Development and Evaluation of a Survey Instrument: Investigating the Influence of Social Media on Body Image Perception among Adolescents in Malaysian Public Boarding Schools

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***Abstract*—Concerns have been raised regarding the influence of social media usage on body image perception among adolescents, particularly among vulnerable groups such as students attending public boarding schools in Malaysia. According to research, exposure to idealized body images on social media may contribute to negative body image perceptions and dissatisfaction. Nevertheless, research on this relationship in Malaysian public boarding schools is scarce, which has prompted the creation of a survey instrument for the purpose of investigation. The objective of this research is to create and assess a survey instrument that can be utilized by adolescents attending public boarding schools in Malaysia to investigate the frequency and duration of social media usage, the types of platforms that impact body image perception, mediating factors, and gender disparities. The study was conducted in eight phases, with instruments designed in accordance with developmentally appropriate guidelines. The survey instrument was created using a thorough literature review, feedback from subject matter experts, and pilot testing. Validity was assessed using face and content validity, with Cronbach's alpha coefficient used to determine reliability. Initial concerns about reliability were addressed through changes discovered during pilot testing. The pilot study found that the respondents, who were mostly Malay Muslim students, were very active on social media, particularly on platforms like WhatsApp and TikTok. Gender differences were evident in preferred body types, with females preferring thin and curvy figures and males favoring muscular or athletic physiques. Despite maintaining neutral attitudes toward certain social media activities, respondents admitted to being emotionally affected by negative comments about their appearance. The final version of the instrument is made available online and is completely ready for use in collecting real data from secondary boarding school students aged 12 to 18.**

***Keywords*—social media, body image, adolescents, boarding schools**

I. Introduction

Social media platforms have become ubiquitous in the lives of adolescents all over the world, allowing them to communicate, express themselves, and interact with others. With the growing use of social media among adolescents, concerns have been raised regarding its potential impact on body image perception, particularly among vulnerable populations such as Malaysian public boarding school students. The influence of social media on body image perception among adolescents is a topic of increasing concern, with research indicating that exposure to idealized body images and unrealistic beauty standards on social media may contribute to negative body image perceptions, low self-esteem, and body dissatisfaction [1–4]. Adolescents in their formative years of identity development are especially vulnerable to the influence of social media messages, which they may internalize as societal norms, resulting in adverse psychological outcomes [5–7].

Furthermore, research has found a link between social media use and body image dissatisfaction in adolescents, with frequent exposure to images of thinness and attractiveness leading to increased body dissatisfaction and disordered eating behaviors [3, 4, 8, 9]. This relationship is exacerbated by the interactive nature of social media platforms, where adolescents engage in social comparison and self-presentation activities that can negatively impact on their body image perceptions [8, 10].

Malaysian public boarding schools provide a unique setting for investigating the influence of social media on adolescent body image perception. These schools often serve as residential institutions, where adolescents spend a significant amount of time away from parental supervision, making them vulnerable to the pervasive influence of social media. Furthermore, Malaysian society's diverse cultural and religious backgrounds may shape adolescents' perceptions of body image differently than those in Western contexts, warranting further investigation into the specific dynamics involved. Despite the growing recognition of the importance of understanding the relationship between social media use and body image perception among adolescents, limited research has been conducted in Malaysian public boarding schools [11]. Furthermore, the development and evaluation of survey instruments designed to assess social media's influence on body image perception among Malaysian adolescents remain relatively unexplored.

