

Running head: Selfie Behavior, Self-objectification, Body Esteem

The Mediation Effect of Self-objectification from Selfie Behavior to Body Esteem: A Relationship Between Selfie-Behavior, Self-objectification, and Body Esteem Among Female Undergraduates in Malaysia

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Declaration

This research paper titled “The Mediation Effect of Self-objectification from Selfie Behavior to Body Esteem: A Relationship between Selfie Behavior, Self-objectification and Body Esteem Among Female Undergraduates in Malaysia” was written and submitted by Kristin Tan Mei Ping, He Jing, and Tan Yuen Huey. We declare that the research is the outcome of our own effort and the materials as well as the information included in this paper are given their due acknowledgement in the references and citations.

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The research paper attached, entitled “The Mediation Effect of Self-objectification from Selfie Behavior to Body Esteem: A Relationship between Selfie Behavior, Self-objectification and Body Esteem Among Female Undergraduates in Malaysia” was prepared and submitted by Kristin Tan Mei Ping, He Jing, and Tan Yuen Huey in partial fulfillment of the requirement for the Bachelor of Social Science (Hons) Psychology is hereby accepted.

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List of Abbreviation

SNSs	Social Networking Sites
SBS	Selfitis Behavior Scale
BESAA	Body-Esteem Scale for Adolescents and Adults
SOBBS	Self- Objectification Beliefs and Behavior Scale
CMC	Computer-mediated communication

Abstract

With the increasing popularity of engaging in selfie behavior and posting them on various online platforms, there is a growing concern that such behavior may result in the heightened likelihood of individuals objectifying themselves which may contribute to one's low body esteem, especially among females. This study investigates the relationship of the variables including selfie behavior, self-objectification, and body esteem as well as the mediation effect of self-objectification from selfie behavior on body esteem among female undergraduates in Malaysia. This study is a cross-sectional quantitative study adopting an online survey method with the use of the Qualtrics platform. The measures used to assess the variables include the Selfitis Behavior Scale (SBS), Self-Objectification Beliefs and Behavior Scale (SOBBS), and the Body Esteem Scale for Adolescents and Adults (BESAA). The data from 169 female undergraduates aged 18 to 29 (mean = 21.89; SD = 2.00) were collected through non-probability sampling. A regression analysis and PROCESS macro analysis are used to analyze the data. It was found that selfie behavior positively predicts body esteem, self-objectification negatively predicts body esteem, selfie behavior positively predicts self-objectification, and that there is a partial mediation of self-objectification from selfie behavior to body esteem. The findings of the study are all significant which provide insights into the complex dynamics of the variables and contribute to the knowledge gap of the topic which is especially limited with female undergraduates in Malaysia as the sample. Most importantly, this study is able to help improve the awareness and interventions surrounding the topic.

Keywords: selfie behavior, self-objectification, body esteem, female undergraduates

Chapter 1

Introduction

1.1 Background of the study

Selfie behavior refers to a series of behaviors that are related to “selfies” such as selfie-taking, selfie posting, and selfie editing (Dhir et al., 2016). Selfie is explained as an individual taking photographs using a smartphone or webcam and sharing them via social network sites, per the definition provided by the Oxford English Dictionary in 2013 (Felig & Goldenberg, 2023; Kim & Chock, 2017; Wang et al., 2021). Selfie is indicated to be inherently involved in the act of objectifying oneself as the selfie taker evaluates themselves as the object (Fox et al., 2021). This can result in individuals facing psychological consequences such as body shame, depressive symptoms, self-esteem, body esteem, and a drive for thinness that comes about from the perceived importance of appearance (Arroyo et al., 2014; Chang et al., (2019); Tiggemann et al., 2015).

Specifically, body esteem is defined as the degree to which one evaluates their physical appearance positively (Latif et al., 2022). Although body esteem is rarely investigated in relation to selfie behavior or self-objectification, it is apparent that body-related issues are a severe psychological outcome when one engages in selfie behavior. One of the studies by Chang et al. (2019) found that selfie editing and selfie viewing are negatively associated with body esteem among female adolescents. Moradi & Huang (2008) indicated that the possibility of this phenomenon is because women who self-objectify usually view their bodies in relation to the idealized female body, so they are more likely to experience dissatisfaction and shame when they fail to attain this idea.

With the rise in popularity of social media, it is found that selfie behavior can also contribute to the consequences of self-objectification (Fox et al., 2020; Salomon & Brown., 2021; Xiao et al, 2021). Self-objectification is defined as the process where individuals

assess and evaluate themselves in terms of physical appearance (Lei, 2022). This phenomenon is predominately observed among women who are often sexually objectified by society, emphasizing their sexual appeals rather than their ability. Although this topic is less centered among males, it is found that males also face issues of self-objectification, though to a lesser degree and tendency compared to females (Gattino et.al., 2023). The difference in focus between males and females takes place in terms where males usually emphasize the tendency of masculinity while females prioritize feminine qualities, usually surrounded by the topic of weight (Gattino et.al., 2023).

It is believed that the phenomenon of self-objectification is contributed by external pressure such as socializing agents as well as media who portray and strengthen the concept of self-objectification (McKay, 2013). Individuals are socialized according to the accustomed gender roles which characterize what is considered “normal” and “accepted”. These expectations of social norms shape the beliefs that individuals must behave and be a certain way (McKay, 2013). Similarly, the assumption of social learning approaches also explains the role of society and cultures in the conveyance of rules where it will be eventually embraced by the individuals leading to the development of internal control of behaviors (Susswein et al., 2007). For example, the social norm for women is for them to have a thin-body figure and for men to have a masculine body structure.

1.2 Problem Statement

With the rise in popularity of engaging in selfie behavior and sharing them on various online platforms, there is a growing concern that this behavior may contribute to individuals' tendencies to objectify themselves and experience negative body esteem. According to Wang et al. (2019), selfie behaviors may contribute to self-objectification by allowing individuals to monitor their appearance from an observer's perspective and by viewing images of others. For instance, people usually invest in their selfies before posting

them on social media, such as being concerned about photo quality and how they are portrayed in the photos, as well as carefully choosing which selfies will be posted. This investment may lead users to focus on appearance, which in turn may contribute to self-objectification. Some evidence also stated the causality of selfie-related behaviors is related to numerous psychological issues among females. For example, greater social sensitivity and anxiety, lower self-esteem, as well as negative mood (Shin et al., 2017; Mills et al., 2018; Fox et al., 2021).

In addition, it is found that the relationship between social media in engaging selfie behavior and body-related concerns is discussed extensively but does not offer consistent findings. A study by Chang et al. (2019) noted there is a positive relationship between selfie posting and body esteem. However, a recent study proposed that the frequency of selfie-taking and posting does not significantly relate to body image satisfaction (Digamon et al., 2020). Other correlational research on the other hand, has identified a link between social media use and poor body image (Manago et al., 2014; Saiphoo & Vahedi, 2019), while others have found no link at all (Cohen et al., 2017; Xiaojing, 2017), or even a link between social media use and a positive body image (Ridgway & Clayton, 2016).

However, some researchers also pointed out that instead of Social Networking Sites (SNSs) usage in general, specific SNS use, especially images-based activities, is associated with young women's body dissatisfaction and other related body concerns (Cohen et al., 2017; Di Gesto & Policardo, 2021; Fardouly et al., 2017). In addition, the discrepancies in results can also be seen in the variable of selfie behavior. The definition of selfie behavior as defined by Dhir et al. (2016) is referred to as selfie-related behaviors such as selfie-taking, selfie editing, and selfie posting on social networking sites. Even though selfie behavior, in general, is found to be negatively associated with body esteem, some of the studies also found that selfie posting in particular is positively associated with

self-objectification (Wang et al., 2018; Kim, 2020; Chang et al., 2019).

Besides, there are also limited studies in relation to the above-mentioned variables among undergraduate participants as most of the studies use adolescents as samples. This can be explained by Erik Erikson's psychosocial development stage theory. According to the theory, adolescents from the age 12 to 18 go through an "identity or role confusion" state where they are more susceptible to body dissatisfaction as that period is where adolescents change most in terms of their physical development, social-cultural influence as well as cognitive changes (Knight, 2017). It is no wonder that studies about self-objectification where one internalizes another's objectification are usually researched using the sample of adolescents as they commonly go through the phase of puberty change (Wang et. al., 2017; Chang et al., 2019).

However, even though adolescents go through many changes that make them more inclined to self-objectification, undergraduates also face difficulty in body esteem and self-objectification issues. According to Arnett's theory of emerging adulthood, undergraduates belong to the age range of emerging adulthood (late teens to late twenties) that brings about changes that could make them equally vulnerable to self-objectification including significant alteration in the perception of adulthood, higher involvement in education as well as a shift in the attitude of premarital sex (Syed, 2015) which can make individuals more conscious about their body affecting their body esteem. Although there are also some studies that researched self-objectification with older participants (Salomon & Brown, 2022; Barzoki et. al., 2018), it is undeniable that there is little research conducted with Malaysian participants.

Most importantly, there are limited studies that focus on selfie behavior as a whole. Previous literature mostly focuses on the specific component of selfie behavior such as selfie-taking (Fox et al., 2020), selfie-posting (Zheng et al., 2018), and selfie-editing (Xiao

et al., 2021). However, we believe that individuals are usually involved in two or more components when engaging in selfies. For instance, individuals who have the intention of posting a selfie (selfie-posting) would also engage in selfie-taking or even selfie-editing. Not to mention, there were also insufficient studies that discussed the mediation effect of self-objectification from selfie behavior to body esteem.

With that being said, the aims of this study are to study the predicting roles of the variables (selfie behavior, self-objectification, body esteem) among female undergraduates in Malaysia as well as to look into the mediation effect of self-objectification of selfie behavior on body esteem.

1.3 Research Questions

1: Does selfie behavior negatively predict body esteem among female undergraduates in Malaysia?

2: Does self-objectification negatively predict body esteem among female undergraduates in Malaysia?

3: Does selfie behavior positively predict self-objectification among female undergraduates in Malaysia?

4: Does self-objectification mediate the effect of selfie behavior on body esteem?

1.4 Research Objectives

1. To determine the predicting roles of selfie behavior and self-objectification on body esteem among female undergraduates in Malaysia.

2. To determine the predicting role of selfie behavior on self-objectification among female undergraduates in Malaysia.

3. To study the mediation effect of self-objectification from selfie behavior on body esteem.

1.5 Hypotheses

H1: Selfie behavior negatively predicts body esteem among female undergraduates in Malaysia.

H2: Self-objectification negatively predicts body esteem among female undergraduates in Malaysia.

H3: Selfie behavior positively predicts self-objectification among female undergraduates in Malaysia.

H4: Self-objectification has a mediation effect from selfie behavior to body esteem.

1.6 Significance of the Study

The significance of the study is to gain a more comprehensive and nuanced understanding of selfie behavior, self-objectification, and body esteem among female undergraduates in Malaysia. The study will be able to explore more connections about the above-mentioned variables to fill our knowledge gap that does not point up in past studies on undergraduate students. This study also aims to provide valuable preliminary insights and serve as a reference for future research in this area. The findings from this study will be able to contribute to expanding our understanding of the complex dynamics between selfie behavior, self-objectification, and body esteem among female undergraduates in Malaysia thereby advancing the existing knowledge base and providing a foundation for further investigations. Most importantly, through the mediation analysis of the variables, we are able to understand deeper about the mechanism of self-objectification on selfie behaviors which in turn influences body esteem. If it is found that there is a mediation effect of self-objectification from selfie behavior to body esteem, individuals with low self-esteem when engaging in selfie behavior may improve their level of body esteem by reducing their self-objectification level.

1.7 Conceptual Definition

1.7.1 Selfie behavior

Selfie behavior refers to a series of behaviors that are related to “selfies”. Sorokowski et al. (2015) describe a “selfie” as a “self-portrait photograph”, usually intended for sharing on social media. The photograph is captured with a camera at one’s arm’s length or pointed to a mirror with the object being oneself or together with others. Selfie behavior includes selfie-taking, selfie editing, and selfie posting on social networking sites (Dhir et al., 2016).

Balakrishnan & Griffiths (2018) use six domains to explain the factors that causes the tendency or obsessions for individuals who engaged in selfie behavior. All of these domains include environmental enhancement, social competition, attention-seeking, mood modification, self-confidence as well as subjective conformity. Mainly, the self-presentation theory describes the domain of environmental enhancement, attention-seeking, and subjective conformity where individuals engage in selfie behavior because they want to maintain an image and also to seek validation from others. Other than that, the social competition domain can be illustrated with the social comparison theory where individuals compete their photographs with their peers by comparing their social status and the number of engagements they obtained. Lastly, the domains of mood modification and self-confidence are portrayed using the social identity theory. With the use of photo enhancement tools, individuals are able to alter their pictures to their ideal selves which helps in boosting their mood and self-confidence (Balakrishnan & Griffiths, 2018).

1.7.2 Body esteem

Body esteem is characterized as the concept of the degree to which one positively evaluates their physical appearance (Latif et. al., 2022). There are three aspects that are involved in body esteem as explained by Mendelson et al., (2001). The first factor looks

into appearance which consists of the general sentiments one feels about their appearance. The second factor explores weight concern where it focuses on the satisfaction one perceives about their weight. Lastly, it is believed that how individuals assume they appear to others is important when determining body esteem, therefore, the third aspect investigates the evaluation assigned by others on one's body and appearance (Mendelson et al., 2001).

1.7.3 Self-objectification

Self-objectification is a psychological process in which one manifests and internalizes oneself as a material object instead of a human being (Bhati, 2022). Individuals who suffer from self-objectification adopt the perspective of an observer to evaluate and assess their bodies. Linder & Tabrleff-Dunn (2017) explain self-objectification in two factors. The first aspect includes internalizing and adopting the observer's perspective regarding one's body while the second factor entails a greater priority on body appearance instead of the body's ability or one's feelings towards their body. It is found that the issue of objectification usually centers around females where their bodies are often objectified and sexualized (Arroyo, 2014).

1.8 Operational Definition

1.8.1 Selfie behavior

Selfie behavior is evaluated with the Selfitis Behavior Scale. "Selfitis" is defined as the strong urge driven by an obsessive-compulsive need to consistently take and upload selfies on social networking sites. The reason behind the behavior of selfitis is the hope of individuals in fulfilling their void in personal connections and to compensate for their self-esteem. The scale consists of 20 items in total, looking into the factors of environmental enhancement, social competition, attention seeking, mood modification, self-confidence, and subjective conformity. The calculation of the scale is determined by

totaling up the overall points. The higher the score indicates the greater the likelihood of selfitis (Balakrishnan & Griffiths, 2018).

