Body Satisfaction, Anxiety, and Social Comparisons: Case Study From Indonesia on the Influence of Sociocultural and Biological Factors

Kania Dewi Rafa[1], Sarah Nila[2], and Kanthi Arum Widayati[1]*

[1] Department of Biology, IPB University, Bogor, Indonesia
[2] Department of Anthropology, University College London, London, UK
* Kanthi Arum Widayati, corresponding author. Email: kanthiarum@gmail.com

Abstract

This study described body satisfaction and anxiety levels, analyzed associated factors, and examined their relationship. A total of 1,815 respondents (male: 594; female: 1,221) completed an online questionnaire comprising the Body Image State Scale (BISS), Physical Appearance State and Trait Anxiety Scale (PASTAS), and the Upward and Downward Comparison Scale (UPACS and DACS). The data were analyzed using the Generalized Linear Model (GLM) and the Kruskal-Wallis test in R Studio. The results demonstrated that respondents' body satisfaction in this study was high (M = 5.55, SD = 1.85). The score for body anxiety in this research was categorized as low (M = 17.47, SD = 15.23). Respondents showed a greater tendency toward upward body comparison than downward body comparison. Body satisfaction has a positive correlation with age and a negative correlation with BMI, while higher social media use correlates with increased body anxiety. Place of residence and partnership were also correlated with body satisfaction and anxiety. Moreover, self-declaration and sociocultural factors were correlated with body satisfaction and anxiety. Furthermore, the greater the body satisfaction, the lower the body anxiety. However, this study does not include detailed ethnic data, which limits its ability to analyze cultural differences.

Keywords

Body anxiety; body comparison; body satisfaction; Indonesian society; sociocultural

Introduction

Body satisfaction is an affective component of self-evaluation that refers to positive beliefs about and cognitive appraisals of one's general appearance or specific aspects (Cash, 2012). High levels of body satisfaction can lead to a range of positive outcomes, including increased life satisfaction and higher self-esteem (Mincu & Tascu, 2015; Rathbone et al., 2022). Meanwhile, low levels of body satisfaction can lead to negative emotions, such as body anxiety (Ferrer-Garcia et al., 2017). Body anxiety is anxiety on the cognitive, affective, and perceptual levels manifested through a person's dissatisfaction with their physical appearance. The level of body anxiety is influenced by how individuals perceive the ideal of physical perfection, which is becoming increasingly challenging to attain (Rzeszutek et al., 2023).

The level of body satisfaction is associated with biological factors, such as body mass index (BMI), age, and sex (Fallon et al., 2014). BMI influences body satisfaction through feelings of attractiveness and self-confidence (Brierley et al., 2016; Thomas et al., 2019). Based on age differences, body satisfaction levels increase with age (Quittkat et al., 2019). Men are more satisfied with their bodies because they are more conscious of how body weight influences their appearance (Arkenau et al., 2022; Voges et al., 2019).

Besides biological factors, body satisfaction is also influenced by sociocultural factors. The influence of sociocultural factors on body satisfaction was explained using Thompson et al.'s Tripartite Influence Model (Thompson et al., 1999). According to the Tripartite Influence Model, body image is shaped by three major sociocultural influences: peers, parents, and media. These sources promote societal beauty standards that individuals often internalize and use as benchmarks for evaluating their appearance. One of the key mechanisms through which these influences operate is appearance comparison, a process by which individuals assess their bodies in relation to those of others. This model is a foundational framework for understanding body comparison. It explains how constant exposure to idealized images and social feedback leads individuals to make upward and downward comparisons. These comparisons can significantly impact self-perception, often resulting in body dissatisfaction and heightened anxiety.

Body comparison was developed from Festinger's Social Comparison Theory (Festinger, 1954). This theory posits that individuals continually compare their opinions, attitudes, and beliefs with those of others. These social comparisons are perceived as a pervasive feature of social interaction. They are central to the understanding of how groups develop socially validated information. Related to social comparison theory, body comparison refers to comparing one's body to others to gather information about societal standards related to appearance (Jones, 2001). These comparisons may be upward (i.e., against someone closer to one's ideal), lateral (comparing against someone similar), or downward (comparing against an individual further from the particular ideal (Rogers et al., 2017). Social media can influence the tendency to engage in body comparisons. People who observe models or peers on social media tend to evaluate their appearance (Fardouly et al., 2017). A greater tendency to engage in body comparison is associated with low levels of body satisfaction (Cohen et al., 2017).

Body satisfaction also relates to cultural differences; every culture has different body standards, perceptions of body image, and social expectations. Consequently, people strive to achieve these ideal body standards in their communities. In Europe, the Americas, and East

Asian societies, men's ideal bodies are often portrayed as muscular, while women's are typically depicted as thin (Maezono et al., 2018; Schaefer et al., 2018). Meanwhile, in South Pacific societies such as Fiji and Tonga, the ideal body type for both men and women is characterized by a larger physique, which is often associated with reproductive fertility and high socioeconomic status (McCabe et al., 2013; Pollock, 1995). Cultural differences also relate to how regional differences influence social norms and perceptions, including the body ideal that exists in society. Research conducted in Thailand showed that distinctions in physical appearance across regions give Thai women different concerns and desires about their bodies (Rongmuang et al., 2010). Understanding such body satisfaction in different cultures will inform cultural sensitivity and norms that shape individuals' perceptions of their bodies.

