction and body image quality of life. This measure has also demonstrated incremental validity in predicting eating disturbance, social anxiety, and depressive symptoms beyond what is detected via measures of body satisfaction. The BIDQ has been successfully used in the past to assess appearance-related preoccupation among acne patients (Bowe, Doyle, Crerand, Margolis, & Shalita, 2011).

Fear of Negative Appearance Evaluation Scale (FNAES). The FNAES (Lundgren, Anderson, & Thompson, 2004) is a six-item scale that measures fear that one's physical appearance will be judged negatively by others. Using a five-point rating scale ranging from 1 (*not at all*) to 5 (*extremely*), participants rate the degree to which a statement applies to them. For example, items include, "*I am concerned about what other people think of my appearance*" and "*When I meet new people, I wonder what they think about my appearance.*" The FNAES has demonstrated high internal consistency ($\alpha = .94$) and good convergent validity ($r = .78$) with a more global measure of fear of negative evaluation (i.e., non-specific to appearance) as well as measures of body image, eating disturbance, depression, and anxiety (Lundgren, et al. 2004).

Theoretically, individuals who endorse higher levels of fear of negative overall appearance evaluation are also more likely to internalize the sociocultural messages and demonstrated greater concern for their facial appearance.

Dermatology Life Quality Index (DLQI). The DLQI (Finlay & Khan, 1994) is one of the most widely used assessment tools for measuring the impact of dermatological conditions on one's quality of life. It consists of 10 items and requires respondents to consider the degree to which they believe their skin problem has affected their life during the last week. Responses are scored on a 4-point Likert scale ranging from zero (*not at all* or *not relevant*) to three (*very much*). The test-retest reliability coefficient was originally found to be $r = .99$. The DLQI has consistently demonstrated good internal consistency between items with coefficients ranging between $\alpha = .83$ and $.90$ (Lewis & Finlay, 2004). Lastly, the DLQI has also demonstrated significant correlations ($r = .65$) with established measures of dermatological quality of life for acne including the Cardiff Acne Disability Index (CADI; Lewis & Finlay, 2004). The required copyright information appeared at the end of every copy of the survey.

Money. Participants were asked to estimate the amount of US dollars spent on acne-treatment and similar products over the last month (See Appendix H). This may include, but is not limited to over-the-counter facial cleansers, spot-treatments, toners, cleansing tools (e.g., scrubbing brushes), and prescription topical gels. The one-month time frame was consistent with previous research on consumer spending behaviors for shopping and cosmetic purchases (see Liu, Lin, Lee, & Deng, 2013). Theoretically, individuals experiencing greater internalization of sociocultural messages regarding clear skin and consciousness of their facial skin will report higher amounts of money spent.

Doctor's Visits. Participants were asked to estimate the number of times they consulted with or visited a physician or dermatological professional specifically regarding the treatment of acne during the past year (See Appendix H). The use of this time frame (i.e., past year) was selected to capture more recent utilization of services and minimize recall bias. Presumably, individuals who endorse greater internalization of messages regarding clear skin and facial consciousness will report a greater number of visits/consultations with a physician or professional skin-care specialist for the treatment of acne.

Mirror Gazing. Participants were asked to estimate the average duration (in minutes) of a typical 'mirror gazing' session over the past month (See Appendix H). 'Mirror gazing' is a common behavior observed among individuals with body dysmorphic disorder (BDD) and involves time spent in front of the mirror examining one's appearance. Other researchers, including Veale and Riley (2001) have employed the use of self-reported estimates of time spent examining one's appearance in the mirror. They asked participants to estimate the average duration (in minutes) of a session spent looking at oneself in the mirror during the past month. Theoretically, individuals higher in facial consciousness will spend greater time examining their facial skin in the mirror.

Results

EFA for OBCS – Adapted for Facial Skin. An initial maximum likelihood factor analysis with a direct oblimin oblique rotation was conducted using SPSS. The direct oblimin rotation was selected because it allows for factors theoretically expected to be related, to correlate (Field, 2009). The Kaiser-Meyer-Olkin (KMO) measure verified the sampling adequacy for the analysis, $KMO = .855$. According to Field (2009), KMO statistics between .8 and .9 are considered 'great.' The Bartlett's Test of Sphericity $\chi^2(276) = 3609.94, p < .001$,

indicated there was adequate correlation between the variables to conduct the analysis (i.e., relationships were significantly different from 0). Initially, five factors emerged with eigenvalues greater than one (using Kaiser's criterion, see Table C.2 in this Appendix for the individual item loadings).

These factors explained a cumulative 47.19% of the variance. Upon further examination of the factor loadings, items 2, 3, 4, 5, 12, 15, 16, and 21 were removed due to poor loadings on the primary factor ($< .40$) and/or the item loaded onto multiple factors ($< .20$ difference between the primary factor and all other factor loadings). Additionally, items corresponding to two of the remaining factors (7 & 20 and 10 & 23, respectively) were also removed, due to the minimal amount of items that loaded onto each factor. After removing these items, three factors remained.