1.8.2 Body Esteem

Body esteem is assessed with the Body-Esteem Scale for Adolescents and Adults (BESAA). The scale was introduced in 2001 by Mendelson et al., as an adaption of a previous measurement of the Body Esteem Scale for children developed by Mendelson & White. This scale measured body esteem in three aspects, including the factors of overall feelings concerning one's appearance (BE-appearance), satisfaction about one's weight (BE-Weight) as well as assessments ascribed by others on one's appearance and body (BE-Attribution). There are 23 items in total with 10 items for BE-appearance, 8 items for BE-Weight, and 5 items for BE-Attribution. The scoring of the scale is calculated by summing up all of the items with the interpretation that a higher score indicates higher body esteem (Mendelson et al., 2001).

1.8.3. Self-objectification

Self-objectification is measured with the Self-Objectification Beliefs and Behaviors Scale (SOBBS). SOBBS measures self-objectification in two factors. The first factor looks into the internalization of an individual on adopting another's perspective towards one's body. The second factor emphasizes body appearances rather than one's emotions towards their body and the body's capability. Each factor has 7 items making a total of 14 items for the entire scale. The scoring of the scale is done by adding the total scores of all items. A greater level of self-objectification is indicated when one's score of SOBBS is high (Lindner & Tantleff-Dunn).

Chapter 2

Literature Review

2.1.1 Selfie Behaviors

Selfie is explained as an individual taking photographs using a smartphone or webcam and sharing them via social network sites per the definition provided by the Oxford English Dictionary in 2013 (Felig & Goldenberg, 2023; Kim & Chock, 2017; Wang et al., 2021). Selfie behaviors can be categorized into three domains: selfie posting, selfie-editing (Wang et al., 2021), and selfie-taking (Felig & Goldenberg, 2023). Notably, Boursier et al. (2020) pointed out that general selfie behaviors exhibit a notable intricacy as the convergence of individual, cultural, societal, and psychological factors that collaboratively drive the behavior of posting, taking, editing, and viewing.

A series of recent studies have examined the underlying factors behind selfie behaviors including psychological motivations and personality traits (Boursier et al., 2020; Simpson et al., 2020; Yellowlees et al., 2019). Boursier et al. (2020) illustrated that self-presentation, self-promotion, and self-disclosure are the key psychological motivation factors driving individuals to take and share selfies. On the flip side, Simpson et al. (2020) indicated that subjective norms, social pressure, attention-seeking, narcissism, and belonging are the psychological mechanisms that drive selfie behavior. Moreover, Diefenbach & Christoforakos (2017) posits that selfies can foster self-confidence and self-expression, while, the potential risks stemming from excessive selfie behaviors, including negative impacts on body image, self-esteem, and overall life satisfaction (De Vaate et al., 2018; Wang et al., 2021; Yellowlees et al., 2019).

Nevertheless, despite this evolving research landscape, the lack of definition for the intensity of selfie behavior in previous studies remains a notable gap. One of the recent studies by Balakrishnan & Griffiths (2018) has introduced three levels of selfie

behavior, including borderline, where an individual a minimum of three times of selfie-taking daily without sharing them on social media; acute, where one takes selfies at least three times daily and share on social media; and chronic, an unconscious desire to constantly take selfies and share photos on social media exceeding six times a day. Thus, the levels of selfie behavior reflect varying degrees of engagement and potential implications in selfie behaviors.

2.1.2 Body Esteem

Body esteem refers to self-evaluation of the body, which might include physical conditions, as well as appraisals that are related to body image (Chang et. al, 2019; Franzoi & Herzog, 1986). Body esteem, as an important dimension of an individual's self-esteem, has been discussed in some Asian contexts in the past decade, such as Hong Kong China (Mak et al., 2012; Mak et al., 2015), and Korea (You et al., 2017; You & Shin, 2019). Those studies have shown the elements that could have a mutual effect on body esteem from various aspects and environments, not only internal factors like self-concept (You & Shin, 2019) but also external effects like media pressure and physical activity (Mak et al., 2015; You et al., 2017). However, all of them stated significant gender differences in their study, either by focusing on females or by comparing between genders.

A large body of literature has investigated the gender difference in body esteem, while others explored the moderating or other effects of gender on body esteem (Abdollahi et al., 2015; Mak et al., 2012). Some findings already pointed out the significant gender difference that women are more likely to have lower body esteem than men and tend to objectify their bodies throughout their lifespan (Kaminski & Hayslip, 2006; Lipowska et al., 2016; McKinley, 1998). A series of current studies indicated that females are more likely to over-evaluate their bodies and have a stronger tendency to compare body

conditions to others more frequently than males, and this phenomenon is still evident where women still pay more attention to their bodies than men in their later years (Lipowska et al., 2016; Murn & Steele, 2019).

2.1.3 Selfie Behaviors and Body Esteem

The evidence from earlier studies about the connection between social media use and body-related concerns made the correlation between them quite evident (Bodroža et al., 2022; Chang et al., 2019; Manago et al., 2014; Saiphoo & Vahedi, 2019), in particular more in adolescents, and only a few studies have been conducted with boys. With appearance-focused social media use, such as selfie behavior and making social comparisons to images of others on social media, are proven to be more harmful to users' body image (Cohen et al., 2017; Fardouly et al., 2017; Thompson, 2010;). Specifically, selfie-editing was shown to be negatively associated with body esteem based on a study conducted among Singaporean girls, mediated by peer appearance comparison (Chang et al., 2019). Photo-sharing on the SNSs is also reported to have a significant impact on users' overvaluation of body traits, body dissatisfaction, and internalized thin ideals (McLean et al., 2015).

A few current studies revealed a positive association between selfie posting and body esteem among young female adults (Kim, 2020; Wang et al., 2018), as well as adolescent girls (Chang et al., 2019). Computer-mediated communication (CMC) model suggested the potential explanation of it could be the lower cost of the Internet platforms allowing users to present themselves selectively (Walther, 1996), which is more likely to be positive aspects of themselves that could enhance their awareness of the optimal self (Bareket-Bojmel et al., 2016). However, it is still unclear whether the increased body confidence brought on by this selective self-presentation will last in the long term, as they might place more emphasis on their online presentation, focusing on seeking approval from others by

instant feedback on their appearance through comments and "likes" (Chen et al., 2023; Cohen et al. 2017).

Thus, we would like to hypothesize that: (H1) Selfie behavior negatively predicts body esteem among female undergraduates in Malaysia.

2.1.4. Self-objectification

Self-objectification is described as individuals embracing an external viewpoint on their physical appearance, resulting in a form of self-awareness characterized by constant monitoring of their body's looks (Chen et al., 2023). Previous studies found that self-objectification could manifest as a state or a trait (Chen et al., 2023; Kahalon et al., 2018). Individuals who undergo a provisional preoccupation with their appearance, which is triggered or strengthened by environmental cues are described as experiencing state self-objectification, while trait self-objectification refers to a stable and consistent tendency to engage in self-objectifying behaviors (Chen et al., 2023; Kahalon et al., 2018).

A series of recent studies have indicated that self-objectification is widespread, especially among women, as women are more prone to internalizing cultural beauty standards and undertaking self-objectifying behaviors (Fredrickson & Roberts, 1997). It also has been stated by Fredrickson & Roberts (1997) that self-objectification is linked to lower levels of self-esteem, and may experience more shame, anxiety, and reduced motivation than others. Societal influences, media exposure, and interpersonal experience were suggested to contribute to self-objectification tendencies in women (Karsay et al., 2018). Furthermore, prior research indicates that being self-objectified can result in a wide range of significant psychological consequences, including a negative body image, decreased psychological well-being, mental health problems like depression symptoms and eating disorder symptomatology, as well as impaired cognitive function (Chen et al., 2023; Haines et al., 2008; Jiao et al., 2022; Savage & Bue, 2023).

2.1.5 Self-objectification and Body Esteem

Both self-objectification and body-related concerns (e.g., poor body image) are usually marked as psychological risk outcomes in terms of certain contexts in the past few decades, such as social media use, college men, and exercising (Fardouly et al., 2017; Schwartz et al., 2010; Prichard & Tiggemann, 2008). Another study even used self-objectification as one of the variables for measuring an individual's body image. (Slater & Tiggemann, 2010).

More recent attention has focused on the provision of relationships between them. For example, Carrotte (2018) addressed the potential protective factor of narcissism and the risk factor of machiavellianism as a moderator between self-objectification and body image (Carrotte & Anderson, 2018; Dryden & Anderson, 2019). A previous study by Lindner & Tantleff-Dunn (2017) also highlighted that societal influence, specifically the internalization of cultural appearance ideals serves a significant role in linking self-objectification to body image outcomes. Nevertheless, the previous evidence points more toward a direct relationship between the two. Based on the existing experimental and correlational studies, self-objectification has been stated to lead to a poor body image, self-surveillance, and body shame (Jongenelis & Pettigrew, 2020; Karsay et al., 2020; Schaefer et al., 2018), as well as appearance-related concerns (Chen et al., 2023). Karsay et al. (2020) further findings also suggested that self-objectification served as a mediator between the negative association of mass media use and positive body image.

However, a more thorough review of the research revealed that when it comes to the relationship between self-objectification and body-related issues, body esteem is rarely considered as a separate variable. The focus of the few relevant studies that suggested a strong link between body esteem and self-objectification was mainly on professional athletes or the more restricted contexts of exercise (Peter Strelan, 2003; Varnes et al.,

2014).

In order to fill in the knowledge gap by investigating whether the new indicator of body esteem could be supported by consistent findings from prior studies about the relationship between self-objectification and body esteem, we would like to hypothesize that: (H2) Self-objectification negatively predicts body esteem among female undergraduates in Malaysia.

2.1.6 Selfie Behaviors and Self-objectification

The correlation between selfie behavior and self-objectification was observed in many studies (Chae, 2017; Lamp et al., 2019; Fox et al., 2021; Wang et al., 2019; Veldhuis et al., 2020; Xiao et al., 2021; Zheng et al., 2018). While some studies have noted that a higher level of self-objectification in women can result in specific behaviors related to selfies (more engagement in selfie-taking or photo-editing before they are processed into selfie posting) (Lamp et al., 2019; Veldhuis et al., 2020), others have chosen to highlight the reverse causality of such relationship (Caso et al., 2020; Cohen et al., 2018).

Selfie-taking was identified as an inherently self-objectifying act based on a current study showing a higher level of self-objectification among selfie-takers compared to object-takers (Fox et al., 2021). Consistent findings shown in two recent studies also further indicated the significant correlation between selfie posting and self-objectification (Niu et al., 2019; Zheng et al., 2018). However, the study by Wang et al. (2019) pointed out that selfie-posting itself might have no predicting role on self-objectification and suggested a more detrimental effect of other selfie behaviors such as selfie-editing. Selfie editing could be explained by an effort to narrow the gap between the real self and internalized beauty standards (Cohen et al., 2018; McLean et al., 2015), by giving women access to less invasive, quicker, and more affordable cosmetic surgery (Caso et al., 2020). Sun's study (2020) also found that selfie editing largely contributed to females'

consideration of cosmetic surgery. Based on the demonstration of past studies, photo editing before posting on social media might directly relate to the thought of exhibiting an ideal self to others, as well as self-objectification (Cohen et al., 2018; Lamp et al., 2019; McLean et al., 2015; Wang et al., 2019).

Furthermore, selfie viewing has also been proven to have an impact on the development of self-objectification over time in a longitudinal study, but in terms of an upward comparison that emphasizes face attractiveness dissatisfaction rather than body (Wang et al., 2019). Although taking selfies may have a negative impact on women's self-objectification level, Fox et al. (2020) still proposed the potential benefits of self-objectify women helping good and friendly online social interaction with peers, since they usually show less social aggression toward other females online. But as to whether this is good or bad, further research might be needed.

Following the majority of existing evidence about the relationship between selfie behavior and self-objectification, we would like to hypothesize that: (H3) Selfie behavior positively predicts self-objectification among female undergraduates in Malaysia.

2.1.7 Selfie Behavior, Self-objectification, and Body Esteem

In addition, we also found that there was limited literature investigating the mediation effect of self-objectification from selfie behavior to body esteem. A recent study revealed a similar model about the mediating role of body surveillance on the negative relationship and indirect between appearance-related exposure on WeChat Moment (a Chinese social media) among female college students (Yu et al., 2022), might hint at the complexities of the selfie-behavior-body-esteem pathway. As mentioned above, it is evident to see the relationship between variables. With that being said, we hypothesize that: (H4) Self-objectification has a mediation effect from selfie behavior to body esteem.

2.2 Theoretical framework

The main theory applied in explaining selfie behaviors, self-objectification, and body esteem is the Objectification Theory, which explains the relation between selfie behaviors and self-objectification, as well as the relation between self-objectification and body esteem.

2.2.1 Objectification Theory

Objectification theory developed by Fredrickson and Roberts (1997) describes how an individual confronts objectifying experiences and socializes them to internalize an external viewpoint of their physical appearance as objects to be observed and evaluated. In accordance with objectification theory, women may experience low self-esteem, anxiety, or body shame when they internalize the observer's gaze, which involves judging their physical appearance due to social pressure, subjective norms, attention seeking, and a desire to belong (Wanniarachchi et al., 2022). In this study context, objectification theory proposed that engaging in selfie-related behaviors (taking, editing, viewing, and sharing selfies) can contribute to self-objectified behavior in which the individual scrutinizes their physical appearance and body image from an observer's perspective (Cohen et al., 2017; Wang et al., 2021). Selfie behavior results in an increased focus on appearance and a sense of being judged based on appearance possibly causing self-objectification in individuals (Cohen et al., 2018). Therefore, this study hypothesized that selfie behavior negatively predicts body esteem.

Furthermore, the influence of objectification theory extends to body esteem. Girls and women are typically acculturated to internalize an observer's perspective as a primary view of their physical selves (Fredrickson & Roberts, 1997). This perspective on self can lead to habitual body monitoring, which, in turn, can increase women's opportunities for shame and anxiety, reduce opportunities for peak motivational states, and diminish

awareness of internal bodily states. As stated by Varnes et al. (2015), the process of self-objectification characterized by internalization and body surveillance, is associated with increased body shame and anxiety. Hence, self-objectification, through the mechanistic nature of internalization and body surveillance has the potential to foster negative body image and body image concerns (Varnes et al., 2015). Building on the proposition of Objectification Theory, this study hypothesized that selfie behavior positively predicts self-objectification and that self-objectification negatively predicts body esteem.