Therefore, the current study seeks to fill these gaps by developing and evaluating a survey instrument designed specifically to investigate the influence of social media on body image perception among adolescents in Malaysian public boarding schools. The main objectives of the study are to develop a valid and reliable instrument that can 1) examine

the frequency and duration of social media usage among adolescents in Malaysian public boarding schools and its correlation with body image perception, 2) investigate the types of social media platforms and content influencing body image perception among adolescents in Malaysian public boarding schools, 3) identify mediating factors in the relationship between social media usage and body image perception among adolescents in Malaysian public boarding schools, such as social comparison, age, gender, socioeconomic status, interactive features on social media platforms, and exposure to unrealistic beauty standards, and 4) exploring potential gender differences in social media usage and body image perception among male and female adolescents in Malaysian public boarding schools. By systematically examining the survey instrument's development, validity, and reliability, this study attempts to provide valuable insights into the complex interplay between social media use and body image perception among adolescents in a unique cultural and educational setting.

II. Literature Review

A. Social Media Use and Body Image Perception among Adolescents

Adolescence is a critical period characterized by increased susceptibility to social influences, including those disseminated via social media platforms. Numerous studies investigated the relationship between social media use and body image perception in adolescents, revealing complex dynamics influenced by various factors, including social comparison, age, gender, socioeconomic, interactive features on social media platforms, and exposure to unrealistic beauty standards. Research conducted in Western contexts has revealed the prevalence of idealized body images on social media, which contributes to unrealistic beauty standards and body dissatisfaction among adolescents [7–9, 12].

According to Gary Goldfield, PhD, of Children's Hospital of Eastern Ontario Research Institute [13], the adolescent stage is a sensitive period for the onset of body image concerns, eating disorders, and psychological distress. This is particularly concerning given that youth are spending an average of six to eight hours per day on screens, much of which is on social media. Exposure to hundreds or even thousands of images and photos on social media, including those of celebrities and models, can lead to an internalization of unattainable beauty ideals, resulting in greater dissatisfaction with body weight and shape [13–17].

B. Theoretical Frameworks in Body Image and Social Media Research

Theoretical frameworks shed light on the underlying mechanisms governing the relationship between social media use and body image perception in adolescents. According to Festinger's social comparison theory, people compare themselves to others to assess their own abilities, opinions, and social status [1]. Adolescents engage in upward social comparison on social media platforms, which causes feelings of inadequacy and dissatisfaction [2]. For instance, male adolescents might compare themselves to muscular and toned men on social media, which could lead to body dissatisfaction if they perceive themselves as not meeting that ideal. Female adolescents, on the other hand, might compare themselves to celebrities or social media influencers who have a certain body shape or size, which could also lead to negative body image and self-esteem. Furthermore, objectification theory proposes that exposure to objectifying media messages causes people to internalize societal norms about appearance and self-worth, which contributes to body image issues [18].

The integration of theoretical frameworks into body image and social media research improves our understanding of the underlying processes and mechanisms involved. Researchers can use theoretical perspectives to identify key factors influencing body image perception, such as social comparison processes and objectification experiences [18, 19]. These theoretical insights influence the design of research instruments and the interpretation of results within a larger conceptual framework.

C. Boarding School Adolescents

Secondary school students generally belong to the adolescent age group, which typically ranges from around 12 to 18 years old. Secondary school is a crucial time for adolescents as they prepare for their future education and career paths, and boarding schools can provide a unique environment for them to learn, grow, and develop important skills for their future success. Adolescents attending boarding school are at a higher risk of vulnerability compared to their peers due to various factors. These include prolonged separation from their families and support systems, exposure to social pressures, and heightened academic demands.

Schaverien [20] pointed out that individuals who attended boarding school from a young age face challenge, one of which is the severance of attachment to their primary caregiver. This severance of attachment can have significant implications for mental health when a child is sent away to boarding school at a young age. This is because attachment is a fundamental aspect of healthy emotional development, and disruptions to attachment can lead to issues such as anxiety, depression, and difficulty forming relationships in adulthood. Individuals who have attended boarding school from a young age may experience various psychological difficulties, such as problems with self-esteem, self-reliance or controlling behaviours, relationship difficulties, depression, anxiety, and perfectionist tendencies. These difficulties can have a significant impact on different aspects of an individual's life and well-being. Schaverien argues that these difficulties are not well-recognized or acknowledged within the fields of psychology or mental health [20–22].

