
SCIENCE AND RECREATION IN UITM SEREMBAN

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ABSTRACT

Food is one of human beings' most basic requirements, as it provides both required and non-essential nutrients to the body. However, a person's eating habits can be influenced by several things, such as their physical health, financial circumstances, and environment. Food insecurity, a severe public health issue, is the inability to access wholesome food in a way that is safe and acceptable to society. While food insecurity is a nutritional state that influences diet and body weight, it also holds consequences for psychological well-being and has been linked to a rise in mental illness. The purpose of this study is to identify food insecurity and mental health in addition to investigate the relationship between these two among recreational athletes' food insecurity and mental health among students of Faculty of Sport Science and Recreation in UiTM Seremban. A total of 112 respondents participated in completing the survey. The respondents were made up of female 50% (N = 56) and male 50% (N=56). The age of respondents is 18 – 20 years old 19.6% (N=22), 24 to 26 years old 4.5.7% (N=5) and above than 26 years old 0.3% (N=1). The survey was getting its respond highest from students aged 21 to 23 years old 77.7% (N=87). There were 112 respondents who took part and the results of the respondent's food insecurity level show that majority 54.5% were food secure (N=61), 29.5% were in moderate food insecure (N=33) and 16.1% were in food insecure category (N=18). The result showed there were no association between food insecurity and mental health domains among students of FSR between all variables. Overall, the present take into consideration of its limitation to better fine-tune the result.

Keywords: Food insecurity, Depression, Stress, Anxiety, Mental Health

INTRODUCTION

Human nutrition is the process by which nutrients in food are converted into bodily tissues and supply energy for the entire spectrum of mental and physical activities that comprise human life (Weininger et al., 2023). One of the most fundamental needs in human living aspect is food, as it provides both required and non-essential nutrients to the body. Individuals must pay close attention to what they

consume to maintain their health and vitality. However, a variety of factors, including one's physical condition, financial situation, and surroundings, might influence one's eating habits. FAO (2021) stated that the COVID-19 pandemic has made the serious, growing issue of access to sufficient, wholesome food even worse. With significant regional diversity, up to 30% of the world's population experienced food insecurity in 2020, a 4% rise from the previous year.

A household's economic and social situation of restricted or unpredictable access to adequate food is known as "food insecurity" (U.S. Department of Agriculture, Economic Research Service, 2024). Although hunger is not always a result of food insecurity, it is a potential side effect (Carlson et al., 1999). Long-term or transient food insecurity are both possible according to Jones et al., (2013). The Office of Disease Prevention and Health Promotion (n.d.) narrated a few studies listed income, employment, race/ethnicity, and disability are some of the variables that may have an impact. When there is insufficient or no money to buy food, the danger of food insecurity rises.

The prospect of escalating food insecurity is present everywhere, including in Malaysia. Malaysia scored moderately for hunger on the 2022 Global Hunger Index, with a minor increase in the hunger index from 10.9 in 2014 to 12.5 in 2022 (Global Hunger Index, 2023), which presumably corresponds to an increase in food insecurity because of the pandemic. For example, according to a study conducted by Selamat et al. (2015) in Malaysia, 13.4% of people had reduced the size of their meals and skipped main meals due to budgetary restrictions. East Malaysia had 20.3 percent, whereas Peninsular Malaysia had 11.5 percent. Food insecurity has an impact on not only nutrition and physical health, but also on mental health. People who are food insecure endure psychological distress, such as worry and sadness, as a result of their inability to feed themselves and their families as well as the absence of inexpensive, culturally appropriate food (Carter et al., 2011).

Food insecurity, on the other hand, is linked to self-reported fair/poor health but not to overweight/obesity in college students who live off campus. Among college students, food insecurity is a significant public health concern that has detrimental effects on both physical and mental functioning (Knol et al., 2017). A surge in mental illness has been connected to food insecurity. According to prior research, food insecurity has been associated with a number of detrimental physical and mental health outcomes in adults, such as reduced nutritional intake, an increase in mental health issues and depression, diabetes, obesity, hypertension, poor sleep, and lower self-rated health (Gundersen & Ziliak, 2015)

While food insecurity is a nutritional state that influences diet and body weight, it also holds consequences for psychological well-being. Specifically, food insecurity encompasses issues of psychological acceptability, such that an individual may experience feelings of deprivation or restricted food choice and anxiety about food supplies as a result of being food insecure. (Myers, 2020). Mental health, as noted by MedlinePlus (2024) is important at any age, including childhood, adolescence, and adulthood. Food insecurity is recognized as a psychosocial stressor that adversely affects mental health, leading to increased levels of psychological disorders such as anxiety, depression, shame and stress. (Bergmans et al., 2019; Weaver & Hadley, 2009). Centers for Disease Control and Prevention (2024) stated that, mental health includes our emotional, psychological, and social well-being. It affects how we think, feel, and act. It also helps determine how we handle stress, relate to others, and make healthy choices.