A second maximum likelihood factor analysis with a direct oblimin oblique rotation was conducted in order to confirm that the three-factor structure was maintained. The KMO measure verified the sampling adequacy was maintained, $KMO = .81$. The Bartlett's Test of Sphericity $\chi^2(78) = 1670.60, p < .001$, indicated adequate correlation between variables (i.e., significantly different from 0) also remained. Three factors emerged with eigenvalues greater than one. All the items met the aforementioned criteria to be retained (Herbozo & Thompson, 2006). Individual item loadings are depicted in Table C.3 of this Appendix. The items separated into three factors consistent with the original Body Shame (Items 8, 17, 22, 11, & 13), Control Beliefs (Items 19, 24, & 6), and Surveillance (Items 9, 18, 1, & 14) subscales. These factors explained a cumulative 51.07% of the variance. The factor structure was also supported by the scree plot (see Figure C.1).

A Parallel Analysis (PA), which is a Monte Carlo simulation analysis used to assist researchers in determining the number of factors to retain in EFA (Ledesma & Valero-Mora,

2007), was completed. The SPSS syntax for the PA, which is based on O’Conner’s (2000) research, was copied from the website (<https://people.ok.ubc.ca/briocconn/nfactors/rawpar.sps>). This website permits researchers to access the syntax required to run the analysis in SPSS. Data specifications were set for common factor analysis with a normally distributed random data generation parallel analysis using 1000 parallel data sets and 95% confidence. Using these specifications, three significant factors were extracted with eigenvalues over one, confirming the EFA results. Further, a Cronbach’s alpha reliability analysis was completed between items on each subscale. The Body Shame subscale (Cronbach’s $\alpha = .81$), Control Beliefs subscale (Cronbach’s $\alpha = .76$), and the Surveillance subscale (Cronbach’s $\alpha = .77$), all demonstrated high reliability.

Validity Analysis for OBCS – Adapted for Facial Skin. Table C.4 of this Appendix provides the Pearson product-moment correlations between the adapted OBCS - Body Shame subscale and each of the proposed convergent measures and behavioral items. Significant positive correlations were found between the adapted OBCS – Body Shame subscale and the BDIQ, FNAES, DLQI, as well as each of the behavioral items. Table C.5 of this Appendix provides the Pearson product-moment correlations between the adapted OBCS – Control Beliefs subscale and each of the proposed convergent measures and behavioral items. The OBCS – Control Beliefs subscale demonstrated positive significant correlations with three of the convergent measures; however, it did not display convergent validity with any of the behavioral items. This is particularly problematic as spending money on acne-related skin care products and visiting a doctor are presumably the closest measure to what the scale assesses (i.e., efforts to control one’s acne or facial skin). Lastly, Table C.6 of this Appendix provides the Pearson product-moment correlations between the modified OBCS – Surveillance subscale and the

proposed convergent measures and behavioral items. Significant positive correlations were demonstrated between the modified OBCS – Surveillance subscale and all of the proposed measures, with the exception of the “Money” and the “Doctor’s Visit” variables, which demonstrated a non-significant positive correlation.

Based on the observed output, the Body Shame subscale demonstrated adequate validity following modification and was, therefore, retained. Additionally, even though the adapted Surveillance subscale did not demonstrate positive correlations across all of the behavioral measures, it appeared to demonstrate significant correlations with the majority of the proposed measures. As such, the Surveillance subscale was also retained for further analysis. The Control Beliefs subscale did not demonstrate adequate validity following modification and was therefore not included in further analysis.

EFA for SATAQ - 3 – Adapted for Facial Skin. An initial maximum likelihood factor analysis with a direct oblimin oblique rotation was conducted using SPSS. The KMO measure verified the sampling adequacy for the analysis, $KMO = .95$. According to Field (2009), KMO statistics over .9 are considered ‘superb.’ The Bartlett’s Test of Sphericity $\chi(300) = 9485.90, p < .001$, indicated adequate correlation between variables. Three factors emerged with eigenvalues greater than one (see Table C.7 of this Appendix for individual item loadings). After factor rotation, these factors accounted for 66.382% of the variance, combined. After reviewing the item loadings, item six was removed due to poor loading on the primary factor ($< .40$).

After removing this item, a second maximum likelihood factor analysis with a direct oblimin oblique rotation was conducted. The KMO statistic suggested adequate sampling remained, $KMO = .95$. Additionally the Bartlett’s Test of Sphericity $\chi(210) = 9212.87, p < .001$ indicated that adequate correlation between variables remained. All the remaining items loaded

onto three factors consistent with the three original subscales: Pressures (Items 2, 10, 14, 18, 20 & 22), Information (Items 1, 5, 9, 13, 17, 19, 21, 24, & 25), and Internalization (Items 3, 4, 7, 8, 11, 12, 15, 16, & 23). All of the factors had eigenvalues over one. Table C.8 of this Appendix shows the factor loadings after rotation. After rotation, these factors accounted for a cumulative total of 66.29% of the variance. The scree plot also confirmed the three-factor structure (see Figure C.2).

