THE ASSOCIATION BETWEEN SOCIODEMOGRAPHIC FACTORS, MINDFUL EATING AND BODY SHAPE DISSATISFACTION AMONG UNDERGRADUATE STUDENTS AT UNIVERSITI SAINS MALAYSIA, HEALTH CAMPUS

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By

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DECLARATION

I hereby declare that this dissertation is the result of my own investigation, except where otherwise stated and duly acknowledged. I also declare that it has not been previously or concurrently submitted as a whole for any other degrees at Universiti Sains Malaysia or other institutions. I grant Universiti Sains Malaysia the right to use the dissertation for teaching, research and promotional purposes.

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LIST OF ABBREVIATIONS

BSD	Body Shape Dissatisfaction
BSQ-34	Body Shape Questionnaire (34 Items)
BMI	Body Mass Index
JEPeM	Human Research Ethics Committee Universiti Sains Malaysia
MEQ	Mindful Eating Questionnaire
MEQ-M	Malay Mindful Eating Questionnaire
PPSG	School of Dental Sciences
PPSK	School of Health Sciences
PPSP	School of Medical Sciences
SD	Standard Deviation
SPSS	Statistical Package for the Social Sciences
USM	Universiti Sains Malaysia

HUBUNGAN ANTARA FAKTOR SOSIODEMOGRAFI, PEMAKANAN BERKESEDARAN DAN KETIDAKPUASAN BENTUK BADAN DALAM KALANGAN PELAJAR PRASISWAZAH DI UNIVERSITI SAINS MALAYSIA, KAMPUS KESIHATAN

ABSTRAK

Ketidakpuasan bentuk badan merupakan isu yang semakin mendapat perhatian dalam kalangan pelajar universiti kerana ia boleh mempengaruhi kesejahteraan psikologi dan tingkah laku pemakanan. Pemakanan berkesedaran pula merupakan pendekatan yang menekankan kesedaran terhadap isyarat lapar, kenyang, emosi dan pengalaman makan, yang berpotensi mempengaruhi persepsi individu terhadap bentuk badan. Oleh itu, kajian ini dijalankan untuk menentukan hubungan antara faktor sosiodemografi, pemakanan berkesedaran dan ketidakpuasan bentuk badan dalam kalangan pelajar prasiswazah di Universiti Sains Malaysia (Kampus Kesihatan). Kajian keratan rentas ini melibatkan 107 orang pelajar prasiswazah yang dipilih menggunakan kaedah pensampelan mudah. Data dikumpulkan menggunakan soal selidik dalam talian yang merangkumi maklumat sosiodemografi, Malay Mindful Eating Questionnaire (MEQ-M) dan Body Shape Questionnaire-34 (BSQ-34). Data dianalisis menggunakan SPSS Statistics versi 30.0. Statistik deskriptif digunakan untuk menerangkan ciri responden, manakala ujian Chi-square digunakan untuk menentukan hubungan antara pemboleh ubah kajian. Dapatan kajian menunjukkan bahawa skor min keseluruhan MEQ-M ialah 2.61 ± 0.22, yang menunjukkan tahap pemakanan sedar yang sederhana dalam kalangan responden. Majoriti responden tidak mempunyai kebimbangan terhadap ketidakpuasan bentuk badan (49.5%). Tiada hubungan yang signifikan antara jantina ($p = 0.784$), kategori umur ($p = 0.570$), dan etnik ($p = 0.193$) dengan ketidakpuasan bentuk badan. Selain itu, tiada hubungan yang signifikan antara tahap pemakanan sedar dan ketidakpuasan bentuk badan ($p = 0.279$). Kesimpulannya, pelajar prasiswazah di Universiti Sains Malaysia (Kampus

Kesihatan) menunjukkan tahap pemakanan berkesedaran yang sederhana dan tahap ketidakpuasan bentuk badan yang relatif rendah. Faktor sosiodemografi dan tahap pemakanan berkesedaran didapati tidak mempunyai hubungan yang signifikan dengan ketidakpuasan bentuk badan dalam kajian ini.

THE ASSOCIATION BETWEEN SOCIODEMOGRAPHIC FACTORS, MINDFUL EATING AND BODY SHAPE DISSATISFACTION AMONG UNDERGRADUATE STUDENTS AT UNIVERSITI SAINS MALAYSIA, HEALTH CAMPUS

ABSTRACT

Body shape dissatisfaction is an increasingly important issue among university students as it may affect psychological well-being and eating behaviours. Mindful eating, which emphasises awareness of hunger, satiety, emotions, and eating experiences, has been suggested as a potential factor influencing body image perceptions. Therefore, this study aimed to determine the association between sociodemographic factors, mindful eating, and body shape dissatisfaction among undergraduate students at Universiti Sains Malaysia (Health Campus). A cross-sectional study was conducted among 107 undergraduate students selected using convenience sampling. Data were collected through an online questionnaire consisting of sociodemographic information, the Malay Mindful Eating Questionnaire (MEQ-M), and the Body Shape Questionnaire-34 (BSQ-34). Data were analysed using IBM SPSS Statistics version 30.0. Descriptive statistics were used to describe respondents' characteristics, while Chi-square tests were used to determine the associations between the study variables. The findings showed that the mean total MEQ-M score was 2.61 ± 0.22, indicating a moderate level of mindful eating among respondents. Most respondents reported no concern regarding body shape dissatisfaction (49.5%). There was no significant association between gender ($p = 0.784$), age category ($p = 0.570$), and ethnicity ($p = 0.193$) with body shape dissatisfaction. In addition, no significant association was found between mindful eating level and body shape dissatisfaction ($p = 0.279$). In conclusion, undergraduate students at Universiti Sains Malaysia (Health Campus) demonstrated a moderate level of mindful

eating and a relatively low level of body shape dissatisfaction. Sociodemographic factors and mindful eating level were not significantly associated with body shape dissatisfaction in this study.

