Gendered Food Environments: Differences in Food Availability and Perceptions Among Malaysian University Students

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ABSTRACT

This paper investigates gender-based differences in food availability and perceptions of the food environment among university students. The study draws a cross-sectional survey conducted among 397 students at UiTM Dungun, Terengganu, Malaysia, and explores how male and female students differ in their access to healthy outlets, availability of nutritious snacks, exposure to unhealthy advertising, and perceptions of institutional nutrition information. Chi-square analysis revealed significant gender differences: female students reported easier access to healthy food outlets (χ^2=18.739, ρ=.003) and greater availability of healthy snacks (χ^2=18.739, ρ<.001), while male students experienced more exposure to unhealthy food advertisements (χ^2=11.819, ρ=.019), Females also perceived stringer institutional nutrition information (χ^2=7.012, ρ=.008). The findings underline the necessity of gender-sensitive food policies that consider the unique challenges faced by both groups. The paper contributes to the literature by contextualizing gendered food environments in Malaysia and offering policy recommendations to foster healthier eating practices in university settings.

Keywords— Gender, Food Availability, Food Environment, University Students, Nutrition Awareness

INTRODUCTION

University students worldwide face considerable challenges in maintaining healthy dietary patterns due to the transition to independent living. Convenience, affordability, and time constraints often drive food choices, leading to increased reliance on fast food and processed items. This situation is concerning because it coincides with the formative years of adulthood, during which eating habits are established and carried into later life with the increased risks of obesity and metabolic disorders [3],[4] .

Gender plays a significant role in dietary behavior. Research has consistently demonstrated that female students tend to exhibit greater nutritional awareness and are more likely to seek healthier options, while male students are often associated with higher consumption of calorie-dense and convenience foods [1],[2]. These differences stem from cultural expectations, socialization process, and targeted marketing practices that reinforce distinct food-related identities for men and women.

In Malaysia, the issue of student nutrition is compounded by the rapid growth of fast-food outlets and limited access to affordable healthy alternatives, National surveys have shown an upward trend in overweight and obesity prevalence among university-aged populations, with gender disparities in both dietary patterns and health outcomes [13],[14]. These realities underscore the urgency of examining how gender shapes experience within campus food environments.

Despite the recognition of gender as a determinant of dietary behavior, few studies in Malysia have examined fender-specific differences in food availability and perceptions of food environments in higher education institutions. Previous research has tended to focus on overall nutritional knowledge or general access issues without disaggregating by gender, thus overlooking an important explanatory factor in student health outcomes [9],[13].

This study addresses this gap by investigating gender differences in food availability and perceptions of the food

environment among UiTM Dungun students. By highlighting disparities in snack availability, exposure to unhealthy advertising, and perceptions of institutional nutrition information, this paper aims to provide evidence for designing gender-sensitive interventions [5],[6],[7] that align with both educational and public health priorities.

LITERATURE REVIEW

Gender differences in food choices have been widely documented across cultures. Sobal [1] explains that cultural expectations shape men as consumers of meat and energy-dense foods, while women framed as health-conscious eaters. This dichotomy influences not only individual choices but also how genders interact with institutional food environments.

Hartmann et al. [2] found that women consistently reported higher concern for health and nutrition compared to men, a finding echoed in other contexts where female students were more likely to check food labels [6] and prefer balanced meals. These studies suggest that women may be more responsive to healthy food availability when offered.

Research on campus food environments has disparities in access. Horacek et al. [5] observed that female students often reported greater awareness of healthy food outlets near universities, while male students tended to rely more on fast food due to convenience. Such findings align with the global trends [13] but require contextualization in Malaysia settings.

Social norms and peer influence also shape gendered dietary behaviors. Male students may feel social pressure to conform to unhealthy eating patterns such as frequenting fast-food outlets, while female student may face expectations to maintain body image trough healthier food practices [4],[23]. These cultural pressures reinforce gender-based consumption patterns.

Advertising plays a pivotal role in shaping dietary choices, often targeting males with promotions for energy-dense and unhealthy foods. Boyland et al. [7] demonstrated that male students are more susceptible to unhealthy advertising, which significantly increases their intake of fast food and sugary beverages. In Malaysia, Lee and Tan [8] reported that gender-targeted marketing campaigns were prevalent in university settings.

Perceptions of nutrition also differ by gender. Women are more likely to seek and trust institutional sources of dietary guidance, whereas men may downplay such information in favor of convenience [9],[20]. This difference has implications for how universities design their health promotion initiatives.

Despite the availability of international research, empirical studies examining gender-specific food environments in Malaysia remain limited. Previous work has often treated university students as homogeneous groups, neglecting gendered perspectives. This study contributes to filling this gap by examining male and female experiences in food availability and perceptions of the campus environment at UiTM Dungun [25],[26].

METHODOLOGY

This study utilized a cross-sectional survey design conducted among UiTM Dungun students, with a total of 397 participants selected through stratified random sampling. The questionnaire included items measuring food availability (access to healthy outlets and nutritious snacks) and the food environment (exposure to unhealthy advertising and perceptions of institutional nutrition information). Responses were measured using Likert scale. Reliability was confirmed in pilot testing (α=.743). Data analysis using SPSS v27, with Chi-square tests employed to identify significant gender differences. This design is justified because it enables the identification of categorical differences across gender [10],[11], offering valuable insights into disparities that shape food choices.