A parallel analysis was completed using the same procedures described for the adapted OBCS. This analysis supported the three-factor structure, as three significant factors were extracted with eigenvalues over one. A Cronbach's alpha reliability analysis was also completed for each of the subscales extracted in the EFA. The items on the Pressures subscale demonstrated high reliability (Cronbach's $\alpha = .95$), as did the items on the Information subscale (Cronbach's $\alpha = .96$), and the items on the Internalization subscale (Cronbach's $\alpha = .91$).

Validity Analysis for SATAQ – 3 – Adapted for Facial Skin. The modified SATAQ – 3 Pressures and Internalization subscales demonstrated significant positive correlations with all of the proposed convergent measures and behavioral items. The Information Subscale also demonstrated significant correlations with the convergent measures, with the exception of money spent on acne-related products. See Tables C.9, C.10, and C.11 of this Appendix for the Pearson product-moment correlations between the Pressures, Information, and Internalization subscales (respectively) and each measure. Because each of the subscales demonstrated adequate validity, all three scales were maintained for further analysis.

Discussion

The results of the EFA demonstrated empirical support for the modification and validation of these measures. Although the factor analyses did not support retaining every item

after modification, the results indicated the original three-factor structure was maintained on both the modified SATAQ – 3 and the OBCS. With the exception of the adapted OBCS – Control Beliefs subscale, support for the validity of each subscale was indicated.

Table C.1

Race/Ethnicity Distribution of the EFA Sample

Race/Ethnicity	Participant Pool Sample		AMT Sample		Total Sample	
	<i>N</i>	% to Total	<i>N</i>	% to Total	<i>N</i>	% to Total
Non-Hispanic White	115	86.5%	170	58.2%	285	67.1%
Asian or Asian American	6	4.5%	56	19.2%	62	14.6%
Black or African American	8	6.0%	22	7.5%	30	7.1%
Hispanic or Latino	2	1.5%	14	4.8%	16	3.8%
American Indian or Alaska Native	0	0.0%	10	3.4%	10	2.4%
Hawaiian or Other Pacific Islander	0	0.0%	5	1.7%	5	1.2%
Other	2	1.5%	15	5.1%	17	4.0%
Total	133	100.0%	292	100.0%	425	100.0%

Table C.2

Factor Loadings for Initial EFA for OBCS

Item	Rotated Factor Loadings				
	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
8	.79	.03	.03	.06	-.09
17	.75	.01	.02	.02	-.12
22	.60	-.13	-.27	-.02	-.16
13	.66	.15	.22	-.13	.26
11	.57	-.18	-.14	.04	-.06
5	.46	-.18	-.28	.11	-.03
2	.41	-.18	-.31	.02	-.03
15	.34	-.09	-.10	-.02	.28
3	.31	.17	-.05	-.23	.22
19	.08	.92	-.04	-.02	-.16
24	-.01	.73	-.08	.05	.02
6	-.06	.57	.13	-.10	.01
4	-.06	.36	-.11	.15	.16
14	.09	-.10	-.69	.12	-.05
18	-.01	.11	-.66	-.18	.12
9	-.04	.09	-.66	-.18	.15
1	-.06	-.01	-.65	.05	.10
16	.27	.01	-.53	.13	-.12
23	.05	.01	-.11	.68	-.13
10	.02	-.03	.11	.66	-.03
21	-.05	.33	.04	.45	.37
7	.02	-.06	-.13	-.12	.63
20	-.05	.08	-.16	.12	.46
12	-.14	.27	.04	.36	.40

Table C.3

Adapted OBCS Final Factor Loadings

Item	Rotated Factor Loadings		
	Body Shame	Control Beliefs	Surveillance
8	.78	-.03	.02
17	.76	-.05	.05
22	.61	-.21	-.23
13	.58	.25	.03
11	.57	-.23	-.10
19	.07	.81	.02
24	-.03	.76	.12
6	-.08	.58	.09
9	-.03	.09	-.72
18	.00	.11	-.72
1	-.04	-.03	-.65
14	.12	-.18	-.61

Table C.4

Pearson Product-Moment Correlations for Adapted OBCS - Body Shame Subscale

	OBCS Body Shame	BIDQ	FNAES	DLQI	Money	Doctor's Visits	Mirror Gazing
OBCS Body Shame	---						
BIDQ	.32**	---					
FNAES	.39**	.64**	---				
DLQI	.44**	.51**	.38**	---			
Money	.19**	.05	.11*	.19**	---		
Doctor's Visits	.18**	.13**	.12*	.32**	.22**	---	
Mirror Gazing	.32**	.30**	.30**	.34**	.22**	.30**	---

