

# Examining the Relationship between Food Insecurity and Students' Academic Performance in Public Universities

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## ABSTRACT

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*This study examines the relationship between food insecurity and academic performances among university students in Selangor, Malaysia. Food insecurity exists whenever people have limited food access at all times for an active and healthy life. In the case of Malaysians, their multicultural identity has expanded their palate and surrounded them with various food choices in their daily life. However, only a few are well-informed of the story behind food production and its quality. Limited knowledge and understanding of health, particularly daily dietary food intake, might slowly make people descend to food insecurity. Therefore, it is essential to understand the consequences of this issue. A total of 400 survey data using a self-administrated questionnaire were collected among students across public universities in Selangor, Malaysia. Statistical analysis revealed that food quality significantly influences students' academic performances. Students at a lower risk of food insecurity included those who reported living with their parents and those who received monthly allowances from government agencies and their parents. In addition, food-secure students were more likely than food-insecure students to report a higher GPA versus a lower GPA. These findings compel relevant authorities, including university and food-related service providers, to consider the importance of food quality and students' amount of food intake as these factors significantly influence their academic performances. Therefore, this study suggests further investigation with a combination of various study settings and scope probably could gain a deeper understanding of and refine the existing theory of human belief towards food consumption.*

## 1. INTRODUCTION

Many studies found that food insecurity is a multi-faceted concept that has evolved over time and place. It is conceptualised as limited or uncertain availability of nutritionally adequate and safe food or limited or uncertain ability to acquire acceptable food in socially acceptable ways (Anderson, 1990). This indicates when an individual has uncertain capacity to get food and the uncertain capability to eat nutritious food whenever they wish. The phenomenon of food insecurity has been discussed and debated by scholars within the context of teenagers who pursue their higher education at university and have to live far away from their parents to stay near campus. Food insecurity has extraordinary consequences for university students who are not invulnerable to encountering financial hardship. Numerous studies show both the degree and effects of financial stress during each study. A deficiency of an adequate measure of food prompts weight reduction and poor health, a phenomenon that influences more than a large portion of teenagers in the present day (Cheng & Kamil, 2020; Whitaker et al., 2006). Students' increased financial stress may influence their purchasing priorities, a common scenario being frequently prioritising their limited budget for housing, tuition, and utilities, leaving an insufficient balance for food and thereby putting them at risk of food insecurity (El Zein et al., 2019; Henry, 2017). Thus, many university students struggle to manage their diet while studying at university by worrying about meals or dishes they buy and consume.

In Malaysia, food insecurity has been observed amongst the communities of higher educational institutions, particularly the students. The country is reported to have 20 well-established public universities and a total enrolment of 567, 625 students in 2019 (Malaysia Education Planning and Research Division, 2020). The escalating number of universities opens equilibrium to more opportunities for youngsters from diverse backgrounds to pursue post-secondary education. Those who come from low-income families, on the other hand, may find it difficult to adjust to campus life. As a result, their issues with financial stability, packed daily class schedules and activities, and insufficient attention on proper and balanced food intake to stay fit have become research topics of interest to academics. Furthermore, severe sickness due to the consumption or high intake of low nutrient and quality food among Malaysians, the young age groups included, is the repercussion of food insecurity and poor health (Sulaiman et al., 2021). This was supported by a recent study by Cheng and Kamil (2020), who found that students themselves are the core reason for their altered food consumption behaviour. Often, Malaysian university students who are pressured to study and maintain their academic achievements consume food with low energy, fat and calcium. This behaviour, if continuously practised, would lend a negative impact on both their health as well as their academic performances (Cheng & Kamil, 2020).

In light of the current scenario of Malaysian universities, the rising cost of education imposed by the Malaysian Public Higher Learning Institution is now affecting some students, and most of them come from low and middle-income families. The students' incomes come mainly from study loans or scholarships, allowances provided by their parents or part-time jobs; in other words, they are self-sponsored. The majority of them were said to earn less than Ringgit Malaysia or MYR500.00 (approximately USD119.05) per month (Muniady, 2014). Due to their limited financial resources, students must budget carefully for food, entertainment, transportation, study materials, clothing, electronic devices and rent (Sorooshian & Teck, 2014). Hence, it is difficult for students to choose between textbooks, rent, and consistently eat healthily. Also, a lack of knowledge, rather than a disregard, concerning diet, food intake and nutritional value lead most people to capitulate to food insecurity (Cady, 2014).