According to Duffell, individuals who attended boarding school learned to hide their emotions and not express them openly, which could have lasting effects on their mental health and wellbeing [23, 24]. The suppression of emotions may also make it more difficult for these individuals to form close relationships and seek support when they are struggling. Furthermore, they may feel the need to mould themselves to fit in with their peers to avoid being excluded from the group. This need to be liked and included by others is more pronounced in the boarding school environment as children do not have the opportunity to go home and receive individual attention from their parents. Instead, they are one of many in the boarding school environment, which can lead

to feelings of unimportance. Boarding school attendees may struggle with their identity and individuality due to the intense pressure to conform to social norms and expectations within the boarding school community [25].

III. Methodology

For the development of a developmentally appropriate instrument, this research follows guidelines proposed by Arthur *et al.* [26], which advocate for surveying youth between the ages of 9 and 18. The survey instrument is intended for use among secondary school students, commonly referred to as adolescents, who attend Malaysian public boarding schools. Its purpose is to investigate their body image perception in relation to social media usage. Adhering to the World Health Organization's definition, adolescents are typically categorized as individuals aged 10–24 years old. However, this research specifically targeted adolescents aged 12–18 years old to align with the demographic of secondary boarding school students in Malaysia. The instrument's development unfolded across eight phases, each contributing to its refinement and effectiveness.

A. Phase 1: Literature Review and Question Identification

The survey instrument development process commenced with an in-depth analysis of pertinent literature exploring the influence of social media on adolescents' body image perception. In Fig. 1, the identified factors from the literature review influencing body image perceptions due to social media usage are depicted. These factors include potential mediating variables such as social comparison, exposure to unrealistic beauty standards through social media content, interactive features, and frequency of social media use. Additionally, potential moderator variables encompass age, gender, socioeconomic status, and the types of social media platforms utilized.

Further, from a selection of previous studies, attention was given to those that did not provide their survey instruments but mentioned relevant items and desired outcomes. Notably, a specific study by Jalali-Farahani [27] proved instrumental, offering a comprehensive list of 50 questions pertaining to social media and body image perception topics. These questions were meticulously cataloged in an Excel spreadsheet and organized according to their original variables, which encompassed emotions and behaviors, personal characteristics and strategies, appearance importance in the future, body evaluation, perceived social support, priority of health and spirituality, and empowerment.

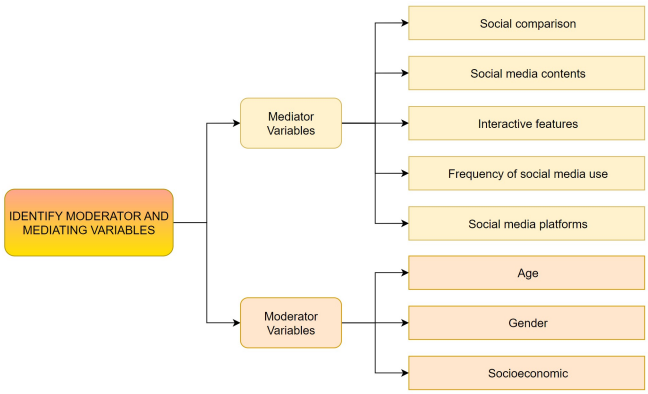


Fig. 1. Factors influencing body image perception.

B. Phase 2: Adaptation and Refinement of Questions

Subsequently, the identified questions underwent a thorough review and filtering process to ensure alignment with the research objectives of the current study. This involved comparing each question against the objectives of the study and categorizing them accordingly. Questions deemed unrelated to the research objectives were labeled as "Not related" and excluded from further consideration.

Out of the initial 50 questions, a total of 19 questions were selected based on their relevance to the research objectives. These selected questions were then classified into categories such as interactive features, social comparison, and social media content to facilitate analysis and interpretation. Some questions were adapted with minor amendments to better align with the research variables, while others were adopted unchanged. This rigorous process ensured that the final set of questions accurately captured the key variables of interest and effectively addressed the research objectives.