CHAPTER 1
INTRODUCTION

1.1 Background of the Study

Body Shape Dissatisfaction (BSD) is a common experience among university students and refers to negative feelings or concerns about one's body shape (Cooper et al., 1987; Hashim et al., 2022). Students who are dissatisfied with their body shape may feel pressured to change their weight or appearance, which can affect their emotional well-being and eating behaviour (Alexatou et al., 2025; He et al., 2025). Recent studies among Malaysian university students have shown that too many undergraduates experience dissatisfaction with their body shape, which is associated with unhealthy eating behaviours such as restrictive dieting, emotional eating and disordered weight-control practices, as well as poorer psychological well-being (Hashim et al., 2022; Tey et al., 2025).

Mindful eating is a way of eating with full awareness of hunger and fullness cues, sensations and emotions. It is a method that promotes internal cues for eating, as opposed to external cues (Framson et al., 2009; Kristeller & Wolever, 2011). Mindful eating is linked with body shape dissatisfaction, as it involves a higher level of body awareness and acceptance, and less self-judgement around one's body weight and appearance which could be beneficial in promoting a healthier relationship with food and body (Eck et al., 2022; Pauzé et al., 2023). Recent studies in university populations also suggest that mindful eating is associated with improved psychological well-being and healthier eating habits (Mazlan, 2024; Lazarevich et al., 2025).

Sociodemographic factors such as age, gender, and ethnicity may influence how students experience body shape dissatisfaction (BSD) and practise mindful eating (Köse & Çıplak, 2020; Hong & Ahmad, 2024; Josli et al., 2023; Tey et al., 2025). Age may affect BSD

and mindful eating due to differences in psychological maturity, self-identity development, and exposure to social and academic pressures, with younger university students often being more vulnerable to body image concerns (Hong & Ahmad, 2024; Tey et al., 2025).

Gender differences in BSD and mindful eating may be influenced by societal beauty standards and body ideals, where female students are more likely to experience pressure to achieve a thin body shape, leading to higher levels of body dissatisfaction and less adaptive eating behaviours (Hong et al., 2024).

Ethnicity may influence body shape dissatisfaction and mindful eating through cultural beliefs, traditional dietary practices, and differing perceptions of ideal body shape across ethnic groups in Malaysia. Cultural norms and sociocultural expectations related to appearance and eating habits may shape how individuals perceive their bodies and regulate their eating behaviours (Josli et al., 2023; Tey et al., 2025). These variations highlight the importance of examining sociodemographic factors together with mindful eating and body shape dissatisfaction among Malaysian university students (Josli et al., 2023; Tey et al., 2025).

This study focuses on undergraduate students at Universiti Sains Malaysia (Health Campus). As a health-science–based campus, students are regularly exposed to health-related courses, clinical knowledge, and health promotion activities, which may increase awareness of nutrition, body weight, and health behaviours. At the same time, academic demands and training-related pressures may contribute to higher levels of stress and heightened body awareness, which can influence eating behaviours and body image concerns (Alexatou et al., 2025; He et al., 2025). Therefore, this population is particularly relevant for examining mindful eating, sociodemographic factors, and body shape dissatisfaction (Kristeller & Wolever, 2011; Tey et al., 2025).

1.2 Problem Statement and Study Rationale

The dissatisfaction of body shape (BSD) is a worry among university students and has been associated with emotional distress, unhealthy eating behaviours, and decreased self-confidence (Alexatou et al., 2025; Yi-Ting et al., 2025). Yet, the bulk of the research to-date has been on general body image or body perception, with less on BSD specifically, and yet it has potentially more severe consequences for students' well-being (Cooper et al., 1987; Tey et al., 2025). Body image is the general attitude of an individual toward their body while weight perception refers to the perception of their weight status, including overweight, underweight, and normal weight (Hashim et al., 2022). On the other hand, BSD is specific to the negative emotions or thoughts an individual has about body shape and specific body parts (Cooper et al., 1987).

Amongst Malaysian university students, body dissatisfaction was highly prevalent, and there were gender, and ethnic differences indicating the impact of sociocultural and demographic factors on body concerns (Hashim et al., 2022; Tey et al., 2025). The results indicated that there are several demographic and sociocultural factors that affect body satisfaction in the university community (Hong & Ahmad, 2024; Josli et al., 2023). Notably, BSD is linked to emotional distress, as well as to emotional eating and restrictive dieting in eating behaviours and low self-esteem, all of which can have direct consequences on psychological well-being and functioning for young adults (Alexatou et al., 2025; Yi-Ting et al., 2025).

Mindful Eating has gained attention as a positive approach to support healthier eating behaviour and emotional regulation. Recent studies among university students suggest that mindful eating is associated with better mental well-being and more stable eating patterns

(Mazlan, 2024; Lazarevich et al., 2025). Despite these findings, the relationship between mindful eating and BSD is not well understood among Malaysian undergraduates. Therefore, examining this relationship within the Health Campus provides an important context for understanding mindful eating and body-related concerns among students in a health-focused academic setting.

