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Stress in Early Adulthood: The Contribution of Eating Behaviour and Body Dissatisfaction

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Abstract: *Studies found that common college adjustment factors like missing home friends and worrying about grades related to the development of female students' disordered eating and body dissatisfaction as they make the move to a college. The purpose of this research was to investigate the contribution of eating behaviour and body dissatisfaction to stress among undergraduate students in Malaysia. A total of 120 undergraduate students in Malaysia, aged between 20 and 40 years old, were recruited through purposive sampling for this study. The instruments used included the Eating Attitudes Test, the Body Shape Questionnaire, and the Perceived Stress Scale. Descriptive statistics were conducted to measure the prevalence of vulnerability to eating disorders, the level of body dissatisfaction, and the level of stress. In addition, multiple regression analysis was performed to analyze the contribution of eating behaviour and body dissatisfaction to stress. The findings indicated that undergraduate students demonstrated a relatively high tendency towards having eating disorders (M = 111.19, SD = 14.74), had a high level of concern regarding their body shape and appearance (M = 48.21, SD = 20.00), and exhibited moderate levels of stress in their daily lives (M = 22.48, SD = 4.16). Moreover, the study revealed that body dissatisfaction (t = 2.63, p = .010) significantly contributed to stress among undergraduate students, while eating behaviour (t = 1.137, p = .258) did not. In conclusion, these findings underscore the importance of addressing body dissatisfaction as a potential factor influencing stress among undergraduate students in Malaysia.*

Keywords: eating behaviour, body dissatisfaction, stress, undergraduate students

1. Introduction

Stress in early adulthood significantly affects mental and physical well-being, with factors such as financial concerns, career pressure, and social expectations (American Psychological Association, 2023). In Malaysia, this is further reflected in the experience of university students, where research shows that 13.9% are at risk of eating disorders, with stress and body dissatisfaction playing a crucial role in this vulnerability (Chan et al., 2020; Berg et al., 2009). Young adults, particularly those in college, face unique challenges that can worsen these issues, such as adapting to new environments and peer comparisons (Ebert et al., 2019). Clearly, this highlights the urgency to address stress in this population by understanding underlying contributors, including eating behavior and body dissatisfaction.

Eating behaviour is shaped by various influences, such as age, psychological state, and cultural factors, and plays an important role in managing stress (Kowalkowska & Poínhos, 2021). Moreover, individuals with abnormal eating behaviours might experience physical and mental stress (Abdalla et al., 2020). Research has shown that maladaptive eating behaviours, e.g., emotional eating are often associated with increased stress levels. Choi (2020) found that Korean university students experiencing higher stress levels displayed less healthy dietary habits. Similarly, Mohammad Radzi et al. (2022) reported a significant correlation between academic stress and emotional eating among university students in Malaysia.

In addition, body dissatisfaction involves negative feelings about one's physical appearance, often linked to unhealthy eating behaviours and psychological distress, and can lead to reduced engagement in health-promoting behaviours (Grogan, 2016; Eck et al., 2022). Studies have consistently demonstrated the strong connection between body dissatisfaction and disordered eating attitudes. Aparicio-Martinez et al. (2019) observed that female university students in Spain with higher body dissatisfaction were more likely to engage in dieting and disordered eating habits. This finding aligns with Eck et al. (2022), who found that greater body dissatisfaction was associated with maladaptive eating patterns among undergraduate students in the United States. Consequently, it makes sense that emotional eating, regardless of whether it was induced by stress, was strongly linked to body dissatisfaction (Baldofski et al., 2016).

Moreover, while stress is a natural response, it can become harmful when experienced excessively, affecting both mental and physical health (Segal et al., 2018, WHO, 2023). Research indicates that stress mediates the relationship between body dissatisfaction and maladaptive behaviours. Yan et al. (2022) highlighted the role of perceived stress in linking body dissatisfaction to binge eating among Chinese university students, emphasizing the psychological mechanisms that drive these behaviors. Similarly, Murray et al. (2016) demonstrated that peer stress, particularly rejection based on appearance, intensifies body dissatisfaction, especially among young males. In addition, studies found that the association between eating behaviour disorders and body dissatisfaction is partially regulated by stress levels (Shabadi et al., 2021; Castellano et al., 2021).

