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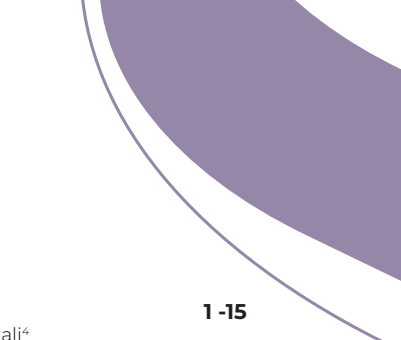


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ABSTRACT

This study explores the consumption habits and preferences for ready-to-eat (RTE) meals among students at a northern Universiti Teknologi MARA (UiTM) campus, with a focus on evaluating the effectiveness of the Menu Rahmah initiative, which offers affordable meal options on campus. A survey of 318 students revealed a high level of familiarity with RTE meals, with nearly half of the respondents consuming these meals daily or several times a week. The primary factors influencing their choices include convenience, time-saving benefits, and price. However, the study also highlights significant concerns regarding the affordability and nutritional quality of RTE meals. Many students expressed a desire for healthier, more nutritious options and indicated a willingness to pay more for better quality meals. The Menu Rahmah initiative was generally well-received, though students suggested improvements in portion size, variety, and food quality. The findings underscore the need for universities to expand and improve RTE meal offerings to better meet the dietary needs and preferences of their students, balancing convenience, affordability, and nutritional value.

1. Introduction

In today's fast-paced academic environment, the reliance on convenient food options is prevalent among university students, primarily due to time constraints and busy schedules. A study conducted by Choi (2022) found that college students often substitute meals with ready-to-eat (RTE) foods, snacks, or processed foods due to their convenience and accessibility. Similarly, Fonseca et al. (2020) highlighted that the physical environment and time pressures faced by students significantly influence their eating behaviors, often leading to the consumption of less nutritious, but more convenient food options. RTE meals are increasingly popular among students as they offer an easy solution to meet dietary needs with minimal effort. According to Choi (2022), RTE meals are frequently chosen by students due to their affordability and the quick preparation time, which suits their fast-paced lifestyle. The study by Jang et al. (2017) also supports this, demonstrating that convenience meals are preferred by students for their ease of preparation and immediate availability, despite potential drawbacks in nutritional content. However, the nutritional quality of RTE meals is often compromised, raising concerns about their impact on student health. Remnant and Adams (2015) conducted a study showing that many RTE meals are high in saturated fats, salt, and low in essential nutrients, contributing to poor dietary habits and potential long-term health issues. Additionally, Khuluse and Deen (2022) found that the food provided by university vendors often lacks balance, particularly in macronutrient distribution, which can exacerbate issues like obesity and malnutrition among students. Hence, exploring student preferences for RTE meals is crucial to understanding their dietary choices and the effectiveness of campus meal programs. Hartmann et al. (2021) emphasized that understanding student food preferences is essential for tailoring campus meal programs to better meet the needs of students, ensuring both affordability and nutritional adequacy. Similarly, Choi (2022) highlighted the importance of evaluating RTE meal consumption behaviors to develop more effective nutrition interventions on campuses. Identifying areas for improvement in RTE meal offerings can lead to better student health outcomes. Bruening et al. (2018) found that addressing the nutritional gaps in students' diets, particularly those reliant on RTE meals, could reduce the risk of food insecurity and its associated negative health impacts. At Universiti Teknologi MARA (UiTM), the Menu Rahmah initiative was introduced to address these issues by offering affordable and nutritious meal options. However, the effectiveness of this program in meeting the dietary needs and preferences of students remains unclear. This study aims to explore the consumption patterns of RTE meals among UiTM students, evaluate the Menu Rahmah initiative, and identify potential areas for improvement to better support student health and well-being. By understanding these preferences, the study seeks to identify areas for improvement in the availability and quality of RTE meals to better support student well-being.