Note. OBCS Body Shame = Objectified Body Consciousness Scale (Adapted for Facial Skin) – Body Shame Subscale; BIDQ = Body Image Disturbance Questionnaire; FNAES = Fear of Negative Appearance Evaluation Scale; DLQI = Dermatology Life Quality Index; Money = Estimated amount of money in US dollars spent on acne-related skin care products in the last month; Doctor's Visits = Estimated amount of consultations or visits the individual made with a physician or professional skin-care specialist for an acne-related problem in the past year; Mirror Gazing = Estimated average amount of time (in minutes) spent examining one's face in the mirror on a daily basis. * $p < .05$, ** $p < .01$.

Table C.5

Pearson Product-Moment Correlations for Adapted OBCS - Control Beliefs Subscale

	OBCS Control Beliefs	BIDQ	FNAES	DLQI	Money	Doctor's Visits	Mirror Gazing
OBCS Control Beliefs	---						
BIDQ	-.20**	---					
FNAES	-.28**	.64**	---				
DLQI	-.16**	.51**	.38**	---			
Money	.01	.05	.11*	.19**	---		
Doctor's Visits	-.01	.13**	.12*	.32**	.22**	---	
Mirror Gazing	-.09	.30**	.30**	.34**	.22**	.30**	---

Note. OBCS Control Beliefs = Objectified Body Consciousness Scale (Adapted for Facial Skin) – Control Beliefs Subscale; BIDQ = Body Image Disturbance Questionnaire; FNAES = Fear of Negative Appearance Evaluation Scale; DLQI = Dermatology Life Quality Index; Money = Estimated amount of money in US dollars spent on acne-related skin care products in the last month; Doctor's Visits = Estimated amount of consultations or visits the individual made with a physician or professional skin-care specialist for an acne-related problem in the past year; Mirror Gazing = Estimated average amount of time (in minutes) spent examining one's face in the mirror on a daily basis. * $p < .05$, ** $p < .01$.

Table C.6

Pearson Product-Moment Correlations for Adapted OBCS - Surveillance Subscale

	OBCS Surveillance	BIDQ	FNAES	DLQI	Money	Doctor's Visits	Mirror Gazing
OBCS Surveillance	---						
BIDQ	.43**	---					
FNAES	.60**	.64**	---				
DLQI	.15**	.51**	.38**	---			
Money	.07	.05	.11*	.19**	---		
Doctor's Visits	.07	.13**	.12*	.32**	.22**	---	
Mirror Gazing	.34**	.30**	.30**	.34**	.22**	.30**	---

Note. OBCS Surveillance = Objectified Body Consciousness Scale (Adapted for Facial Skin) – Surveillance Subscale; BIDQ = Body Image Disturbance Questionnaire; FNAES = Fear of Negative Appearance Evaluation Scale; DLQI = Dermatology Life Quality Index; Money = Estimated amount of money in US dollars spent on acne-related skin care products in the last month; Doctor's Visits = Estimated amount of consultations or visits the individual made with a physician or professional skin-care specialist for an acne-related problem in the past year; Mirror Gazing = Estimated average amount of time (in minutes) spent examining one's face in the mirror on a daily basis. * $p < .05$, ** $p < .01$.

Table C.7

Factor Loadings for Initial EFA for adapted SATAQ – 3

Item	Rotated Factor Loadings		
	Factor 1	Factor 2	Factor 3
14	.96	.00	-.08
10	.90	.01	.02
20	.82	.05	.06
18	.82	.03	.04
2	.82	.01	.04
22	.69	.07	.11
6	.36	-.04	.33
13	.04	.87	-.04
19	.01	.86	.04
17	-.04	.85	.11
21	.05	.85	.01
24	-.04	.84	.08
1	-.06	.83	-.01
5	.06	.83	-.08
25	-.04	.80	.12
9	.07	.80	-.07
12	.06	-.17	.76
8	.12	.07	.72
23	-.13	.04	.72
16	.11	.13	.71
3	-.05	.05	.61
4	.19	.04	.61
11	.16	.05	.58
7	.17	.05	.56
15	.10	.19	.50

Table C.8

Factor Loadings for Second EFA for Adapted SATAQ – 3

Item	Rotated Factor Structure		
	Pressures Subscale	Information Subscale	Internalization Subscale
14	.96	-.01	-.07
10	.90	-.01	.03
18	.82	.02	.04
20	.82	.04	.06
2	.82	-.01	.04
22	.70	.07	.11
13	.04	.86	-.04
19	.01	.86	.04
17	-.04	.85	.11
21	.05	.85	.01
24	-.04	.84	.07
1	-.06	.83	-.01
5	.06	.83	-.08
25	-.04	.81	.11
9	.07	.80	-.07
12	.06	-.17	.75
8	.11	.05	.75
16	.10	.11	.72
23	-.13	.04	.70
4	.18	.03	.64
3	-.05	.05	.60
11	.15	.04	.59
7	.16	.03	.58
15	.09	.18	.51

