



# The Impact of Facebook Usage on Body Image and Self-Esteem Among Taiwanese Junior High School Students

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**Abstract:** This study examines the impact of specific Facebook activities (e.g., posting photos, comparing oneself to others) on body image (e.g., perceived attractiveness, weight concerns) and self-esteem (e.g., self-worth, confidence) among Taiwanese junior high school students to understand the potential psychological effects of these activities on adolescents. Using a cross-sectional survey design, 384 Taiwanese junior high school students completed self-administered questionnaires. Data were analyzed with SPSS software to explore the relationships between Facebook usage, body image, and self-esteem. Our study reveals that gender, grade, and Body Mass Index (BMI) play a crucial role in shaping body image, with a positive correlation between body image and self-esteem. Interestingly, Facebook usage does not moderate the relationship between body image and self-esteem among these students. These findings provide valuable insights into the factors influencing adolescent self-esteem and body image, shedding light on a complex issue. Our research has important implications for targeted interventions in psychology, education, and sociology to improve adolescent mental health. By understanding social media's influence on self-perception and self-esteem, we can develop strategies to mitigate adverse effects and promote healthier online behaviors. These applications underscore the practical relevance of our findings and their potential to inform and improve current practices. Our study breaks new ground by providing fresh insights into social media's effects on body image and self-esteem among Taiwanese adolescents. By highlighting Facebook usage's non-moderating role, our research contributes to a broader understanding of social media's psychological impact and encourages further exploration of this complex and vital area.

**Keywords:** Facebook usage, body image, self-esteem, self-perception, social media.

**Received:** 15 February 2024; **Accepted:** 21 March 2024; **Published:** 10 May 2024

## INTRODUCTION

Adolescents undergo significant physical and psychological changes during puberty. These transitions can negatively impact body image, especially among girls, as current beauty ideals emphasize thinness (Kostanski & Gullone, 1998). Poor body image is associated with reduced self-esteem, anxiety, and depression (Kostanski & Gullone, 1998). A 10-year longitudinal study also highlighted the persistence of body dissatisfaction from adolescence to young adulthood (Bucchianeri, Eisenberg, & Neumark-Sztainer, 2013).

Facebook use has been linked to body image concerns in adolescents. Features like photo posting and social comparison on Facebook promote unrealistic beauty ideals (Holland & Tiggemann, 2016). More time spent on

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Facebook predicts lower body satisfaction, while Facebook photo activities like posting selfies can worsen mood (Fardouly et al., 2015).

This study examines how Facebook use affects body image among adolescents. Since body image significantly impacts well-being, understanding this relationship is essential. By exploring Facebook's role, this research aims to provide insights that can help promote positive body image and healthy development in adolescents.

### ***Objectives of the Study***

Grounded in the background above and rationale, the present study aimed to:

- Examine body image perceptions among adolescent students in Taiwan.
- Assess Facebook usage behaviors among adolescent students in Taiwan.
- Investigate differences in body image based on key demographic variables, including gender, grade level, and BMI (Body Mass Index).
- Analyse the relationship between body image satisfaction and self-esteem among Taiwanese adolescents.
- Determine if Facebook use moderates the relationship between body image and self-esteem in this population.
- Provide empirical evidence regarding associations between social media use, body image, and psychological well-being in an understudied Asian population.
- Offer practical implications for promoting positive body image and self-esteem among adolescents.

The findings will clarify how a popular social media platform affects body image and self-concept during a critical developmental period. The results can guide educational initiatives and interventions to promote healthy self-attitudes and psychosocial functioning among teens.

### ***Research Problem/Novel Contribution***

The research addresses the problem of how social media usage, specifically Facebook, impacts adolescents' body image and self-esteem. The study uniquely contributes to the existing literature by examining these relationships in an understudied population Taiwanese junior high school students offering valuable insights for educational and psychological interventions.

## **LITERATURE REVIEW**

This section examines evidence on body image, social media impacts, and adolescent self-esteem. It outlines theoretical models of body image development, reviews discrepancies across gender, age, and BMI, and presents research on social media use, especially Facebook, and its effects on body image. Finally, it discusses the link between body satisfaction and self-esteem, establishing the rationale for this research.

### ***Body Image***

Body image refers to subjective perceptions and attitudes regarding physical appearance (Grogan, 2006). It is a multidimensional construct shaped by individual, social, and cultural factors. Body image becomes especially salient during adolescence due to rapid physical changes and increased appearance focus (Bucchianeri et al., 2013).