Notably, Objectification Theory provides a compelling framework for understanding the interplay among selfie behavior, self-objectification, and body esteem. The act of taking and sharing selfies on social media becomes a significant factor in shaping internal self-perception, particularly when met with negative feedback (Liu et al., 2022). This dynamic is further emphasized as individuals internalize external viewpoints, engaging in a process of self-objectification. In adopting an observer's perspective on their own bodies, individuals treat themselves as objects subject to scrutiny and evaluation (Rollero & De Piccoli, 2017). Consequently, the internalized self-objectification can result in negative psychological outcomes. That said if an individual receives negative feedback after posting selfies on social media, it can contribute to body dissatisfaction or exacerbate negative body image, particularly in the context of self-objectification. With the support of Objectification Theory, this study hypothesized that self-objectification has a mediation effect from selfie behavior to body esteem.

2.3 Conceptual framework

Figure 1 below presents the proposed conceptual framework for this study. The aim of this study is to examine the relationship between selfie behaviors, self-objectification, and body esteem among female undergraduates in Malaysia. The conceptual framework is supported by the objectification theory.

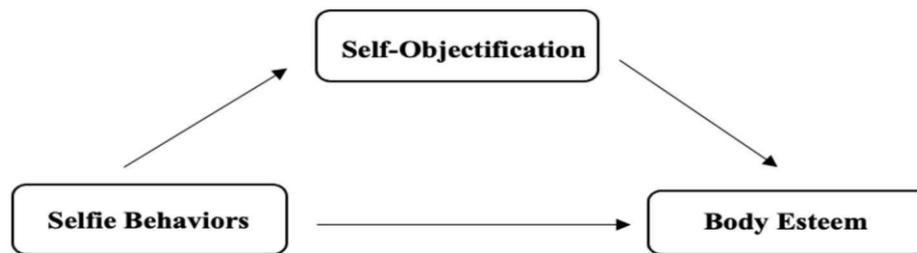


Figure 1. The Conceptual Framework of the Relationship between Selfie Behaviors, Self- Objectification, and Body Esteem

In this study, selfie behaviors will be the independent variable, body esteem will be the dependent variable, and self-objectification will serve as the mediator variable. Based on the objectification theory, this study hypothesized that selfie behavior negatively predicts body esteem among female undergraduates in Malaysia. Meanwhile, it also hypothesized that self-objectification negatively predicts body esteem among female undergraduates in Malaysia and that selfie behavior positively predicts self-objectification among female undergraduates in Malaysia. Moreover, the correlation between variables of selfie behaviors, self-objectification, and body esteem among female undergraduates in Malaysia will be examined throughout this study.

Chapter 3

Methodology

3.1 Research Design

This study is a quantitative study to examine the relationship between selfie behavior, self-objectification, and body esteem among female undergraduates in Malaysia as well as to look into the mediation effect of self-objectification of selfie behavior on body esteem. This research utilized the platform of Qualtrics and employed the method of an online survey to collect data. This research method allows the opportunity to reach a wider target participant of female undergraduates in Malaysia. Besides, the statistical analysis is conducted with SPSS with the analysis method of Cronbach alpha coefficient, regression analysis, and PROCESS macro. The analysis of the Cronbach alpha coefficient is used to assess the reliability of the scales used. A regression analysis is conducted to examine the relationship between the variables while a mediation analysis of PROCESS macro is used to analyze the mediation effect of self-objectification on the path from selfie behavior to body esteem.

3.2 Sampling Procedures

The study recruited participants through non-probability sampling, specifically convenience sampling. Our survey is conducted online, and the study is advertised through social media as well as around the campus of University Tunku Abdul Rahman, Kampar. The advantage of using the non-probability sampling method is that it is cost and time effective. Be that as it may, it is arguable that non-probability sampling lacks generalizability as compared to probability sampling. However, to counter the issue, homogeneous convenience sampling is utilized.

Homogeneous convenience sampling as compared to conventional sampling has more constraints in terms of the sociodemographic background of the participants (Jagar et al.,

2017). As such, with a narrower sampling scope, it is believed that poor generalizability and sampling bias can be improved. With that said, instead of just targeting female participants where any females of different socioeconomic status or backgrounds can participate in this study, we targeted female undergraduates in Malaysia. Specifically, female participants are targeted because based on the objectification theory by Fredrickson & Roberts (1997), it explains that female participants are more susceptible to adopting self-objectification due to the fact that females experience more sexism occurrences, especially sexual objectification, and are socialized to believe their role as an object (Moradi & Huang, 2008).

Moreover, the reason for adopting female undergraduates in Malaysia which includes the acceptability of foreign female undergraduates who is currently studying in Malaysia and not Malaysian female undergraduates as our sample is because of the assumption of social learning approaches where one internalizes through the conveyance of rules imposed by the society and its cultures which eventually are embraced leading to the development of internal control of behaviors (Susswein et al., 2007). It highlights the importance of socializing agents who portray and strengthen the concept of self-objectification (McKay, 2013). To relate to our study, the internalization process of self-objectification can be developed by how the culture in Malaysia has affected the perception of body esteem through selfies behavior.

On the other hand, we chose to focus on undergraduate participants because much of the previous literature that looked into similar topics as our study focused more on adolescents. This can be explained that adolescents are at the stage where they go through many changes, especially physical development changes that cause them to be more vulnerable based on Erik Erikson's psychosocial development theory (Knight, 2017). However, it was also found that undergraduates are as receptive as explained by Arnett's

theory of emerging adulthood. The theory indicates that undergraduates are at the phase of an emerging adult where many changes occur such as a drastic change in adulthood perception and attitude change in premarital sex (Syed, 2015). As such, undergraduates may be more conscious about their body influencing their body esteem.

Looking into the consideration of the diverse age range of undergraduates in a university, the age range of the participant is also set to be between 18 to 29 as defined by Arnett's theory of emerging adulthood. Even though the generalizability of a non-probability sample is not as strong compared to probability sampling, using homogenous convenience sampling can at least strive to reduce the sampling bias when using conventional convenience sampling (Jagar et al., 2017). Since the sample for this study is female undergraduates between the ages of 18 to 29 in Malaysia, a purposive sampling method is also involved.

3.3 Sample Size, Power and Precision

This study uses the Monte Carlo Power Analysis for Indirect Effect to calculate the sample size. However, there are no correlations available from previous studies to be adopted in this analysis. To have an estimation of the minimum number of participants needed for the actual study, a correlation of 0.30 is used to conduct the sample analysis. According to Cohen's rule of thumb, an effect size of $r = 0.30$ interprets a medium effect size between two variables and demonstrates a reasonable proficiency when predicting personality measures under real-life criteria (Cohen, 1988). Referring to our conceptual framework, the model of our study consists of only one mediator. Following the default target power of 0.80 and confidence level of .95, a minimum of 153 participants are calculated (See Appendix A). With that, using Roscoe's rule of thumb, a pilot study with 10% of the targeted sample size is acceptable (Hill, 1998), which makes the minimum sample size needed for our pilot study to be at least 16 participants.

In our study, 39 responses were collected for our pilot study while 270 responses were collected for our actual study. However, after screening the data, only 22 completed responses were used to analyze the pilot study while only 147 completed responses were collected for our actual study. It was indicated by Thabane et al. (2010) that combining the data of the pilot study and the main study can enhance the effectiveness of the actual study provided the pilot study is as viable as it is without any modification made. Seeing that there were no changes on the items, we combined the responses from both the pilot study and the actual study which makes a total of 169 responses for the hypothesis analysis.

3.4 Data Collection Procedure

3.4.1 Inclusion and Exclusion Criteria

For pilot test, the inclusion criteria for our pilot study are females between the ages of 18 to 29 who are currently a Year 3 Psychology Degree Student (starting June 2023 Trimester) studying at University Tunku Abdul Rahman (UTAR). A filtered question was set to ensure the pilot test only approaches the participants who fulfill the inclusion criteria. For the real test, the inclusion criteria for our actual study are undergraduate females between the ages of 18 to 29 who are currently studying at a university in Malaysia. To avoid duplicated results from the pilot study, the exclusion criteria of the actual study are females between the ages of 18 to 29 who are currently a Year 3 Semester 2/ Year 3 Semester 3 Psychology Degree Student (starting October 2023 Trimester) studying at University Tunku Abdul Rahman (UTAR).

3.4.2 Procedures for Obtaining Consent

The submission for ethical clearance approval closes on the first of every month. Therefore, we submitted the necessary documents to the UTAR Scientific and Ethical Review Committee on the 29th of August. The ethical approval was approved on the 26th of September (see Appendix B) and the reference number of our approval letter is

U/SERC/232/2023. Thus, we started the distribution of the survey after finalizing the questionnaire. Other than the filtered questions, the survey for the pilot study and the actual study are the same. See Appendix C and Appendix D for the survey for the pilot study and the filtered question for the actual study.

3.4.3 Description of Data Collecting Procedures

Firstly, we used Qualtrics to generate an online-based questionnaire to ease the exportation of data to SPSS. The first page of the online survey will have a clear description of the objective of our research to keep the participants informed. Individuals who express their willingness to participate in our study will be prompted to provide their consent by clicking on the “I agree” button as a requirement. Besides, the information of the research members will also be provided in cases where individuals are interested in contacting us where queries arise. After the consent is obtained, the participants are directed to the filtered question requesting the participant to confirm their identity. For the pilot study, the filtered question included the option “I am a female between the ages of 18 to 29 who is currently a Year 3 Psychology Degree Student (starting June 2023 Trimester) studying at University Tunku Abdul Rahman (UTAR).” The instruments and demographic information are presented after ensuring the participants matched with our targeted sample.

Then, once the ethical clearance had been approved, we conducted a pilot study targeting Year 3 Bachelor of Social Science (Hons) Psychology students at Universiti Tunku Abdul Rahman (UTAR), Kampar campus to measure the reliability of the scales. The distribution of the pilot study survey started on the 12th of October and ended on the 23rd of October. The survey link was shared across social media such as Facebook, Instagram, and WhatsApp to the targeted participants. The “word of mouth” strategy is also adopted as we would request our friends to help circulate the link to other individuals that match our target sample.

Following the completion of the pilot study, we found the reliability of the scales to be within the acceptable range when analyzing using Cronbach's alpha coefficient (see Chapter 4) and thus started to distribute our actual study's questionnaire. Other than the differences in the filtered questions for the survey, the content of the questionnaires is the same for the pilot study and the actual study. For our actual study, the filtered questions included the inclusion criteria of our targeted sample, with the option stating "I am a female between the ages of 18 to 29 who is currently an undergraduate at a university in Malaysia". The option for exclusion criteria on the other hand is the option specifying "I am a female between the ages of 18 to 29 who is currently a Year 3 Semester 2/ Year 3 Semester 3 Psychology Degree Student (starting October 2023 Trimester) studying at University Tunku Abdul Rahman (UTAR)." This is to ensure that there are no duplicate participants who responded to our pilot study.

The collection of the responses started from 27th October until 13th November. The distribution of the survey is done by sharing the link through social media as we did for the pilot study. After the data had been collected, we analyzed the data using SPSS, and the result is discussed in Chapter 4.

3.5 Instruments

Other than the collection of demographic information, three instruments will be utilized to study the relationship between the variables of selfie behavior, self-objectification, and body esteem. The scale that will be adopted is the Selfitis Behavior Scale (SBS), the Body-Esteem Scale for Adolescents and Adults (BESAA), as well as Self-Objectification Belief and Behavior Scale (SOBBS).

3.5.1 Selfitis Behavior Scale

The Selfitis Behavior Scale was formulated by Balakrishnan and Griffiths in 2018. The scale comprises a total of 20 items looking into the factors involving environmental

enhancement, social competition, attention seeking, mood modification, self-confidence, and subjective conformity in influencing the tendency and obsession for individuals to engage in selfie behavior. Four questions were asked on the domains of environmental enhancement and social competition while three questions were asked for the other domains. Participants rate their response on a 5-point Likert scale where 5 = *strongly agree*; 4 = *agree*; 3 = *neither agree or disagree*; 2 = *disagree* and 1 = *strongly disagree*. There are no reversed items in the scale and the score is calculated by summing up the total score. A higher score indicates a greater likelihood of selfitis (Balakrishnan & Griffiths, 2018).

Even though it is a relatively new scale, the scale is evidently to be valid and reliable. Each of the six factors is found to be exceeding Cronbach's alpha of .70. Besides, a Cronbach's alpha of 0.88 is tested for the overall scale proving a good internal consistency of the scale. Not to mention, the requirement of content validity, convergent validity, and discriminant validity of the construct is also met. A confirmatory factor analysis is conducted to test the content validity of the scale. The analysis found that the items on the scale displayed significant loadings of standardized values exceeding .60 which confirms the content validity of the scale. The average variance extracted (AVE) of each factor is investigated to check on the convergent validity of the scale and found that the condition is met as all of the values of AVE were more than .50. Lastly, the discriminant validity of the construct was established as the squared root of AVE values was found to be more than the squared correlation of respective constructs (Balakrishnan & Griffiths, 2018).

3.5.2 Body-Esteem Scale for Adolescents and Adults (BESAA)

The Body-Esteem Scale for Adolescents and Adults, created by Mendelson et al. (1997) is an adaption of a Body-Esteem Scale for Children by Mendelson & White (1982). The scale measures body esteem in three factors including BE- appearance (one's overall

feeling about their appearance), BE-Weight (one's satisfaction with their weight), and BE-Attribution (evaluation that was reviewed by others on one's body and appearance). There are 23 items in total with 10 items measuring BE-appearance, eight items measuring BE-Weight, and five items measuring BE-Attribution. The response of the scale is indicated with a 5-point Likert scale where *0 = never; 1 = seldom; 2 = sometimes; 3 = often and 4 = always*. There are nine reversed scored items (items 4, 7, 9, 11, 13, 17, 18, 19, 21). The scoring of the scale is calculated by first recoding the reversed items and summing up all of the items. A higher score indicates a higher body esteem (Mendelson et al., 2001).

The BESAA displays high internal consistency where each factor displayed a Cronbach value of more than .80. Specifically, BE-Appearance, BE-Weight, and BE-Attribution are found to have Cronbach's $\alpha = .92$, $\alpha = .81$, and $\alpha = .94$ respectively. In addition, the scale is found to provide high test-retest reliability with $r(95) = .89$; $r(95) = .92$ and $r(95) = .83$ respectively. The scale also demonstrated high convergent validity when compared to similar scales such as the Rosenberg Self-Esteem Scale or the Global Self-Worth subscale of the Self-Perception Profile for College Students (Mendelson et al., 2001).