Cultural variations play a significant role in shaping the standards by which bodies are judged. These cultural ideals affect how people perceive their bodies and create pressure to conform to what society considers 'normal' or 'attractive.' To fully understand how these processes affect individuals on a broader scale, it is essential to adopt a socio-population perspective. This approach transcends individual psychological traits and biological factors, instead focusing on how social structures and population-level differences influence body image experiences (Clauss-Ehlers et al., 2019). Socioeconomic status, social norms, and access to media vary significantly across populations, influencing how individuals perceive their bodies and engage in body comparisons (National Academies of Sciences, Engineering, and Medicine, 2018).

Indonesia is an archipelagic country comprising approximately 17,000 islands, including the five largest islands (BPS-Statistics Indonesia, 2017). Each island has a distinct general ethnic composition. For example, on Java Island, most Javanese individuals exhibit physical characteristics such as yellowish-brown skin, soft black hair, and relatively prominent upper jaws (Ashizawa et al., 2009; Simanjuntak et al., 2016). Meanwhile, in East Indonesia, for example, on Papua Island, most ethnic groups are dark-skinned, have curly hair, and possess a strong, athletic physique (Lawson, 2016). Each island has its unique culture, and people in Indonesia exhibit phenotype differences, such as skin color and body shape (Du et al., 2022).

These disparities indirectly influence how one evaluates their body and how it aligns with society's ideal body standards (Besman et al., 2018; Prianti, 2018). Cultural, social, and media factors deeply influence ideal body standards in Indonesia. These standards often emphasize specific physical attributes, such as fair skin and slim bodies, which are perpetuated through various media and societal channels (Alfikriyah & Suwandi, 2024). External cultural influences have significantly shaped Indonesian beauty standards, particularly from East Asia. The popularity of Korean and Japanese beauty ideals has led to a growing preference for fair skin among Indonesian women, resulting in a shift away from the traditional acceptance of tanned skin (Alfikriyah & Suwandi, 2024; Wiraputra & Pristica, 2023).

Furthermore, in recent years, body image has become a growing public health concern, particularly with the increasing influence of social media and shifting beauty standards. While previous studies have often examined body satisfaction, body anxiety, or body comparison in isolation, there has been limited research investigating these three aspects simultaneously within an interconnected framework. Understanding how they relate to biological traits and sociocultural environments is crucial, especially in societies where appearance-based pressures are rapidly intensifying.

Based on these facts, Indonesian society may contain varied levels of body satisfaction due to its diversity. Conversely, the variety of ideal body standards in Indonesian society may impact

body satisfaction, which relates to how people evaluate their bodies in relation to society's ideal standards. However, no reported data exist on the relationship between body comparison, satisfaction, and anxiety in Indonesian society. Therefore, this study intends to describe body satisfaction and anxiety levels in Indonesian society and analyze the factors associated with body satisfaction, anxiety, and comparison. Additionally, this study investigates the relationship between body comparison, satisfaction, and anxiety in Indonesian society.

Methods

Adaptation of questionnaires to Indonesian

All questionnaires used to measure body satisfaction, anxiety, and comparison were translated into Indonesian. Two translators, fluent in English and residing in an English-speaking country, reviewed the translated questionnaires to ensure that the meanings of the Indonesian content were consistent with the English version. Furthermore, the translated questionnaire's results were reviewed by a native English translator. A pilot test was conducted with 100 respondents to assess the reliability of the Indonesian version using Cronbach's alpha prior to the commencement of the research.

Respondents

This study used a cross-sectional design with simple random sampling to select respondents. This study recruited 1,815 Indonesian respondents (male: 594; female: 1,221) residing in Indonesia, who were randomly selected to complete an online questionnaire distributed on social media. The respondents ranged from 17 to 58 years, with a mean age of 25.95 (M = 25.95, SD = 7.88).

Data collection

This study was conducted between July 2021 and August 2022, following ethical clearance from the IPB University's Ethics Committee (No. 446/IT3.KEPMSM-IPB/SK/2021). The research involved an online questionnaire distributed through social media platforms in Indonesia. The questionnaire consisted of five sections: an introduction page and informed consent, demographic information, and a questionnaire that measured body satisfaction, anxiety, and comparison.

Demographic data and body mass index

Data were collected through a questionnaire that requested demographic information, including year of birth, sex, level of education, place of residence (province and city), occupation, monthly income, partnership status, total number of social media handles, duration of social media usage, and self-assessment of body satisfaction and comparison. The questionnaire also asked about current body weight (in kilograms) and height (in centimeters) to calculate the body mass index (BMI), which is determined by dividing weight by height in meters squared (m²).