Research consistently shows gender differences in body image. Females exhibit greater appearance dissatisfaction than males across cultures (Webb et al., 2017). Sociocultural models posit that women face more pressure to adhere to beauty ideals, resulting in increased body surveillance and internalizing appearance standards (Fitzsimmons-Craft & Bardone-Cone, 2012). Experimental studies expose adolescent girls to appearance-related social media content, provoking increased negative mood and body dissatisfaction compared to boys (Fardouly & Holland, 2018).

Developmentally, body image declines across adolescence. Longitudinal data indicates that up to 45% of girls and 25% of boys report chronic body dissatisfaction from ages 15 to 19 (Bucchianeri et al., 2013). Trajectory modeling shows marked decreases in body satisfaction among girls ages 11 to 15, coinciding with pubertal timing (Loth, van den Berg, Eisenberg, & Neumark-Sztainer, 2008).

Body mass index (BMI) consistently predicts body dissatisfaction, with overweight or obese youth reporting poorer body image (Wheeler et al., 2019). However, some studies reveal BMI inaccuracies among adolescent girls who underreport weight due to appearance-related pressures (Quick, Wall, Larson, Haines, & Neumark-Sztainer, 2013).

With body image closely linked to self-esteem and psychological functioning, interventions aim to foster favorable embodiment and resilience among youth (McLean, Paxton, & Wertheim, 2016). Schools are vital in promoting healthy

body image development (Yager, Diedrichs, Ricciardelli, & Halliwell, 2013).

Body image is crucial during adolescence. Further research should explore demographic variations and risk factors to enhance health promotion efforts.

### ***Self-Esteem***

Self-esteem is an individual's subjective evaluation of and attitude toward the self (Rosenberg, 1965). It encompasses beliefs about worthiness, competence, capabilities, and significance. Self-esteem is a critical psychological construct linked to motivation, emotional states, and psychosocial functioning (Orth & Robins, 2014).

Classical models view self-esteem as a uni-dimensional global attitude toward the self that remains relatively stable over time and context (Rosenberg, 1965). However, contemporary perspectives conceptualize self-esteem as multi-faceted evaluations of competence or worth in specific domains like social, academic, family, and physical self-esteem. Ongoing debates continue regarding its dimensional structure and developmental trajectories (Lee & Hankin, 2009); (Brummelman et al., 2015).

Research documents age-related declines in self-esteem across adolescence, with females exhibiting lower levels than males starting early adolescence (Bleidorn et al., 2016); (Steiger, Allemand, Robins, & Fend, 2014). Physical self-esteem appears especially vulnerable during pubertal changes in body image (Lindwall, Aşçi, Palmeira, Fox, & Hagger, 2011). Trajectories of self-esteem predict concurrent and prospective mental health, relationship quality, and life satisfaction (Lee & Hankin, 2009); (Steiger et al., 2014). Interventions often aim to foster self-esteem as a protective factor for youth (Yeager, Lee, & Jamieson, 2016).

Classical models view self-esteem as a stable trait, but contemporary theories propose it has multiple domains susceptible to contextual influences (Orth & Robins, 2014). For example, adolescents show declines in social and athletic self-esteem across puberty, with peer interactions predicting changes. Neuroimaging studies reveal that self-esteem is associated with structural variations in the medial prefrontal cortex (Onoda et al., 2010). These findings underscore the complex, multidimensional nature of self-esteem.

In summary, self-esteem is a vital correlate and predictor of health and well-being outcomes. Further research should clarify contextual factors and mechanisms influencing self-esteem development in diverse populations. The present study adopts a unidimensional model to examine self-esteem associations with body image and social media use in adolescents.

### ***Facebook Use***

Facebook has become one of the most popular social media platforms globally, especially among adolescents. Unique features like personalized profiles, news feeds, and social networking tools facilitate self-presentation and social interaction. Users craft customized profiles with photos and updates to express their identity and seek peer validation (Siibak, 2009).

Facebook serves essential social functions for youth by fulfilling needs for connection and belonging. Adolescents interact through likes, comments, messaging, and sharing to maintain relationships and social capital. Females use Facebook for communication, while males are drawn to entertainment features.

However, Facebook also presents risks regarding self-evaluation. Adolescents carefully curate profiles to garner likes as objective metrics of social standing (Sherman, Payton, Hernandez, Greenfield, & Dapretto, 2016). Social comparisons and appearance-focused feedback on photos can provoke body dissatisfaction (Fardouly & Holland, 2018). Young women exposed to idealized Facebook images exhibit increased negative mood and body concerns compared to males (Fardouly & Holland, 2018).