3.5.3 Self-Objectification Beliefs and Behaviors Scale (SOBBS)

Self-Objectification Beliefs and Behavior Scale (SOBBS) is developed by Lindner and Tantleff-Dunn (2017). The SOBBS measures self-objectification in two dimensions. The first dimension measures how one adopts and internalizes others' perception of one's body while the second dimension assesses the magnitude of individuals prioritizing their body appearance while downplaying the capabilities and feelings towards their bodies. The scale has 14 items in total, with seven items for each factor. The scale adopted a 5-point Likert scale where *1 = strongly disagree; 2 = disagree; 3 = neither agree nor disagree; 4 = agree and 5 = strongly agree*. The calculation of scores is done by adding up the scores

of all of the items. A higher score interprets a higher level of self-objectification (Lindner & Tantleff-Dunn, 2017).

SOBBS demonstrated a high internal consistency with a value of .92. The scale is found to have a positive correlation when compared with similar scales which are the Self Objectification Questionnaire (1998) and the subscale of body surveillance from the Objectified Body Consciousness Scale (1997), which indicates a good convergent validity. Discriminant validity is evident as the scale was found to be unrelated to narcissism when compared to Narcissistic Personality Inventory (2006). The test-retest reliability of the scale is also established with a value of .89 for the total scale (Lindner & Tantleff-Dunn, 2017)

3.5.4 Demographic information

Demographic information of participants is acquired in the last section of the questionnaire. The questions about their age, ethnicity, education institution, year of study, relationship status, weight, and height were asked in this section. Participants' ethnicity is posed as a close-ended question with choices of "Malay", "Chinese", "Indian", and the short answer option for "others". Similarly, the relationship status of the participants is a close-ended question, with the choice of "Single", "In a relationship but not married yet", "Married", "Divorced" and "Widowed". The age of the participants is in a multiple-choice question where the option from 18 to 29 is provided. Additionally, the education institutions, year of study, nationality, weight, and height of the participants are asked as an open-ended question.

Chapter 4

Results

4.1 Pilot Study

The collection of the survey for the pilot study is from the 12th of October until the 23rd of October. According to our inclusion criteria, 39 responses were collected. However, upon organizing the data, 1 response did not give their consent to process their data, 15 responses were found to be incomplete, and 1 response was found to be invalid as all of their chosen rating scales were “5” including reversed scored items. With that said, only 22 responses were used to analyze the reliability of the scales.

SPSS is used to conduct the statistical analysis and the method of Cronbach alpha coefficient is used to assess the reliability of the scales. It is found that all of the scales are calculated with a value of $\alpha > .70$ which is within the acceptable to high reliability range (Cronbach, 1951). As seen in Table 1, the Selfitis Behavior Scale, Body Esteem Scale for Adolescent and Adult, and Self-Objectification Beliefs and Behaviors Scale is found to have the value of $\alpha = .92$, $\alpha = .77$ and $\alpha = .92$ respectively as analyzed from the 22 responses (see Appendix E1 to E3 for SPSS output) while the reliability for the scales as analyzed from the 169 responses are $\alpha = .94$, $\alpha = .80$ and $\alpha = .92$, respectively (see Appendix F1 to F3 for SPSS output).

Table 1

Reliability of the scales

Scales	N of items	Cronbach's Alpha (N = 22)	Cronbach's Alpha (N = 169)
Selfitis Behavior Scale (SBS)	20	.92	.94

Body Esteem Scale for Adolescent and Adult (BESAA)	23	.77	.80
Self- Objectification Beliefs and Behaviour Scale (SOBBS)	14	.92	.92

4.2 Actual Study

4.2.1 Missing Data

The collection of the survey for the actual study started on the 27th of October until the 13th of November. 270 responses were collected in total. When organizing the data, it was found that 22 responses were included in the exclusion criteria, 92 responses were incomplete, and 9 participants rejected the consent to process their data. As such, a total of 147 responses were yielded. Combined with the responses collected from the pilot study, a total of 169 responses were used for our hypothesis analysis.

4.2.2 Descriptive Statistics

As stated in Chapter 3, our topic-specific samples are female between the ages of 18 to 29 who is currently an undergraduate studying at a University in Malaysia. A total of 169 undergraduate females were recruited. More than half of the participants are from UTAR (59.2%), while the others are from 36 various institutions such as TARUMT, Sunway University, INTI, Taylor's University, and XMUM. See Appendix G for the full list of universities listed by the participants and the frequency of their current semester. The mean age of the participants is 21.89 ($SD = 2.00$) with the youngest age of 18 ($n = 2$) and the oldest age of 29 ($n = 1$). As illustrated in Table 2 below, most of the participants are at the age of

22, (n = 41). Regarding the nationality of the participants, the majority of the participants were Malaysian, making up 89.3% while the other 10.7% were Chinese. In addition, the ethnicity of the participants consists of Chinese, Malay, and Indian with the percentage of 91.1%, 5.9%, and 3.0% respectively. A large percentage of the participants were also stated to be single (72.2%) and 27.2% stated that they are in a relationship but not married yet while 0.6% of the participants stated that they are married (see Appendix H for SPSS output for participants' demographic information).

Table 2

Demographic Information of the Participants

Categories	Sub-Categories	N	%
Age	18	2	1.2
	19	11	6.5
	20	32	18.9
	21	26	15.4
	22	41	24.3
	23	36	21.3
	24	10	5.9
	25	3	1.8
	26	1	0.6
	27	3	1.8

	28	0	0
	29	4	2.4
Ethnicity	Malay	10	5.9
	Chinese	154	91.1
	India	5	3.0
Relationship Status	Single	122	72.2
	In a relationship but not married yet	46	27.2
	Married	1	0.6
Nationality	Chinese	18	10.7
	Malaysian	151	89.3

Besides, participant's weights and heights were recorded as well. The range of the listed weight and height among the participants are between 38-98 kg and 120-186 cm, respectively. See Appendix I for the list of participants' weight and height.

4.2.3 Data Diagnostic

Histogram & Q-Q Plots

The histogram of all of the variables (selfie behavior, self-objectification, and body esteem) illustrated normal distribution (see Appendix J1 to J3). Furthermore, the Q-Q plots of the variables are also observed to not stray significantly from the diagonal line (see Appendix K1 to K3). Thus, no violation of normality is found in both histogram and Q-Q plots.

Kolmogorov-Smirnov (K-S) Tests

The variable of selfie behavior and body esteem is established to be not significant, with the value of $D(169) = .04, p = .20$, and $D(169) = .07, p = .06$, which adheres to normality. However, the variables of self-objectification are found to be significant, with the calculated value of $D(169) = .08, p = .01$, indicating a deviation from normality (see Appendix L).

Skewness and Kurtosis

It is indicated that the acceptable range for skewness and kurtosis is within +2 to -2 (George & Mallery, 2010). As evident in Appendix M, variables of selfie behavior, body esteem, and self-objectification consist of the value of -.08, .46, and -.18, respectively for skewness, as well as the value of -.10, .14, and .10 respectively for kurtosis. As all of the variables are within this range, there is no violation of normality.

Normality Tests

Normality tests of histograms, Q-Q plots, Kolmogorov-Smirnov tests, skewness, and kurtosis are conducted. Other than the violation of K-S tests for the variable of self-objectification, the other tests demonstrated no breach of normality. It is concluded that the normality assumptions of the study are achieved as all of the variables achieved at least 4 no violations of normality.

4.2.4 Data Analysis

Assumption of Multiple Linear Regression

Independence of Error

The assumption of independence of error is measured using Durbin Watson's test and the acceptable range of error is within 1 to 3. As seen in Appendix N, the value is calculated to be 2.16. Therefore, no violation of the assumption is made.

Multicollinearity

Tolerance and Variance Inflation Factor (VIF) is used to assess the assumption of multicollinearity. It is indicated by Daoud (2017) that the assumption of multicollinearity is only achieved when the value of tolerance is higher than .10 while Myers (1990) suggested the value of VIF of less than 10. As evident in Appendix O, the value of tolerance is analyzed to be .71 while the value of 1.41 is calculated for VIF. Thus, this assumption is achieved.

Normality of residual, linearity, and homoscedasticity

The normality of residual, linearity, and homoscedasticity is analyzed with a scatterplot. It is observed that the residuals consist of a random and uniform pattern as seen along the horizontal line as portrayed in Appendix P. Therefore, the assumption of residual, linearity, and homoscedasticity is adhered to.

Outliers and Influential Cases

The case-wise analysis found 6 cases (cases 5, 10, 56, 80,150, and 162) as potential outliers as seen in Appendix Q. As such, Cook's distance, Leverage, and Mahalanobis Distance are used to determine if these cases are considered influential cases. To determine if the cases are considered outliers, Cook and Weisberg (1982) suggested that cases with a value of more than 1 are potentially an outlier. Leverage is calculated according to the formula, and it is recommended by Steve (1992) that cases may be considered as an outlier with values more than 3 times the calculated leverage (see Appendix R for the calculation). Furthermore, a value of more than 15 is considered an outlier in terms of the value of Mahalanobis Distance. As seen in Appendix S, all of the individual cases did not violate any of these tests. With that being said, the assumptions of multiple linear regression are all met and none of the cases are removed.

Regression Analysis

Regression analysis was performed to analyze H1 to H3 (as indicated in Chapter 1)

where the relationship between the variables is examined.

In the first regression model, selfie behavior and self-objectification were added to test its predicting effect on body esteem. The model was found statistically significant, $F(2,166) = 21.61, p < .001$, and accounted for 20.7% of variance. This indicated that 20.7% of the variability in body esteem is explained by selfie behavior and self-objectification. Based on H1, it was hypothesized that selfie behavior negatively predicts body esteem among female undergraduates in Malaysia. Based on the analysis, it was investigated that there is a significant effect between selfie behavior and body esteem ($\beta = .42, p < .001$). Therefore, contradicting to our hypothesis, it was demonstrated that selfie behavior positively predicts body esteem. As such, hypothesis 1 is not supported. For H2, it was hypothesized that self-objectification negatively predicts body esteem among female undergraduates in Malaysia. The result demonstrated that self-objectification negatively predicts body esteem, $\beta = -.35, p < .001$. That being said, hypothesis 2 is supported (see Appendix T for H1 and H2).

In the second regression model, selfie behavior was added to test its predicting effect on self-objectification. It was analyzed that the model is significant, $F(1,167) = 68.37, p < .001$, and are accounted for 29% of variance. This illustrated that 29% of the variability in self-objectification is explained by selfie behavior. Looking into H3, it was hypothesized that selfie behavior positively predicts self-objectification among female undergraduates in Malaysia. It was found that self-objectification is positively predicted by selfie behavior, $\beta = .37, p < .001$. Therefore, hypothesis 3 is also supported (see Appendix U).

Mediation Analysis

The mediation analysis of PROCESS macro is used to investigate H4, where it was hypothesized that self-objectification has a mediation effect from selfie behavior to body esteem. Kenny and Baron (1986) suggested that the classical approach for mediation analysis consists of the assumption that Path A and Path B are significant as well as the significance

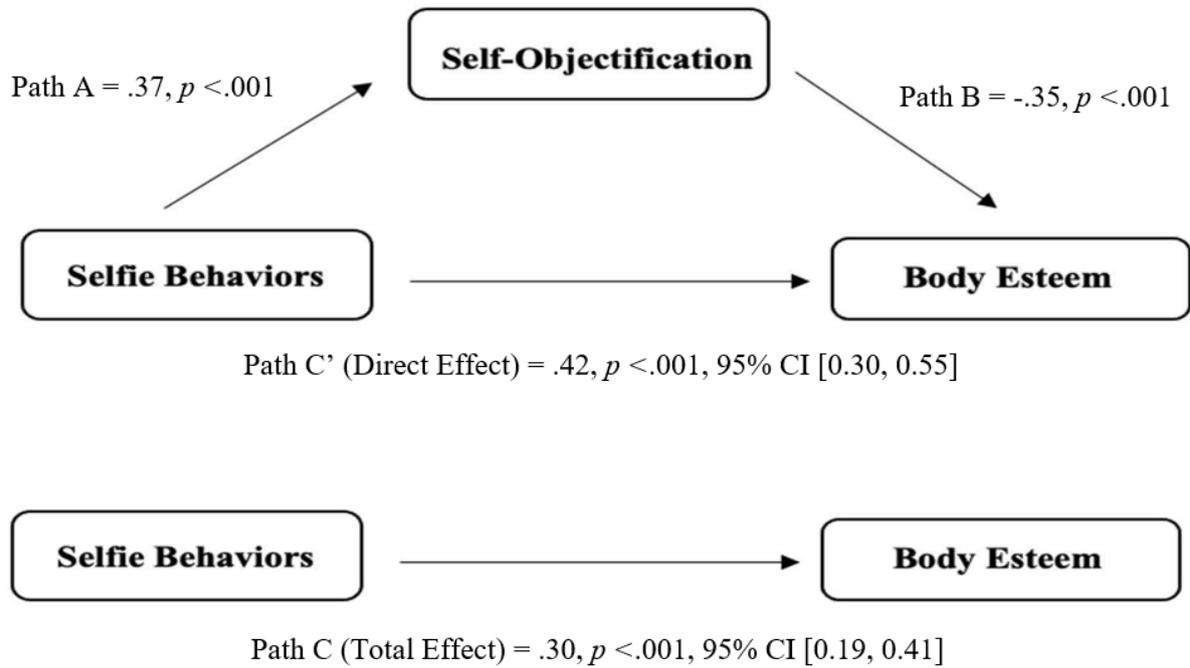
of Path C and C' should be different and that the coefficient of Path C' should be closer to 0 than Path C (MacKinnon et al., 2000).

Through the analysis, the overall model for Path A is found to be significant, $F(1,167) = 68.37, p < .001, R^2 = .29$, and there is a positive relationship between the variables, $\beta = .37, t(167) = 8.27, p < .001, 95\% \text{ CI } [0.28, 0.45]$. Similarly, Path C portrayed a significant overall model, $F(1,167) = 28.00, p < .001, R^2 = .14$, where selfie behavior positively predicted body esteem, $\beta = .30, t(167) = 5.29, p < .001, 95\% \text{ CI } [0.19, 0.41]$. In addition, the overall model of Path B and Path C' is found significant, $F(2,166) = 21.61, p < .001, R^2 = .21$. Specifically for Path B, self-objectification is found to negatively predict body esteem, $\beta = -.34, t(166) = -3.63, p < .001, 95\% \text{ CI } [-0.53, -0.16]$ while Path C' demonstrates the direct effect where selfie behavior positively predicted body esteem, $\beta = .42, t(166) = 6.57, p < .001, 95\% \text{ CI } [0.30, 0.55]$ (see appendix V1 to V4).