The sudden closure of cafeterias, limited access to personal transportation, poor food quality, and time constraints have also exacerbated the situation, further forcing students to resort to alternative methods such as purchasing food off-campus, buying instant and ready-made food from mini-marts, reducing meal portions, and eating at unhealthy food establishments such as Quick Service Restaurants to survive (Shii et al., 2015). Some of them were also discovered to have nutrient intakes lower than the Recommended Nutrient Intakes for Malaysia (Abdull Hakim et al., 2012; Gan et al., 2011; Ganasegeran et al., 2012). Thus, these factors significantly influence students' food choices and create a problem where they have to choose between eating healthily or to survive, which ultimately affects their academic achievements (Cook & Frank, 2008; Gao et al., 2009) as well as their energy and concentration levels (Hamelin et al., 1999; Zekeri, 2007). Evidence from the aforementioned studies indicates that the students' financial management skills and dietary behaviours were unacceptable. Their inconvenient surroundings and living conditions placed them at risk of developing a higher degree of complexity in food insecurity, possibly influencing their academic performances.

Based on the above rationale, there is a need for empirical investigation on food insecurity, particularly among university students. Although a few studies on food insecurity on college campuses have been carried out (Hughes et al., 2011; Patton-López et al., 2014; Pia Chaparro et al., 2009), studies scrutinising the prevalence of food insecurity amongst students and whether food insecurity is associated with academic achievement, concentration ability and energy level receive minimal attention in the syllabus and needs to be conducted. Therefore, this study examines the relationship between public university students' food insecurity and their academic performances in Selangor, Malaysia. There are two food habit predictors: food quality and food quantity, which have been set as the main focus of this study to measure the relationship specifically.

## **2. LITERATURE REVIEW**

Students who do not have learning capability may lack the motivation to adapt and arrange and assess their learning processes as classes become more difficult in increments. This circumstance negatively influences their success in university and their lives after graduation (Pepe, 2012). Although studies on food insecurity and academic performance are limited, exploring the adverse effect of food insecurity on teenagers' academic achievements acted as a catalyst to assess the proposed study hypothesis. In terms of food insecurity and teenage advancement, it was found that most teenagers who experience food insecurity live in developed countries. As Winicki et al. (2003) have indicated, nine percent of their study population experienced food insecurity and that any level of food insecurity strongly influenced academic results within one year of learning.

### ***2.1 Understanding the Concept of Food Insecurity***

Many scholars have conducted studies on food insecurity for decades to understand human behaviour towards food consumption. Initially, the term food insecurity was introduced by World Health Organisation as a subset to the concept of food security which specifically focuses on understanding human food consumption behaviour. Wunderlich and Norwood (2006) defined food insecurity as the inadequacy or limited quality and quantity of food resources for consumption. This definition is built on two aspects: 1) quality food resources, and 2) the amount of food available (i.e., food quantity) for human consumption. Thus, food insecurity can be detected whenever there is little nutritional food for consumption, be it intentionally or otherwise. Food insecurity has been recognised as one of the most important

areas of study and has been recognised by many countries worldwide through the second goal of Sustainable Development Goals 2030 (Sulaiman et al., 2021).

Scholars have also found several indicators to measure the condition of food insecurity, including poverty status, real estate values and pressure, unemployment status of a person, lack of food and nutritional knowledge, and food habits (Holben, 2010). Food insecurity does not refer to a household's ability to access foodstuffs, living in a food desert, or insufficient time to shop or cook. It just indicates a lack of food access due to financial matters and other material resources. Because of their life practices, the population that experienced food insecurity indicated a higher risk of chronic diseases (Seligman et al., 2010). Therefore, a study on food insecurity is critical and desires more attention to better understand its condition and the consequences of ignoring its existence. This concept is also believed to apply to various age groups and population segments, especially among university students who are often reported to suffer from a lack of nutrition due to limited food access and the practice of unusual dietary habits.

## ***2.2 Food Quality***

The availability of quality food has gained serious attention and has long been discussed by many scholars. There are many studies heavily concentrated on food and service, which includes the hospitality industry. Additionally, food nutrients and food habit studies are often conducted to better understand institutional catering, especially at the school level. However, there is still little known about food quality within the context of food insecurity, particularly the relationship between food quality and students' academic performances. It is a leading public health issue. Food insecurity is identified as a profound level of food issues, while food security is a condition identified with a supply of adequate quality food (Sulaiman et al., 2021).

Within the broad concept of food quality, this is one of the significant aspects that build on food insecurity's conceptual knowledge. This condition was found in students suffering difficulty to manage their finances, which causes them to choose to either buy cheap food or big portions that have value for money (Seligman et al., 2010). This condition caused students to avoid spending an unreasonable amount on acceptable quality food. Moreover, struggling to access eateries and supermarkets restricts students' options and the desire to buy quality food. Nowadays, most food entrepreneurs have increased their prices to an unreasonable level—thus, students choose to purchase affordable food which is typically low in quality (Cheng & Kamil, 2020). These experiences will stress the students because an unbalanced food intake due to financial problems may affect their academic achievements. With little quality food, food insecurity is developed among students (Maroto, 2013; Radimer, 2002).