2. Literature Review

The increasing reliance on ready-to-eat (RTE) meals among university students is closely tied to their busy schedules, which limit the time available for preparing home-cooked meals. Choi (2022) highlights that convenience is a major factor influencing students' food choices, particularly in a university setting where time is often scarce. Similarly, Dhir and Singla (2020) indicate that the rapid pace of modern life and the associated time constraints have led to an increased preference for RTE meals among young adults, who often find it challenging to allocate time for cooking. Convenience has been identified as a primary motivator for food choices among university students, who often prioritize quick and easy meal options. Basurra et al. (2021) found that convenience was the biggest motivator for purchasing RTE meals among university students and employees in Kuala Lumpur, with 46% of respondents citing it as their main reason for choosing these meals. This aligns with findings by Tam et al. (2017), who noted that convenience, along with cost and taste, were the top determinants of food choices in university settings. The increasing availability of RTE meals on university campuses mirrors broader trends in consumer behavior that

favor convenience over traditional meal preparation. Makinde et al. (2020) observed that RTE foods have become a staple in the diets of time-pressed individuals, particularly in low- and middle-income countries where they are a convenient option for busy urban dwellers. Additionally, Silberbauer and Schmid (2017) noted that the demand for RTE meals has driven innovations in packaging and food safety, reflecting the growing importance of convenience in consumer decision-making.

While RTE meals offer convenience, their nutritional quality is often compromised. Singleton et al. (2017) found that RTE meals are typically high in calories, fats, and sodium, which can negatively impact health. This was further supported by Priebe and McMonagle (2016), who concluded that frequent consumption of RTE meals is associated with poor dietary patterns, contributing to inadequate intake of essential nutrients. Numerous studies have confirmed that RTE meals are often nutritionally unbalanced, with high levels of unhealthy fats, sodium, and calories. Makinde et al. (2020) highlighted that RTE foods commonly lack essential nutrients like fiber and vitamins, which are crucial for maintaining a balanced diet. Choi (2022) also found that the high sodium content in many RTE meals can lead to health issues such as hypertension and other cardiovascular problems. The regular consumption of nutritionally deficient RTE meals has sparked concerns about the long-term health impacts on students. Roy et al. (2017) found that frequent consumption of RTE meals on university campuses was associated with poor diet quality, which can contribute to long-term health problems such as obesity and metabolic syndrome. Similarly, Dhir and Singla (2020) indicated that the regular intake of high-calorie, low-nutrient RTE foods is linked to an increased risk of chronic health conditions. Poor dietary habits established during university years are likely to persist into adulthood, leading to chronic health issues. Horacek et al. (2018) found that unhealthy eating behaviors among college students, such as the frequent consumption of RTE meals, are predictive of future health outcomes, including higher body mass index (BMI) and related conditions. Sprake et al. (2018) also suggested that the dietary patterns formed during these formative years can have long-lasting effects on an individual's health, potentially leading to chronic diseases like type 2 diabetes and heart disease.

Menu Rahmah is a Malaysian government initiative launched by the Ministry of Domestic Trade and Cost of Living (KPDN) to provide affordable and nutritious meals to the public, particularly targeting the B40 income group, which represents the bottom 40% of income earners in the country. The initiative offers lunch and dinner meals priced at RM5 or less, making it accessible to those facing financial constraints, especially during challenging economic times. The initiative was introduced as a response to the rising cost of living, aiming to ensure that even the most vulnerable populations have access to affordable meals. In local Malaysian universities, the Menu Rahmah initiative aims to make nutritious meals more accessible to students by addressing their financial limitations. Smith et al. (2021) found that lower-income students are more likely to opt for affordable, calorie-dense foods, often at the expense of nutritional quality. By providing low-cost meal options, the Menu Rahmah initiative seeks to mitigate this issue by ensuring that all students have access to healthier food choices. Tam et al. (2017) also emphasized the importance of affordability in influencing students' food choices, highlighting the need for campus food programs to consider the financial constraints of their student populations. Affordability plays a crucial role in determining food choices, especially among lower-income individuals who often prioritize cost over nutritional value. Michels et al. (2015) found that individuals from lower-income households are more inclined to purchase cheaper, calorie-dense foods, even if they are less nutritious. This was supported by Smith et al. (2021), who reported that children from low-income families who consumed RTE meals had a higher intake of certain nutrients but were also more prone to poor diet quality due to the affordability factor. The Menu Rahmah initiative seeks to address food insecurity among students by providing affordable, nutritious meals on campus. Tam et al. (2017) emphasize that making nutritious food affordable is essential for improving diet quality among students, particularly those