Heavier Facebook use predicts declining self-esteem and life satisfaction among teenage girls and is linked to body image dissatisfaction. Facebook's role in adolescent development is complex. Further research should explore its impacts on well-being, social belonging, and identity formation. This study examines the associations between Facebook use, body image, and self-esteem.

### ***Relationships Between Variables***

**Body image and self-esteem** : Body image dissatisfaction is associated with lower self-esteem in youth (Lindwall et al., 2011); Webb et al., 2017). Adolescents reporting poorer appearance evaluations tend to have decreased global self-worth. Experimental studies reveal that social media exposure negatively impacts body satisfaction and self-esteem,

especially among teenage girls (Veldhuis, Konijn, & Seidell, 2014). Interventions fostering favorable embodiment can buffer against declines in self-concept (McLean et al., 2016).

**Body image and facebook use :** Facebook use predicts body image concerns through appearance-focused social comparisons (Fardouly & Holland, 2018). Adolescent girls report more weight and shape preoccupation after Facebook exposure than entertainment websites (Tiggemann & Slater, 2013). Time on Facebook correlates with body dissatisfaction, while self-photo posting elicits negative self-conscious emotions (McLean et al., 2016). Facebook addiction shows associations with body image disturbances among youth (Marengo, Longobardi, Fabris, & Settanni, 2018).

**Self-esteem and facebook use :** Studies reveal complex links between Facebook use and self-esteem among adolescents. Heavy social media use, including Facebook, predicts declines in self-worth over time for teenage girls (Woods & Scott, 2016). However, positive feedback via likes or comments may bolster self-esteem (Valkenburg, Peter, & Schouten, 2006). Effects likely depend on user traits and motivations (Lee & Hankin, 2009).

### Research hypothesis

Based on the existing literature, the following hypotheses were formulated to examine the relationships between body image, self-esteem, and Facebook use in adolescents:

**Background variables and body image :** Previous studies have shown gender differences in body image, with girls reporting greater dissatisfaction than boys (Webb et al., 2017). Body image also declines with age during adolescence (Loth et al., 2008). A higher BMI is associated with poorer body image (Webb et al., 2017). Therefore, it is hypothesized that:

H<sub>1-1</sub> : Body image will differ by gender. H<sub>1-2</sub> : Body image will differ by grade level. H<sub>1-3</sub> : Body image will differ by BMI category.

**Relationship between body image and self-esteem :** Body image has been linked to self-esteem in adolescents. Those with more positive body image tend to have higher self-esteem. Poor body image is associated with lower self-esteem (Webb et al., 2017). Thus, it is hypothesized that:

H<sub>2</sub> : Body image will be positively correlated with self-esteem.

**Moderating effect of Facebook use :** Frequent Facebook use and activities have been associated with body dissatisfaction and lower self-esteem (Fardouly & Holland, 2018); (Marengo et al., 2018). Social comparison and self-presentation on Facebook may exacerbate concerns about appearance (Fardouly & Holland, 2018). Therefore, it is hypothesized that:

H<sub>3</sub> : Facebook use will moderate the relationship between body image and self-esteem.

### Research framework

This study explores the correlations between body image, Facebook use behaviors and adolescent self-esteem. The following research framework (Figure 1) was proposed based on the literature review to achieve the research purpose.

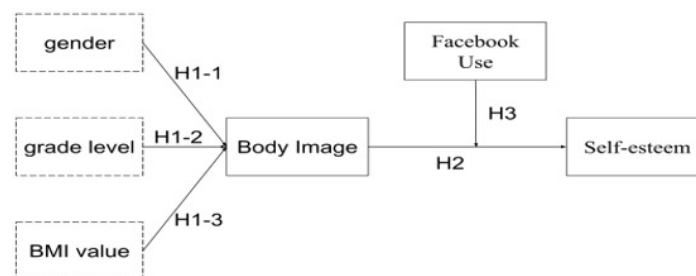


Figure 1 *Research Framework*

The research framework contains three primary constructs:

- **Body image:** Refers to an individual's subjective perceptions and attitudes toward their own body, including aspects such as appearance evaluation and body area satisfaction.

- Facebook use: Refers to an individual's behaviors on Facebook, including time spent, the intensity of use, social interactions, and related dimensions.
- Self-esteem: Refers to an individual's subjective evaluation of their self-worth, representing self-acceptance.