Body Image State Scale (BISS)

The study measured body satisfaction using the Body Image State Scale (BISS). The BISS is a widely used tool for examining body satisfaction, based on a multi-item measure of momentary evaluative and affective experiences of physical appearance. Items were rated using a nine-point Likert-type scale (1 = extremely dissatisfied to 9 = extremely satisfied). The final score for the BISS was the mean of six items. The minimum and maximum scores for the BISS were 1.00 and 9.00, respectively. Thus, the higher the BISS score, the higher the level of body satisfaction (Cash et al., 2002). The Cronbach's alpha score of the questionnaire used in this study was 0.86. Thus, Cronbach's alpha score implies that the questionnaire is reliable.

Physical Appearance State and Trait Anxiety Scale (PASTAS)

The Physical Appearance State and Traits Anxiety Scale (PASTAS) is a self-report instrument that measures weight- and non-weight-related anxiety. It measures anxiety levels about various body parts, with possible scores ranging from 0 to 64. High scores indicate high levels of appearance-related anxiety, with a Cronbach's alpha of 0.9 in this study (Reed et al., 1991). Thus, Cronbach's alpha score implies that the questionnaire is reliable.

Upward and Downward Physical Appearance Comparison Scales (UPACS and DACS)

The Upward and Downward Physical Appearance Comparison Scales (UPACS and DACS) are questionnaires that measure one's tendency to engage in upward and downward appearance-focused comparisons. The UPACS comprises 10 items, targeting the tendency to compare one's body and appearance to someone more attractive, and the DACS consists of eight items perceived as less physically attractive. Responses were averaged, with high scores indicating a greater tendency to compare one's body to others (O'Brien et al., 2009). The study yielded Cronbach's alpha scores of 0.91 for the UPACS scale and 0.94 for the DACS scale. Thus, Cronbach's alpha score implies that the questionnaire is reliable.

Statistical analysis

The study analyzed the correlations among body satisfaction, anxiety, and comparison using Pearson's correlation test. It examined the effect of demographic data as predictor variables on body satisfaction scores using a generalized linear model (GLM) in R software. The full models included demographic data (i.e., sex, age, place of residence, BMI, income, partner, social media use, and self-reported levels of body satisfaction and body comparison). To obtain the most parsimonious model, this research conducted stepwise model selection using backward elimination. The results are based on the most parsimonious models (R Core Team, 2022).

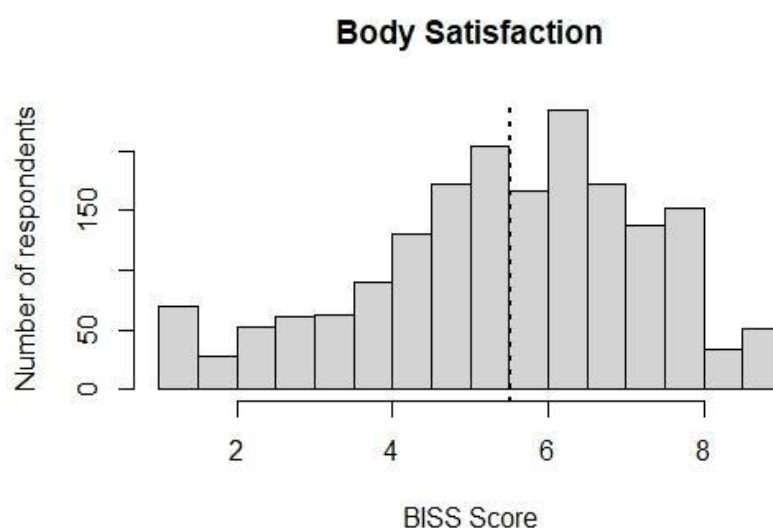# Results

Demographics of respondents

A total of 1,815 respondents (men, 594; women, 1,221) completed the questionnaire. The mean age of the respondents was 25.95 years (M = 25.95, SD = 7.88; Men (M = 27.76, SD = 8.22) Women (M = 25.07, SD = 7.56). Most respondents live on Java Island (67%), lack a partner (54.66%), have achieved a high school level of education (58.07%), are not employed (59.56%), and have a monthly income of less than IDR 500,000 (approximately USD 32) (26%).

Body satisfaction

Body Image State Scale (BISS)

Our study found that respondents had high levels of body satisfaction (M = 5.55, SD = 1.85), with varied scores across this measure. The scores of most respondents were higher than the BISS mean score, as shown in Figure 1.

Figure 1: Scores for the Body Image State Scale

Variables associated with body satisfaction

The results demonstrated that respondents who lived in Sumatra, Sulawesi, Kalimantan, Papua, and other islands had lower levels of body satisfaction than those living in Java. The higher the BMI, the lower the body satisfaction. Respondents who reported being satisfied with their bodies exhibited high levels of body satisfaction. The more respondents compared their bodies with those of others, the lower their level of body satisfaction. Respondents who compared themselves to strangers displayed higher levels of body satisfaction than those who compared their bodies to those familiar to them, such as family and peers (Table 1).