from low-income backgrounds. Additionally, Smith et al. (2019) demonstrated that affordability directly influences the nutritional choices of students, suggesting that initiatives like Menu Rahmah can play a crucial role in promoting better health outcomes.

Even with initiatives like Menu Rahmah, students continue to seek healthier and more varied RTE meal options. Roy et al. (2017) found that while affordability is important, students increasingly demand meals that are both nutritious and diverse, reflecting a broader trend toward health consciousness. Savlak et al. (2016) also observed that university students are becoming more selective in their food choices, seeking options that align with their health goals and dietary preferences. Increasing health awareness among students is driving demand for more nutritious food options on campus. Sprake et al. (2018) found that health-conscious dietary patterns are becoming more prevalent among university students, reflecting a shift in preferences towards healthier eating habits. Choi (2022) further supports this, noting that students are increasingly prioritizing nutrition in their food choices, seeking options that support their overall health and well-being. This shift in preferences presents a challenge for campus food services to balance convenience, affordability, and nutritional quality in their offerings.

3. Methodology

This study utilized a survey-based approach to explore the preferences and consumption habits of 318 students regarding ready-to-eat (RTE) meals at a northern Universiti Teknologi MARA (UiTM) campus. The survey was designed to assess students' familiarity with RTE meals, the frequency of consumption, factors influencing their food choices, and their perceptions of the Menu Rahmah initiative, which provides affordable meal options on campus.

The survey comprised both closed-ended and open-ended questions. Closed-ended questions focused on demographic information, frequency of RTE meal consumption, factors influencing purchasing decisions (e.g., price, convenience, nutritional value), and satisfaction with the Menu Rahmah initiative. Open-ended questions were used to gather qualitative insights into students' suggestions for improving RTE meal offerings and their views on the affordability and quality of these meals.

The survey was distributed electronically, and a total of 318 responses were collected. The sample included a diverse group of students in terms of age, gender, and academic background, providing a representative view of the student population at UiTM. The survey included 318 respondents, with a majority of 61% being female (194 students) and 39% male (124 students). The age distribution was as follows: 1.6% were under 18 years old, 60.7% were between 18 and 20 years old, 33.6% were between 21 and 23 years old, and 4% were 24 years or older. This demographic spread indicates that most respondents were in their late teens to early twenties, a typical age range for undergraduate students.

The data was analyzed to determine the main factors influencing student preferences and to identify areas for improvement in campus food services. The qualitative responses were thematically analyzed to capture the students' concerns and suggestions for enhancing the quality and variety of RTE meals available on campus.

4. Results

Quantitative data findings

Awareness and consumption habits

The survey reveals that a significant majority of students are familiar with ready-to-eat meals, with 53.5% being very familiar and 28.9% somewhat familiar. Only a small fraction (5.4%) reported limited or no familiarity with RTE meals. In terms of consumption, 48.4% of students consume RTE meals daily or several times a week, indicating that these meals are a regular part of many students' diets. Instant noodles or pasta are the most consumed RTE items, with 86.2% of respondents reporting their use, followed by pre-packaged sandwiches or salads (52.5%) and microwaveable meals (37.4%). The primary reasons students choose RTE meals are timesaving (88.1%) and convenience (70.8%), reflecting the busy schedules and limited cooking facilities often encountered by students. Price also plays a significant role, with 52.8% citing it as a reason for choosing RTE meals, while 44% are influenced by the lack of cooking facilities.