## METHODOLOGY

This study collected data on the three constructs via questionnaire surveys. It used statistical methods to analyze their correlations to examine whether Facebook use behaviors moderate the relationship between body image and self-esteem. It is hoped that the results can provide insights into how Facebook use impacts adolescents' body image and self-esteem as a reference for promoting healthy self-concept among adolescents.

### *Research Instruments*

The questionnaire was developed based on a literature review, modified from existing scales, and refined through a pilot study. It uses a self-report format to examine body image, Facebook use, self-esteem, and demographic information in junior high school students. There are four sections:

**Body image questionnaire :** This study uses (Cash, 2000) MBSRQ to measure body image across five subscales: Appearance Orientation, Overweight Preoccupation, Height Preoccupation, Appearance Evaluation, and Body Areas Satisfaction. Items are rated on a 4-point scale from "strongly disagree" to "strongly agree," with higher scores indicating a more positive body image. Negative items are reverse-scored. See Table 1 for details.

Table 1 *Body image questionnaire scoring and description*

Subscale	Meaning	Implication of Score
Appearance Orientation	Level of emphasis on physical appearance	Higher scores indicate greater emphasis on physical appearance and more efforts to enhance it.
Overweight Preoccupation	Level of concern about obesity and being overweight	Higher scores indicate more significant concern about obesity and being overweight; lower scores indicate less concern.
Height concern	Level of caring about increasing height	Higher scores indicate a greater desire to increase height; lower scores indicate less desire.
Appearance Evaluation	Level of confidence in physical appearance	Higher scores indicate greater confidence in one's physical appearance.
Body Area Satisfaction	Level of satisfaction with different body areas	Higher scores indicate greater satisfaction with one's different body areas.

**Facebook use questionnaire :** Adapted from (Tiggemann & Slater, 2013) and (Tiggemann & Slater, 2014), this assesses Facebook use and its impact on body image, examining time spent, number of friends, emotional investment, use of appearance-related features, and social comparisons. Items are rated on a 4-point scale from "never" to "always," with higher scores indicating greater use and investment (see Table 2).

Table 2 Facebook use questionnaire scoring and description

Subscale	Meaning	Implication of Score	Scoring
Time spent	Average time spent on Facebook per day in the past week.	Higher scores indicate more time spent on Facebook daily.	1 30min = 1 point 30min 1hr = 2 points 1 2hr = 3 points 2 3hr = 4 points Over 3 hr = 5 point
Number of friends	Number of friends the respondent has on Facebook.	Higher scores indicate having more friends on Facebook.	Under 50 = 1 point 51 100 = 2 points 101 200 = 3 points 201 300 = 4 points 301 400 = 5 points Over 401 = 6 points
Facebook usage intensity	Level of emotional investment in Facebook.	Higher scores indicate more excellent emotional investment in Facebook.	Scored on a 4-point scale from Strongly Disagree to Strongly Agree (1-4 points).
Use of appearance-related Facebook functions	Use of Facebook functions related to physical appearance.	Higher scores indicate more significant use of Facebook functions related to physical appearance.	Scored on a 4-point frequency scale from Never to Always (1-4 points).
Social comparison on Facebook	Comparing one's physical appearance and dress on Facebook with others.	Higher scores indicate more frequent social comparisons on Facebook regarding appearance.	Scored on a 4-point frequency scale from Never to Always (1-4 points).

**Rosenberg self-esteem scale** : (Rosenberg, 1965) widely used scale measures overall self-worth. Items are rated on a 4-point scale from "strongly disagree" to "strongly agree," with higher scores indicating higher self-esteem. Negative items are reverse-scored. This scale evaluates an individual's overall self-evaluation of self-worth, where higher scores imply higher, more positive self-esteem.

**Background information questionnaire** : This questionnaire collects participants basic personal information, including: Gender: Male or female. Grade level: Participants' current grade in junior high school, divided into 7th, 8th, or 9th grade. Age: Participants fill in their date of birth, which is used to calculate their actual age in years and corresponding grade level. Height and weight: Participants self-reported their height in cm and weight in kg. Body mass index (BMI) is calculated from height and weight using the standard formula of weight (kg) divided by height squared (m<sup>2</sup>). BMI is used to assess the level of obesity. Based on established cut-off points for adolescents, BMI values are classified into four categories: underweight, average weight, overweight, and obese. For example, for males aged 13, a BMI of 15.7 or below is classified as underweight, 15.7-21.9 as average weight, 21.9-24.5 as overweight, and above 24.5 as obese. These cut-off points vary slightly by age and gender.