Sociodemographic factors such as age, gender, and ethnicity are known to influence body shape dissatisfaction (BSD) (Hong & Ahmad, 2024; Josli et al., 2023; Tey et al., 2025). However, these factors have not been studied together with mindful eating among undergraduate students at USM Health Campus. Without understanding how mindful eating and sociodemographic factors interact, it is difficult to identify which groups of students may be more vulnerable to BSD or may benefit from mindful eating practices.

Therefore, this study is conducted to fill this gap by examining the association between mindful eating, sociodemographic factors among undergraduate students in USM Health Campus. The findings are important because they may help identify at-risk groups and support the development of targeted programmes such as mindful eating workshops, nutrition education sessions, body image awareness programmes, and student-based health promotion interventions that promote healthier eating behaviours and improve students' body-related well-being. The findings may benefit undergraduate students, university lecturers and academic advisors, campus health services, and programme planners by providing evidence to guide preventive strategies and student support initiatives.

1.3 Research Questions

1. What is the level of mindful eating among undergraduate students in Universiti Sains Malaysia (Health Campus)?

2. What is the level of body shape dissatisfaction among undergraduate students in Universiti Sains Malaysia (Health Campus)?

3. Is there an association between sociodemographic factors (age, gender, ethnicity) and body shape dissatisfaction among undergraduate students in Universiti Sains Malaysia (Health Campus)?

4. Is there an association between mindful eating and body shape dissatisfaction among undergraduate students in Universiti Sains Malaysia (Health Campus)?

1.4 Study Objectives

A. General Objective:

To determine the association between sociodemographic factors, mindful eating and body shape dissatisfaction among undergraduate students in Universiti Sains Malaysia.

B. Specific Objectives

1. To assess the level of mindful eating among undergraduate students in Universiti Sains Malaysia (Health Campus).
2. To assess the level of body shape dissatisfaction among undergraduate students in Universiti Sains Malaysia (Health Campus).
3. To determine the association between sociodemographic factors (age, gender, ethnicity) and body shape dissatisfaction among undergraduate students in Universiti Sains Malaysia (Health Campus).

4. To determine the association between mindful eating and body shape dissatisfaction among undergraduate students in Universiti Sains Malaysia (Health Campus).

1.5 Study Hypothesis

Null Hypothesis (H_0): There is no significant association between sociodemographic factors (age, gender, ethnicity) and body shape dissatisfaction among undergraduate students in Universiti Sains Malaysia (Health Campus).

Alternative Hypothesis (H_1): There is a significant association between sociodemographic factors (age, gender, ethnicity) and body shape dissatisfaction among undergraduate students in Universiti Sains Malaysia (Health Campus).

Null Hypothesis (H_0): There is no significant association between mindful eating and body shape dissatisfaction among undergraduate students in Universiti Sains Malaysia (Health Campus).

Alternative Hypothesis (H_1): There is a significant association between mindful eating and body shape dissatisfaction among undergraduate students in Universiti Sains Malaysia (Health Campus).

1.6 Significance of Study

This study is important because BSD has been widely reported as a concern among university students. Studies conducted among Malaysian undergraduates have shown that a substantial proportion experience dissatisfaction with their body image, which is associated with psychological distress and unhealthy eating behaviours such as emotional eating and disordered weight-control practices (Hashim et al., 2022; Tey et al., 2025). These findings

indicate that BSD may negatively affect students' psychological well-being, eating behaviour and overall quality of life, highlighting the need for further research in this population.

Despite this, limited research in Malaysia has examined BSD specifically using validated tools, and even fewer studies have explored how BSD relates to mindful eating and sociodemographic factors. In particular, there is a lack of studies focusing on students from a health-campus population, defined as undergraduates enrolled in health science–related programmes who are exposed to health, nutrition, and body-related knowledge as part of their academic training.

The results of this study will be available as local evidence for mindful eating and the importance of mindful eating in fighting against body shape dissatisfaction (BSD) among undergraduate students at USM Health Campus. By examining mindful eating together with sociodemographic factors such as age, gender, and ethnicity, this study provides a more comprehensive understanding of factors associated with body shape dissatisfaction (BSD) among Malaysian undergraduates. This information is crucial because students at USM Health Campus may experience heightened awareness of body shape and eating behaviours due to academic demands, peer comparison, and increased exposure to health- and appearance related information, which may influence their body perception and eating behaviours.

At the institutional level, the results can support Universiti Sains Malaysia (USM) and other universities in developing targeted health promotion programmes aimed at improving students' body image, mental well-being, and eating habits. By identifying at-risk groups based on sociodemographic factors and levels of mindful eating and body shape dissatisfaction, universities can design programmes that are more focused, relevant, and resource-efficient, rather than using a one-size-fits-all approach. This also allows student support units, counsellors, and health educators to tailor interventions that are culturally appropriate and responsive to the specific needs of different student groups.

This study is unique as it has incorporated three factors (mindful eating, body shape dissatisfaction and sociodemographic) within a health-campus population and is assessed by validated measurement tools, which is not seen in previous Malaysian studies that have focused on only one or two factors (Hashim et al., 2022; Tey et al., 2025). In the long term, this study contributes to the growing body of Malaysian research on body image and mindful eating by providing more comprehensive and context-specific evidence to inform future research and public health strategies that promote healthier and more positive relationships with food and body shape.