Table C.9

Correlations for Adapted SATAQ-3 Pressures Subscale

	SATAQ-3 Pressures	BIDQ	FNAES	DLQI	Money	Doctor's Visits	Mirror Gazing
SATAQ-3 Pressures	---						
BIDQ	.43**	---					
FNAES	.51**	.64**	---				
DLQI	.37**	.51**	.38**	---			
Money	.12**	.05	.11*	.19**	---		
Doctor's Visits	.14**	.13**	.12*	.32**	.22**	---	
Mirror Gazing	.31**	.30**	.30**	.34**	.22**	.30**	---

Note. SATAQ – 3 Pressures = Social Attitudes Towards Appearance – Third Version (Adapted for Facial Skin) – Pressures Subscale; BIDQ = Body Image Disturbance Questionnaire; FNAES = Fear of Negative Appearance Evaluation Scale; DLQI = Dermatology Life Quality Index; Money = Estimated amount of money in US dollars spent on acne-related skin care products in the last month; Doctor's Visits = Estimated amount of consultations or visits the individual made with a physician or professional skin-care specialist for an acne-related problem in the past year; Mirror Gazing = Estimated average amount of time (in minutes) spent examining one's face in the mirror on a daily basis. * $p < .05$, ** $p < .01$.

Table C.10

Correlations for Adapted SATAQ-3 Information Subscale

	SATAQ-3 Information	BIDQ	FNAES	DLQI	Money	Doctor's Visits	Mirror Gazing
SATAQ-3 Information	---						
BIDQ	.17**	---					
FNAES	.31**	.64**	---				
DLQI	.22**	.51**	.38**	---			
Money	.09	.05	.11*	.19**	---		
Doctor's Visits	.13**	.13**	.12*	.32**	.22**	---	
Mirror Gazing	.17**	.30**	.30**	.34**	.22**	.30**	---

Note. SATAQ Information = Social Attitudes Towards Appearance – Third Version (Adapted for Facial Skin) – Information Subscale; BIDQ = Body Image Disturbance Questionnaire; FNAES = Fear of Negative Appearance Evaluation Scale; DLQI = Dermatology Life Quality Index; Money = Estimated amount of money in US dollars spent on acne-related skin care products in the last month; Doctor's Visits = Estimated amount of consultations or visits the individual made with a physician or professional skin-care specialist for an acne-related problem in the past year; Mirror Gazing = Estimated average amount of time (in minutes) spent examining one's face in the mirror on a daily basis. * $p < .05$, ** $p < .01$.

Table C.11

Correlations for Adapted SATAQ-3 Internalization Subscale

	SATAQ-3 Internalization	BIDQ	FNAES	DLQI	Money	Doctor's Visits	Mirror Gazing
SATAQ-3 Internalization	---						
BIDQ	.42**	---					
FNAES	.55**	.64**	---				
DLQI	.32**	.51**	.38**	---			
Money	.15**	.05	.11*	.19**	---		
Doctor's Visits	.15**	.13**	.12*	.32**	.22**	---	
Mirror Gazing	.31**	.30**	.30**	.34**	.22**	.30**	---

Note. SATAQ Internalization = Social Attitudes Towards Appearance – Third Version (Adapted for Facial Skin) – Internalization Subscale; BIDQ = Body Image Disturbance Questionnaire; FNAES = Fear of Negative Appearance Evaluation Scale; DLQI = Dermatology Life Quality Index; Money = Estimated amount of money in US dollars spent on acne-related skin care products in the last month; Doctor's Visits = Estimated amount of consultations or visits the individual made with a physician or professional skin-care specialist for an acne-related problem in the past year; Mirror Gazing = Estimated average amount of time (in minutes) spent examining one's face in the mirror on a daily basis. * $p < .05$, ** $p < .01$.