## RESULTS/FINDINGS

### *Sample Characteristics*

The study surveyed 384 junior high school students in northern, central, and southern Taiwan across 7th to 9th grades, with a valid response rate of 98.4%. The sample comprised 176 males (45.8%) and 208 females (54.2%), indicating a male-to-female ratio of 0.84:1.

Regarding grade levels, there were 117 7th graders (30.5%), 167 8th graders (43.5%), and 100 9th graders (26.0%). For body mass index (BMI), 33 students were underweight (8.6%), 248 standard weight (64.6%), 50 overweight (13.0%), and 53 obese (13.8%). The majority were in the normal BMI range.

### **Body Image Analysis**

**Adolescent Body Image Status :** Body image status was assessed using the Body Image Questionnaire. As shown in Tables 3 and 4, appearance orientation, overweight preoccupation, and height concern were examined as the body image concern construct.

Table 3 *Body image concern*

Subscale	Lowest Score	Highest Score	Average	Standard Deviation	t-value/ p	Number of Questions
Body image concern	26	52	2.85	0.59	107.44 ***	13
appearance orientation	10	32	2.95	0.6	95.23 ***	8
overweight preoccupation	2	8	2.69	0.99	53.07 ***	2
Height concern	3	12	2.92	0.99	57.78 ***	3
Appearance evaluation	4	16	2.57	0.61	82.33 ***	4
Body area satisfaction	10	36	2.63	0.65	79.19 ***	9

Table 4 *Response Frequencies for Appearance Evaluation and Body Image Concern Subscales*

Subscale	No.	Question	Number of respondents (percentage)			
			Strongly Disagree	Disagree	Agree	Strongly Agree
Appearance Evaluation	6	I like my appearance	15 -3.9	90 -23.4	199 -51.8	80 -20.8
	7	Most people think I am good-looking	52 -13.5	188 -49	120 -31.3	24 -6.3
	8	I think my physical appearance is attractive	69 -18	192 -50	97 -25.3	26 -6.8

Table 5 Cont...

Subscale	No.	Question	Number of respondents (percentage)			
			Strongly Disagree	Disagree	Agree	Strongly Agree
Appearance Orientation	9	I like to wear tight clothes to accentuate my physique	31	95	146	112
			-8.1	-24.7	-38	-29.2
	10	I buy clothes that showcase my physique	12	47	126	199
			-3.1	-12.2	-32.8	-51.8
	11	Whenever I can, I look in the mirror to groom myself	30	85	123	146
			-7.8	-22.1	-32	-38
	12	I often use beauty and hair products (e.g., hair styling, skincare, makeup, accessories, etc.)	156	104	66	58
			-40.6	-27.1	-17.2	-15.1
	13	I pay close attention to whether my dress is appropriate	15	88	159	122
			-3.9	-22.9	-41.4	-31.8
	14	I do not care if my clothes match or not	113	157	68	46
		-29.4	-40.9	-17.7	-12	
	15	I care about my hairstyle	23	82	125	154
		-6	-21.4	-32.6	-40.1	
	16	I do not care about my appearance at all	184	147	33	20
		-47.9	-38.3	-8.6	-5.2	



Table 6 Cont...

Subscale	No.	Question	Number of respondents (percentage)			
			Strongly Disagree	Disagree	Agree	Strongly Agree
Overweight Preoccupation	17	I care about changes in my physique	29	77	150	128
			-7.6	-20.1	-39.1	-33.3
	18	I worry about being or becoming overweight	68	60	106	150
Height Concern			-17.7	-15.6	-27.6	-39.1
	19	Even slight weight or physique changes concern me	76	122	100	86
			-19.8	-31.8	-26	-22.4
	20	I worry about being too short or not growing taller	89	84	78	133
			-23.2	-21.9	-20.3	-34.6
	21	I feel that my height is not tall enough	69	67	97	151
			-18	-17.4	-25.3	-39.3
	22	I hope I can grow taller	39	42	85	218
			-10.2	-10.9	-22.1	-56.8

The 4-point questionnaire scale ranged from 1 to 4, with a midpoint of 2.50. The mean score of 2.85 for body image concern was significantly higher than the midpoint ( $t = 57.44, p < .001$ ), indicating high concern among adolescents. Mean scores for appearance orientation (2.95), overweight preoccupation (2.69), and height concern (2.92) also exceeded the midpoint. Notably, 86.2% of adolescents disagreed/strongly disagreed that they do not care about their appearance, and 84.6% would choose clothes to enhance their appearance.