As such, the assumption of Path A and Path B to be significant is achieved. However, it is found that Path C' has a larger coefficient ($\beta = .42, p < .001, 95\% \text{ CI } [0.30, 0.55]$) compared to Path C ($\beta = .30, p < .001, 95\% \text{ CI } [0.19, 0.41]$) and that both paths are found to be significant. Thus, it was analyzed that there is a partial mediation effect where the effect of selfie behavior on body esteem is partially mediated by self-objectification. Specifically, a competitive mediation effect is taking place as the pathways of A and B indicated an opposite direction (Zhao et al., 2010). In conclusion, hypothesis 4 is supported but only partially. See Figure 2 for the mediation analysis summary.

Figure 2.

Mediation Analysis Summary



Chapter 5

Discussion and Conclusion

5.1 Constructive discussion of findings

H1: Selfie behavior negatively predicts body esteem among female undergraduates in Malaysia.

Based on the result of the present study, the first hypothesis was not supported, whereby the result showed selfie behavior positively predicts body esteem among female undergraduates in Malaysia. The current findings tally with some past studies inferring that selfie behavior has a statistically significant and positive impact on body esteem (Dutta et al., 2018; Felig & Goldenberg, 2023; Kim, 2020), but still contrary to part of them. Notably, selfie behavior includes various aspects of selfie activities as a whole which may contribute to the different results yielded from past studies: selfie-posting and selfie-talking are more likely to improve an individual's positive body image (Felig & Goldenberg, 2023; Veldhuis et al., 2020) while people who often edit and view selfie picture are more like to negatively perceive their body image (Chang et al., 2019; Ozimek et al., 2023). In this day of advanced networks, female undergraduates in Malaysia engage on social media regularly by snapping, sharing their photos, and liking other's selfies.

As Veldhuis et al. (2020) stated, female undergraduates actively engage in selfie-posting on social media to receive positive responses and reinforcement, such as likes and comments on their appearance. Female undergraduates with more selfie behavior since engaging in those activities help them experience positive self-confirmation and self-worth enhancement and thus increase their overall body esteem. Moreover, this positive feedback-driven enhancement is further supported by a meta-analysis conducted by Felig and Goldenberg (2023), which underscores the important role of positive self-evaluations in shaping the connection between the two variables. On the other hand, an experiment

conducted by researchers (Chang et al., 2019; Kim, 2020) revealed that female undergraduates in specific demographic groups, particularly those in less favorable circumstances or with a lower desire for popularity, may strategically share selfies to receive positive feedback from peers, and further boosting their body esteem through this (Chang et al., 2019).

In the context of selfie editing, Ozimek et al. (2023) found that it functions as a form of self-verification by matching an individual's self-image with desired ideals. Improving one's appearance through meticulous editing and emphasizing positive features contributes to a better body image. Positive illusion theory (Taylor & Armor, 1996) further explains this phenomenon, suggesting that how individuals present themselves and express their identity has a positive impact on how they perceive their body image. Due to the inherent imperfections of human beings, fixating excessively on flaws can lead individuals to overlook their shining points. Therefore, the selection and manipulation of selfies in line with personal preferences may contribute to cultivating a more positive body image in the short term. Put differently, female undergraduates who actively engage in digital socialization on social media, are heavily influenced by peers as peers are in their immediate environment (i.e., university, close friends on social media platforms). They intentionally share selfies that align with their preferences, and aim to foster a positive body image in the short term.

On the other hand, the ethnic background of participants could also play a role in shaping the connection between selfie behavior and body image. While limited research has delved into this realm, existing studies have indicated ethnic variations concerning body dissatisfaction, body shame, and body surveillance, primarily within Western contexts involving White, Black, and Hispanic individuals (Higgins et al., 2015; Warren et al., 2005; Schaefer et al., 2018). These differences may signify varying ideals of body image and social beauty standards among different ethnic groups, potentially influencing their body esteem.

Notably, there's a scarcity of studies based on the Asian or Southeast Asian context. A current study might offer a potential direction based Chinese context, which pointed out that the changing definitions of gender roles, women's identity, and social pressures placed on women's physical appearance might matter (Jung, 2018). Given that our study specifically focuses on female undergraduates in Malaysia, comprising 100% Asians, it might consider the contribution of sociocultural factors in measuring the impact between selfie behavior and body esteem.

H2: Selfie behavior negatively predicts body esteem among female undergraduates in Malaysia.

The findings of the present study supported the second hypothesis, indicating that self-objectification negatively predicts body esteem among female undergraduates in Malaysia. This study confirmed and expanded the existing understanding that a greater occurrence of self-objectification could contribute to lower body esteem among female undergraduates. The current findings are aligned with past studies, which suggested that higher instances of self-objectification could contribute to lower body esteem among female undergraduates (Lyu et al., 2023; Tylka & Sabik, 2010; Varnes et al., 2015).

According to Kim (2020), females with a high need for popularity may engage in self-objectification, aligning their behavior with societal beauty standards, which can have implications for body esteem. Put differently, the continuous pursuit of validation through social media can lead to body dissatisfaction and lower self-esteem (Lyu et al., 2023). Moreover, this claim is further strengthened by Tylka & Sabik (2010) pointed out that women who prioritize their appearance are often more attentive to the physical appearance of other women and may engage in comparisons between others' looks and their own. Engaging in body comparisons not only redirects their focus to their own bodies but also contributes to the objectification of other women's bodies, resulting in heightened body surveillance (Tylka

& Sabik, 2010). This phenomenon could be explained by objectification theory. According to Varnes et al. (2015), the process of self-objectification characterized by internalization and body surveillance, is linked to heightened feelings of body shame and anxiety. This is particularly evident when female undergraduates receive negative comments after sharing selfies on social media. Thus, self-objectification has the potential to foster negative body image by way of internalization of societal beauty standards and constant body surveillance (Varnes et al., 2015).

Adding on, in contemporary society, a prevalent occurrence involves peer pressure urging females to adhere to thin ideals, leading to dissatisfaction with their bodies. This peer influence can be linked to self-objectification, where females internalize external viewpoints and continuously judge themselves based on these ideals, resulting in diminished body esteem (Kenny et al., 2016). Additionally, this occurrence is supported by a study conducted by Michael et al. (2013), emphasizing that the impact of both positive and negative peer support is associated with body image discrepancies. Thus, the findings are consistent with the results of this study, higher instances of self-objectification could contribute to lower body esteem. Put differently, female undergraduates frequently navigate a heightened social environment where the convergence of peer pressure, academic pressures, and the pervasive influence of social media forms a distinct backdrop. This unique context may foster self-objectification, potentially resulting in heightened body dissatisfaction and lower self-esteem among female undergraduates.

H3: Selfie behavior positively predicts self-objectification among female undergraduates in Malaysia.

With respect to the third research question, it was found the effect of selfie behavior on an individual's self-objectification level, which supported our third hypothesis as we expected. The more selfie behavior undergraduate students are involved in, the higher the

self-objectification level they will get in Malaysia. This finding follows the majority of evidence in recent years about the generally positive relationship between selfie activities (including selfie-posting, selfie-editing, and selfie-taking) and self-objectification (Caso et al., 2020; Fardouly et al., 2017). This Social Comparison Theory (Festinger, 1954) might explain this phenomenon by positing that individual might have an initial drive to evaluate their own appearance frequently, and body image through comparisons with others when they engage in selfie behavior, to determine their progress and standing online. The upward social comparison emerges as a prevalent motivation for young females on social media platforms, as evidenced by recent research (Lyu et al., 2023). In the context of Malaysia, female undergraduates actively participate in daily selfie activities, using this practice to compare themselves to others whom they perceive to be in more favorable circumstances.

Consequently, this comparison-derived selfie behavior contributes to heightened self-objectification, as individuals evaluate their bodies from an observer's perspective, aligning with findings from prior studies (Wang et al., 2019). Beyond passive self-objectification, there is a potential for active self-objectification among female undergraduates. Those who actively engage in selfie activities, such as posting selfie photos, may perceive their bodies as objects, as they need to seek validation through the accumulation of "likes" and positive comments from others on their body image (Chen et al., 2023). In their pursuit of external validation, female undergraduates may resort to additional behaviors, including image editing and strategic self-presentation, further intensifying their self-objectification.

H4: Self-objectification has a mediation effect from selfie behavior to body esteem.

Regarding the mediation effect, our finding indicated a significant influence of self-objectification in the interplay between selfie behavior and body esteem among female undergraduates in Malaysia as hypothesized. Notably, based on the competitive mediation state, the sequential nature of the effects suggests the specific order of variables engaged:

female undergraduates in Malaysia engaging in selfie behavior may subsequently experience self-objectification, further influencing their body esteem. In other words, a high self-objectification female undergraduate might only absolutely have low body esteem as the high level of self-objectifying is caused by a high level of selfie activity engagement. However, selfie behavior will negatively predict body esteem only when self-objectification is engaged. The female undergraduate who is frequently involved in selfie behavior will directly have higher body esteem without the self-objectification in between. In other words, the potential boost in body esteem linked to some selfie behavior may be diminished or even reversed when individuals shift towards evaluating their own bodies from an observer's perspective.

This finding is basically in accordance with previous studies based on objectification theory in the past decade (Cohen et al., 2017; Varnes et al., 2015; Wang et al., 2021; Yu et al., 2022). Due to digital social networks, taking and posting their selfies, and viewing other's selfies on social media is a common way for female undergraduates to interact with their peers. This social interaction is notably pronounced during the unique developmental stage of young adulthood, where female undergraduate is particularly attuned to concerns about their physical appearance and body image. Female undergraduates who actively engage in selfie behavior could be a sign that they objectify themselves as an object as they highly focus on their physical appearance such as editing their body to the ideal image, sharing their body image, and seeking affirmation from others on their body image (Cohen et al., 2017; Wang et al., 2021). Self-objectified behavior of female undergraduates requires them to constantly monitor their body image in a distorted way as they internalize the beauty standards (Varnes et al., 2015); thus leading to lower body esteem.

A note of caution is due here since the direct effect of selfie behavior on body esteem remains strong, and even shows more statistical significance than the mediation effect. The results might imply that other mechanisms or factors beyond self-objectification could

contribute to the relationship between selfie behavior and self-objectification. For example, a study by Gurtala & Fardouly (2023) on the relationship between viewing ideal content in social media and young females' body image indicated that the influence of perceived enhancement of content mediated in between. The more they consider the content to be edited, the less unfavorable the influence on their body image (Gurtala & Fardouly, 2023). It might suggest the role of the perceived gap between the ideal body and the real self which might influence the impact of selfies on an individual's body esteem.

5.2 Implication

Theoretical and Knowledge Implications

The study introduces and tests a novel mediator model, examining the role of self-objectification in mediating the relationship between selfie behavior and body esteem, which is able to fill the significant research gap in undergraduate students with the foundational support of the Objectification Theory. Also, our finding indicated that higher selfie engagement led to higher self-objectification level and further predict lower body esteem, which aligns with Objectification Theory. While these results reinforce support for the Objectification Theory, they validate the theoretical framework provided in understanding the intricacies of the proposed mediating model among female undergraduates in Malaysia.

In addition to theory implication, the findings of this study contribute knowledge to the current literature pool. The competitive mediation effect in this model challenges a simplistic view of causality and suggests a more nuanced understanding of the connection between the above-mentioned variables: Engaging in selfie behavior itself may have a positive impact on the body esteem of female undergraduates, whereas self-objectification resulting from selfie behavior could potentially lead to a negative effect on the body esteem of female undergraduates. But in other words, while selfie behavior alone may predict heightened body esteem, the positive relationship between selfie behavior and body esteem is counteracted

when individuals engage in self-objectification that is induced by a higher level of selfie activity. This finding might provide a new direction for future studies to further research about this phenomenon. Meanwhile, the partial mediation also suggested the greater direct effect of selfie behavior on body esteem than the mediating effect of self-objectification, which is also able to serve as a reference for future researchers to investigate multifaceted factors influencing the relationship between selfie behavior and body esteem for future studies.

Regarding the relationship between self-objectification and body esteem, the present study effectively demonstrates the adverse connection, establishing that increased self-objectification predicts diminished body esteem in female undergraduates in Malaysia. This contribution bridges a knowledge gap on using body esteem as a separate variable in investigating the relationship between self-objectification and body-related concerns. And it might stand as a valuable reference for following research endeavors aiming to delve deeper into this relationship.

Practical implication

From a practical standpoint, the study's results emphasize the importance of educational interventions designed to enhance body esteem among female undergraduates in Malaysia, taking into account both the direct influence of selfie behavior and the potential negative effect of self-objectification. For example, the educational intervention could incorporate modules that promote positive self-perception related to selfie behavior. At the same time, educational programs may address the potential negative consequences of self-objectification by providing strategies for fostering self-compassion and cultivating a healthy self-image independent of validation from external parties. In the context of Malaysia's multicultural environment, while the nuances may not be substantial, the interventions still need to ensure relevance and effectiveness within the diverse ethnicities of female undergraduates. This

might involve tailoring educational modules based on their beauty preference and matching their idea to make them more acceptable among certain ethnicities.

Moreover, our findings underscore the necessity of implementing social media-related interventions aimed at reshaping the motivations behind selfie engagement among female undergraduates in Malaysia. As our finding stated, once a selfie leads to self-objectifying, body esteem will decrease. Given the inherent connection between selfie behavior and social media, changing the perception of selfie purposes on social media becomes pivotal. In an environment where the pursuit of the flawless self aligns with societal beauty standards, self-objectification appears inevitable. The corrective intervention should strategically promote diverse selfie purposes, fostering an environment that encourages individuals to express themselves authentically. For example, modifying the algorithm to split more flow and exposure to selfies that aren't perfect but show their body naturally and confidently. Thus, mitigating the impact of objectification and creating a more positive space for self-representation and body esteem.

Last but not least, recognizing the impact of selfie-related activities on body esteem through self-objectification holds the potential to empower women to critically evaluate their engagement in selfies. While the act of taking selfies itself may not be inherently harmful and can even contribute to improved body esteem, the negative shift occurs when selfie behavior triggers self-objectification. In light of this, individuals can proactively heighten their awareness of how they perceive online information, especially regarding societal norms related to appearance and beauty standards, prompting them to make wise choices. In short, the present study might help female users, particularly undergraduates, navigate digital spaces more consciously, fostering a sense of agency in shaping their self-perception and body esteem in the face of prevalent selfie behavior influences.