Drawing from the discussion above, this study underscores the importance of recognizing eating behaviour and body dissatisfaction as key contributors to student stress, aiming to raise societal awareness and encourage supportive measures in educational settings.

2. Objective

The objectives of this study were to:

a. determine the prevalence of vulnerability to eating disorders among undergraduate students in Malaysia.
b. measure the level of body dissatisfaction among undergraduate students in Malaysia.
c. measure the level of stress among undergraduate students in Malaysia.
d. investigate the contribution of eating behaviour and body dissatisfaction to stress among undergraduate students in Malaysia.

3. Hypothesis

The hypothesis that was tested in this study was:

$H_0$1: Eating behaviour and body dissatisfaction do not contribute significantly to the stress of undergraduate students in Malaysia.

H_01_a: Eating behaviour does not contribute significantly to the stress of undergraduate students in Malaysia.
H_01_b: Body dissatisfaction does not contribute significantly to the stress of undergraduate students in Malaysia.

4. Method

An online survey was conducted for this study in early 2024, lasting for a period of two weeks. The survey was conducted through Google Form, which required respondents to complete all questions before submission, preventing any skipped questions and ensuring smooth data collection. The online format was chosen to provide efficiency and convenience to both the researcher and respondents, as it simplifies the data collection process and ensures uniform and consistent responses. This approach allowed the researcher to monitor progress in real-time, addressing any issues or adjustments promptly. Real-time feedback enabled flexibility and quick decision-making to optimize the data collection process. In addition, the online survey method proved to be low-cost compared to traditional pencil-and-paper surveys, which typically involve printing and manual labor (Wald et al., 2018).

The study included a sample size of 120 respondents, consisting of undergraduate students from across Malaysia, aged between 20 and 40 years old. The sample size was increased from an initial minimum requirement of 107, calculated using G*Power software, to ensure data accuracy and account for any incomplete responses or participants not meeting the inclusion criteria. The majority of respondents were female (80.8%), and the dominant ethnicity was Malay (85.8%). Most respondents were from Sultan Idris Education University, which comprised 65% of the sample. The largest proportion of respondents were aged 23 years old (M = 23.6, SD = 1.68). Then, the most commonly reported heights were 150cm, 153cm, and 160cm (M = 159.84, SD = 8.89) while the most frequently reported weight was 45kg (M = 60.84, SD = 19.27). Purposive sampling was employed as the sampling technique to target a specific group of undergraduate students who met the inclusion criteria. The inclusion criteria required participants to be undergraduate students aged between 20 and 40 years and currently studying in Malaysia. Individuals diagnosed with eating disorders were excluded from participation to prevent sampling bias and ensure the sample represented the general population.

Table 1: Respondents' Characteristics (N=120)

Demographic Variable	*f*	*%*
Gender		
Male	23	19.20
Female	97	80.80
Race		
Malay	103	85.80
Chinese	6	5.00
Indian	2	1.70
Others	9	7.50
Institution		
Sultan Idris Education University	78	65.00
MARA University of Technology	19	15.80
University of Malaysia, Terengganu	5	4.20
National University of Malaysia	3	2.50

University of Malaysia, Pahang	3	2.50
Melaka Technical University of Malaysia	3	2.50
Others	6	4.80
Total	**120**	**100.00**

The study utilized a structured questionnaire consisting of four sections, including a demographic section and three primary instruments: the Eating Attitudes Test (EAT; Garner et al., 1982), the Body Shape Questionnaire-16 (BSQ-16; Evans & Dolan, 1993), and the Perceived Stress Scale (PSS; Cohen et al., 1983). Demographic section requires the respondents to provide their background information. It consists of five items, which are gender, age, height, weight, and institution. This section is significant to ensure whether the respondents are the target population and to avoid potential biases.