C. Phase 3: Identification of Most Used Social Media Platforms

To determine the most used social media platforms among adolescents, an analysis was conducted using various websites and blogs. The findings, depicted in Fig. 2 and Table 1 from Statista and Commission Factory, indicate that Facebook, Youtube, Whatsapp, Instagram, and TikTok are the predominant social media platforms. These platforms were identified based on their popularity among Malaysian adolescents, as evidenced by user statistics provided by reliable sources.

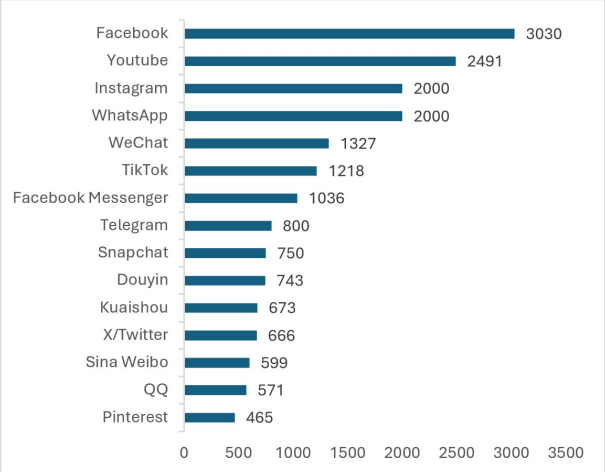


Fig. 2. Social media statistic.

Table 1. Commission Factory social media statistic

Social Network	Number of Active Users (millions)	Percentage of Total Internet Users (16 to 64)	Ad Reach as a % of Total Population
Youtube	23.90	93.2%	70.0%
Facebook	20.25	84.8%	59.3%
Instagram	13.90	74.3%	40.7%
Tiktok	19.30	59.9%	56.6%
FB Messenger	11.20	55.8%	32.8%
Twitter	5.50	47.5%	16.1%
LinkedIn	7.00	25.9%	20.5%
Snapchat	1.45	16.1%	4.2%

D. Phase 4: Construction of Survey Instrument

After collecting all the necessary information, the next step involved constructing the survey instruments on the Google Forms platform. Over several weeks, efforts were dedicated

to developing the survey instruments, resulting in a total of 40 survey questions. These questions encompassed various aspects, including social media usage, body image perception, and demographic information. Additionally, the questions were prepared in two languages, English and Malay, to cater to the linguistic diversity of the respondents. The survey questions comprised a mix of question formats, including dichotomous, multiple choice, Likert scale, dropdown, and closed-ended questions, to effectively capture diverse responses and ensure comprehensive data collection.

E. Phase 5: Expert Review

After the survey instruments were developed using Google Forms to address all research objectives, they underwent peer review for corrections and enhancements. Four discussion sessions were conducted with another researcher to review the survey instruments. All necessary improvements were promptly captured and corrected during these sessions. Subsequently, the survey instrument was emailed to subject matter experts for expert evaluation. Prior to this, an evaluation form was constructed comprising three main sections. The first section provided information about the research objectives, conceptual framework variables, and research hypotheses. The second section listed the survey questions, while the third section consisted of an evaluation component. The evaluation section included four categories: *Clear, Confusing, Relevant, and Irrelevant*, with an additional *Comment* section for subject matter experts to provide additional feedback (Fig. 3).

Section 7.1 : Social Media Contents Influence on Body Image Perception Questions

This section is to identify the social media contents that influence Malaysian public boarding school adolescents on body image perceptions.