H1: There is positive relationship between food quality and students' academic performance.

## ***2.3 Food Quantity***

The amount of food intake and dietary habits are interrelated to ensure our body has enough nutrition. Food acts as fuel to supply energy to carry out daily life activities and maintain health. Excessive food intake causes many troubles to humans, including obesity, disease, stress, laziness, and poor concentration in class or while studying (Cheng & Kamil, 2020). With increasing financial stress and preparing for university, their finishing rates cannot differentiate them from high-income families or low-income families. Muniady et al. (2014) indicated that students must budget carefully for food, entertainment, transportation, study materials, clothing, electrical equipment, and rent because of their restricted financial resources.

American College Health Association (2011) discovered that 34% of college students found money stressful or extremely hard to handle, and that sums of cash contrarily influenced the academic execution of 6.5% of students in their analysis. The same goes for the researchers Maroto (2013) and Radimer (2002), who observed that consuming too much food causes students to lose focus and feel sleepy while in class. If students continuously practise this, there is a high chance that it would affect their academic performances.

H2: There is negative relationship between food quantity and students' academic performance.

Figure 1 illustrates the focus of this study which situated within the underpinning theories adapted from Maroto (2013) and (Radimer, 2002).

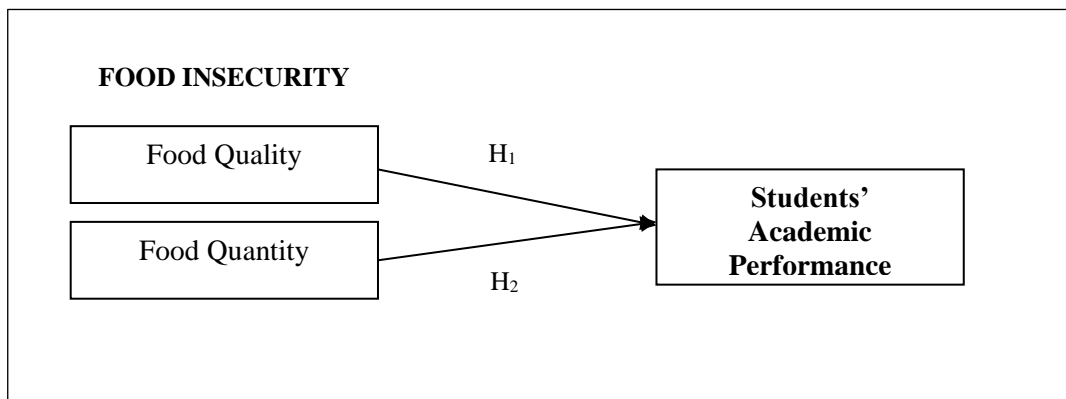


Figure 1. Underpinning Theoretical Framework

### 3. METHOD

This study employed a descriptive cross-sectional research design through the distribution of a self-administrated questionnaire. Four public universities, namely, Universiti Teknologi MARA Cawangan Selangor, Universiti Pertahanan Nasional Malaysia, Universiti Kebangsaan Malaysia and Universiti Putra Malaysia located in Selangor, were identified from the Malaysian Qualifications Register (MQR) list published by the Malaysian Qualifications Agency (MQA). These universities were approached, and they have agreed to participate in this study. The MQA is an accreditation agency recognised and supported by the Malaysian government for quality assurance at Malaysia's public and private universities. Based on the sample size table recommended by Krejcie and Morgan (1970), the sample size of 381 respondents is considered adequate with a five percent margin error and a 95% confidence level. Nevertheless, it has been increased to 400 to avoid invalid results due to respondent errors when completing the questionnaire.

The self-administrated survey questionnaire consists of four main sections. All four sections measured responses with a 5-point Likert-type scale (1 = strongly disagree, and 5 = strongly agree). The questionnaire was adapted from past studies (Maroto, 2013; Radimer, 2002) with several minor modifications to fit the study. The final section of the questionnaire collected the respondents' demographics and relevant personal information (e.g., age, gender, marital status, living situation, current semester, meal per day, monthly income, and Grade Point Average). This study was focus on public university students located in Selangor, Malaysia. A total of 400 questionnaires were distributed within one month to all four selected public universities. The targeted sample population (e.g., respondents) for this study were undergraduate and postgraduate students enrolled in full-time study. Table 1 summarises the survey distribution activities.