CHAPTER 2
LITERATURE REVIEW

2.1 Sociodemographic Factors

Sociodemographic factors such as age, gender, and ethnicity are known to influence how individuals perceive their bodies and how they respond to eating-related pressures (Hong & Ahmad, 2024; Josli et al., 2023; Tey et al., 2025). These factors shape students' vulnerability to body shape concerns and may also affect their eating behaviours, including mindful eating (Hong & Ahmad, 2024). Among university students, sociodemographic factors have been linked to differences in body dissatisfaction, physical activity and eating habits (Tey et al., 2025).

Gender has been found to be one of the most significant factors of dissatisfaction with body shapes in international studies, with female students being more likely to feel dissatisfied because of the pressure to conform to a thin-ideal of beauty, while males are more likely to feel dissatisfied because of pressure to conform to a muscular-ideal of beauty (Hong & Ahmad, 2024; Al Riyami et al., 2024). The effects of age however seem to be more variable between studies. Some studies have indicated that young adults (18–25 years) are especially susceptible to issues related to body image due to the process of identity formation and heightened social comparisons (Hong & Ahmad, 2024), but other studies have shown that regardless of chronological age, body dissatisfaction is more related to sociocultural and psychological factors (Jiménez-Limas et al., 2022). In addition, while the impact of age and gender on body shape dissatisfaction have been studied, few studies have explored the influence of sociodemographic factors in combination with mindful eating among Malaysian undergraduate students especially in a health-campus environment.

Similar patterns have been reported across Asia. A study in Singapore found widespread dissatisfaction among young adults, with female participants reporting significantly higher concerns about their appearance (Samari et al., 2025). In Oman, 20.9% of female university students reported dissatisfaction with their bodies, and these concerns were influenced by body mass index and appearance comparison (Al-Busaidi et al., 2025). Among medical students in Multan, over one-third were dissatisfied with their bodies, again with higher dissatisfaction among females (Tufail et al., 2025). These studies demonstrate that gender- and age-related differences in body dissatisfaction are consistent throughout Asian university settings.

In the Malaysian context, gender differences have been well documented. A study among UiTM students found that female undergraduates displayed higher body image dissatisfaction and were more influenced by appearance-based comparison, especially through social networking (Hashim et al., 2022). Another Malaysian study showed that body image concern was associated with gender, BMI and eating behaviour, suggesting that females and students with higher BMI may experience more pressure related to body shape (Tey et al., 2025).

Ethnicity also plays an important role in shaping appearance-related attitudes. Research among Malaysian young women reported that sociocultural acceptance of appearance varied between ethnic groups, reflecting differences in beauty ideals and cultural expectations (Josli et al., 2023). This suggests that ethnicity could meaningfully contribute to variations in how students experience body shape dissatisfaction.

Together, evidence from global, Asian and Malaysian studies shows that age, gender and ethnicity influence body-related attitudes and eating behaviours. Since mindful eating is also shaped by awareness, emotional responses and cultural norms, it is likely that sociodemographic factors may interact with mindful eating in influencing body shape dissatisfaction. Understanding these patterns is particularly relevant in a multi-ethnic setting

such as USM Health Campus, where students come from different backgrounds and social environments.

Although many studies have explored sociodemographic differences in body image, no recent Malaysian research has examined age, gender and ethnicity together with mindful eating and Body Shape Dissatisfaction (BSD) in one integrated analysis. Local studies often focus on general body image dissatisfaction, not specifically BSD, and rarely consider mindful eating as a related psychological factor. This gap highlights the need to investigate sociodemographic factors alongside mindful eating to better understand BSD among undergraduate students in USM Health Campus.

2.2 Mindful Eating

Mindful eating is defined as an eating approach where individuals pay full attention to internal cues such as hunger, fullness, emotions and sensory experience during eating. It encourages awareness of the taste, texture and smell of food, as well as the thoughts and motivations behind eating behaviour (Cheung, 2020). Mindful eating differs from the standard dieting because it does not focus on food prohibitions or calorie counting, but instead on being present to acknowledge hunger and fullness cues, food choices, and eating experiences, and thereby develop a healthier relationship with food (Framson et al., 2009; Kristeller & Wolever, 2011). Its purpose is to reduce emotional or automatic eating and to help individuals prevent unhealthy responses to stress.

International research highlights the benefits of mindful eating for young adults. Students often face academic pressure, irregular meal schedules, and strong appearance-related expectations, making them vulnerable to emotional or uncontrolled eating (Alexatou et al., 2025). A study among university students found that higher mindful eating scores were associated with a more positive body image, higher appearance confidence and less body

comparison behaviour (Jacob & Panwar, 2023). These findings suggest that mindful eating may lessen the impact of appearance-based pressure on students.

Mindful eating also shows psychological benefits. Pauze et al. (2023) reported that mindful eating behaviours were linked to higher body appreciation and lower body dissatisfaction among young adults. Their findings showed that slowing down during meals, paying attention to physical sensations and recognising emotions without judgement helped reduce overeating and negative self-criticism related to body shape.