RO	Question	Validation			
RO3	7.1.1 I exposed to beauty of ideal body type or muscular physique images from these parties : * (Select 1 or multiple from listed parties)	Clear ( )	Confusing ( )	Relevant ( )	Irrelevant ( )
	Comment:				
RO3	7.1.2 I like to have the face or body just like celebrities / influencers / game or animation characters that I admire. * (Strongly agree / Agree / Disagree / Strongly disagree)	Clear ( )	Confusing ( )	Relevant ( )	Irrelevant ( )
	Comment:				
RO3	7.1.3 Many celebrities / influencers / game or animation characters post on social media promote ideal body shape. *	Clear ( )	Confusing ( )	Relevant ( )	Irrelevant ( )

Fig. 3. Partial questions in subject matter expert evaluation form.

The expert evaluation process involved two subject matter experts: a Head of Section and Senior Lecturer in Educational Psychology and Counselling from a renowned research public university (RU) Malaysia, who analyzed the English survey instrument, and a counselor teacher from a well-known public boarding school in northern Malaysia, who analyzed the Malay survey instrument. Upon completion of the expert evaluation, all comments and feedback were compiled into an Excel matrix (Fig. 4). The comments and feedback were analyzed, and necessary corrections and improvements were made to the survey instruments accordingly. This iterative process ensured that the survey instruments were refined to meet the required standards for inclusion in the research study. Additionally, while not formal validation, the expert evaluation process incorporated elements of the Delphi technique, which involves seeking input from subject matter experts through iterative rounds of review and feedback to improve the survey instrument's clarity, relevance, and appropriateness for the research objectives.

Question	Comments
1.1 What is your gender ? (Male/Female)	I am not sure if you are referring to Sex: Male of female because gender is usually referred to the social construct. Below is the explanation (googled: Sex refers to "the different biological and physiological characteristics of males and females, such as reproductive organs, chromosomes, hormones, etc." Gender refers to "the socially constructed characteristics of women and men – such as norms, roles and relationships of and between groups of women and men.
1.2 What is your age ? (12 years old/13 years old/14 years old/15	-
1.3 What is your race ? (Malay/Chinese/Indian/Other)	Race differs slightly from ethnicity. In this case, race is more suitable
1.4 What is your religion ? (Islam/Christian/Hindu/Buddha/Other)	Could it be better if it is rephrased as follows: Islam/Christianity/Hinduism/Buddhism/others Not all are Christians but they can be protestants, angelican etc. Others may also include Confucianism, Taoism
2.1 Outside of school and hostel, who do you live with ? (My parent/My father/My mother/My guardian)	My Parents (referring to both parent), not all students understand what guardian means. This questionnaire: is it targeted to only IGCSE MRSM or others as well? Point to ponder: are they well versed with the English language? It may be confusing for some students if they are not well versed with the language.
2.2 My father's education background is (Below university degree/University degree	what do you mean below uni degree? Uni degree or above? What do you mean by above? I believe that a cognitive debriefing should be

Fig. 4. Compilation of subject matter expert feedback (partial).

F. Phase 6: Pilot Testing

Following the correction and enhancement of the questions based on feedback from subject matter experts, the survey instrument was subsequently distributed for pilot testing using an online Google Form platform. The link to the survey was provided to 25 students from three different boarding schools, all of which have boarding facilities. This phase aimed to assess the validity of the questions with respect to the targeted respondents. The pilot study involved 5 responses for the English survey instrument and 20 responses for the Malay version. While the sample size was relatively small, it provided valuable insights into the clarity, comprehensibility, and appropriateness of the survey questions among the intended respondents. Additionally, using an online platform for data collection facilitated ease of administration and data collection, allowing respondents to conveniently access and respond to the survey at their convenience.

G. Phase 7: Evaluation of the Instrument

Instrument Validity: The validity of the instrument developed in this study was assessed in terms of Face validity and Content validity. Face validity was ensured by confirming that the instrument was understood by respondents in the intended manner, focusing on aspects such as wording, expression, and appearance. This subjective assessment was supported by peer review processes conducted during *Phase 5* of the instrument development. Content validity, on the other hand, refers to the extent to which the instrument covers the intended content area. To establish content validity, a comprehensive literature review was conducted to explore issues related to adolescent body image perception with social media. Elements from

instruments used in previous studies were incorporated into the current instrument. Additionally, experts rated the relevance of each item through expert review, further supporting the instrument's content validity.