Price sensitivity and affordability

Price is a crucial factor in students' decisions to purchase RTE meals. Most respondents (53.8%) consider price very important, and 43.7% always compare prices before purchasing. Notably, 79.2% of students have decided not to purchase an RTE meal due to its expense, highlighting the financial constraints many students face. Regarding the affordability of RTE meals on campus, opinions were mixed. While 25.8% found them affordable or very affordable, a larger group (23.9%) considered them expensive or very expensive, and 50.3% were neutral. Most students (46.9%) felt that RTE meals on campus are priced similarly to off-campus options, though 26.1% believed they are somewhat or much more expensive. The typical budget for an RTE meal on campus is between RM5 to RM10, as reported by 60.1% of respondents, with the majority spending less than RM20 per week on these meals. Interestingly, students showed a willingness to pay more for healthier or higher-quality RTE meals, with 44.3% saying yes and another 44.3% saying maybe, indicating a demand for better-quality options.

Preferences and perceptions

Students' decisions to purchase RTE meals are influenced by several factors, with price (80.8%), taste (76.1%), and convenience (70.1%) being the most significant. However, only 17.9% of respondents consider RTE foods a healthy option, while 43.1% do not, and 39% are unsure. Despite this, there is a strong preference for healthier RTE options, with 77.7% of students expressing a desire for more nutritious choices. When considering RTE meals available on campus, the factors influencing purchase decisions include price (89.3%), variety (73.5%), and packaging (40.9%). This suggests that students prioritize affordability and variety when choosing RTE meals on campus.

Menu Rahmah initiative

The survey also explored students' awareness and perceptions of the Menu Rahmah initiative, a program offering affordable meal options. A large majority (80.2%) were aware of Menu Rahmah before the survey. When asked about their purchasing frequency, 69.5% reported that they would buy from Menu Rahmah daily or several times a week, underscoring the initiative's popularity. Price (80.5%) and food quality (63.8%) were the main factors influencing students' decisions to purchase from Menu Rahmah. However, respondents also pointed out areas for improvement, including portion size (70.4%), variety of food options (65.4%), and food quality

(64.2%). Despite these concerns, 86.5% of students would recommend Menu Rahmah to others, indicating overall satisfaction with the initiative.

Qualitative data findings

Improvements desired in ready-to-eat foods on campus

A prominent theme among respondents was the desire for greater variety in the ready-to-eat meals available on campus. Students expressed a need for more diverse options, including different types of cuisines, flavors, and meal types. This demand for variety reflects the students' desire for more choices and the ability to avoid repetitive meal options.

Affordability emerged as a critical concern, with many students advocating for lower prices. Respondents frequently mentioned that RTE meals should be priced to fit within a student budget, emphasizing the importance of making these meals accessible to all students. This theme underscores the financial constraints that many students face and their need for cost-effective meal solutions.

Another key theme was the call for healthier and more nutritious RTE options. Students expressed a preference for meals that are not only convenient but also beneficial for their health, suggesting that campuses should offer RTE meals with higher nutritional value and fewer additives. The desire for balanced meals, including more vegetables and less processed ingredients, was also noted.

Consistency in taste and quality was frequently mentioned as an area for improvement. Students highlighted the need for RTE meals that not only taste good but also maintain a consistent standard of quality across different outlets on campus. This theme indicates that students value reliability in their food choices and expect the quality to meet or exceed their expectations.

Several respondents mentioned that the portion sizes of RTE meals should be adjusted to better match the price. There were concerns that some meals offered insufficient quantities for the price charged, leading to dissatisfaction. This theme suggests that students are seeking better value for money, with portion sizes that are adequate and satisfying.