Table 1: Variables Associated With Body Satisfaction

Category	Variable	Estimate	SE	*p value*
Demographic factors	Sumatra (ref: Java)	−0.238	0.078	< .001**
	Sulawesi (ref: Java)	−0.614	0.135	< .001***

| Category	Variable	Estimate	SE	p value
	Kalimantan (ref: Java)	−0.356	0.140	< .001***
	Papua (ref: Java)	−0.441	0.190	< .001***
Biological factor	BMI	−0.069	0.007	< .001***
Self-declared	Satisfaction with their bodies (ref: No)	1.664	0.063	< .001***
Body comparison	Frequency of comparison of oneself with others on social media	−0.259	0.024	< .001***
	The subject of body comparison (ref: acquaintances)	0.121	0.056	< .001***
Social media use	Duration of social media use	−0.041	0.023	.066
	Total number of social media accounts	−0.036	0.021	.075

Note: Results are based on a Generalized Linear Model. Statistical significance was set at p < .05; Significance codes: p < .05*, p < .01**, p < .001***

Body anxiety

Descriptive analysis of body anxiety

Most respondents in this study had low levels of body anxiety, with the mean score for total body anxiety being 17.47 (M = 17.47, SD = 15.23), as shown in Figure 2 below.

Figure 2: Score for the Physical Appearance State and Trait Anxiety Scale
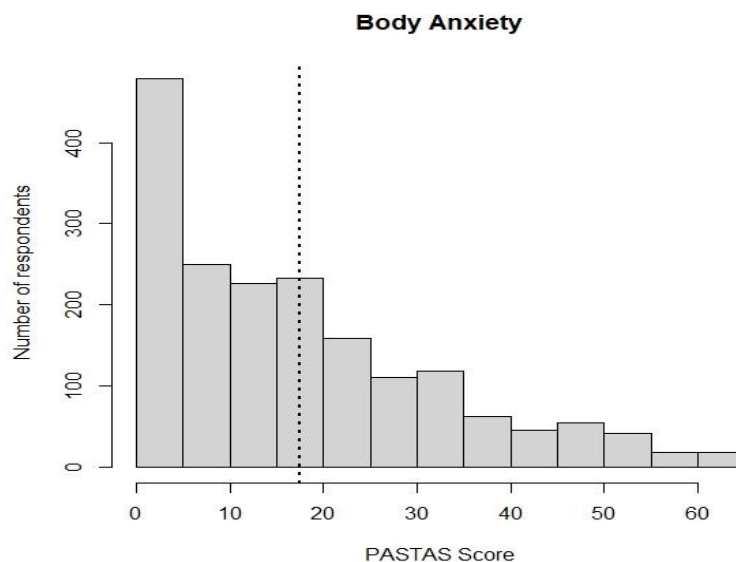
Variables associated with body anxiety

Body anxiety decreases as age increases. Body anxiety increased alongside increased income. Men exhibited lower levels of body anxiety than women. Respondents living in Papua had higher levels of body anxiety than those living in Java, and body anxiety increased with an increased BMI. Respondents who reported being satisfied with their bodies exhibited lower levels of body anxiety. The more frequently one compares one's body to others, the higher the weight-related body anxiety (Table 2).

Table 2: Variables Associated With Body Anxiety

Category	Variable	Estimate	Std Error	*p value*
Demographic factors	Age	−0.250	0.050	< .001***
	Income	0.961	0.199	< .001***
	Sex (ref: women)	−3.142	0.646	< .001***
	Papua (ref: Java)	19.641	1.982	< .001***
	Partner (ref: without a partner)	1.899	0.683	< .001***
Biological factor	BMI	0.548	0.078	< .001***
Self-declared	Satisfaction with their bodies (ref: no)	−5.118	0.651	< .001***
Body comparison	Frequency of comparing themselves with others on social media	5.119	0.257	< .001***

Note: Results are based on a Generalized Linear Model. Statistical significance was set at p < .05; Significance codes: p < .05*, p < .01**, p < .001***

Body comparison

Descriptive analysis of UPACS and DACS

The study found that people tended to make an upward comparison, followed by a downward comparison. Figures 3 and 4 demonstrate that individuals compared their bodies to those of more attractive individuals (*M* = 2.89, *SD* = 1.06).

Figure 3: Score for Upward Physical Appearance Comparison Scales
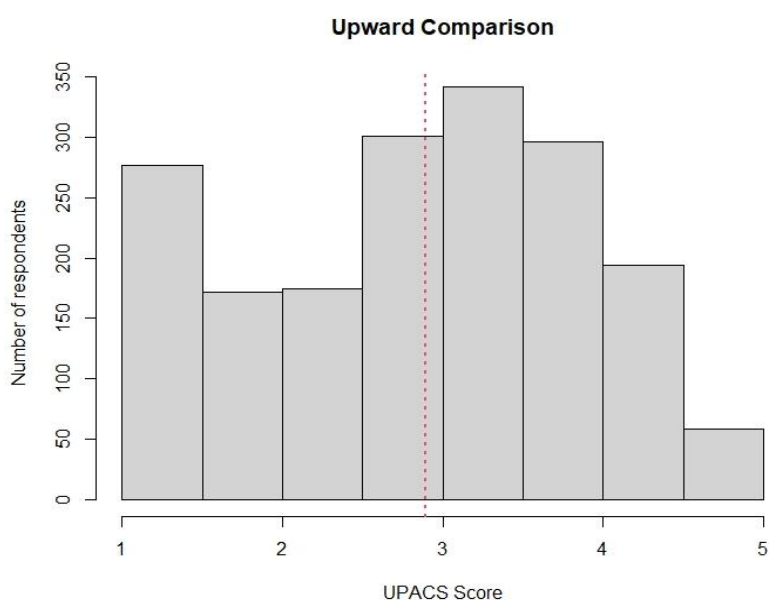
Upward Comparison