Instrument Reliability: Cronbach's alpha coefficient was utilized to assess the internal consistency reliability of the instrument. The result is reported in the next section.

H. Phase 8: Final Instrument

As a result of the piloting exercise, no changes were made to the questionnaire. However, it was observed that some respondents provided irrelevant responses, such as indicating their parents as guardians in subsequent questions despite already mentioning them as living with their parents. To address this issue, data preprocessing techniques can be applied during the analysis phase to discard irrelevant responses about guardians if the respondent has already indicated living with their parents. The final instrument, suitable for use in secondary schools for investigating the influence of social media on adolescents' body image perception (boarding schools). These final versions of the questionnaires are accessible via the Internet at *https://bit.ly/BodyImageSurveyBI.*

IV. Result and Discussion

A. Reliability Test

Upon conducting a reliability test using Cronbach's alpha coefficient, the pilot questionnaire revealed an initial value of 0.628 when all Likert Scale questions were analyzed together. Subsequent investigation identified section 6 (questions 6.1–6.4) as contributing to the low Cronbach's alpha values. Following modifications, including the removal of Question 6.2, the overall Cronbach's alpha coefficient increased to 0.701 (Table 2). Despite questions 6.3 and 6.4 (Table 3) yielding low Cronbach's alpha values, they were deemed crucial for the study and retained within the questionnaire.

Table 2. Overall Cronbach Alpha Result

Stage	Sections	Cronbach Alpha Value	Justification
Initial	Overall	0.628	Not strong
Improved	Overall	0.701	Strong

Table 3. Cronbach Alpha result

	Result					
Sections	4.1	6.1–6.4	6.1	6.2	6.3–6.4	7.1–7.38
Cronbach Alpha Value	0.852	0.213	0.722	−2.44	0.191	0.781
Justification	Strong	Low	Strong	Very low	Low	Strong

B. Statistical Analysis

In a pilot study with 25 participants, it was discovered that the majority were Malay and Muslim adolescents aged 13 to 17 years old. The gender distribution of respondents was 20% male and 80% female. Respondents came from a variety of schools, with SMKZ1 accounting for the majority (60%).

Outside of school, the majority of respondents lived with both parents (88%), with the remainder living with a single parent (12%). Most parents had a university degree, with 64% of fathers and 56% of mothers fulfilling this requirement. In terms of employment status, 76% of fathers were employed, with the majority working in government (32%), followed by independent work (36%), and the private sector (8%). Similarly, 84% of mothers were employed, with the majority working for the government (52%).

Financially, most respondents said they had enough (48%) or felt somewhat comfortable (36%). Single-parent households were typically classified as having adequate or somewhat comfortable financial status. Interestingly, even in households classified as having less than adequate financial resources, at least one parent was typically employed. In terms of smartphone usage, 56% of respondents said they were allowed to bring smartphones to school, with permission from teachers (36%). In the dormitory, 28% of respondents could use smartphones every day, while 20% needed permission.

All respondents used social media platforms, with Whatsapp and TikTok having the highest popularity (96% each), followed by Youtube (72%), and Telegram (68%). The majority used social media more than 8 days per month (44%), spending 4 to 6 hours per day on these platforms.

A significant proportion of respondents (60%) agreed that the body types promoted on social media were ideal. Notably, 72% said they wanted to have these body types themselves. While only 8% used supplements to achieve their ideal body image, 44% expressed an intention to do so in the future.

Interestingly, there was a significant relationship between gender and desired body type, with female respondents favoring thin and curvy bodies and male respondents preferring muscular/athletic bodies.