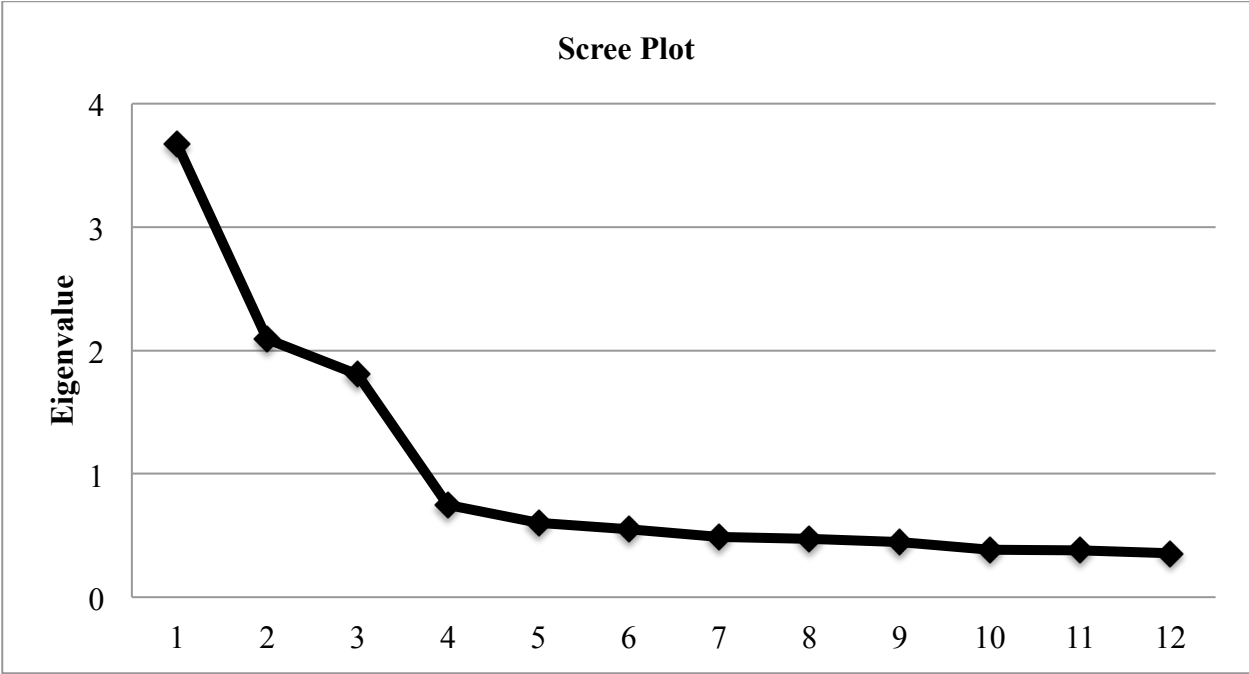


Figure C.1. Scree Plot for Adapted OBCS.

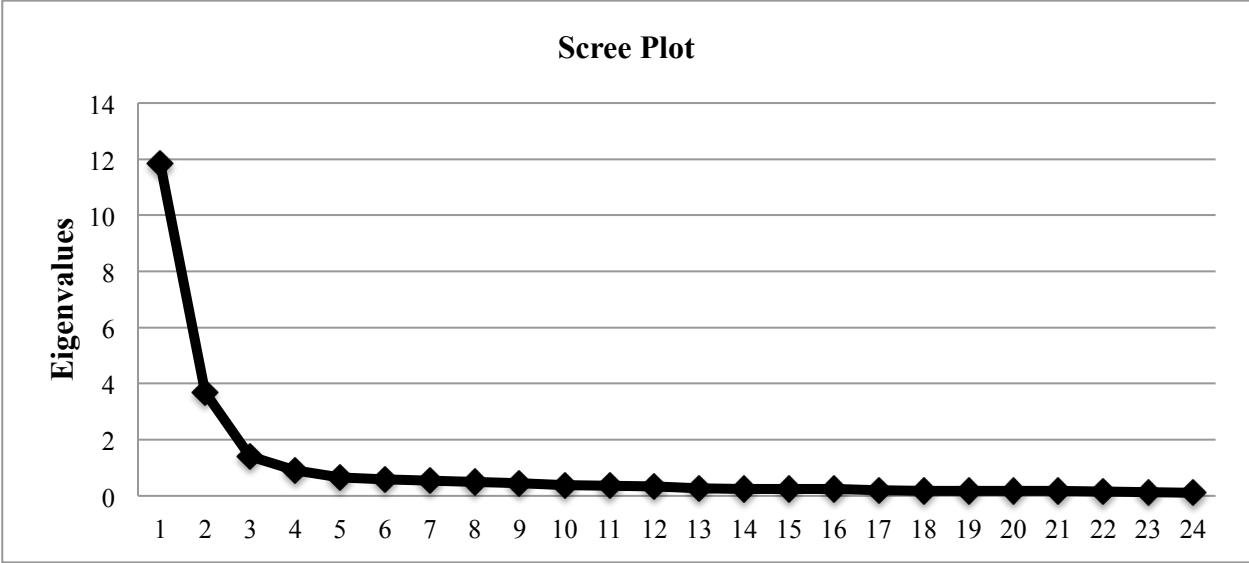


Figure C.2. Scree Plot for the Adapted SATAQ – 3.

Appendix D

Sociocultural Attitudes Towards Appearance Questionnaire – 3 – Adapted for Facial Skin

Instructions

Please read each of the following items carefully and indicate the number that best reflects your agreement with the statement.

