



Food Insecurity in University Students: A Mini Review

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Abstract: University students may be vulnerable to food insecurity (FI) due to lower purchasing power, increasing housing and food costs, Due to economic crisis affordability may low. The purpose of this article is to review the food insecurity in university students. This is a mini review on a few papers, research and articles according to studies and research by various organizations, experts, scholars on food security in developed and developing countries. This review helps researchers to understand more fully food insecurity on university students. Most of the studies assessed the prevalence of food insecurity and associated factors among university students. Understanding the significant relationship between food security status and other factors may be useful in developing services for those in need. The prevalence of food insecurity was high among the university students. Most of the studies found that Food insecurity may have adverse effects on student academic performance. There is significant room for future research in this area, from continued discussion of collected students and other expert people's suggestions to reduce food insecurity.

Index Terms: Food Insecurity, Food Security, Higher Education, University Students.

1 INTRODUCTION

The World Food Summit 1996 defined "food security exists when all people at all times have physical and economic access to sufficient, safe and nutritious food, that meets their dietary needs and food preference for an active and healthy life." The World Food and Agriculture Organization (FAO) defines food insecurity as when a person lacks regular access to sufficient safe and nutritious food for normal growth and development. According to the latest statistics of the World Food and Agriculture Organization (FAO) 2023, nearly 735 million people go to bed hungry every night. And two billion people do not have access to safe and nutritious food. Most literature sources have found that food insecurity conditions negatively affect students. Due to this situation, it has been found that students' attendance decreases, attitude, motivation, and concentration levels are also low. A study conducted in 2011 by the Queensland University of Australia found food insecurity to be 46.5% among undergraduate students [1]. Another study conducted at Illinois University found that 35% of students are food insecure [2]. According to the literature [2], there is a correlation between student food security and grade point average value (GPA). Students with GPA >3.00 have high food security. Students with a GPA <3.00 have low food security. In addition, they have

found that students who have good financial support have a high level of food security. Students who have low economic status have very low food security. Due to this financial problem and lack of quality food, students cannot get the required quality and quantity. It decreases their mental, physical, and academic performance.

2 FOOD INSECURITY

The World Food Summit 1996 defined "food security exists when all people at all times have physical and economic access to sufficient, safe and nutritious food, that meets their dietary needs and food preference for an active and healthy life." It has four pillars: availability, accessibility, utilization, and stability. They refer to it as the availability of sufficient quantities of appropriate quality food supplied through domestic productions or imports. Accessibility is individuals' access to adequate resources to acquire appropriate food for a nutritious diet. Utilization is using food through adequate diet, clean water, sanitization, and health care to reach a state of nutritional well-being. To be food secure, households/individuals must always have access to adequate food.

The World Food and Agriculture Organization (FAO) defines food insecurity as lacking regular access to enough safe and nutritious food for normal growth and development.

USDA further divides food security and food insecurity into four main areas: high food security, marginal food security, low food security, and very low food security. They are further described as high food security, which is identified when individuals or households have no problems or anxiety about consistently accessing adequate food. Marginal food security is when all people have issues or anxiety about accessing sufficient food, but the quality, variety, and quantity of their food intake are not substantially reduced. Low food security, people reduced the quality, variety, and desirability of their diets, but the amount of food intake and standard eating patterns were not substantially disrupted. According to the USDA, very low food security is the at times during the year, eating patterns of one or more people were disrupted and food intake reduced because the people lacked money and other resources for food. In 2016, the USDA named this very low food insecurity as food insecurity due to hunger.

3. PREVALENCE OF FOOD INSECURITY IN THE WORLD

At the global, national, Community, Family, and individual levels, food security has been identified as a significant problem. According to the latest statistics of the World Food and Agriculture Organization (FAO) 2023, nearly 735 million people go to bed hungry every night. And two billion people do not have access to safe and nutritious food. Further, further described, food insecurity is a significant issue in low- and middle-income countries. (Sub-Saharan Africa and Southeast and Western Asia). Its seriousness is very high, and its impact on the respective nations is also very high. Most of the world's hungry people live in low-income areas, with around 60% of the population experiencing food insecurity [3]. Kebu and others have reported in Nigeria, over 70% are food insecure. Food security is a global threat in developing or poor countries and economically prosperous developed countries (Canada, New Zealand, USA) [4]. According to a resource [5], 11.9% and 15.4% of households are food insecure in Canada and Nova Scotia. The process of understanding food security and the means to achieve it is still an ongoing debate worldwide. Around 26.3% of the households were food secure, 39.8% experienced moderate food insecurity, and 34.0% severe food insecurity [6].