Although overweight preoccupation had the lowest mean among the three aspects, 66.7% still worried about being or becoming overweight, suggesting a discrepancy between perceived and actual weight, as only 26.8% were overweight/obese based on BMI. The overall mean score for body area satisfaction exceeded the midpoint, covering all body areas. Further analysis of each item's mean scores and percentages provides insight into adolescents' satisfaction with specific body areas, as shown in Table 5. Mean satisfaction scores for face, hair, chest, waist, hips, muscles, and overall appearance (2.51-3.04) exceeded the midpoint. Adolescents were most satisfied with their hair (78.4%), which can be flexibly styled, but showed below-average satisfaction with their legs (thighs/calves) and body shape (2.39-2.48), indicating general dissatisfaction with these areas.

Table 7 Body Areas Satisfaction Item Means and Response Frequencies

Question Number	Body Part Satisfaction	Mean	Standard Deviation	Number of Respondents(Percentage)			
				Very Dissatisfied	Dissatisfied	Satisfied	Very Satisfied
23	Face	2.76	0.75	14	124	186	60
				-3.6	-32.3	-48.4	-15.6
24	Hair	3.04	0.76	10	73	192	109
				-2.6	-19	-50	-28.4
25	Chest	2.72	0.84	30	113	173	68
				-7.8	-29.4	-45.1	-17.7
26	Waist, abdomen	2.55	0.94	56	126	134	68
				-14.6	-32.8	-34.9	-17.7
27	Buttocks	2.51	0.91	57	130	141	56
				-14.8	-33.9	-36.7	-14.6
28	Legs (thighs, calves)	2.39	0.99	85	122	118	59
				-22.1	-31.8	-30.7	-15.4
29	Muscles	2.59	0.88	42	135	144	63
				-10.9	-35.2	-37.5	-16.4
30	Body shape	2.48	0.94	60	140	121	63
				-15.6	-36.5	-31.5	-16.4
31	Overall appearance	2.66	0.83	32	122	172	58
				-8.3	-31.8	-44.8	-15.1

**Body Image Differences by Demographics** : Independent samples t-tests and one-way ANOVAs were used to examine hypothesized differences in body image across gender, grade level, and BMI category.

**Gender** : Significant differences were found for several subscales, supporting H1-1: Appearance Orientation: Females showed more significant concern regarding appearance (M = 25.21, SD = 4.34) than males (M = 21.76, SD = 4.79), with a t-value of -7.39 ( $p < .001$ ). Overweight Preoccupation: Females were more concerned about being overweight (M = 5.92, SD = 1.83) compared to males (M = 4.75, SD = 1.98), with a t-value of -5.04 ( $p < .001$ ). Height Concern: Males were more preoccupied with height (M = 9.10, SD = 2.71) than females (M = 8.50, SD = 3.16), with a t-value of 1.99 ( $p < .05$ ). Additionally, males scored significantly higher on: Appearance Evaluation: Males (M = 10.66, SD = 2.53) compared to females (M = 9.97, SD = 2.33), with a t-value of 2.79 ( $p < .01$ ). Body Area Satisfaction: Males (M = 25.06, SD = 6.22) compared to females (M = 22.61, SD = 5.31), with a t-value of 3.98 ( $p < .01$ ). Females had higher overall body image concerns (M = 39.64, SD = 6.57) compared to males (M = 35.61, SD = 6.63), with a t-value of -5.95 ( $p < .001$ ). No significant differences were found for total body image between males (M = 78.82, SD = 11.48) and females (M = 79.63, SD = 9.82), with a t-value of -.750.

**Grade Level** : Significant differences emerged for appearance evaluation, body area satisfaction, and appearance orientation among different grades, partially supporting H1-2. Seventh graders showed more positive body image compared to eighth and ninth graders. No significant grade differences were found for overweight preoccupation or height concern, although mean scores suggested general preoccupation across grades. For appearance evaluation, seventh graders had a mean score of 11.03 (SD = 2.51), eighth graders 9.84 (SD = 2.30), and ninth graders 10.16 (SD = 2.42). The differences were significant ( $F(2, 381) = 8.64, p < .001$ ). For body area satisfaction, the mean score for seventh graders was 26.24 (SD = 5.67), for eighth graders 22.24 (SD = 5.18), and for ninth graders 23.29 (SD = 6.26). The differences were significant ( $F(2, 381) = 18.37, p < .001$ ). For appearance orientation, seventh graders scored 23.79 (SD = 4.96), eighth graders 22.99 (SD = 4.84), and ninth graders 24.50 (SD = 4.66). The differences were significant ( $F(2, 381) = 3.13, p < .05$ ). There were no significant grade differences for overweight preoccupation ( $F(2, 381) = 0.60$ ,

$p = .54$ ) or height concern ( $F(2, 381) = 0.41, p = .66$ ). For total body image, seventh graders had a mean score of 83.12 ( $SD = 10.62$ ), eighth graders 76.50 ( $SD = 10.46$ ), and ninth graders 79.31 ( $SD = 9.44$ ). The differences were significant ( $F(2, 381) = 14.46, p < .001$ ).