Definitely Disagree = 1
 Mostly Disagree = 2
 Neither Agree Nor Disagree = 3
 Mostly Agree = 4
 Definitely Agree = 5

Item	SATAQ – 3 – Adapted for Facial Skin	Rating				
1.	TV Programs are an important source of information about fashion and being attractive.	1	2	3	4	5
2.	I've felt pressure from TV or magazines to have clear skin.	1	2	3	4	5
3.	I do not care if my facial skin looks like the facial skin of people who are on TV.	1	2	3	4	5
4.	I compare my facial skin to the facial skin of TV and movie stars.	1	2	3	4	5
5.	TV commercials are an important source of information about fashion and "being attractive."	1	2	3	4	5
6.	I would like my facial skin to look like the models who appear in magazines.	1	2	3	4	5
7.	I compare my appearance to the appearance of TV and movie stars.	1	2	3	4	5
8.	Music videos on TV are an important source of information about fashion and "being attractive."	1	2	3	4	5
9.	I've felt pressure from TV and magazines to have clear facial skin.	1	2	3	4	5
10.	I would like my facial skin to look like the people who are in movies.	1	2	3	4	5
11.	I do not compare my facial skin to the facial skin of people who appear in magazines.	1	2	3	4	5
12.	Magazine articles are an important source of information about fashion and "being attractive."	1	2	3	4	5
13.	I've felt pressure from TV or magazines to have perfect facial skin.	1	2	3	4	5
14.	I wish I looked like the models in music videos.	1	2	3	4	5
15.	I compare my appearance to the appearance of people in magazines.	1	2	3	4	5
16.	Magazine advertisements are an important source of information about fashion and "being attractive."	1	2	3	4	5

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|-----|--|---|---|---|---|---|
| 17. | I've felt pressure from TV or magazines to remove blemishes on my facial skin. | 1 | 2 | 3 | 4 | 5 |
| 18. | Pictures in magazines are an important source of information about fashion and "being attractive." | 1 | 2 | 3 | 4 | 5 |
| 19. | I've felt pressure from TV or magazines to take efforts to clear my skin. | 1 | 2 | 3 | 4 | 5 |
| 20. | Movies are an important source of information about fashion and "being attractive." | 1 | 2 | 3 | 4 | 5 |
| 21. | I've felt pressure from TV or magazines to change my appearance. | 1 | 2 | 3 | 4 | 5 |
| 22. | I do not try to look like the people on TV. | 1 | 2 | 3 | 4 | 5 |
| 23. | Movie stars are an important source of information about fashion and "being attractive." | 1 | 2 | 3 | 4 | 5 |
| 24. | Famous people are an important source of information about fashion and being attractive. | 1 | 2 | 3 | 4 | 5 |

Appendix E

Objectified Body Consciousness Scale (OBCS) – Adapted for Facial Skin

Instructions

Circle the number the best corresponds to how much you agree with each of the statements on the following pages.

Circle NA (Not Applicable) only if the statement does not apply to you. Do not circle NA if you don't agree with a statement.

For example, if the statement says “When I am happy, I feel like singing” and you don't feel like singing when you are happy, then you would circle one of the disagree choices. You would only circle NA if you are never happy.

OBCS Adapted for Facial Skin		(1) Strongly Disagree	(4) Neither Agree or Disagree	(7) Strongly Agree	(NA) Does Not Apply				
1.	I rarely think about how I look.	1	2	3	4	5	6	7	NA
2.	A large part of keeping clear skin, is having good skin in the first place.	1	2	3	4	5	6	7	NA
3.	I feel like I must be a bad person when I don't look as good as I could.	1	2	3	4	5	6	7	NA
4.	I rarely compare how I look with how other people look.	1	2	3	4	5	6	7	NA
5.	I would be ashamed for people to know how much acne I really have.	1	2	3	4	5	6	7	NA
6.	Even when I can't control my acne, I think I'm an okay person.	1	2	3	4	5	6	7	NA
7.	During the day, I think about how I look many times.	1	2	3	4	5	6	7	NA
8.	When I am not taking care of my facial skin enough, I question whether I am a good person.	1	2	3	4	5	6	7	NA
9.	I rarely worry about how I look to other people.	1	2	3	4	5	6	7	NA
10.	I think a person's facial skin is mostly determined by the genes they are born with.	1	2	3	4	5	6	7	NA
11.	When I do not have the clear skin I think I should have, I feel ashamed.	1	2	3	4	5	6	7	NA
12.	The amount of acne you have depends mostly on your genes.	1	2	3	4	5	6	7	NA

Appendix F

Acne Severity Rating

Please provide a self-report rating of your perceived acne severity over the last month using the following scale:

No acne (0)	Mild (1)	Moderate (2)	Severe (3)
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Appendix G