Suggestions regarding RTE food and pricing for students

The most recurring theme in this section was the emphasis on pricing. Students repeatedly stressed the need for RTE meals to be affordable, with many suggesting specific price ranges, such as below RM10, to ensure they fit within a typical student budget. This reflects a clear expectation that campus services should cater to the financial limitations of students.

Building on the earlier theme of health, respondents reiterated the need for healthier RTE options. Suggestions included offering more salads, whole grains, and meals with balanced nutrition, as well as providing transparency about the ingredients and nutritional content. This indicates an increasing awareness and demand for health-conscious eating habits among students.

Many students suggested implementing discount programs or special promotions for RTE meals. These could include student discounts, loyalty programs, or price reductions during certain times of the day. This theme reflects the desire for ongoing savings opportunities, making RTE meals more accessible and attractive to students.

Some respondents called for better transparency in pricing and quality control. They suggested that campuses should clearly display the prices and ingredients of RTE meals, allowing students to make informed choices. Additionally, there was a call for consistent quality checks to ensure that the meals offered are fresh, safe, and of high quality.

Suggestions regarding Menu Rahmah on campus

Respondents highlighted the need for increased promotion of Menu Rahmah, noting that many students were unaware of its availability on their campus. Suggestions included more aggressive marketing campaigns, clearer signage, and the use of social media to inform students about where and when these meals are available. This theme indicates that greater efforts are needed to raise awareness and ensure that students can easily access these affordable meal options.

Similar to the feedback on general RTE meals, students expressed a desire for more variety in the Menu Rahmah offerings. There were also concerns about the quality and portion sizes of these meals, with some students feeling that the meals were too basic or lacked sufficient quantity. This suggests that while Menu Rahmah is appreciated, there is room for improvement in meeting student expectations for variety and quality.

Many respondents commented on the portion sizes of Menu Rahmah meals, with some suggesting that the portions were too small for the price. There was also a desire for these meals to be offered at even lower prices, reflecting the financial challenges faced by students. This theme highlights the importance of balancing affordability with sufficient portion sizes to ensure that students feel they are getting value for their money.

5. Discussion

The findings from the survey on student preferences for RTE meals at UiTM provide valuable insights into the factors that influence food choices on campus. The findings align with broader research on student food preferences, which consistently highlight that convenience, cost, and time constraints are significant determinants of food choices among university students. Choi (2022) emphasized that these factors play a crucial role in shaping dietary behaviors, particularly the preference for RTE meals among students who are balancing academics and other commitments. The data also reveals a high level of familiarity with RTE meals among students, with many relying on these options regularly due to their time-saving benefits. The regular reliance on RTE meals by students is well-documented. Basurra et al. (2021) found that 52% of respondents consumed RTE food two to four times a week, primarily due to its convenience. Numerous studies confirm that convenience is a primary motivator for food choices among university students. Singleton et al. (2017) observed that the ease and speed of obtaining RTE meals make them an attractive option for students. Rehm and Drewnowski (2017) also highlighted that convenience foods are increasingly preferred by young adults who are balancing academic and work responsibilities. Similarly, Makinde et al. (2020) noted that RTE meals are particularly popular among busy students who prioritize quick meal solutions over home-cooked meals.

However, the survey also highlights significant concerns regarding the affordability and nutritional quality of RTE meals. Priebe and McMonagle (2016) found that while RTE meals are convenient, they often contain high levels of sodium, fats, and sugars, which raises concerns about their long-term health impacts. Smith et al. (2021) also noted that the cost of healthier meal options can be prohibitive for students, leading them to opt for cheaper, less nutritious alternatives. A substantial portion of students reported that they often compare prices before purchasing RTE meals,