Gender differences in mindful eating have been documented. Kose and Ciplak (2020) found that although overall mindful eating scores did not differ significantly between males and females, the components were different: females reported higher emotional eating and eating discipline, while males showed higher disinhibition, meaning they were more likely to eat without awareness. These variations may be influenced by cultural expectations, emotional coping styles and body-related concerns, which may also affect how mindful eating interacts with body shape dissatisfaction.

In Asia, studies on mindful eating are increasing but remain limited. Existing evidence suggests that mindful eating is associated with healthier eating behaviours and better psychological well-being among young adults and university students, although research in Asian populations is still scarce (Lazarevich et al., 2019). In Malaysia, research is still emerging. The Malay Mindful Eating Questionnaire (MEQ-M) was validated and shown to be reliable for assessing mindful eating among Malaysian adults (Abdul Basir et al., 2021). More recent local qualitative findings suggest that mindfulness-based eating practices may support better psychological well-being by helping Malaysian undergraduate students manage stress-related eating behaviours, particularly among female students (Hamidin et al., 2025).

Although mindful eating is increasingly studied globally and locally, no Malaysian study has examined the relationship between mindful eating and body shape dissatisfaction among

university students, especially within the USM Health Campus. Existing studies focus mostly on emotional eating, mental well-being or general body appreciation. This gap supports the need to explore mindful eating as a psychological factor related to body shape dissatisfaction and sociodemographic differences.

2.3 Body Shape Dissatisfaction

Body shape dissatisfaction (BSD) refers to a negative evaluation of one's body shape and reflects the perceived mismatch between an individual's actual body shape and their internalised ideal body shape (Cooper et al., 1987). BSD is considered an important component of body image problems and has been linked to emotional distress, dieting behaviours and disordered eating symptoms (Hong & Ahmad, 2024). It is also associated with binge eating, body-related anxiety and lower self-esteem among young adults, indicating its broader psychological impact (Yi-Ting et al., 2025). International research consistently shows that body dissatisfaction is common among university students. For example, a longitudinal study in Mexico reported that between 63.5% and 71.7% of university students experienced body dissatisfaction over several years (Jiménez-Limas et al., 2022). Similarly, a study in Multan found that more than one-third of medical students were dissatisfied with their bodies, with female students reporting higher dissatisfaction levels (Tufail et al., 2025). Evidence from Oman also highlighted that 20.9% of female university students were dissatisfied with their body shape, and this dissatisfaction was influenced by BMI and appearance comparison (Al-Busaidi et al., 2025). These findings indicate that BSD is a widespread concern among young adults globally.

In Asian countries, BSD has been linked to sociocultural beauty standards and intense appearance pressure. Research in Singapore found that body dissatisfaction was common among young adults and was significantly higher among females than males (Samari et al.,

2025). Qualitative studies in China further showed that thin-ideal pressure, peer comparison and cultural expectations strongly contribute to dissatisfaction with body shape among female undergraduates (He et al., 2025). Across Asian populations, BSD has been associated with restrictive dieting, emotional distress and unhealthy weight-control behaviours, indicating that the problem is both psychological and behavioural.

In Malaysia, concerns related to body dissatisfaction are also evident, although many studies focus on general body image rather than body shape specifically. Research among UiTM undergraduates showed that female students reported higher dissatisfaction and were more vulnerable to appearance-based comparison, particularly through social networking platforms (Hashim et al., 2022). Another study among Malaysian university students found that body image concern was associated with BMI, gender and eating behaviour, suggesting that individual characteristics may influence vulnerability to dissatisfaction (Tey et al., 2025). Evidence from Malay female college athletes indicated that more than one-third experienced severe dissatisfaction with their body shape, further demonstrating that BSD is a relevant issue among young Malaysian adults (Soares Lopes et al., 2025). Collectively, these studies suggest that BSD affects a wide range of student groups and may contribute to unhealthy eating patterns.

BSD is not only associated with psychological concerns but also poses nutritional and health risks. Research has shown that body dissatisfaction increases the likelihood of binge eating, emotional eating and restrictive dieting, which may worsen diet quality and academic functioning (Alexatou et al., 2025). In particular, body dissatisfaction combined with anxiety has been found to predict binge-eating severity among young adults (Yi-Ting et al., 2025), highlighting the need to identify dissatisfaction early to prevent harmful behaviours.

Despite the growing literature on body image among Malaysian students, there remains a notable gap in research on BSD specifically. Most studies focus on general body image

dissatisfaction and do not distinguish concerns related to body shape. Furthermore, no recent Malaysian study has examined BSD together with mindful eating as a psychological factor, nor have sociodemographic factors such as age, gender and ethnicity been integrated into a single model. There is also a lack of evidence from health-campus settings such as Universiti Sains Malaysia, where students come from different academic programmes and cultural backgrounds. These gaps highlight the importance of the present study in understanding BSD comprehensively within the USM Health Campus population.

2.4 Association between Sociodemographic Factors and Body Shape Dissatisfaction

Body shape dissatisfaction (BSD) has been well-established as being influenced by socio-demographic factors like gender, age and ethnicity (Hong & Ahmad, 2024; Tey et al., 2025). Differences in populations' body shape dissatisfaction may be due to their sociocultural expectations, life experiences, and cultural beliefs (Josli et al., 2023; Hong & Ahmad, 2024). This is largely due to stronger sociocultural pressures for women to conform to thin-ideal beauty standards, whereas men tend to face muscularity-related expectations (Hong & Ahmad, 2024). Similar findings were reported in Singapore, Oman and Pakistan, where female university students showed higher levels of BSD and were more sensitive to social comparison and appearance norms compared to their male counterparts (Samari et al., 2025; Al-Busaidi et al., 2025; Tufail et al., 2025).