Commercials Edited for the Current Study

Video Title	Web Address	Product	Runtime
Proactiv TV Commercial, 'Oily Mess' Featuring Kaley Cuoco	https://youtu.be/iB4s1r_dFW0	Proactiv®	2:00
Clinique Acne Solutions Clinical Clearing Gel TV Commercial, 'Had Acne'	http://youtu.be/Ees2pHkMqWc	Clinique®	0:30
Proactiv+ UK Advert starring Nicole Scherzinger	https://www.youtube.com/watch?v=qFvhE8zrhBI	Proactiv+®	3:01
My New Proactiv+ Commercial	http://youtu.be/LaiJq23kvMA	Proactiv+®	1:07
Bella Thorne – Neutrogena Oil Free Acne Wash TV Commercial	https://youtu.be/kjuzBT_BQxY	Neutrogena®	0:30
TV Commercial – Proactiv Plus – Summer's Here – Free Dark Spot Corrector With All Orders	https://youtu.be/FTvV-Fskkvo	Proactiv®	2:00
New 2015 Feat Adam Levine Proactiv Commercial 2015	https://youtu.be/iBP3y4eBrXo	Proactiv+®	1:00
See the Real Me – Acne Spot Treatment Commercial	http://youtu.be/Z8ufCGSQIG8	Clean & Clear®	0:31
Julianne Hough Loves the Proactiv Refinig Mask	https://youtu.be/YT8LCWaG-uo	Proactiv®	0:29

Total Commercials: 9

Total Runtime: 11 minutes 13 seconds

Note: Videos are archived. They will be made available for future research purposes upon request.

Appendix H

Additional Questions

1. Please enter your current age? _____
2. Which gender do you identify as? _____
3. Please indicate the racial/ethnic group that best describes you (Please choose one):
 - a. American Indian or Alaska Native _____
 - b. Hawaiian or Other Pacific Islander _____
 - c. Asian or Asian American _____
 - d. Black or African American _____
 - e. Hispanic or Latino _____
 - f. Non-Hispanic White _____
 - g. Other _____
4. Briefly describe specific changes you would make in order to improve the advertisements you viewed.
5. Please estimate the amount of money in US dollars that you have spent on acne-related skin care products, such as over-the-counter facial cleansers, spot treatments, acne removal systems (e.g., scrubbing brushes), prescribed medications, topical treatments, or similar products, as well as any acne-related procedures in the **last month**. Please round to the nearest whole dollar (Ex: 100 would be the equivalent to \$100.00).
\$_____.00
6. Please estimate the number of consultations or visits you have made with a physician or professional skin-care specialist (e.g., dermatologist) for an acne-related problem(s) during the **past year**. Please exclude dermatological consultation for other non-acne skin

conditions, such as mole removal, psoriasis, or atopic eczema. If you have never sought professional assistance before, please indicate 0 visits. _____

7. Over the last month, please estimate the average amount of time (in minutes) you have spent examining your face in the mirror on a daily basis? _____ minutes (Ex: 30 = an average of 30 minutes a day).

Appendix I

Study Debriefing Statements

Initial Debriefing Statement

Thank you for your participation in this study. Your responses are greatly appreciated. Because the researchers are requesting feedback from a number of different sources, a full debriefing of the study will be provided at a later date. A full description of the study will be sent to the email you provided once all responses have been collected. Lastly, it is requested that you refrain from discussing this study with anyone else who is currently participating or might participate in this study at a future point in time.

If you have any immediate questions or concerns regarding the current study please contact the primary investigator, Amanda Miles at acm0036@tigermail.auburn.edu.

If you feel especially concerned about your facial skin or overall body image, you may wish to contact a mental health professional in your geographical area, including the university's Student Counseling Services at 334-844-5123.

If you have concerns about your rights as a participant in this experiment please contact the Auburn University IRB at 334-844-4784.

Delayed Debriefing Statement

Thank you for your participation. This study was presented as a market research project; however, the true purpose of this study was to examine whether exposure to idealized facial images (i.e., attractive people, with clear skin that is free of blemishes, etc.) in media advertisements impacts viewers' satisfaction with their own facial appearance. Previous research has demonstrated that exposure to idealized *body* images (e.g., images of extremely thin women) can have a negative impact on viewers; therefore, the current study seeks to explore whether this applies to idealized *facial* images. Further, the study seeks to examine other factors, such as comparing one's facial appearance to media images, which may contribute to potential group differences.

How this was tested:

All participants were asked to view a series of commercials and complete a number of questionnaires. In one group, advertisements currently available to the public were shown in their original form (i.e., including facial images) and in the second group, the media images of idealized facial skin were removed.

Confidentiality:

As a reminder, all responses will remain confidential. If you provided an email address for compensation purposes, your responses will not be connected to this email in any way.

More Information:

If you are interested in learning more about the current study please contact the primary investigator, Amanda Miles at acm0036@tigermail.auburn.edu.

If you feel especially concerned about your facial skin or overall body image, you may wish to contact a mental health professional in your geographical area, including the university's Student Counseling Services at 334-844-5123.

If you have concerns about your rights as a participant in this experiment please contact the Auburn University IRB at 334-844-4784.