The EAT was developed by Garner et al. (1982). It is a widely used self-report questionnaire, which was primarily designed as a screening measure to determine if an individual might have an eating disorder that needs professional attention (Garner et al., 1982). However, the existence of abnormal eating behaviour and eating attitude domain was verified in non-clinical population (Rogoza et al., 2016). Hence, it is proven that EAT is a valid tool to measure behaviour, attitude, and concern toward food. In this study, the EAT was used to measure the respondents' prevalence of vulnerability to eating disorders. The EAT consists of 26 items from three subscales, which are dieting, bulimia and food preoccupation, and oral control. Items are scored using 6-point Likert scale as follows: always = 1, usually = 2, often = 3, sometimes = 4, rarely = 5, and never = 6. Total test scores were calculated by adding the item scores, and higher scores above 20 indicated more symptoms and concerns characteristics of an eating disorder (Garner et al., 1982). Furthermore, the EAT demonstrated good reliability in this study with a Cronbach's alpha of .81.

Next, the BSQ was developed by Cooper et al. (1987). It is a self-report questionnaire designed to assess concerns about body shape and was used in this study to measure respondents' level of body dissatisfaction (Cooper et al., 1987). Respondents were asked to rate how bothered or anxious they have been over several features of their body shape over a specific time period, which are over the past four weeks. BSQ originally consists of 34 items with no subscales and items are scored using 6-point Likert scale as follows: never = 1, rarely = 2, sometimes = 3, often = 4, very often = 5, and always = 6. However, this study implemented BSQ-16 as proposed by Evans and Dolan (1993), given that it retains strong psychometric properties comparable to the original 34-items version, while also aiming to reduce the response burden on participants. Total test scores were calculated by adding the item scores and higher scores indicated increased level of concern on body shape. In addition, the BSQ-16 showed excellent reliability with a Cronbach's alpha of .96 in this study.

Then, the PSS was developed by Cohen et al. (1983). It is a self-report questionnaire designed to assess the degree of stress people felt in unpredictable, out of control, and overload situations (Cohen et al., 1983) and was used in this study to measure the respondents' stress levels. Respondents were asked to rate their feelings and thoughts during the last month. PSS comprises two subscales, which are perceived helplessness and lack of self-efficacy. PSS consists of 10 items and items are scored using 5-point of Likert scale as follows: never = 0, almost never = 1, sometimes = 2, fairly often = 3, and very often = 4. Total test scores were calculated by adding the item scores, where scores ranging from 0-13 would be considered as low stress, 14-26 would be considered as moderate stress, and 27-40 would be considered as high perceived stress (Cohen et al., 1983). Moreover, the PSS demonstrated a Cronbach's alpha

of .58 in this study. Although this value is below the commonly accepted threshold, it remains acceptable in psychological research, especially when variations in reliability may arise due to factors such as the specific population and cultural context (Tavakol & Dennick, 2011).

The survey was shared across various social media platforms, including WhatsApp, Facebook, Instagram, and Telegram. This distribution followed the receipt of ethical approval from the UPSI Human Research Ethics Committee (Ethical Approval Number: 2024-0308-01). Prior to participation, respondents were presented with a cover letter and an informed consent form, detailing their rights and the voluntary nature of the study, including their right to withdraw at any time without consequence. The survey offered both Malay and English options to reduce language barriers and took approximately 15 to 20 minutes to complete. Validated Malay versions of the EAT (Taib & Khaiyom, 2020) and PSS (Al-Dubai et al., 2014) were used, while the BSQ-16 was translated into Malay by the researchers.