There needs to be more research on the kinds of mental health problems that children who are food insecure are particularly prone to because of the linkages between these two problems and the urgency surrounding them. Research suggests a connection between college students' food insecurity and a higher prevalence of depression and other mental health problems (Bruening et al., 2016; Bruening et al., 2018). Subsequently, the objective of the current study is to determine the relationship between recreational athletes' food insecurity and mental health among students in the Faculty of Sport Science and Recreation (FSR) in UiTM Seremban.

METHODOLOGY

In order to produce numerical data for statistical analysis, this study used quantitative research. An online survey was employed as the quantitative methodology. The design had been chosen to meet the objective of the current study. The sample is selected by probability sampling technique which involved both female and male students answering the questionnaire voluntarily.

There are approximately 890 number of total population of students enrolled in the Faculty of Sports Science and Recreation (FSR), UiTM Seremban Campus Negeri Sembilan. (Academic Registrar, 2021). After scrutinizing the population, the number of students who can be considered recreational athletes is 120 people. As such, in reference to the Krejcie and Morgan Table (1970), total numbers of sample size in this study are 92 participants of FSR's students. An additional 19 subjects were recruited to fulfill 20% of the dropout rate thus 111 students were recruited for the total sample size of this study.

The questionnaire was adopted and adapt from the Food Insecurity Experience Scale (FIES) (FAO Statistics, 2018) developed with two sections which consisted of section A and B. Section A is a demographic data and combination set of questions developed based on the Food Insecurity Experience Scale (FIES). There are eight items in total in FIES. The FIES eight questions refer to the experiences of the individual respondent or of the respondent's household as a whole. The questions focus on self-reported food-related behaviors and experiences associated with increasing difficulties in accessing food due to resource constraints. The eight questions were utilized to study food insecurity and should be answered with either "yes" or "no". For the scoring of FIES, the level of severity can be determined through its raw score. If all answer is no or less than four affirmative answers, it is categorized as food secure or mild food insecure, four to six yes answers is moderate while seven to eight yes answers is considered severe food insecurity.

In section B is Depression, Anxiety and Stress Scale - 21 Items (DASS-21) which consists of 21 questions. This questionnaire was used to measure the mental health of the participants. DASS-21 is a set of three self-report scales designed to assess the emotional states of depression, anxiety, and stress. The three DASS-21 scales each have seven items that are broken down into subscales with related material. The dysphoria, hopelessness, devaluation of life, self-deprecation, lack of interest or involvement, anhedonia, and inertia are all evaluated by the depression scale. The autonomic arousal, skeletal muscle effects, situational anxiety, and subjective sensation of anxious affect are all measured by the anxiety scale. The stress scale is sensitive to levels of chronic nonspecific arousal. It evaluates issues with difficulty relaxing, nervous arousal, and being easily upset / agitated, irritable /over-reactive and impatient. The results for the relevant questions are added together to get scores for depression, anxiety, and stress.

The scores of Questions (3, 5, 10, 13, 16, 17, and 21) were summed up and multiplied by two to get the level for depression. Next, scores of Questions (2, 4, 7, 9, 15, 19, and 20), were summed up and multiplied by two to evaluate the anxiety level. Using the same method, scores of Questions 1, 6, 8, 11, 12, 14, and 18, determined the stress level of the participants. The total score for each element of mental health was rated as normal, mild, moderate, severe, and extremely severe.

Descriptive statistics and the Chi-square test were used for data analysis. A Descriptive statistic is used to illustrate how central tendency is measured and calculated which includes the calculation of mode, mean and median as well as how variability is calculated via range, variance and standard deviation. Chi-square was used to measure the association between recreational athletes' food insecurity and mental health among students in the Faculty of Sport Science and Recreation (FSR).

RESULTS

Demographic Profile

Data showed a total of 112 respondents who have completed the survey. The respondents were made up of female 50% (N = 56) and male 50% (N=56). The age of respondents is 18 – 20 years old 19.6% (N=22), 21 to 23 years old 77.7% (N=87), 24 to 26 years old 4.5% (N=5).

There were 112 respondents who took part and the results of the respondent’s food insecurity level show that majority 54.5% were food secure (N=61), 29.5% were in moderate food insecure (N=33) and 16.1% were in food insecure category (N=18).

Table 1: Descriptive statistic of the respondent’s age, gender, and food insecurity

Item		Frequency (N)	Percentage (%)
Gender	Female	56	50
	Male	56	50
Age	18 – 20	22	19.6
	21 – 23	87	77.7
	24 – 26	5	4.5
Level of Food Insecurity	Food secure	61	54.5
	Moderate food insecure	33	29.5
	Food insecure	18	16.1

Association between Level of Food Insecurity and Depression among students in FSR

To determine the normality of data distribution, a preliminary analysis was carried out in this research. The Kolmogorov-Smirnov value was used to determine the normality of the data. The result from Shapiro-Wilk indicated that the current data analysed for this study was normally distributed hence test of Chi-square was used.

Based on the result, it indicated there was no significant association between the level of food insecurity of the students with the first item of mental health which is depression, $p= 0.680$, $p > 0.05$ and the Chi-square value = 3.978. The table shows that the association between the level of food insecurity and depression showed no significant association with each other.