Ethnicity also contributes to differences in body shape perception, as cultural values shape what is considered attractive. In Malaysia, Malay, Chinese and Indian women reported different levels of satisfaction with body shape, influenced by cultural expectations and media exposure within each ethnic group (Josli et al., 2023). These variations suggest that ethnic identity may influence how students internalise beauty ideals and evaluate their body shape.

Age plays a less consistent but notable role. Younger students, especially those in early university years, may be more vulnerable to appearance-based comparisons and body-related anxiety, while older students tend to have more stable self-perception and lower sensitivity to external appearance pressures (Hong & Ahmad, 2024). However, because most BSD studies focus on young adults aged 18–25 years, the impact of age differences within university populations remains unclear.

Although many studies have examined demographic correlates of body dissatisfaction, few have explored these factors specifically in relation to BSD using validated tools like BSQ34. In Malaysia, research on BSD across sociodemographic groups remains limited, and no published study has examined gender, age and ethnicity together within a single analytical framework. These gaps indicate a need for further research, particularly in diverse academic environments such as USM Health Campus.

2.5 Association between Mindful Eating and Body Shape Dissatisfaction

Studies suggest that mindful eating may help reduce dissatisfaction with body shape (Eck et al., 2022; Pauzé et al., 2023). Mindful eating involves paying attention to hunger, fullness, and emotions during eating, and encourages individuals to respond to internal cues rather than eat automatically or in response to external influences such as appearance-related pressures (Kristeller & Wolever, 2011). Research has shown that mindful eating is associated with higher body appreciation and reduced self criticism among young adults, which may help reduce dissatisfaction with body shape (Keyte et al. 2022; Brytek Matera et al. 2022).

While there are a number of studies that have found that mindful eating is negatively related to body shape dissatisfaction, others have yielded inconsistent findings. However, for example, mindful eating did not significantly differ between low and high body dissatisfaction, as found by Eck et al. (2022). This suggests that mindful eating may not always protect every

individual from dissatisfaction with body shape and that its effects may depend on other factors such as emotional regulation and sensitivity toward appearance pressure.

Body shape dissatisfaction is closely linked to unhealthy eating behaviours, including emotional eating, binge eating and restrictive dieting. Emotional eating may negatively affect academic performance and overall diet quality (Alexatou et al. 2025). Since mindful eating is associated with reduced emotional eating and better regulation of eating habits, it may reduce some of the negative effects linked to dissatisfaction with body shape.

Despite the theoretical relationship between mindful eating and dissatisfaction with body shape, studies in Malaysia, especially among university students, are limited. Most existing studies focus on general body image or eating behaviour rather than dissatisfaction with body shape specifically. Previous studies conducted in Malaysia have only investigated either body shape dissatisfaction or mindful eating. There is, however, limited evidence of any association of mindful eating with body shape dissatisfaction in parallel to the socio-demographic variables like age, gender and ethnicity. This gap highlights the importance of conducting research in this area among undergraduate students in Universiti Sains Malaysia to better understand the combined influence of mindful eating and sociodemographic factors on dissatisfaction with body shape.