FINDINGS

Before analysing gender differences in food availability and the food environment, it is important to present

profile of the respondents. As in Table 1, the study included 397 UiTM Dungun students, of whom 68.3% (n=126) were male. Most respondents (91.7%) resided in on-campus college accommodation, while only 8.3% lived off-campus. In terms of age distribution, 40.8% were between 18-19 years, 46.6% between 20-21 years, and 12.6% between 22-24 years. With respect to the year of study, 37.0% were in their first year, 42.6% in their second year, and 20.4% in their third year. Respondents were drawn from a diverse range of academic programs, with representation from fields such as business, hospitality, science, and engineering. This demographic diversity strengthens the validity of the findings by ensuring that the results accurately reflect the broader UiTM Dungun student population.

The Chi-square analysis revealed significant gender differences in both food availability and the food environment. Female students reported easier access to healthy food outlets (χ^2=11.543, p=.003) and greater availability of nutritious snacks (χ^2=18.739, p<.001). In contrast, male students reported significantly higher exposure to unhealthy food advertisements (χ^2=11.819, p=.019). Female students also perceived stringer institutional nutrition information (χ^2=7.012, p=.008) [5][7][8]. Other variables such as overall access to nutritious food and satisfaction with food variety did not significantly across gender, as all stated in Table II and Table III.

Table I Demographic Profile

Variable	Category	Percentage (%)
Gender	Male	31.7
	Female	68.3
Age	18-19 years	40.8
	20-21 years	46.6
	22-24 years	12.6
Year of study	Year 1	37.0
	Year 2	42.6
	Year 3	20.4
Accommodation	On-campus	91.7
	Off-campus	8.3

Table II Gender Differences in Food Availability

Indicator	χ^2	p-value
General access to nutritious food	1.550	.818
Easy access to healthy outlets	11.543	.0033*
Choosing healthy options when available	4.374	.358
Fast food consumption due to limited options	5.547	.236
Perceived accessibility of healthy food near campus	2.535	.638

Note: *p<.05 indicates statistically significant

Table III Gender Differences in Food Environment

Indicator	χ^2	p-value
Availability of nutritious snacks	18.739	<.001*

Exposure to unhealthy advertisements	11.819	.019*
Perception of university nutrition information	7.012	.008*
Satisfaction with food variety	4.356	.359
Healthy food availability in canteens	2.301	.681

Note: *p<.05 indicates statistically significant

DISCUSSION

The findings affirm that significantly influences students' interaction with campus food environments. Female students' greater access to health outlets and snacks demonstrates not only structural availability but also heightened awareness and demand for nutritious options. This support earlier claims that women tend to be more health-conscious in the food practices [2],[6].

Conversely, male students' greater exposure to unhealthy advertising reveals how targeted marketing strategies exploit gendered preferences. Studies have shown that men are more likely to respond to promotions for fast food and energy-dense items [7][8][25]. This aligns with our findings and underscores need for stricter advertising regulations within university campuses.

From a theoretical standpoint, the Theory of Planned Behavior [10] offers insights into why the same environment yields different outcomes for males and females. Attitudes, subjective norms, and perceived behavioural control interact with health-related norms may explain their positives responses to nutrition information, while men's susceptibility to marketing reflects different normative pressures [9],[23].

Policy implications of these results are significant. Universities should consider gender-sensitive approaches to promoting healthy eating, such as implementing healthy snack certification in cafeterias, limiting exposure to unhealthy advertisements, and tailoring nutrition education programs to resonate with both genders [12],[14],[19]. Peer-led initiatives by female students could be particularly effective in creating supportive environments.

Despite its contributions, the study has limitations. Self-reported data may be subject to bias, and the cross-sectional design prevents causal inferences [15],[16],[28]. Nevertheless, the findings justify future research employing longitudinal and qualitative methods to better capture lived experiences. Further comparative studies across campuses could help generalise the results and refine gender-sensitive strategies.

CONCLUSION

This study provides empirical evidence of significant gender differences in food availability and perceptions of the food environment among UiTM Dungun students. Female students reported greater access to healthy outlets and snacks and stronger perceptions of institutional nutrition information, while male students were more exposed to unhealthy advertising [13],[14]. These differences highlight the gendered nature of campus food environments.

The implications of these findings are clear: universities must adopt gender-sensitive policies to promote healthier eating behaviors. Practical recommendations include restricting unhealthy food advertising, subsiding healthy options, and expanding health promotion initiatives tailored to different gender groups. These recommendations align with WHO's nutrition policy briefs [22].

Future research should adopt mixed-method approaches, combining quantitative surveys with qualitative interviews of focus groups to capture the nuanced social and cultural factors in shaping gendered food environments. Such integration would offer deeper insights into behavioural motivation and contextual influences that are not easily quantifiable. Longitudinal studies should also be conducted to examine how food choices and perceptions evolve over time, thereby providing stronger evidence for causal relationships.

Expanding the research across multiple campuses in different regions in Malaysia would further enhance generalizability and allow comparisons across diverse institutional and cultural contexts. Collectively, the future directions will strengthen the evidence base for developing inclusive, data-driven strategies to promote healthy eating among university populations.

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