4. IMPACT OF FOOD INSECURITY AMONG UNIVERSITY STUDENTS

After students enroll in a university, they face some independence along with financial burden and

stress[7]. Academic, financial and social stress negatively affects the mental health of university students [8]. The majority of college students become independent, with more responsibilities and rising tuition costs, may cause this population is more vulnerable to food insecurity [1]. The survey conducted in community college students [9] has been confirmed that there is an inverse relationship between GPA and food security. Many students with low GPAs are confirmed to be food insecure. The most research papers found in the literature reduce the academic performances of University students due to stress, sleep problems, computer use, alcohol use, relationship issues and death. All these factors indicate that the difficulties experienced by university students may be exacerbated by food insecurity. According to the Illinois university[2] few published studies have measured food insecurity among college students in the United States. Also, there are almost no studies measuring the food security of university students in Sri Lanka[4]. For the success of university students, it is important to identify preventable factors such as food insecurity that stress them and decrease their academic performance. Current research indicates that more research is needed regarding both the prevalence and factors affecting food insecurity among these university students.

5. ASSESSING FOOD INSECURITY IN UNIVERSITY STUDENTS

A study was completed in midsize, rural university in Oregon, the purpose of that study was, to assess prevalence and determine associations of food insecurity among students[10]. The 40 items survey was distributed among students through email. 354 students completed the survey (a 7% response rate). Considering the prevalence of food insecurity, the financial conditions of the students and employment problems were also included in this questionnaire and collected food security status with the 6-item short form of the Household Food Security Survey Module (HFSSM). Results were analyzed with descriptive statistics and regression models. According to the results 59% of university students identified as food insecure. which was much higher than the 15% prevalence in Oregon at the time of the study. Other than that, food insecurity is more likely to be experienced by students who come from a low-income family. According to the[10] Students with income below \$1,500 are more likely to be food insecure. Additionally, students who are in poor health, employed, and use food assistance programs are more likely to be food insecure. It is also confirmed that students with a GPA >3.1 are in a high food security status. The results did not find significant relationships between food insecurity prevalence and living arrangement, health insurance status, physical activity, enrollment status, or demographic factors[10].

In 2013, four large public universities in Illinois were selected and research was carried out. The purpose of this study was to determine food security status among college students across the state and its relationship with sociodemographic characteristics[2]. The questionnaire of this survey includes sociodemographic questions and 10-item Adult Food Security Survey Module (AFSSM) questions. The respective questionnaires were distributed to each university student through email. The survey questionnaire was distributed among 48658 students of all these four universities, out of which 1882 students responded (response rate of 4%). According to the results 35% of university students identified as food insecure. which was more than double the rate of 14% in Illinois at the time of the study. Among university students, students with a low GPA level show more food insecurity compared to students with a high GPA level. According to the results of that study, they mainly found that there was a significant relationship between food security and student living situation. Students who resided off-campus without parents or guardians were more food insecure than those on campus or living with parents or guardians[2]. The study involved four universities in the same state, and all participating universities had similar results.

A research was conducted due to lack of comprehensive data on food insecurity among university students

in Nigeria. The purpose of that study was assessed the prevalence of food insecurity and associated factors among university students, southeast Nigeria[3]. There, two main universities were purposively selected from among the public universities in southeast Nigeria. Food security status was assessed using the 10-item US Household Food Security Scale Module and Structured questionnaire consist of socio-demographics, 10 Household Food Security Scale Module (HFSSM). Descriptive statistics were used to Summarized the sociodemographic and related characteristics. The chi-square test and Multivariate logistic regression were further used to assess factors associated with food insecurity. According to the results 11.80% of university students identified as highly food secure, 7.5% as food secure, 35.7% as low food secure and 45% as very low food secure. According to the multivariate logistic regression model researchers have identified, food insecurity was significantly higher for students whose fathers were farmers but lower for those whose mothers were farmers. In addition, food insecurity was significantly associated with, Gender, Place of residence, Monthly allowance, Daily amount spent on food and Source of allowance. And they are clearly mentioned, Associations of FI with age, gender, academic year, marital status, and BMI were not significant[3].