2.6 Conceptual Framework

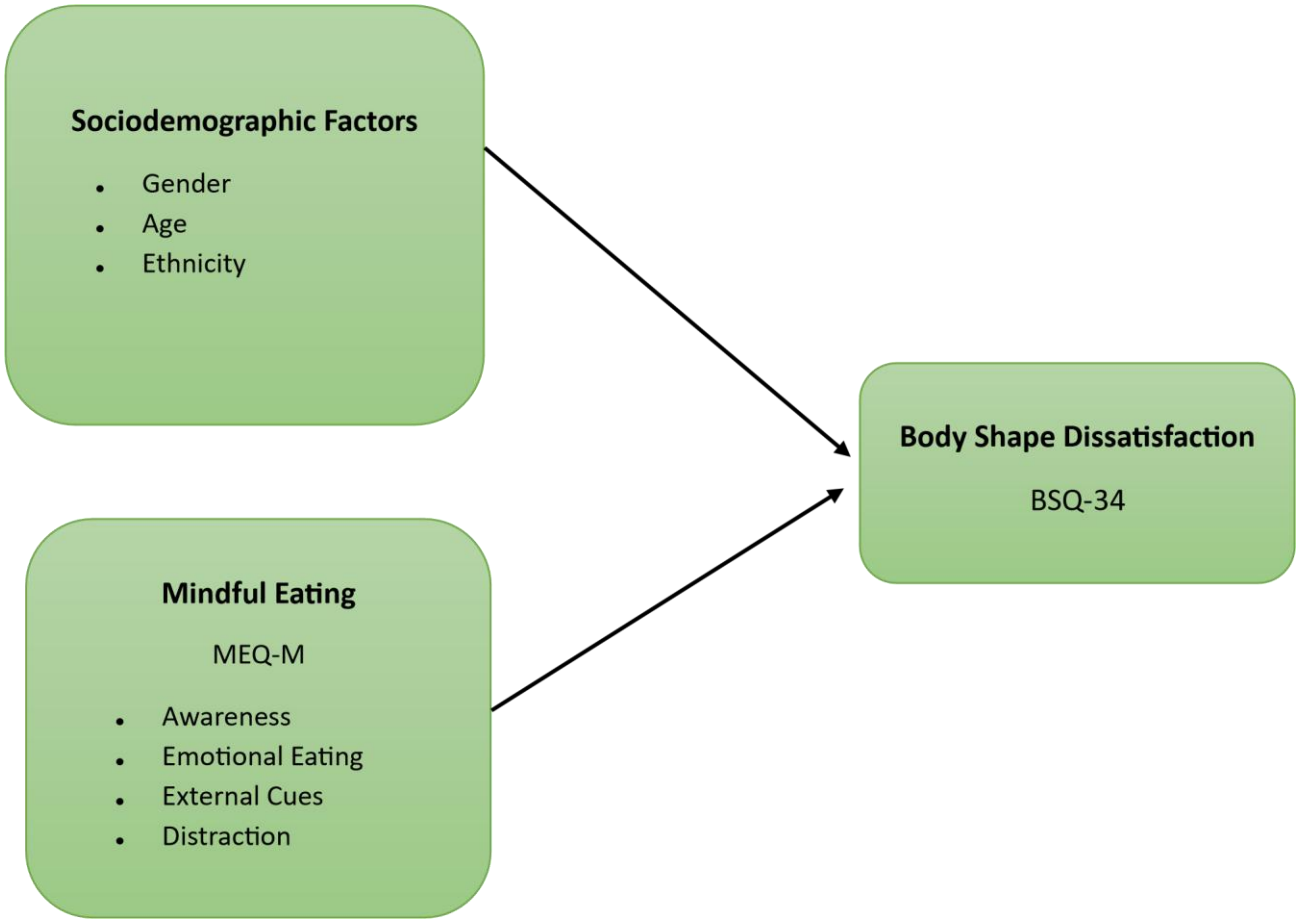


Figure 2.6 Conceptual Framework

Figure 2.6 shows that mindful eating and sociodemographic factors (gender, age and ethnicity) are proposed to influence Body Shape Dissatisfaction (BSD) among undergraduate students. Mindful eating, measured using the MEQ-M, reflects students' awareness, emotional regulation and responsiveness to internal cues during eating, which may reduce negative evaluations of body shape. Sociodemographic factors are included because previous studies consistently show that differences in gender, age and cultural background affect body perception and vulnerability to dissatisfaction (Hong & Ahmad, 2024; Josli et al., 2023; Tey et al., 2025). BSD, measured using the BSQ-34, is the outcome of interest in this study. The arrows indicate that both mindful eating and sociodemographic factors are expected to have direct associations with BSD.

CHAPTER 3
METHODOLOGY

3.1 Research Design

This study was conducted using a cross-sectional design with self-administered questionnaires to assess sociodemographic factors, mindful eating, and body shape dissatisfaction among undergraduate students in Universiti Sains Malaysia (Health Campus). A cross-sectional design was selected because data were collected only once from each participant, making it less time-consuming and more cost-effective compared to longitudinal studies. This design enabled the researcher to describe the levels of mindful eating and body shape dissatisfaction and to examine the association between these variables and sociodemographic factors at a single point in time. In addition, cross-sectional studies are practical for collecting data from a large number of participants without requiring follow-up sessions.

3.2 Study Area

This study was conducted at the School of Medical Sciences, School of Dental Sciences, and School of Health Sciences, Universiti Sains Malaysia (Health Campus). These locations were selected because they have a large and diverse population of undergraduate students in terms of age, gender, and ethnicity who met the study inclusion criteria. Conducting the study within the Health Campus was also practical and time-efficient, as it allowed access to students from different academic programmes and facilitated a smoother data collection process.

3.3 Study Population

The study population consisted of undergraduate students from Year 1 to Year 5 who were enrolled at Universiti Sains Malaysia (Health Campus), Kubang Kerian, Kelantan. This included

students from the School of Medical Sciences, School of Dental Sciences, and School of Health Sciences.

3.4 Selection Criteria

3.4.1 Inclusion Criteria

a) Aged between 18 and 25 years old.

b) Currently enrolled as undergraduate students at the School of Medical Sciences, School of Dental Sciences, or School of Health Sciences, Universiti Sains Malaysia (Health Campus).

c) Malaysian undergraduate students (Year 1–Year 5).

d) Able to read and understand Malay to complete the questionnaire.

3.4.2 Exclusion Criteria

a) Pregnant students (body shape changes may influence responses).

b) Individuals with diagnosed eating disorders or severe psychiatric disorders (self reported).

3.5 Sample Size Calculation

The sample size for this study was calculated using a single population proportion formula. The prevalence of body image dissatisfaction among university students reported by Hashim et al. (2022), which was 56.3%, was used for the calculation. A confidence level of 95% (Z = 1.96) and a precision level of 10% were applied. The precision level of 10% was selected due to limitations in time, cost, and availability of respondents.

$$n = \frac{Z^2 \mathrm{P}(1-P)}{d^2}$$

Where:

n = required sample size

Z = 1.96 at 95% confidence level

P = 0.563

d = 0.10

The minimum required sample size was calculated to be 95 respondents. After accounting for a 15% non-response rate, the final required sample size was 110 respondents.