Figure 4: Score for Downward Physical Appearance Comparison Scales

Downward Comparison
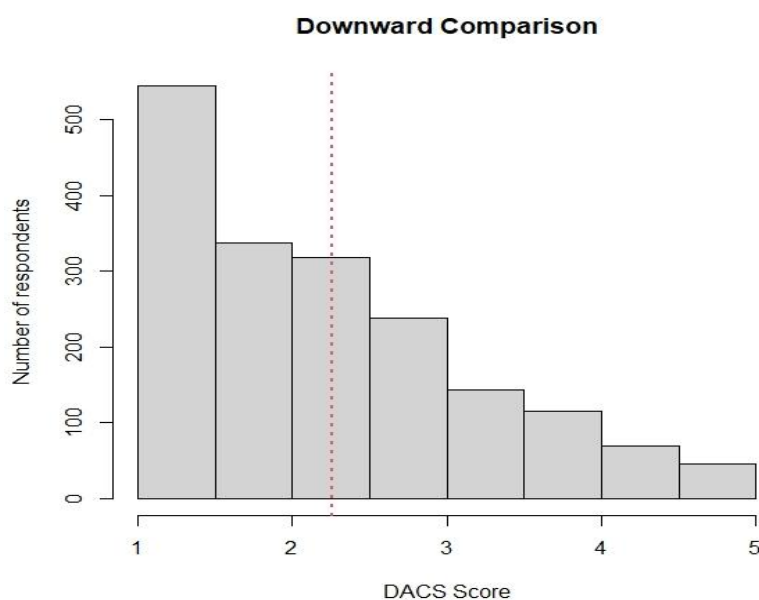
Variables associated with UPACS

The tendency to compare one's body with that of more attractive people decreases with an increase in age. Men expressed a lower tendency to compare their bodies to more attractive people than did women. People living in Papua tend to compare their bodies with those of more attractive people than those living in Java.

People who declared satisfaction with their bodies exhibited fewer tendencies toward body comparison in the upward condition. People who frequently compared their bodies to those of strangers displayed a higher tendency to compare their bodies to those of more attractive

individuals. The more social media accounts a person has, the higher the tendency to compare their bodies to those of more attractive persons (Table 3).

Table 3: Variables of Upward-Body Comparison

Category	Variable	Estimate	*SE*	*p value*
Demographic factors	Age	−0.124	0.028	< .001***
	Sex (ref: women)	−0.918	0.365	.012 *
	Partner (ref: without a partner)	0.681	0.386	.078
	Place of residence (ref: rural area)	0.718	0.378	.058
	Sumatra (ref: Java)	−1.127	0.460	.144
	Sulawesi (ref: Java)	−0.693	0.796	.384
	Kalimantan (ref:Java)	−2.140	0.829	.099
	Papua (ref: Java)	4.883	1.128	< .001***
	Others (ref: Java)	0.584	0.715	.412
Biological factor	BMI	−0.076	0.044	.081
Self-declared	Satisfaction with one's body (ref: no)	−3.068	0.369	< .001***
Body satisfaction	Frequency of comparison with others in social media	4.943	0.146	< .001***
	Subject of body comparison (ref: acquaintances)	1.853	0.330	< .001***
Social media use	Total number of social media accounts	0.380	0.117	< .001**

Note: Results are based on a Generalized Linear Model. Statistical significance was set at p < .05; Significance codes: p < .05*, p < .01**, p < .001***

Variables associated with downward body comparison

The study found that the older the person, the less they tend to compare their bodies with those of less attractive individuals. People with partners tend to compare their bodies with those of less attractive people. The more frequently people compare their bodies with those of others, the more likely they are to compare their bodies with those of less attractive individuals (Table 4).

Table 4: Downward Body Comparison Variables

Category	Variable	Estimate	Std Error	*p value*
Demographic factors	Age	−0.078	0.027	< .001***
	Partner (ref: without a partner)	1.285	0.398	< .001***
	Place of residence (ref: rural area)	0.614	0.388	.113
Self-declared	Satisfaction with their bodies (ref: no)	−0.689	0.373	.064
Body comparison	Frequency of comparison with others in social media	2.993	0.148	< .001***

Note: Results are based on a Generalized Linear Model. Statistical significance was set at p < .05; Significance codes: p < .05*, p < .01**, p < .001***

Correlations among body satisfaction, body anxiety, and body comparison

The results indicated that the higher the level of weight- or non-weight-related body anxiety, the lower the level of body satisfaction (Pearson's correlation test; $p < .05$). We found that a higher tendency to compare bodies with those of more- or less-attractive persons leads to low levels of body satisfaction (Pearson's correlation test; $p < .05$) (Table 5).