5.3 Limitation

The present study acknowledges and considers its limitations, with one potential constraint arising from a language barrier. The majority of respondents 91.1% were Chinese and English might not be their primary language. The decision to employ the English version of the questionnaire was grounded in careful consideration of Malaysia's multilingual landscape. With a diverse population encompassing Malay, Chinese, and Indian ethnicities, where English holds significant prominence in educational and professional domains alongside Malay, Chinese, and Tamil, it was deemed a language commonly present in the linguistic repertoire of the respondents (Dixon, 2018). This language discrepancy could result in difficulties comprehending certain questionnaire items containing abstruse terms, potentially impacting the accuracy of respondents' answers (Wenz et al., 2020). Respondent feedback underscores a significant concern, as illustrated by the question 'I take selfies as trophies for future memories.' This case exemplifies a challenge, as individuals with limited English proficiency may struggle to grasp the term 'trophies,' leading to a potential misunderstanding. Therefore, it may influence the accuracy of their responses.

Besides, utilizing an internet-based self-report questionnaire for data collection introduces a potential limitation, as response biases may impact result accuracy. Social desirability bias is a common occurrence in self-report questionnaires, where respondents tend to answer questions in a way that portrays them favorably to others, rather than providing the truth about their actual situation (Latkin et al., 2017). Consequently, participants may not offer entirely honest responses in the questionnaire.

Lastly, a limitation of the current study is the utilization of a cross-sectional design. This design fails to establish a causal relationship between independent and dependent variables as the data was collected at a single point in time, making it less suitable for making predictive claims (Hamaker & Mulder, 2020). To be more precise, the cross-sectional nature

of the design precludes the investigation of future changes in selfie behavior, self-objectification, and body esteem.

5.4 Recommendation

To address the mentioned limitations, several recommendations can be proposed. First, to overcome the language barrier, future researchers can integrate multilingual versions of the questionnaire. Given Malaysia's diverse ethnic makeup, which includes speakers of Malay, Chinese, Tamil, and English, validating these versions within the local population would be advantageous.

Furthermore, future researchers can try different ways to collect data such as interviews or observational measures alongside self-report questionnaires. Compared to relying on surveys, these strategies hold the potential to offer a more comprehensive examination of study variables. One of the reasons is its ability to decrease the effect of social desirability bias where the respondents might not give completely honest answers on self-report questionnaires. Interviews provide a platform for open-ended exploration such as "How" and "Why" which allows researchers to examine respondents' experiences and motivations that the questionnaire might overlook (Tenny et al., 2022). This approach allows for a richer understanding of the intricate factors influencing selfie behavior, self-objectification, and body esteem. For example, interviews could reveal subtle cultural or societal influences unique to Malaysia, influencing why female undergraduates perceive and engage with selfies and how this interaction affects their body esteem, including self-objectification. Aside from that, future researchers can cross-verify responses and contribute to minimizing the impact of social desirability bias by employing a combination of interviews and observational measures alongside self-report questionnaires.

Lastly, future researchers can consider using a longitudinal study design to examine behavioral changes over an extended period. Compared to the cross-sectional design, this

design excels in creating a clear timeline between selfie behavior (predictor) and body esteem (outcome), as it allows continuous observation and data collection from the same target sample for an extended duration (Thiese, 2014). This method allows researchers to observe how selfie behavior, self-objectification, and body esteem evolve among female undergraduates. Moreover, it is good in capturing the dynamic nature of behavioral changes which provides valuable insights into individual differences and developmental trends (Jung et al., 2020). Consequently, the study not only deducts the impact of confounding factors but also enhances precision in illustrating how selfie behavior is connected to body esteem. Thus, by tracking changes longitudinally, researchers can establish causal relationships and better understand the temporal aspects of the relationship between selfie behavior, self-objectification, and body esteem.

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Appendix A: Monte Carlo Sample Size Analysis

Model One Mediator

Objective Set Power, Vary N

Target Power

Minimum N

Maximum N

Sample Size Steps

of Replications

Monte Carlo Draws per Rep

Random Seed

Confidence Level (%)

```

graph LR
    X -- a --> M
    M -- b --> Y
    X -- c' --> Y
            
```

To use this app, follow these steps:

- Select Model.** The user should first select the mediation model containing the indirect effect(s) of interest. Models may be selected in the drop-down menu in the left-most column of the app. Note that when a different mediation model is selected, the model graphic and input-value sections in the middle column will be altered.
- Select Objective.** Once the desired model is chosen, the user should select the

Input Method Correlations

	X	M	Y
X	1.00		
M	<input type="text" value="0.30"/>	1.00	
Y	<input type="text" value="0.30"/>	<input type="text" value="0.30"/>	1.00
Std. Deviation	<input type="text" value="1.00"/>	<input type="text" value="1.00"/>	<input type="text" value="1.00"/>

Calculate Power

ab	152.00	0.76	0.79	0.82
ab	<input type="text" value="153.00"/>	<input type="text" value="0.76"/>	<input type="text" value="0.80"/>	<input type="text" value="0.83"/>
ab	154.00	0.77	0.80	0.83
ab	155.00	0.77	0.81	0.84
ab	156.00	0.78	0.81	0.84

Should the students collect personal data of participants in their studies, please have the participants sign the attached Personal Data Protection Statement for records.

Thank you.

Yours sincerely,



Professor Ts Dr Faiz bin Abd Rahman
Chairman
UTAR Scientific and Ethical Review Committee

c.c Dean, Faculty of Arts and Social Science
 Director, Institute of Postgraduate Studies and Research



Appendix C: Pilot Study Survey

Greetings, We are students of University Tunku Abdul Rahman (UTAR) Kampar campus, pursuing a Bachelor of Social Science (Honours) Psychology. We are currently working on our Final Year Project (FYP) entitled " The Mediation Effect of Self-objectification from Selfie Behavior to Body Esteem: A Relationship Between Selfie-Behavior, Self-objectification, and Body Esteem Among Female Undergraduates in Malaysia ". The purpose of this study is to collect data measuring the selfie behavior, self-objectification, and body esteem scale among **female undergraduates in Malaysia.**

PERSONAL DATA PROTECTION NOTICE

Please be informed that in accordance with Personal Data Protection Act 2010 ("PDPA") which came into force on 15 November 2013, Universiti Tunku Abdul Rahman ("UTAR") is hereby bound to make notice and require consent in relation to collection, recording, storage, usage and retention of personal information.

1. Personal data refers to any information which may directly or indirectly identify a person which could include sensitive personal data and expression of opinion. Among others it includes:

- a) Name
- b) Identity card
- c) Place of Birth
- d) Address
- e) Education History
- f) Employment History
- g) Medical History
- h) Blood type
- i) Race
- j) Religion
- k) Photo
- l) Personal Information and Associated Research Data

2. The purposes for which your personal data may be used are inclusive but not limited to:

- a) For assessment of any application to UTAR
- b) For processing any benefits and services
- c) For communication purposes

- d) For advertorial and news
- e) For general administration and record purposes
- f) For enhancing the value of education
- g) For educational and related purposes consequential to UTAR
- h) For replying any responds to complaints and enquiries
- i) For the purpose of our corporate governance
- j) For the purposes of conducting research/ collaboration

3. Your personal data may be transferred and/or disclosed to third party and/or UTAR collaborative partners including but not limited to the respective and appointed outsourcing agents for purpose of fulfilling our obligations to you in respect of the purposes and all such other purposes that are related to the purposes and also in providing integrated services, maintaining and storing records. Your data may be shared when required by laws and when disclosure is necessary to comply with

applicable laws.

4. Any personal information retained by UTAR shall be destroyed and/or deleted in accordance with our retention policy applicable for us in the event such information is no longer required.

5. UTAR is committed in ensuring the confidentiality, protection, security and accuracy of your personal information made available to us and it has been our ongoing strict policy to ensure that your personal information is accurate, complete, not misleading and updated. UTAR would also ensure that your personal data shall not be used for political and commercial purposes.

Consent:

6. By submitting or providing your personal data to UTAR, you had consented and agreed for your personal data to be used in accordance to the terms and conditions in the Notice and our relevant policy.

7. If you do not consent or subsequently withdraw your consent to the processing and disclosure of your personal data, UTAR will not be able to fulfill our obligations or to contact you or to assist you in respect of the purposes and/or for any other purposes related to the purpose.

8. You may access and update your personal data by writing to us at:

- Kristin Tan Mei Ping (kristintmp@1utar.my)
- He Jing (hejing@1utar.my)
- Tan Yuen Huey (yuenhuey83@1utar.my)

Acknowledgment of Notice:

I have been notified and that I hereby understood, consented and agreed per UTAR above notice.

I disagree, my personal data will not be processed.



Participant Criteria

I am a female between the ages of 18 to 29 who is currently a Year 3 Psychology Degree Student (starting June 2023 Trimester) studying at University Tunku Abdul Rahman (UTAR).



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Section A: Selfitis Behavior Scale

Instructions: Please indicate your degree of agreement with the statements below from 'strongly disagree' (1) to 'strongly agree' (5). There are no right or wrong answers.

1. Taking selfies gives me a good feeling to better enjoy my environment.



- Strongly Disagree (1)
 - Disagree (2)
 - Neither Agree nor Disagree (3)
 - Agree (4)
 - Strongly Agree (5)
-

2. Sharing my selfies creates healthy competition with my friends and colleagues.



3. I gain enormous attention by sharing my selfies on social media.



4. I am able to reduce my stress level by taking selfies. 

5. I feel confident when I take a selfie. 

6. I gain more acceptance among my peer group when I take selfie and share it on social media. 

7. I am able to express myself more in my environment through selfies. 

8. Taking different selfie poses helps increase my social status. 

9. I feel more popular when I post my selfies on social media. 

10. Taking more selfies improves my mood and makes me feel happy. 

11. I become more positive about myself when I take selfies.



12. I become a strong member of my peer group through selfie postings.



13. Taking selfies provides better memories about the occasion and the experience.



14. I post frequent selfies to get more 'likes' and comments on social media.



15. By posting selfies, I expect my friends to appraise me.



16. Taking selfies instantly modifies my mood.



17. I take more selfies and look at them privately to increase my confidence.



15. By posting selfies, I expect my friends to appraise me. 

16. Taking selfies instantly modifies my mood. 

17. I take more selfies and look at them privately to increase my confidence. 

18. When I don't take selfies, I feel detached from my peer group. 

19. I take selfies as trophies for future memories. 

20. I use photo editing tools to enhance my selfie to look better than others. 



Section B: Body Esteem for Adolescents and Adults

Instructions: Please indicate how often you agree with the following statements ranging from "never" (0) to "always" (4). There are no right or wrong answers.

1. I like what I look like in pictures. 

2. Other people consider me good looking. 

3. I'm proud of my body. 

4. I am preoccupied with trying to change my body weight. 

5. I think my appearance would help me get a job. 

6. I like what I see when I look in the mirror. 

7. There are lots of things I'd change about my looks if I could. 

8. I am satisfied with my weight. 

9. I wish I looked better. 

10. I really like what I weigh. 

11. I wish I looked like someone else. 

12. People my own age like my looks. 

13. My looks upset me. 

14. I'm as nice looking as most people. 

15. I'm pretty happy about the way I look. 

16. I feel I weigh the right amount for my height. 

17. I feel ashamed of how I look. 

18. Weighing myself depresses me. 

19. My weight makes me unhappy. 

20. My looks help me to get dates. 

21. I worry about the way I look. 

22. I think I have a good body. 

23. I'm looking as nice as I'd like to. 



Section C: Self-Objectification Beliefs and Behaviors Scale (SOBBS)

Instructions: Indicate how often you agree with the following statements ranging from "Strongly Disagree" (1) to "Strongly Agree" (5). There are no right or wrong answers.

1. Looking attractive to others is more important to me than being happy with who I am inside. 

2. I try to imagine what my body looks like to others (i.e., like I am looking at myself from the outside). 

3. How I look is more important to me than how I think or feel. 

4. I choose specific clothing or accessories based on how they make my body appear to others. 

5. My physical appearance is more important than my personality. 

6. When I look in the mirror, I notice areas of my appearance that I think others will view critically. ✓

7. I consider how my body will look to others in the clothing I am wearing. ✓

8. I often think about how my body must look to others. ✓

9. My physical appearance says more about who I am than my intellect. ✓

10. How sexually attractive others find me says something about who I am as a person. ✓

11. My physical appearance is more important than my physical abilities. ✓

12. I try to anticipate others' reactions to my physical appearance. ✓

10. How sexually attractive others find me says something about who I am as a person.



11. My physical appearance is more important than my physical abilities.



12. I try to anticipate others' reactions to my physical appearance.



13. My body is what gives me value to other people.



14. I have thoughts about how my body looks to others even when I am alone.



Age

18

19

20

21

22

23

24

25

26

27

28

29

Ethnicity

Malay

Chinese

Indian

Others

Relationship Status

Single

In a relationship but not married yet

Married

Divorced

Divorced

Widowed

Nationality (e.g. Malaysian)

Weight (e.g. 65kg)

Height (e.g. 170cm)



We thank you for your time spent taking this
survey.
Your response has been recorded.

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Appendix D: Filtered Question for Actual Study Survey

Participant Criteria

I am a female between the ages of 18 to 29 who is currently an undergraduate at a university in Malaysia.

I am a female between the ages of 18 to 29 who is currently a Year 3 Semester 2/ Year 3 Semester 3 Psychology Degree Student (starting October 2023 Trimester) studying at University Tunku Abdul Rahman (UTAR).