indicating that cost is a major consideration in their decision-making process. The impact of cost on food choices is significant, especially among students with limited budgets. Michels et al. (2015) found that students frequently compare prices before purchasing meals, reflecting the financial constraints that influence their decisions. The finding that many students have opted not to purchase RTE meals due to their expense underscores the financial challenges faced by the student population. This aligns with past studies, which emphasizes financial constraints as a major barrier to accessing nutritious food. Roy et al. (2017) found that students often forgo purchasing meals that are perceived as too expensive, which can lead to reliance on less healthy, but more affordable, food options. Savlak et al. (2016) also noted that the high cost of healthier RTE options can be a deterrent for students, further exacerbating the challenge of maintaining a balanced diet. Smith et al. (2019) highlighted that lower-income students are more likely to opt for cheaper, calorie-dense foods due to financial limitations. This is consistent with findings from Thike et al. (2020), which indicated that economic constraints often lead students to prioritize cost over nutritional value in their food choices.

The demand for healthier RTE options is another critical theme that emerged from the survey. This growing demand was highlighted in Sprake et al. (2018) who found that students are increasingly seeking out meals that align with their health goals, reflecting a broader trend towards health-conscious eating. Smith et al. (2021) also noted that the demand for healthier RTE options is driven by increased awareness of the link between diet and long-term health outcomes. Despite the convenience of RTE meals, only a small percentage of students consider them to be healthy, with many expressing a desire for meals that offer better nutritional value. While RTE meals are convenient, their perceived lack of nutritional value is a significant concern for students. Basurra et al. (2021) found that despite their popularity, many students do not consider RTE meals to be healthy, which affects their overall satisfaction with these options. Priebe and McMonagle (2016) also highlighted that the nutritional deficiencies commonly found in RTE meals contribute to this perception, leading students to seek out alternatives that offer better health benefits. The trend towards health-conscious eating is increasingly influencing food choices among young adults. Sprake et al. (2018) observed that health consciousness is becoming a key factor in the dietary decisions of university students, who are more aware of the long-term implications of their eating habits. Savlak et al. (2016) also noted that this shift is part of a larger movement towards more mindful consumption, with young adults prioritizing nutritional value in their food choices. Students' willingness to pay more for healthier meals suggests a strong commitment to their health and well-being. Thienhirun and Chung (2018) also reported that students' preference for healthier, higher-quality meals is driven by a growing awareness of the importance of nutrition in maintaining overall health.

Lastly, the Menu Rahmah initiative, while popular among students, was also subject to critique, particularly regarding portion sizes, variety, and food quality. Lenighan et al. (2017) found that similar campus food initiatives were often critiqued for not fully meeting the diverse dietary needs of students, particularly in terms of portion sizes and the range of options available. Smith et al. (2021) also highlighted that the quality of food in such initiatives is a critical factor in determining their success and acceptance among students. Affordability is a key strength of the Menu Rahmah initiative, but the demand for more diverse and substantial meal options reflects a need for improvement. Roy et al. (2017) emphasized that while cost is a major consideration, students also value diversity and portion size in their meal options. Makinde et al. (2020) noted that offering a variety of well-portioned meals is essential for meeting the nutritional needs and preferences of a diverse student population. These findings suggest that while the initiative meets a crucial need for low-cost meals, there is room for improvement in terms of meeting student expectations for quality and variety.

6. Conclusion

This study underscores the importance of balancing convenience, affordability, and nutritional quality in the provision of RTE meals on university campuses. While RTE meals are a staple in the diets of many students at UiTM, there is a clear demand for healthier, more diverse, and reasonably priced options. The Menu Rahmah initiative is a valuable program that addresses the financial constraints of students, but it must evolve to meet the growing expectations for quality and variety in campus dining.

Moving forward, campus food services should consider expanding the range of RTE meals to include more nutritious and diverse options that cater to different dietary needs. Additionally, there is a need for greater transparency in pricing and nutritional information to help students make informed food choices. By addressing these areas, universities can better support the health and well-being of their students, ensuring that all have access to affordable and nutritious meals that fit within their busy lifestyles.

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Authors Contributions

All authors have contributed to this publication through information and data findings, writing and editing.

Conflict of Interest

There is no conflict of interest associated with this publication.

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