Table 5: Correlations Among Body Satisfaction, Anxiety, and Comparison

Category	Variable	Analysis Correlation on Body Satisfaction	
		ρ	*p value*
Body anxiety	Weight-related	−0.54	< .001***
	Non-weight-related	−0.39	< .001***
Body comparison	Upward condition	−0.41	< .001***
	Downward condition	−0.3	< .001***

Note: Significance codes: p < .05*, p < .01**, p < .001***

This study also found that the higher the tendency to compare oneself with more attractive people, the higher the level of body anxiety. The higher the tendency to compare oneself with a less attractive person, the higher the level of body anxiety (Table 6).

Table 6: Correlation Analysis Between Body Anxiety and Body Comparison

Category	Variables	Correlation Analysis on Body Anxiety			
		Weight-related		Non-weight-related	
		ρ	p value	ρ	p value
Body comparison	Upward condition	0.61	< .001***	0.54	< .001***
	Downward condition	0.52	< .001***	0.54	< .001***

Note: Significance codes: $p < .05^*$, $p < .01^{**}$, $p < .001^{***}$

Discussion

This study demonstrated that the mean score for body satisfaction in Indonesian society was 5.55, with a standard deviation of 1.85. This study predicted that body satisfaction levels in Indonesian society would vary due to Indonesia's heterogeneous nature, which encompasses diverse phenotypes and cultural attitudes associated with varying beauty standards that influence body satisfaction. Compared to homogeneous societies, such as Japan and South Korea, body satisfaction was low due to the rigid beauty standards prevalent in society, including a high desire for slimness (Abdoli et al., 2024).

Currently, the ideal body image in Indonesia is characterized as slim and tall. Interestingly, not all participants believe that fair skin, such as that of many East Asian citizens (e.g., Korea and Japan), is necessary if their skin is smooth and healthy (Utami et al., 2023). This study also measured the level of body anxiety in Indonesian people, which was low. We predicted this result because most respondents had a low income. Thus, they did not prioritize their bodies and appearances as essential aspects of their lives. For them, daily life often involves meeting basic needs, such as securing stable employment, paying rent, accessing healthcare, or providing food for their families. In these contexts, concerns about physical appearance or conforming to beauty standards may be perceived as secondary or even irrelevant compared to the pressing demands of survival. Body anxiety may still exist; however, it is often deprioritized in the mental hierarchy of stressors. Thus, they did not reach high levels of concern about their bodies and appearance, which decreased the risk of anxiety about their bodies.

Additionally, this study examined both upward and downward body comparison habits. The results showed that most respondents compared their bodies to those of more attractive people. Based on sociocultural theory, individuals gradually internalize societal standards of beauty through repeated exposure to messages from the media, family, peers, and broader cultural norms (Glashouwer et al., 2018). These internalized ideals become personal benchmarks by which individuals evaluate their appearance (Stice & Shaw, 2002). Accordingly, people will likely compare themselves to others who closely represent these culturally valued traits. This process explains why upward comparison is more common; individuals are not merely comparing at random but are actively measuring themselves against those who reflect internalized standards of attractiveness.

This study also determined the relationships among body satisfaction, anxiety, and comparison. Consistent with findings by Vannucci and Ohannessian (2019), the results

suggested that the higher the level of body satisfaction, the lower the level of body anxiety. Body anxiety includes thoughts (e.g., excessive worrying) and behaviors (e.g., appearance checking) about appearance, which could interfere with daily life and trigger low levels of body satisfaction (Zimmer-Gembeck et al., 2021). Additionally, higher body satisfaction reduces the tendency to compare one's body to more attractive or less attractive ones, as it leads to positive emotions toward oneself and satisfaction with one's body, regardless of the condition. This aligns with Tylka and Wood-Barcalow (2015) and Vohs (2005), who suggested that individuals with high body satisfaction tend to be satisfied with their bodies, regardless of their physical condition.

This study found a positive correlation between body anxiety and comparison, which aligns with previous research suggesting that people tend to compare their bodies with others, leading to body anxiety (Turel et al., 2017). This tendency can cause negative feelings, such as uneasiness, nervousness, and anxiety, especially when individuals have concerns about specific body parts or the entire body (Fang & Hofmann, 2010). This can lead to body comparisons due to concerns about serious evaluation and comparison (Tiggemann & Polivy, 2010).