At the public university in Portuguese, research assessed the prevalence and severity of food insecurity and its associated factors among university students. In the survey they mentioned, University students may be vulnerable to food insecurity (FI) due to limited financial resources, lower purchasing power, and increasing housing and food costs. Data was collected using a self-reported online questionnaire. They included students from all levels of study (BSc., MSc. PhD). A survey was distributed to a sample of 7674 students. The questionnaire of this survey consists of three parts, there are socioeconomic and demographic characterization, the food insecurity scale, and other additional questions. In this study, they used the Brazilian Food Insecurity Scale to measure food insecurity. Which was adapted from the US Household Food Security Survey Module (HFSSM). Only 284 students completed the survey. Among the university students in this sample, severe food insecurity was identified in 1.1%, and moderate food insecurity was identified in 2.10% of the sample and mild food insecure 14.10% totaling 17.3% classified as food insecure. According to the results of that study, they mainly found that FI was significantly associated with nationality. In comparison to Portuguese students, students of other nationalities were 4.1 times more likely to be food insecure[11].

At a rural, public university in the Canada, researchers assessed the prevalence and correlates of food insecurity. Questionnaire was distributed by email to 1400 students from December 2011 until February 2012. Used Health Canada's 10-items Household Food Security Survey Module assess the food security status. In addition, 11 items measured food access and demographics. Among the final sample 218 students (15.6% response rate) 37.2% were classified as food insecure. Other than that, food insecurity is more likely to be experienced by students who lived off campus and Students in higher years of study[5].

According to most of the survey results, food insecurity negatively affects students' academic performances and their well-being. A study was completed in Morgan State University USA. The purpose of that study was to evaluate the prevalence of food insecurity among community college students and to identify the relationship between food insecurity and student grade point average (GPA). Research areas were selected in two community colleges in Maryland. A questionnaire was distributed to a sample of 17,000 students on both campuses. The questionnaire of this survey includes, U.S. Department of Agriculture's Household Food Security Survey Module questions, Student self-reported GPA, and demographic variables. Overall, 56% of the university students were classified as food insecure and high food insecure students living alone and those who reported being single parents[9]. In addition, according to the nationality, African American or as multiracial were also at increased risk for food insecurity. Among university students, students with a

low GPA level (2.0–2.49) show more food insecurity compared to students with a high GPA level (3.5–4.0)[9].

A study conducted at a university in Ohio assessed the need for food assistance[12]. A convenience sample was selected. It consists of 150 students. There they were asked about the need for a food pantry. In this study, they defined food insecurity as “not having enough money to buy enough food”[12]. According to the student responses 48% were classified as food insecure and 60% agreed to use a food pantry as needed[12].

A study was conducted at a large public university in Michigan to study whether housing type with or without food provision associated with food security. It was also studied about fruit and vegetable intake among college students[13]. Here, out of 5000 students, 514 students responded to the research. The questionnaire of this survey includes demographics, housing type, car access, fruit and vegetable intake and collected food security status with the 6-item short form of the USDA HFSSM. which was modified to focus on the individual rather than the household. Here the food security status is calcified, zero positive responses were classified as high food security, one positive response was classified as marginal food security, two to four positive responses were classified as low food security, and five to six positive responses were classified as very low food security. According to the results 25% of university students identified as low food secure and 16% of students very low food secure. Totally 41% classified as food insecure. Male students in housing with food provision show more food insecurity. Asian students were found to eat significantly more fruits and vegetables. People living in houses without food provision are more food insecure[13].

In a study by Bakar and team, among university students in Pahang Malaysia, there was a strong link between food security and financial availability, time constrains, scholarship, academic programme, and parent income. The survey questionnaire was distributed among 316 students, 307 completed the survey. According to the results, 21.5% of university students identified as very low food secure, 32.9% of students low food secure, 44.3% of students marginal food secure and only 1.3% identified as high food secure[6].

8 CONCLUSION

This review helps researchers to understand more fully food insecurity on university students. Most of the studies found that Food insecurity may have adverse effects on student academic performance and food insecurity is associated with monthly allowance, the daily amount spends on food, student’s source of income and parent’s occupation. The prevalence of food insecurity was high among the university students. Further research is needed to identify the status of food insecurity among university students and develop strategies to mitigate the prevalence and effect of food insecurity in these young adults.

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