3.6 Sampling Method

A convenience sampling method was used in this study. Participants were recruited through a non-personal and voluntary approach. An invitation poster containing information about the study, inclusion criteria, and a QR code link to the online questionnaire was distributed through official university communication platforms, faculty representatives, and student groups within Universiti Sains Malaysia (Health Campus).

Participation was entirely voluntary, and interested students who met the inclusion criteria were invited to complete the questionnaire through the provided Google Forms link. The researcher did not personally approach or contact potential participants through private messages to minimise any perceived pressure or influence to participate.

Before answering the questionnaire, participants were provided with a Participant Information Sheet and informed consent form. Only participants who agreed to participate were allowed to proceed with the questionnaire. Participants were informed that they could withdraw from the study at any time before submitting their responses without any consequences.

3.7 Research Tools

This study used three main instruments to collect information and to examine the relationship between mindful eating, sociodemographic factors, and body shape dissatisfaction among undergraduate students. All instruments were suitable for university populations and provided reliable data for analysis.

3.7.1 Part A : Sociodemographic Factors

The first instrument is the sociodemographic questionnaire, which collects basic background information such as age, gender, ethnicity, year of study and school of study. These details help the researcher determine whether individual characteristics are associated with different levels of mindful eating or body shape dissatisfaction.

3.7.2 Part B : Mindful Eating Questionnaire – Malay (MEQ-M)

To assess mindful eating, this study used the Malay-translated Mindful Eating Questionnaire (MEQ-M), which consists of 28 items assessing five domains: awareness, distraction, disinhibition, emotional eating, and external cues. The original MEQ was developed by Framson et al. (2009) and is widely used to measure awareness of thoughts, emotions, and physical sensations during eating.

The MEQ-M assesses individuals' awareness of hunger and fullness cues, emotional responses to eating, susceptibility to external food cues, distraction during eating, and disinhibited eating behaviours. Higher scores indicate greater levels of mindful eating (Abdul Basir et al., 2021). The Malay version of the Mindful Eating Questionnaire (MEQ-M) has been found to possess good psychometric properties when used with Malaysian adults; it has been reported to have excellent internal consistency (Cronbach's $\alpha = 0.86$) and satisfactory construct validity via confirmatory factor analysis (Abdul Basir et al., 2021).

3.7.3 Part C : Body Shape Questionnaire 34 Items (BSQ-34)

Body shape dissatisfaction was measured using the Body Shape Questionnaire (BSQ-34), originally developed by Cooper et al. (1987). The BSQ-34 consists of 34 items that assess concerns related to body shape, fear of weight gain, feelings of unattractiveness, body shame, and comparison with others.

Participants responded based on their feelings and thoughts over the previous four weeks using a six-point Likert scale ranging from “never” to “always”. The Body Shape Questionnaire-34 (BSQ-34) is a 34 item, self-administered questionnaire which measures concerns and dissatisfaction with body shape over the previous 4 weeks. Answers to each item are measured on a 6-point Likert scale from 1 (Never) to 6 (Always) and the total score ranges from 34 to 204, with higher scores representing more body shape dissatisfaction. The BSQ-34 breaks down body shape dissatisfaction into 4 scores: no concern (< 80), mild concern (80–110), moderate concern (111–140), and marked concern (> 140). The Malay version of BSQ-34 has been found to have excellent internal consistency with the Cronbach's alpha of 0.97 among Malaysian population (Cooper et al., 1987; Hashim et al., 2022).

3.8 Operational Definition

3.8.1 Sociodemographic Factors

Sociodemographic factors in this study include age, gender, and ethnicity. Age refers to the participant’s chronological age at the time of data collection and is self-reported in years. For analysis purposes, age was categorised into three groups: 18–20 years, 21–23 years, and ≥24 years. Gender refers to the participant’s self-identified biological sex and is categorised as male or female. Ethnicity refers to the participant’s self-identified ethnic background and is categorised as Malay, Chinese, Indian, or Others.

3.8.2 Mindful Eating

Mindful eating refers to an individual's awareness and attention towards eating behaviours, internal hunger and satiety cues, and emotional responses to food. In this study, mindful eating was measured using the Malay version of the Mindful Eating Questionnaire (MEQ-M). The tertile distribution of the respondents' total scores was used to categorise the total MEQ-M score into three levels (low, moderate and high). Tertile categorisation involves dividing the distribution into three equal groups with the lowest 1/3 defined as low mindful eating, the middle 1/3 defined as moderate mindful eating and the highest 1/3 defined as high mindful eating. MEQ-M scores are higher with increased mindful eating (Altman, 1991).

3.8.3 Body Shape Dissatisfaction

Body Shape Dissatisfaction (BSD) refers to negative feelings or concerns related to one's body shape and specific body parts. BSD is assessed using the Body Shape Questionnaire (BSQ-34). Each item is rated on a Likert scale, and a total score is obtained by summing all item scores. Higher total scores indicate greater body shape dissatisfaction. Based on established cut-offs, BSD severity is classified as: <80 = no concern, 80–110 = mild concern, 111–140 = moderate concern, and >140 = marked concern with shape.

3.9 Data Collection Method

Data collection was conducted online using Google Forms. Participants were recruited through a non-personal and voluntary approach. An invitation poster containing study information, inclusion criteria, and a QR code link to the questionnaire was distributed through official university communication platforms, faculty representatives, and student groups.