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Appendix E1: Reliability Tests for Selfitis Behavior Scale (N=22)**Reliability****Scale: Reliability_Selfities Behaviour Scale****Case Processing Summary**

		N	%
Cases	Valid	22	100.0
	Excluded ^a	0	.0
	Total	22	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.915	.915	20

Appendix E2: Reliability Tests for Body Esteem Scale for Adolescent and Adult (N=22)

Scale: Reliability_BESAA

Case Processing Summary

		N	%
Cases	Valid	22	100.0
	Excluded ^a	0	.0
	Total	22	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.770	.834	23

Appendix E3: Reliability Tests for Self-Objectification Beliefs and Behavior Scale

(N=22)

Scale: Reliability_SOBBS

Case Processing Summary

		N	%
Cases	Valid	22	100.0
	Excluded ^a	0	.0
	Total	22	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.918	.919	14

Appendix F1: Reliability Tests for Selfitis Behavior Scale (N=169)

Case Processing Summary

		N	%
Cases	Valid	169	100.0
	Excluded ^a	0	.0
	Total	169	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.938	.938	20

Appendix F2: Reliability Tests for Body Esteem Scale for Adolescent and Adult (N=169)**Case Processing Summary**

		N	%
Cases	Valid	169	100.0
	Excluded ^a	0	.0
	Total	169	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.796	.842	23

Appendix F3: Reliability Tests for Self-Objectification Beliefs and Behavior Scale

(N=169)

Case Processing Summary

		N	%
Cases	Valid	169	100.0
	Excluded ^a	0	.0
	Total	169	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.915	.914	14

Appendix G: Participants' List of Universities & Current Semester

University (e.g. UTAR)	Year/ Semester (e.g. Y1S1)	
	N	%
-	1	0.6%
APU	1	0.6%
Berjaya University College	2	1.2%
BUC	1	0.6%
Divo	1	0.6%
First City University College	1	0.6%
Help University	1	0.6%
HELP University Subang 2	1	0.6%
INTI	4	2.4%
INTI International College Subang (IICS)	1	0.6%
MAHSA	1	0.6%
MSU	2	1.2%
MUCM	1	0.6%
OUM	2	1.2%
RCSI UCD Malaysia Campus	1	0.6%
SEGi University	1	0.6%
Southern	1	0.6%
Sunway college jb	1	0.6%
Sunway University	2	1.2%
TARUMT	4	2.4%
TARUMT PG	1	0.6%
Taylor	1	0.6%
Taylor's University	2	1.2%
The One Academy	1	0.6%
UCSI	1	0.6%
UiTM	1	0.6%
UiTM	1	0.6%
UM	2	1.2%
UMK	1	0.6%
UMPISA	1	0.6%
UMS	1	0.6%
UMT	1	0.6%
Universiti Malaya	1	0.6%
University Malaya	1	0.6%
University of Nottingham Malaysia	1	0.6%
University Putra Malaysia	1	0.6%
UPM	3	1.8%
UPSI	2	1.2%
USM	4	2.4%
UTAR	100	59.2%
UTeM	2	1.2%
UTM JB	1	0.6%
UUM	3	1.8%
Veritas University College	1	0.6%
WOU	1	0.6%
Xiamen University Malaysia	3	1.8%
XMUM	1	0.6%

Year/ Semester (e.g. Y1S1)	Year/ Semester (e.g. Y1S1)	
	N	%
6	1	0.6%
7	1	0.6%
Y1S1	11	6.5%
Y1S2	6	3.6%
y1s3	1	0.6%
Y1S3	9	5.3%
Y2S1	13	7.7%
Y2S2	11	6.5%
Y2S3	11	6.5%
Y2Y1	1	0.6%
Y3	22	13.0%
Y3S1	26	15.4%
Y3S2	14	8.3%
Y3S3	14	8.3%
Y3S4	1	0.6%
Y3S6	1	0.6%
Y3S7	2	1.2%
Y3S9	1	0.6%
Y3T2	1	0.6%
Y4S1	12	7.1%
Y4S2	3	1.8%
Y4S3	2	1.2%
Y4S7	1	0.6%
Y4S8	2	1.2%
Y5S1	1	0.6%
Y5S9	1	0.6%

Appendix H: Participants' Demographic Information

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Age	169	18	29	21.89	2.001
Valid N (listwise)	169				

Age

	N	%
18	2	1.2%
19	11	6.5%
20	32	18.9%
21	26	15.4%
22	41	24.3%
23	36	21.3%
24	10	5.9%
25	3	1.8%
26	1	0.6%
27	3	1.8%
29	4	2.4%

Ethnicity - Others - Text

	N	%
	169	100.0%

Relationship Status

	N	%
Single	122	72.2%
In a relationship but not married yet	46	27.2%
Married	1	0.6%

Ethnicity - Selected Choice

	N	%
Malay	10	5.9%
Chinese	154	91.1%
Indian	5	3.0%

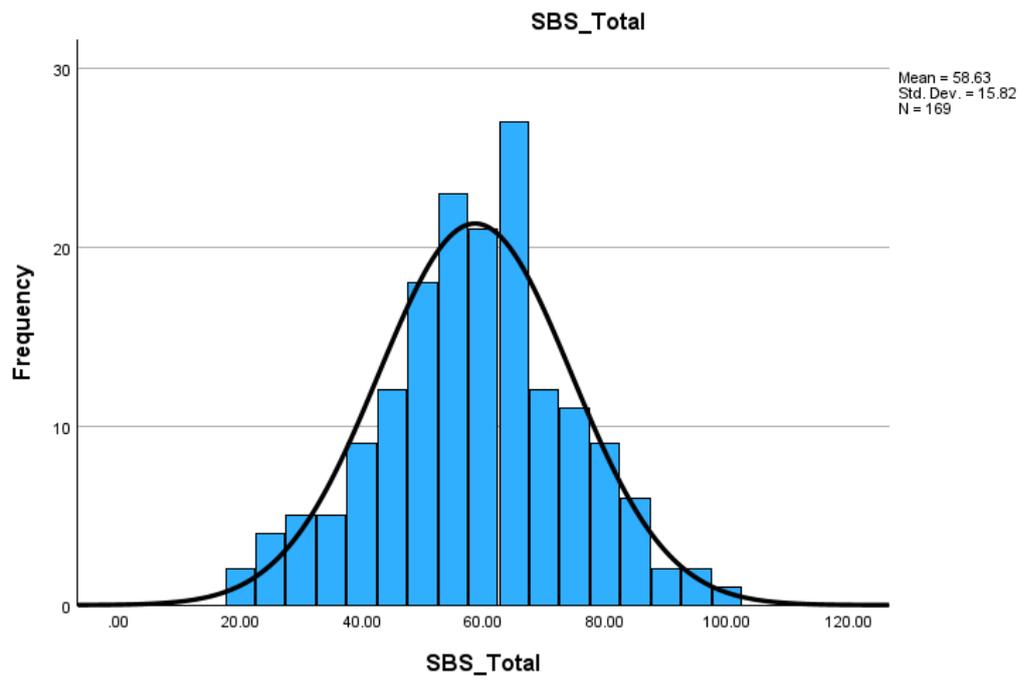
Nationality (e.g. Malaysian)

	N	%
Chinese	18	10.7%
Malaysian	151	89.3%

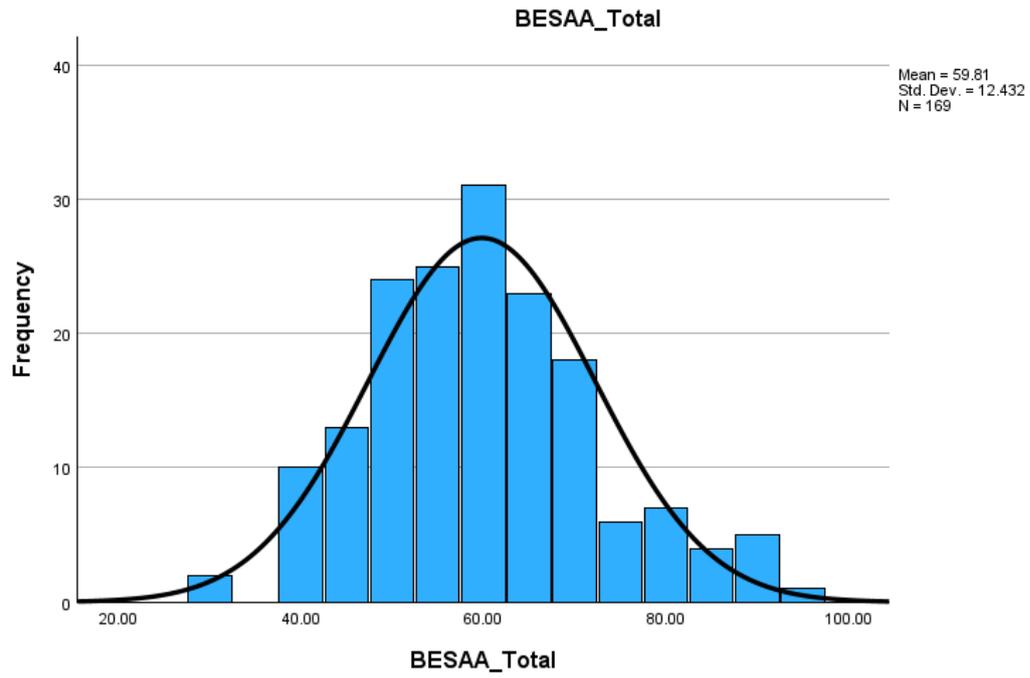
Appendix I: Participants' Weight and Height

Weight (e.g. 65kg)			Height (e.g. 170cm)		
	N	%		N	%
38	1	0.6%	120	1	0.6%
39	3	1.8%	142	1	0.6%
40	4	2.4%	149	1	0.6%
41	2	1.2%	150	7	4.1%
42	7	4.1%	151	1	0.6%
43	7	4.1%	152	6	3.6%
44	5	3.0%	153	6	3.6%
45	12	7.1%	153+	1	0.6%
46	7	4.1%	154	5	3.0%
47	5	3.0%	155	13	7.7%
48	9	5.3%	156	9	5.3%
49	5	3.0%	157	7	4.1%
49.4	1	0.6%	158	18	10.7%
50	10	5.9%	159	7	4.1%
50.9	1	0.6%	160	20	11.8%
51	2	1.2%	161	7	4.1%
52	9	5.3%	162	10	5.9%
52+	1	0.6%	163	14	8.3%
53	13	7.7%	165	13	7.7%
54	3	1.8%	166	4	2.4%
55	14	8.3%	167	3	1.8%
56	5	3.0%	168	4	2.4%
57	2	1.2%	169	4	2.4%
57.6	1	0.6%	170	4	2.4%
58	1	0.6%	172	1	0.6%
59	1	0.6%	178	1	0.6%
60	11	6.5%	186	1	0.6%
61	1	0.6%			
62	2	1.2%			
63	1	0.6%			
64	1	0.6%			
65	4	2.4%			
66	1	0.6%			
67.5	1	0.6%			
68	1	0.6%			
69	1	0.6%			
70	5	3.0%			
73	1	0.6%			
75	2	1.2%			
83	1	0.6%			
89	1	0.6%			
90	2	1.2%			
95	1	0.6%			
98	1	0.6%			

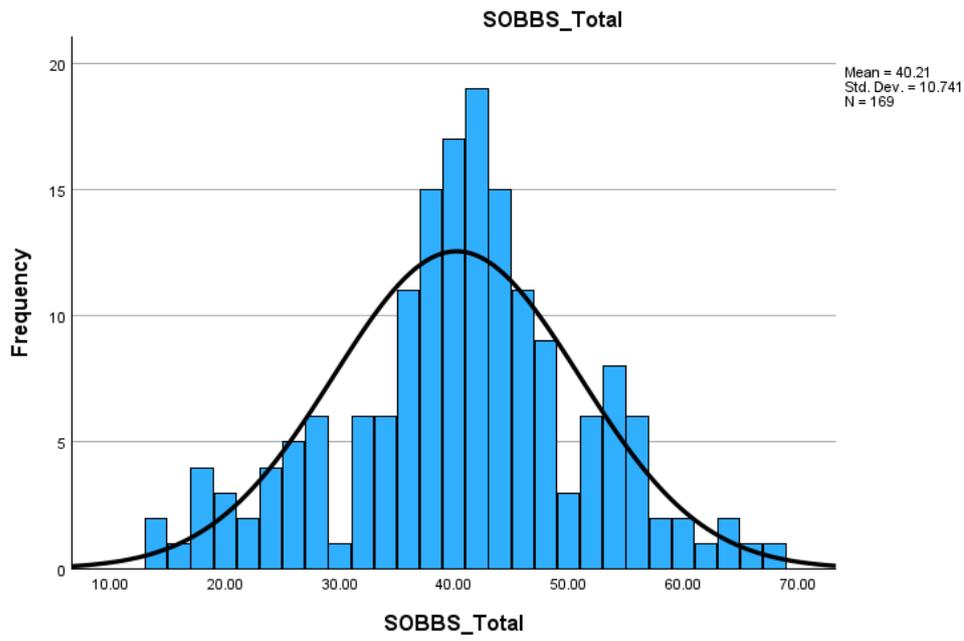
Appendix J1: Histogram for Selfitis Behavior Scale



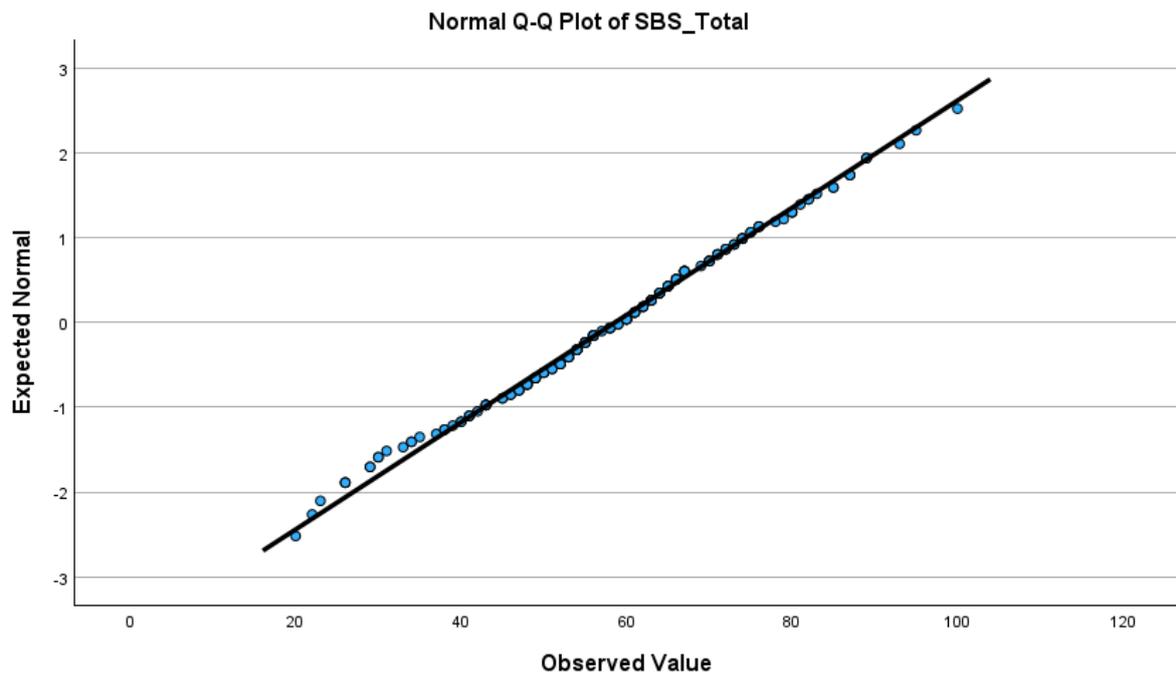
Appendix J2: Histogram for Body Esteem Scale for Adolescent and Adults