**BMI category:** Underweight and normal-weight adolescents reported significantly higher appearance evaluation and body area satisfaction than obese peers, supporting H1-3. Obese adolescents also showed greater overweight preoccupation than underweight and normal-weight groups. Underweight adolescents had a mean appearance evaluation score of 11.27 ( $SD = 2.40$ ), normal-weight adolescents had a mean score of 10.43 ( $SD = 2.48$ ), overweight adolescents had a mean score of 9.86 ( $SD = 2.41$ ), and obese adolescents had a mean score of 9.39 ( $SD = 2.00$ ). These differences were significant ( $F(3, 380) = 5.08, p < .01$ ). For body area satisfaction, underweight adolescents scored 27.84 ( $SD = 5.11$ ), normal-weight adolescents 23.93 ( $SD = 5.90$ ), overweight adolescents 22.64 ( $SD = 5.25$ ), and obese adolescents 21.28 ( $SD = 5.31$ ). These differences were significant ( $F(3, 380) = 10.85, p < .001$ ). Regarding overweight preoccupation, obese adolescents had a mean score of 10.05 ( $SD = 2.00$ ), significantly higher than underweight (4.90,  $SD = 2.29$ ) and normal-weight adolescents (7.65,  $SD = 2.80$ ), indicating a more significant concern about being overweight ( $F(3, 380) = 18.06, p < .001$ ). No significant differences were found among BMI categories for body image concern ( $F(3, 380) = 2.25, p = .08$ ), appearance orientation ( $F(3, 380) = 2.34, p = .07$ ), height concern ( $F(3, 380) = 0.43, p = .73$ ), or total body image ( $F(3, 380) = 2.13, p = .09$ ). These results indicate that underweight and normal-weight adolescents generally have a more positive body image compared to their obese peers, who exhibit higher levels of concern about being overweight.

### **Facebook Use Analysis**

Of the 384 adolescents surveyed, Facebook use behaviors were relatively low, with a mean score of 2.24 ( $t = 56.43, p < .001$ ). However, adolescents showed high emotional investment in Facebook, with a mean score of 2.55, and many Facebook friends, averaging 3.53. The use of appearance-related Facebook functions was moderate, with a mean score of 2.27, and social comparisons on Facebook were limited, with a mean score of 1.89. Facebook use time, you had a mean score of 2.68 ( $t = 35.09, p < .001$ ), while the number of Facebook friends averaged 3.53 ( $t = 38.93, p < .001$ ). The overall score for Facebook use intensity was 2.28 (mean of 38.82,  $t = 56.43, p < .001$ ), indicating significant engagement. The use of Facebook functions related to physical appearance had a mean score of 2.27 ( $t = 51.75, p < .001$ ), and comparing physical appearance with others on Facebook had a mean score of 1.89 ( $t = 52.19, p < .001$ ).

### **Relationships Between Variables**

Body image significantly predicted self-esteem ( $\beta = .413, p < .001$ ), supporting H2. However, no significant moderating effects of Facebook use on this relationship were found, contrary to H3. The hierarchical regression analysis of Facebook use intensity and body image significantly predicted self-esteem ( $\beta = .413, p < .001$ ). This prediction remained significant even after introducing Facebook use intensity ( $\beta = -.132, p < .01$ ) and the interaction term ( $\beta = .022, p > .05$ ). The  $R^2$  increased from .171 to .187, with F-values of 78.519, 7.419, and .218 for Models A, B, and C respectively. Similarly, in the hierarchical regression analysis of using Facebook functions related to physical appearance, body image remained a significant predictor of self-esteem ( $\beta = .413, p < .001$ ). This held even after accounting for the use of appearance-related Facebook functions ( $\beta = -.159, p < .01$ ) and their interaction ( $\beta = .006, p > .05$ ). The  $R^2$  increased from .171 to .192, with F-values of 78.519, 9.944, and .018 for Models A, B, and C respectively.