Data were analyzed using Statistical Package for the Social Sciences (SPSS). Descriptive statistics, including means and standard deviations were used to summarize the sample's demographics. Multiple regression analysis was conducted to examine the relationships between eating behavior, body dissatisfaction, and perceived stress. Statistical significance was set at $p < .05$.

5. Result

This study aimed to determine the prevalence of vulnerability to eating disorders, as well as the levels of body dissatisfaction, and stress among undergraduate students in Malaysia. The findings revealed students demonstrated a relatively high tendency toward eating disorders, a high level of concern about body shape and appearance, and moderate stress levels in daily life as shown in Table 2. These findings suggest that a considerable number of Malaysian undergraduates may be vulnerable to eating disorders, experience negative body image, and face moderate stress levels.

Table 2: Measures of Eating Disorder Vulnerability, Body Dissatisfaction, and Stress

Variable	*M*	*SD*
Eating Disorder Vulnerability	111.19	14.74
Level of Body Dissatisfaction	48.21	20.00
Level of Stress	22.48	4.16

Multiple regression analysis was conducted to determine the impact of eating behavior and body dissatisfaction on stress levels among students. The regression equation was found to be significant ($F_{(2, 117)} = 3.58$, $p < .031$), with an R^2 of .058. Predicted stress was calculated as 15.64 + .035 (Eating Behaviour) + .060 (Body Dissatisfaction). The individual contributors were examined further and indicated that body dissatisfaction ($t = 2.63$, $p = .010$) significantly contributed to stress among undergraduate students, meanwhile, eating behaviour ($t = 1.14$, $p = .258$) did not. These statistical findings suggest that only body dissatisfaction significantly contributes to stress among undergraduate students in Malaysia, while eating behaviour did not. Therefore, $H_0 1_a$: Eating behaviour does not contribute significantly to stress of undergraduate students in Malaysia is accepted, while, $H_0 1_b$: Body dissatisfaction does not contribute significantly to stress of undergraduate students in Malaysia is rejected.

6. Discussion

This study highlights a concerning prevalence of eating disorders among Malaysian undergraduates, aligning with previous research. Chan et al. (2020) found 13.9% of Malaysian university students at risk, and Rasman et al. (2018) and Ngan et al. (2017) reported high rates among medical students, particularly females and Indians. In terms of body dissatisfaction, the study reveals that undergraduates are highly concerned about their body image. Abdul Hadi et al. (2023) found that 57.5% of Universiti Putra Malaysia students had varying levels of concern about their body shape. This trend is supported by Kamaria et al. (2015) and Wong and Say (2013), who observed similar body image issues, particularly a desire for thinner body types among females and heavier body types among males. Such concerns are driven by social pressures and the pursuit of an ideal body image (Yahia et al., 2011; Hesse-Biber & Marino, 1991).

Furthermore, the study indicates that Malaysian undergraduates experience moderate stress. This finding is consistent with Talib and Zia-ur-Rehman (2012) and Alkhawaldeh et al. (2023), who reported moderate stress levels among students. However, this contrasts with Pfeifer et al. (2008), who found higher stress levels reported by students. Stress is largely attributed to academic pressures and societal expectations for high academic performance, impacting overall student well-being (Yikealo et al., 2018; Omar et al., 2020).

Meanwhile, eating behaviour was found not to significantly contribute to stress among Malaysian undergraduates, which contrasts with previous studies. Research by Penaforte et al. (2016) and Liu et al. (2007) showed that higher stress levels often lead to increased emotional eating and a preference for fast food, while Al Ansari et al. (2014) confirmed a positive correlation between stress and snack consumption. Despite these findings, stress typically leads to temporary changes in eating patterns, with students generally reverting to their usual habits once stressors like exams are removed. However, those experiencing severe stress might continue to engage in emotional eating (Saat et al., 2014).