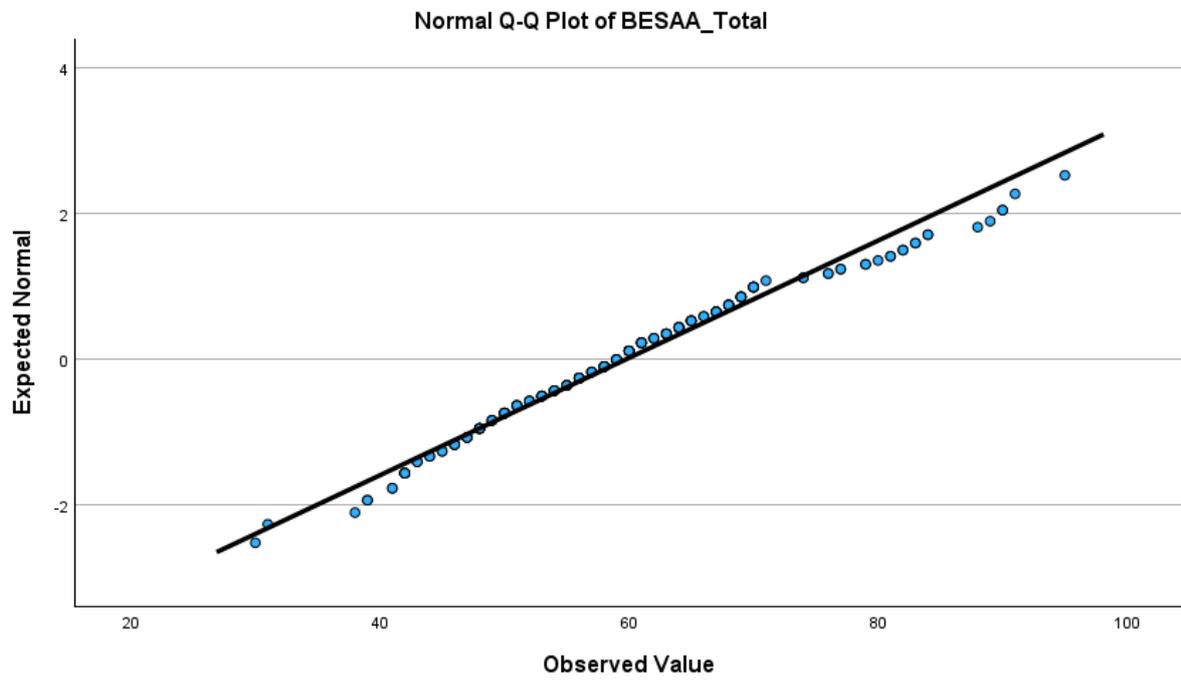
Appendix J3: Histogram for Self-objectification Beliefs and Behavior Scale



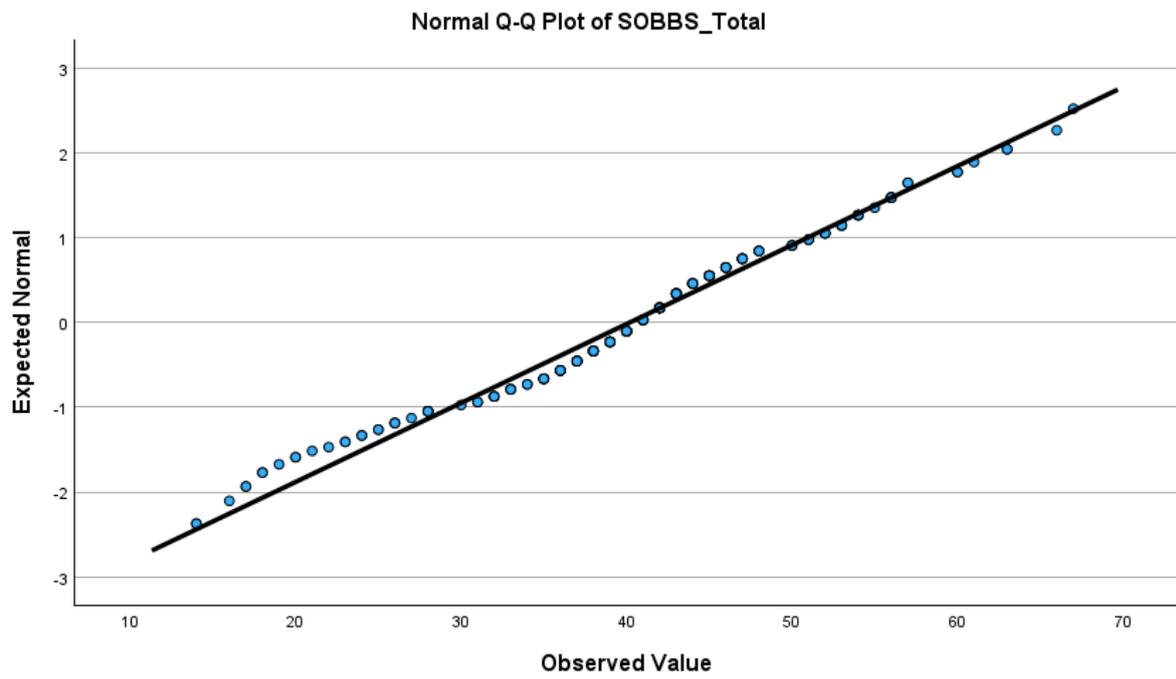
Appendix K1: Q-Q Plot for Selfitis Behavior Scale



Appendix K2: Q-Q Plot for Body Esteem Scale for Adolescent and Adults



Appendix K3: Q-Q Plot for Self-objectification Beliefs and Behavior Scale



Appendix L: Kolmogorov-Smirnov Test**Tests of Normality**

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
SBS_Total	.044	169	.200 [*]	.994	169	.760
SOBBS_Total	.081	169	.009	.983	169	.037
BESAA_Total	.068	169	.055	.980	169	.015

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Appendix M: Skewness and Kurtosis Test

		Statistics		
		SBS_Total	BESAA_Total	SOBBS_Total
N	Valid	169	169	169
	Missing	0	0	0
Mean		58.6272	59.8107	40.2130
Std. Error of Mean		1.21695	.95632	.82620
Median		60.0000	59.0000	41.0000
Mode		54.00 ^a	60.00	42.00
Std. Deviation		15.82033	12.43218	10.74054
Variance		250.283	154.559	115.359
Skewness		-.078	.455	-.184
Std. Error of Skewness		.187	.187	.187
Kurtosis		-.100	.144	.100
Std. Error of Kurtosis		.371	.371	.371
Range		80.00	65.00	53.00
Minimum		20.00	30.00	14.00
Maximum		100.00	95.00	67.00

a. Multiple modes exist. The smallest value is shown

Appendix N: Durbin Watson Test

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.455 ^a	.207	.197	11.14028	2.162

a. Predictors: (Constant), SOBBS_Total, SBS_Total

b. Dependent Variable: BESAA_Total

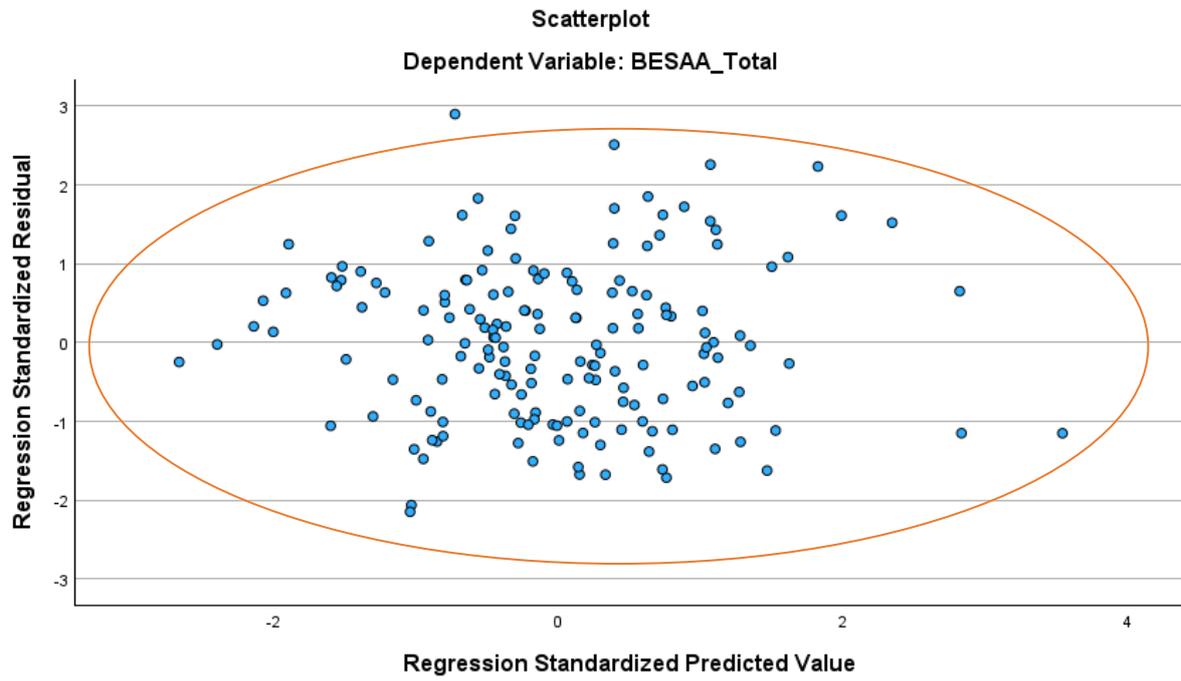
Appendix O: Tolerance and VIF test

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	48.823	3.749		13.023	<.001	41.421	56.225		
	SBS_Total	.424	.064	.540	6.574	<.001	.297	.551	.710	1.409
	SOBBS_Total	-.345	.095	-.298	-3.631	<.001	-.532	-.157	.710	1.409

a. Dependent Variable: BESAA_Total

Appendix P: Normality of residual, linearity and homoscedasticity



Appendix Q: Case-wise Analysis**Casewise Diagnostics^a**

Case Number	Std. Residual	BESAA_Total	Predicted Value	Residual
5	2.509	90.00	62.0478	27.95223
10	-2.064	31.00	53.9987	-22.99869
56	2.232	95.00	70.1388	24.86121
80	2.256	91.00	65.8703	25.12967
150	2.897	88.00	55.7299	32.27010
162	-2.150	30.00	53.9482	-23.94820

a. Dependent Variable: BESAA_Total

Appendix R: Leverage Calculation

$$\textit{leverage} = \frac{p + 1}{n}$$

$$= \frac{0.5 + 1}{169}$$

$$= 0.008876$$

$$\text{Leverage value} = 0.008876 \times 3 = 0.026628$$

Appendix S: Cook's Distance, Leverage and Mahalanobis Distance of Potential Outliers**Cases**

Case Number	Mahalanobis Distance	Cook's Distance	Centered Leverage Value
5	3.57465	.06031	.02128
10	1.17102	.01879	.00697
56	3.34774	.04521	.01993
80	1.28657	.02366	.00766
150	3.12729	.07211	.01861
162	1.12583	.01994	.00670

Appendix T: H1 and H2 Regression Output

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.455 ^a	.207	.197	11.14028	2.162

a. Predictors: (Constant), SOBBS_T, SBS_T

b. Dependent Variable: BESAA_T

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5364.365	2	2682.183	21.612	<.001 ^b
	Residual	20601.575	166	124.106		
	Total	25965.941	168			

a. Dependent Variable: BESAA_T

b. Predictors: (Constant), SOBBS_T, SBS_T

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	48.823	3.749		13.023	<.001	41.421	56.225		
	SBS_T	.424	.064	.540	6.574	<.001	.297	.551	.710	1.409
	SOBBS_T	-.345	.095	-.298	-3.631	<.001	-.532	-.157	.710	1.409

a. Dependent Variable: BESAA_T

Appendix U: H3 Regression Output

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.539 ^a	.290	.286	9.07412

a. Predictors: (Constant), SBS_Total

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5629.611	1	5629.611	68.371	<.001 ^b
	Residual	13750.720	167	82.340		
	Total	19380.331	168			

a. Dependent Variable: SOBBS_Total

b. Predictors: (Constant), SBS_Total

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	18.761	2.687		6.983	<.001
	SBS_Total	.366	.044	.539	8.269	<.001

a. Dependent Variable: SOBBS_Total

Appendix V1: H4 Mediation Output: Path A

```

*****
OUTCOME VARIABLE:
SOBBS_T

Model Summary
  R      R-sq    MSE      F    df1    df2    p
.5390  .2905  82.3396  68.3706  1.0000  167.0000  .0000

Model
      coeff    se    t    p    LLCI    ULCI
constant  18.7610  2.6866  6.9831  .0000  13.4568  24.0651
SBS_T     .3659  .0443  8.2687  .0000  .2785  .4533

Standardized coefficients
      coeff
SBS_T  .5390
    
```

Appendix V2: H4 Mediation Output: Path B and Path C'

.....
 OUTCOME VARIABLE:
 BESAA_T

Model Summary

R	R-sq	MSE	F	df1	df2	p
.4545	.2066	124.1059	21.6121	2.0000	166.0000	.0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	48.8232	3.7491	13.0225	.0000	41.4211	56.2253
SBS_T	.4240	.0645	6.5737	.0000	.2966	.5513
SOBBS_T	-.3449	.0950	-3.6305	.0004	-.5325	-.1573

Standardized coefficients

	coeff
SBS_T	.5395
SOBBS_T	-.2980

Appendix V3: H4 Mediation Output: Path C

***** TOTAL EFFECT MODEL *****

OUTCOME VARIABLE:

BESAA_T

Model Summary

R	R-sq	MSE	F	df1	df2	p
.3789	.1436	133.1579	28.0011	1.0000	167.0000	.0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	42.3524	3.4166	12.3962	.0000	35.6072	49.0976
SBS_T	.2978	.0563	5.2916	.0000	.1867	.4089

Standardized coefficients

	coeff
SBS_T	.3789

Appendix V4: Total and Direct Effect of Mediation Analysis

***** TOTAL, DIRECT, AND INDIRECT EFFECTS OF X ON Y *****

Total effect of X on Y

Effect	se	t	p	LLCI	ULCI	c_cs
.2978	.0563	5.2916	.0000	.1867	.4089	.3789

Direct effect of X on Y

Effect	se	t	p	LLCI	ULCI	c'_cs
.4240	.0645	6.5737	.0000	.2966	.5513	.5395

Indirect effect(s) of X on Y:

Effect	BootSE	BootLLCI	BootULCI
SOBBS_T	-.1262	.0423	-.2164

Completely standardized indirect effect(s) of X on Y:

Effect	BootSE	BootLLCI	BootULCI
SOBBS_T	-.1606	.0523	-.2738

***** ANALYSIS NOTES AND ERRORS *****