In the hierarchical regression analysis of comparing physical appearance with others on Facebook, body image again significantly predicted self-esteem ( $\beta = .413, p < .001$ ). This prediction remained significant after introducing comparisons with others ( $\beta = -.218, p < .001$ ) and the interaction term ( $\beta = .085, p > .05$ ). The  $R^2$  increased from .171 to .221, with F-values of 78.519, 21.144, and 3.339 for Models A, B, and C respectively.

## **DISCUSSION/ANALYSIS**

The present study examined the relationships between body image, self-esteem, Facebook use, and demographic factors among Taiwanese adolescents. Key findings are discussed below.

### **Body Image**

In line with previous research (Loth et al., 2008), Taiwanese adolescents displayed high levels of appearance orientation and body image concerns overall. Girls reported greater dissatisfaction than boys regarding weight and

body concerns, while boys were more preoccupied with height (Webb et al., 2017). These gender differences align with sociocultural models of body image development (Fitzsimmons-Craft & Bardone-Cone, 2012).

Additionally, 7th graders showed more positive body image than 8th and 9th graders (Loth et al., 2008), suggesting age-related declines. Overweight/obese adolescents also reported poorer body satisfaction than normal/underweight peers, consistent with prior studies. Overall, findings highlight the need for interventions promoting healthy embodiment and resilience among youth (McLean et al., 2016); (Yager et al., 2013).

### ***Self-Esteem***

The results showed that body image satisfaction significantly predicted adolescent self-esteem levels, aligning with previous studies (Steiger et al., 2014). Students reporting more positive body image evaluations and more significant body area satisfaction tended to have higher global self-worth. This highlights the need to promote favorable embodiment to buffer against adolescent self-concept declines (McLean et al., 2016).

No moderating effects of Facebook use on the relationship between body image and self-esteem were found. However, other studies have linked frequent social media use to lower self-esteem in teenage girls. This sample's limited appearance-focused Facebook use may explain the lack of observed effects. Further research is needed to clarify the complex links between social media engagement, body image, and self-perceptions during adolescence.

### ***Facebook Use***

Most adolescents reported having a Facebook account, with 400+ friends being the most common, reflecting its social networking capability. However, the duration of daily usage was generally low, contrasting with research on older adolescents (Siibak, 2009). Teens showed higher emotional investment but limited use of appearance-related functions, likely due to academic pressures and multimedia engagement. Still, social media literacy initiatives remain vital for this vulnerable group (O'Keeffe, Clarke-Pearson, et al., 2011).

### ***Relationships Between Variables***

Aligning with previous studies (Tiggemann & Slater, 2013), body image positively predicted self-esteem. However, contrary to hypotheses, Facebook use did not significantly moderate this relationship. The low intensity and appearance focus of Facebook use in the present sample may account for the lack of moderating effects observed in older adolescents by some scholars (Fardouly & Holland, 2018).

## **CONCLUSION**

This study successfully achieved its objectives by examining the impact of Facebook usage on body image and self-esteem among Taiwanese junior high school students. Through a cross-sectional survey involving 384 students, the research found significant relationships between gender, grade, BMI, and body image concerns. It also established a positive correlation between body image and self-esteem. However, contrary to the initial hypothesis, Facebook usage did not moderate the relationship between body image and self-esteem. These findings provide valuable insights into the complex interplay of factors influencing adolescent self-esteem and body image, contributing to the broader understanding of social media's psychological impact on adolescents.

## **LIMITATIONS AND STUDY FORWARD**

This study had several limitations. The cross-sectional self-report design precludes causal conclusions, and the convenience sample from one region of Taiwan may limit generalizability. Further qualitative or longitudinal research could provide more comprehensive insights. Expanding the age range and locations and including peer, parental, and teacher reports would also be beneficial.

Overall, the findings provide initial evidence of the associations between body image concerns, social media engagement, and self-perceptions in an understudied Asian adolescent population. These results affect educational initiatives to improve self-attitudes and psychosocial well-being among youth.

The findings underscore the need for multidisciplinary interventions to promote favorable embodiment and resilience in adolescents. As social media permeates youth culture, further research should explore its complex impact on psychosocial well-being using mixed qualitative and experimental methods. Examining self-concept development during puberty would also be valuable.

## ACKNOWLEDGEMENT

I sincerely thank my family for their unwavering support during this research. Special thanks to my parents for their encouragement, my partner for their patience and understanding, and my children for their love and joy. Your support has been invaluable.

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