Demographic factors

Furthermore, the study aimed to identify the factors correlated with body satisfaction, anxiety, and comparison in Indonesian society, as well as the factors that differentiate it from other societies. The first demographic factor correlated with body satisfaction levels in Indonesian society was differences in place of residence. People living in Sumatra, Kalimantan, Sulawesi, and Papua reported lower levels of body satisfaction compared to those living in Java. This is possibly due to the presence of metropolitan areas in Java (e.g., Jakarta, Bandung, Semarang, and Surabaya), which made traditional sociocultural norms less impactful on daily life and the perception and evaluation of one's appearance. Other regions outside Java Island, such as Banjar, Nias, and Riau, continue to uphold traditional cultural values, including beauty standards for women and portrayals of masculinity for men (Lase et al., 2021; Na'am Muh et al., 2019; Nurdiyana & Najamudin, 2020). The difference in body satisfaction levels correlated with the difference in place of residence was also observed in Mexico, where people living in rural areas expressed lower levels due to traditional values, family, and conservatism. Additionally, rural areas have adopted urban lifestyles due to the influence of social media and globalization, resulting in lower levels of body satisfaction among the rural population (Mendoza, 2021).

The place of residence is also related to biological factors, specifically differences in phenotype. The current study predicted that phenotypic differences between people living in Papua and Java could lead to differences in body satisfaction levels. The Papuan people are believed to have descended from Australo-Melanesians, characterized by dark skin color, curly hair, and a strong, athletic physique (Lawson, 2016). Meanwhile, in Indonesian society, most people are Austronesian, who were distributed between Borneo and the Sunda-Sulawesi region, and most western and central Indonesian tribes, which had yellowish-brown skin, soft black hair, and relatively prominent upper jaws (Simanjuntak et al., 2016; Thomas, 2011). This diversity may not be acceptable to all people in this society, which causes discrimination for certain races with lower populations and different phenotypes than the majority races in Indonesia. Thus, this factor decreased the levels of body satisfaction in populations with lower numbers.

The results also indicated that people living in Papua exhibited higher levels of body anxiety and higher tendencies to compare their bodies with those of more attractive people than those living on Java Island. We predicted that this result may be due to the general stereotype of beauty in Indonesian society, which considers light skin tones more attractive for men and women (Puspitasari & Suryadi, 2021; Saraswati, 2012). Hence, this view influenced partner preferences, in which Indonesian men prefer women with lighter skin, and Indonesian women also prefer partners with lighter skin (Prianti, 2018; Winahjoe & Paramita, 2014). This stereotype is considered inequitable to Indonesian men and women born with darker skin tones; hence, it causes negative feelings, such as body anxiety, toward their bodies.

Previous studies on other societies have also observed body anxiety that occurs due to variations in race and skin color. For example, Buchanan et al. (2008) and Grabe and Hyde (2006) demonstrated that African-American women experienced high levels of body anxiety related to skin color. The authors reported that lighter skin is considered an ideal body standard for women. Body anxiety about differences in skin color also exists in Indian society concerning the Dravidians, who have darker skin than the Aryans. This phenotypic disparity is related to caste hierarchies, in which individuals with lighter skin colors are often portrayed as more intelligent and attractive (Nagar, 2018). In Korean society, people with skin colors darker than those of native Koreans frequently experience racism. Dark skin is purportedly perceived as a sign that one is an outsider and cannot be a *true* Korean (Kim, 2020).

This study found that with increasing age, the tendency for people to compare their bodies and experience body anxiety decreased, which corroborates the findings of Yu et al. (2013). This result is due to the shift in focus from physical appearance to health and physical ability, as physical appearance no longer occupies a central part of one's identity (Clarke & Griffin, 2008; Johnston et al., 2016; Tiggemann, 2004).

Partnership was another demographic factor that correlated with body satisfaction, anxiety, and comparison. Individuals with partners reported higher levels of body satisfaction compared to those without partners. However, those with partners also exhibited higher tendencies toward body comparison and anxiety. We predicted that this would occur because even though someone might be in a loving and harmonious relationship, it does not protect them from anxieties about how their partner views and evaluates their body (Goins et al., 2012). Both males and females were aware of their partner's perception and judgment of their bodies. When their partner was dissatisfied or evaluated as lacking in appearance, it increased their body anxiety (Goins et al., 2012; Markey & Markey, 2006).

Biological factor

The biological factor correlated with body satisfaction was BMI. This study found that a higher BMI is associated with lower body satisfaction, consistent with previous research indicating that high BMI levels correlate with lower attractiveness and decreased body satisfaction (Niswah et al., 2021; Quittkat et al., 2019). People with a high BMI perceive their faces and body shapes as unattractive and unhealthy (Brierley et al., 2016; de Jager et al., 2018). The BMI has also become one factor that shapes societal beauty standards (Oldham et al., 2018; Purton et al., 2019). For example, in multicultural societies, such as the United States, white individuals tend to idealize thinner body types, and deviations from this ideal are more strongly associated with body dissatisfaction and lower self-esteem (Griffiths et al., 2016; Kennedy et al., 2004; Mady et al., 2023). In contrast, African-American and Hispanic communities often report more body acceptance and a broader range of acceptable body sizes,

which can serve as a protective factor against low self-esteem despite a higher average BMI (Avery et al., 2021; Gruber et al., 2022).