In contrast, body dissatisfaction was found to significantly contribute to stress, aligning with earlier research. Yan et al. (2022) observed that body dissatisfaction raises perceived stress due to social comparison and pressure to maintain a thin appearance, often resulting in binge eating. Asberg and Wagaman (2010) and Warren et al. (2012) also highlighted the strong connection between stress, body dissatisfaction, and the drive for thinness. The relationship between stress and body dissatisfaction is moderated by self-acceptance, with higher self-acceptance linked to lower perceived stress (Yan et al., 2022). Studies suggest that unconditional self-acceptance can reduce stress associated with poor self-esteem and emotional issues (Chamberlain & Haaga, 2001; Hill et al., 2008; Sun et al., 2019).

The study's findings can guide the development of programs specifically designed to address the needs of undergraduate students struggling with stress, unhealthy eating habits, or negative body image. These interventions could incorporate stress management techniques, promoting healthy eating habits, and fostering positive body image. Stress management techniques could include strategies like mindfulness and relaxation exercises that could provide undergraduate students with ways to cope with stress in a healthy way. Then, educational programs and interventions can educate university students about mindful eating practices and can help undergraduate students challenge unrealistic beauty standards.

Moreover, understanding how these factors interact can lead to preventive strategies that minimise the likelihood of developing serious issues. Early intervention may allow us to reduce the risk of eating disorders and prevent mental health issues among undergraduate students in Malaysia. Early identification of unhealthy eating habits and body dissatisfaction can prevent them from developing into severe eating disorders. Besides, anxiety, depression, and other mental health issues can be worsened by ongoing stress and a negative body image. Undergraduate students can develop resilience and preserve their mental health by taking early actions.

The study's strength lies in its comprehensive examination of stress factors among undergraduate students, including eating behaviour and body dissatisfaction. The study reinforces the validity of its findings and contributes to existing knowledge by aligning with previous research, particularly in terms of body dissatisfaction and its effects on stress. The detailed analysis provides a thorough understanding of emotional eating and the moderating role of self-acceptance, highlighting important differences and potential intervention points. In addition, the study presents a well-rounded perspective on student stress, establishing a strong foundation by integrating diverse research sources, both international and local for future research and practical applications.

There are some potential limitations of this study to consider. To begin with, focusing completely on undergraduate students may not capture the experiences of young adults outside of academic settings or those pursuing different paths after high school. Furthermore, although self-reporting is a beneficial approach, response biases might affect it. Participants might be influenced by social desirability bias, wanting to appear less stressed or have healthier habits than they do in reality. Recall bias is another factor that may be present, where people find it difficult to recall their dietary habits or stressful past experiences. Hence, participants may underreport or overreport their experiences, leading to inaccuracies in the data.

In light of the study's limitations, several recommendations for future research can be proposed to address gaps in this study. To start off, future research could recruit individuals from various backgrounds to ensure that the sample is more reflective of the population of young adults. This can include people who are not enrolled in higher education. Moreover, future researchers could use both reliable measurements and self-reported data to support the study's findings. For example, alongside self-reported stress levels, researchers could consider incorporating physiological measures like heart rate variability or cortisol levels. Similarly, it is essential to investigate dietary data collection approaches that go above self-reported eating habits. For instance, a more accurate picture of eating patterns can be obtained by food journals, where participants record their food intake over time.

7. Conclusion

This study highlights the significant impact of body dissatisfaction on stress levels among Malaysian undergraduate students. While previous research suggests that eating behaviour may also contribute to stress, this study found no significant link, indicating the need for further investigation. The findings bring attention to the importance of addressing body image issues as part of stress management strategies for young adults. Promoting self-acceptance and positive body image is crucial for reducing stress, alongside interventions that address societal pressures and encourage healthy coping mechanisms. Future research should expand on these findings by involving a larger, more diverse sample and incorporating both subjective and objective measures of stress to deepen the understanding of these complex relationships.

Addressing these issues comprehensively can help develop more effective strategies for improving the well-being of young adults in academic settings.

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Conflict of Interest Statement
The authors declare that there is no conflict of interest regarding the publication of this study.

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