Table 2: Association between level of food insecurity and depression among students in FSR

Variable	Food insecurity N(%)			X ² Value (df)	p Value
	Food secure	Moderate Food Insecure	Food Insecure		
Depression				3.978 (6)	0.680
Normal	17 (47.2)	29 (60.4)	14 (50.0)		
Mild	10 (27.8)	7 (14.6)	4 (14.3)		
Moderate	8 (22.2)	11 (22.9)	9 (32.1)		
Severe	1 (2.8)	1 (2.1)	1 (3.6)		

Association between Level of Food Insecurity and Anxiety among students in FSR

Based on the result, it indicated there was no significant association between level of food insecurity of the students with next item of mental health which is anxiety, $p = 0.677$, $p > 0.05$ and the Chi-square value = 7.501. Table 3 shows that the association between the level of food insecurity and anxiety showed no significant association to each other.

Table 3: Association between level of food insecurity and anxiety among students in FSR

Variable	Food insecurity N (%)			X ² Value (df)	p Value
	Food secure	Moderate Food Insecure	Food Insecure		
Anxiety				7.501 (10)	0.677
Normal	14 (38.9)	24 (50)	11 (39.3)		
Mild	2 (5.6)	2 (4.2)	2 (7.1)		
Moderate	3 (8.3)	5 (10.4)	3 (10.7)		
Severe	12 (33.3)	13 (27.1)	12 (42.9)		

Association between Level of Food Insecurity and Stress among Students in FSR

The current study reported in its findings that there was no significant association between the level of food insecurity of the students with the last item of mental health which is stress. $p = 0.979$, $p > 0.05$ and the Chi-square value = 0.443. The table shows that there was no association between the level of food insecurity and stress to each other.

Table 4: Association between level of food insecurity and depression among students in FSR

Variable	Food insecurity N (%)			X ² Value (df)	p Value
	Food secure	Moderate Food Insecure	Food Insecure		
Stress				0.443(4)	0.979
Normal	23(63.9)	31 (64.6)	18 (64.3)		
Mild	7 (19.4)	8 (16.7)	4 (14.3)		
Moderate	6 (16.7)	9 (18.8)	6 (21.4)		

DISCUSSION

The finding of current investigation revealed there was no significant association between the level of food insecurity of the students with depression, anxiety and stress.

Having insufficient food and nutrients damages social interactions due to emotions of deprivation and alienation, which is a straightforward explanation for the existence of the positive relationship between the degree of food insecurity and depressive symptoms (Palar et al., 2015). Like all studies, ours is not without limitations, which in the case the current study contradicts which most finding noted to be supporting it, with a positive and strong association between food insecurity and depression. According to Huddlestone-Casas et al., (2009) some evidence suggests a bidirectional relationship between food insecurity and depression in which the experience of being food insecure can cause depression and being depressed can contribute to food insecurity.

Additionally, Wolfson et al., (2021) stated, a higher likelihood of being extremely or very concerned about how COVID-19 will affect one's health, income, way of life, the economy, and ability

to feed one's family was linked to food insecurity. The evidence in this study suggests that low-income adults in the United States had poor mental health early in the COVID-19 pandemic, with disproportionately high rates of depression, anxiety, and stress among those living in food-insecure households. Taking into consideration the finding stated above, we postulated that the FSR students which reflected our sample size, were not members of low-income families. However, the current study recognizes this as a limitation as the demographic of families' income was not included in our current research and will be warranted for recommendations for future research.

Excessive fear, worry, and behavioural abnormalities are hallmarks of anxiety disorders. The symptoms are strong enough to cause significant anguish or functional impairment. Generalised anxiety disorder (characterised by excessive worry), panic disorder (characterised by panic attacks), social anxiety disorder (characterised by excessive fear and worry in social situations), separation anxiety disorder (characterised by excessive fear or anxiety about separation from those with whom the person has a deep emotional bond), and other types of anxiety disorders are among the many different types of anxiety disorders (World Health Organization, 2022). It can be hypothesized the contradicting finding of no association between anxiety with food insecurity was due to limitation of sample size.

There were numerous findings in support of association between anxiety and food insecurity for example, Tarasuk et al., (2013) reported food insecurity increases the anxiety risk in their study conducted to white population sample where socio-demographic variables were collected in their study.

It can be hypothesized from this result that a person's most specifically students' level of food insecurity was insufficient to infer stress. According to research conducted by (Ramachandiran & Dhanapal, 2018), among university students in Malaysia, studies workload has been identified as the main cause of stress, followed by peer pressure, family problems and financial problems.

On the contrary, there was also a study that showed a positive association reported by Ahmad et al., (2021). Food insecurity is also associated with poor health. Food-insecure students were reported to have high odds of stress and depression. Financial difficulties and stressful life events have indeed affected university students' well-being and academic performance.

CONCLUSION

The study aimed to investigate the relationship between food insecurity and mental health among FSR students but found no significant association. The research acknowledged sample size limitations and suggested the future data collection to include socio-demographic information and larger sample size. While the study revealed the presence of food insecurity among students, it did not establish a significant link to mental health. Nevertheless, the seriousness of food insecurity as a problem among students should not be underestimated, as it could have broader implications for larger populations.

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