Self-declaration

The next factor correlated with body satisfaction is self-declaration, which refers to how people express their thoughts and feelings about their bodies. People who express satisfaction with their bodies based on their evaluations tend to be more satisfied with their bodies. Self-declaration is also related to people's positive or negative self-perceptions. The self-declaration of people's satisfaction with their bodies indicated that they held positive beliefs about themselves, which in turn increased positive thoughts and feelings about body acceptance. Correspondingly, negative feelings about their bodies decrease, including anxiety (Cash et al., 2004; Melnyk et al., 2004; Wood-Barcalow et al., 2010). A positive body image helps explain why people with higher self-esteem are more resistant to social media pressures and appearance-based comparisons (Alleva et al., 2018; Tiggemann & McCourt, 2013). They tend to appreciate their bodies, focus on functionality over looks, and are less likely to internalize unrealistic beauty ideals. Therefore, they are less affected by idealized images and engage in fewer harmful comparisons, thus maintaining a more stable self-image.

Sociocultural factors

Sociocultural factors contribute to low body satisfaction among individuals who frequently compare their bodies with those on social media. This result aligns with previous studies (Perloff, 2014). The appearance goals on social media can trigger sensitive feelings, increase social anxiety, and heighten the tendency for individuals to compare their bodies to those portrayed in social media (Halliwell & Dittmar, 2004; Markova & Azocar, 2020; Mills et al., 2018; Saunders & Eaton, 2018). This result is also related to the fact that the more frequently people use social media and own more accounts, the lower their levels of body satisfaction (Fardouly et al., 2017). Social media platforms use algorithms designed to maximize user engagement by curating and repeatedly displaying content similar to what users have previously viewed, liked, or interacted with. In the context of body image, individuals who engage with appearance-focused content are likely to be shown more of the same. Over time, this creates a personalized media environment saturated with narrow and often unrealistic beauty ideals. This algorithmic reinforcement amplifies upward social comparison, as users are constantly exposed to idealized and usually edited representations of others' bodies (Myers & Crowther, 2009; Rancourt et al., 2015). The repetition of these images can distort perceptions of what is normal or attainable, leading to dissatisfaction with one's appearance (Riccio et al., 2024).

People who compare their bodies with those of strangers, such as actors and actresses, and media models, exhibit higher levels of body satisfaction. We predicted that, even if people compared themselves with strangers who possessed ideal body standards, those people did not have a close relationship with them. They did not need to interact with these strangers in daily life or at least physically meet them, unlike when they compare themselves with familiar people, such as family and peers. The likelihood of experiencing low body satisfaction increases when individuals compare their bodies and identify discrepancies, particularly in interactions with people who become targets of comparison (Rodgers et al., 2009). Furthermore, they may have been compared by other people they know, such as parents,

siblings, or peers in the same group, which decreases their levels of body satisfaction (Schaefer & Salafia, 2014).

These analyses found that biological and sociocultural factors play a significant role in shaping one's perception of their body. Rather than treating one dimension as more dominant, this research positions both equally significant for understanding body satisfaction, anxiety, and comparison. By integrating these perspectives, the study provides a more comprehensive understanding of the factors influencing body image, particularly in culturally diverse and media-saturated populations.

The findings of this study highlight the influence of social media and social comparison on body satisfaction and anxiety, suggesting critical practical implications (Aboody et al., 2020). One potential avenue is to implement educational interventions that enhance media literacy, particularly among adolescents and young adults (Seekis et al., 2017, 2020). These programs can help individuals critically evaluate online content and develop healthier coping strategies when facing pressure related to their appearance. Additionally, social campaigns that promote diverse and realistic body representations can counteract the narrow beauty standards often portrayed on social media. By encouraging platforms and influencers to share more inclusive and body-positive content, such campaigns may help reduce the negative impact of social comparison and foster greater body acceptance in the broader population.

This study has several limitations. We did not ask respondents about their ethnicity or perceptions of beauty standards in their region of residence. Therefore, our study cannot explain body satisfaction and body attitude based on ethnicity in Indonesia in more detail. This study employed an online survey, which may limit the generalizability of the findings. Individuals with limited internet access or lower digital literacy, often from rural or lower socioeconomic backgrounds, may be underrepresented in these initiatives. Therefore, the results reflect more of the population with better access to technology and may not fully capture the views of all segments of Indonesian society (Holmqvist & Frisén, 2009). This study is also not longitudinal; therefore, it cannot show the evolution of attitudes toward the body over time (Hockey et al., 2021). Future research should consider collecting detailed information about sociocultural aspects, such as ethnicity, relationships with family and peers, and respondents' views of beauty standards for men and women within their society. Additionally, future researchers could employ a longitudinal design to examine how attitudes toward the body change over time.

Conclusion

This study suggests that body satisfaction in Indonesian society varies due to cultural diversity, including phenotypic differences across the islands of Indonesia. Consequently, the levels of body satisfaction in Indonesian society are higher than those in Western societies, and the levels of body anxiety in Indonesian society are lower than those in Western societies. The study observed a negative correlation between body satisfaction, anxiety, and comparison in Indonesian society. In addition, the factors associated with body satisfaction and anxiety included place of residence, age, partnership status, body mass index (BMI), self-declaration, body comparison, and social media use. Generally, the patterns and factors associated with body satisfaction in Indonesian society were similar to those in other societies.

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