Table 4. Response on body image and social media influence

Question	N	Mean	σ
Exposure to social media contents have led me to feel dissatisfied with my own body image.	25	2.92	1.382
I often find myself comparing my body image to others on social media.	25	3.12	1.333
I feel more confident when my body appearance is better than others in social media.	25	3.28	1.208
I feel unhappy when other's body appearance more beautiful than mine.	25	2.48	1.122
I always stay updated with my friends' posts of social media keeping track of their latest updates.	25	1.96	0.611
I always stay updated with my friend's stories on social media, keeping track of their latest updates.	25	2.08	0.640
I often use filters or editing tools to beautify or reduce the flaws on my photo before posting them.	21	3.10	1.221
I will only post positive things about myself which include sharing the best picture of me.	21	4.00	0.775
I am confident to post my photo on social media without any filters or edit.	21	3.76	0.944
I'm okay with sharing anything about myself, including my body image flaws.	21	2.57	1.207
The more likes I get on my post, the more confident I am toward myself and my body appearance.	21	3.24	1.261
I feel unhappy when I get none or less likes on my photo post.	21	2.19	1.123
Negative comments related to my body or appearance on my photo will affect me emotionally.	21	3.62	1.244
Negative comments related to my body or appearance on my photo will contribute towards my body dissatisfaction.	21	3.38	1.284

In terms of social media's impact on body image perception (Table 4), respondents were mostly neutral on

issues such as feeling dissatisfied with their bodies as a result of social media (mean = 2.92) or comparing themselves to others (mean = 3.12). They were more likely to disagree with feeling unhappy when others portrayed better body images (mean = 2.48). However, they all agreed that negative comments about their appearance had an emotional impact on them (mean = 3.62).

Although this is a pilot study to test the validity of the instrument being used for a bigger analysis, the results from this study have explained certain facts. (1) The respondents of this study are using social media more for communication and staying updated. (2) The two most used social media platforms are Whatsapp and TikTok. (3) The body type promoted on social media platforms has an influence on the respondents' perception on ideal body type. (4) There is a significant association between the ideal body type for females and males. (5) Although they select good photos of themselves to post on social media and say that they disagree that they are unhappy about getting no likes on their photo posts, however, negative comments on the photo post affected the respondents emotionally.

V. Conclusion

The survey instrument designed to investigate the influence of social media on body image perception among adolescents in Malaysian public boarding schools was successfully developed and evaluated. To ensure validity and reliability, the instrument was refined over eight stages using developmentally appropriate instrument design guidelines. The pilot study yielded valuable insights, revealing widespread use of social media among predominantly Malay Muslim students, as well as significant gender differences in ideal body types. Despite having neutral attitudes toward certain social media behaviors, respondents expressed being susceptible to negative comments about their appearance. With the final version of the instrument now available online, it is ready to collect real data from secondary boarding school students aged 12 to 18, primarily at well-known Malaysian public boarding schools. This is an exciting opportunity to delve deeper into the complex relationship between social media use and body image perception in adolescents in a unique cultural and educational setting.

Moving forward, future research should aim to use the instrument to conduct comprehensive studies on the nuances of social media's influence on body image perception in Malaysian adolescents. Furthermore, research into interventions to reduce the negative impact of social media on body image perception and promote positive body image among adolescents should be prioritized. Longitudinal studies could also shed light on the long-term effects of social media use on body image perception and mental health outcomes among adolescents attending Malaysian public boarding schools. Finally, such research efforts have the potential to inform policies and interventions aimed at encouraging healthier social media usage habits and promoting positive body image among Malaysian adolescents and beyond.

Conflict of Interest

The authors declare no conflict of interest.

Author Contributions

Jawahir led the study design and data collection coordination; Ahmad conducted the literature review, contributed to instrument development, and analyzed the data; Munaisyah managed pilot data collection and preprocessing, while Hezlin provided statistical expertise and contributed to data interpretation; Nor oversaw the project, contributed to result interpretation, and critically revised the manuscript; all authors approved the final manuscript.

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