

## Abstract

**Introduction:** Food insecurity (FI) is defined as the disruption of food intake or eating patterns because of the lack of money and other resources. International students are ineligible for COVID-19-related economic relief programs and could find it more difficult to cope during the pandemic. The purpose of this study is to examine changes in the prevalence of FI among international students studying at Louisiana State University (LSU) before and after the onset of the pandemic and the factors associated with the change in FI.

**Methods:** A cross-sectional study using a convenience sample of 105 international students enrolled at LSU was conducted. The USDA's Six-Item Food Security Survey Module was used to measure the FI status at present and during the onset of the pandemic, along with various sociodemographic characteristics. A comparison was conducted using descriptive statistics.

**Results:** About 68% of international students were identified as food insecure during the pandemic while the prevalence decreased to 61% during the last 12 months. Financial Condition and transportation were found to be the major characteristics affecting their FI status.

**Conclusion:** These findings highlight the need for support to international students from various university administrations and the need for interventions to overcome FI problems.

## Background

- USDA defines food insecurity (FI) as having limited or uncertain availability of nutritionally adequate and safe foods or limited or uncertain ability to acquire acceptable foods in socially acceptable ways.<sup>1</sup>
- Because of dietary acculturation, international students are found to be facing more challenges making them prone to FI compared to domestic students.<sup>2</sup> It is due to their "restricted access to rights and entitlements for food assistance that is generally associated with permanent residency and citizenship."<sup>3</sup>
- The COVID-19 pandemic also has heavily influenced the FI status of college and university students. University students reported highly experiencing FI due to the pandemic distress such as food supply and access.<sup>4</sup>
- FI, which is potentially considered to be the result of higher education and living costs, impacts the health of the student, academic as well as social performance.<sup>4</sup>

## Methods

- This study is a cross-sectional quantitative survey with a convenience sample of adult international students attending Louisiana State University.
- The aim of the study is to measure the prevalence of FI during the COVID-19 pandemic (March 2020-March 2021), the present FI status (June 2021-June 2022), and the factors associated with food insecurity using *USDA's Six-Item Short Form of the Food Security Survey Module questionnaire*.<sup>5</sup>
- The Louisiana Agricultural Center Institutional Review Board approved the study.
- Qualtrics was used as the online platform for the data collection. The study Survey flyer was circulated around the university through email listserv.

## Results

- A total of 153 responses were collected.
- The group of international students that participated in the study was from 32 different countries and five continents.
- Among them, 71(46.7%) were male while 81(53.3%) were female.
- About 116(77.9%) of the participants were unmarried while 33(22.1%) were married; 128(84%) were graduate students while 25(16%) were undergraduate students.
- During COVID-19 pandemic (March 2020-March 2021), 48(31.4%) were found to be food secure while 105(68.6%) were food insecure.
- From June 2021-June 2022, 59(38.6%) were food secure and 94(61.4%) were food insecure.

## Risk Estimates of FI among Demographics

Demographics	FI During COVID-19 Pandemic			FI Present		
	Odds Ratio	95% CI Lower	95% CI Upper	Odds Ratio	95% CI Lower	95% CI Upper
<b>Marital Status:</b> Married/Unmarried	1.07	0.47	2.43	1.87	0.86	4.08
<b>Age (years):</b> 18-30/31 and above	1.72	0.78	3.81	0.88	0.43	1.79
<b>Academic Level:</b> Graduate/Undergraduate	2.02	0.71	5.75	2.24	0.84	5.99
<b>Living Status:</b> Alone/With Family	1.5	0.79	3.1	1.31	0.65	2.61

## FI during the Pandemic vs Present status

Demographics	FI during COVID-19 Pandemic		FI Present	
	Food Secure n(%)	Food Insecure n(%)	Food Secure n(%)	Food Insecure n(%)
<b>Gender:</b> Male Female	20(28.2) 28(34.6)	51(71.8) 53(65.4)	23(32.4) 36(44.4)	48(67.6) 45(55.6)
<b>Marital Status:</b> Unmarried Married	37(31.9) 11(33.3)	79(68.1) 22(66.7)	42(36.2) 17(51.5)	74(63.8) 16(48.5)
<b>Age (years):</b> 18-30 31 and above	34(35.1) 11(23.9)	63(64.9) 35(76.1)	37(38.1) 19(41.3)	60(61.9) 27(58.7)
<b>Academic Level:</b> Undergraduate Graduate	5(20.0) 43(33.6)	20(80.0) 85(66.4)	6(24.0) 53(41.4)	19(76.0) 75(58.6)
<b>LSU Campus Major:</b> College of Engineering College of Agriculture College of Science College of Business College of Humanities and Social Sciences College of Human Sciences and Education School of Veterinary Medicine College of Music and Dramatic Arts College of Art and Design School of Mass Communication	12(26.7) 13(38.2) 7(26.9) 2(25.0) 5(33.3) 0 2(22.2) 5(55.5) 1(33.3) 1(50)	33(73.3) 21(61.8) 19(73.1) 6(75.0) 10(66.7) 2(100) 7(77.8) 4(44.5) 2(66.7) 1(50)	12(26.7) 16(47.1) 12(46.2) 1(12.5) 6(40.0) 0 4(44.4) 7(77.8) 1(33.3) 0	33(73.3) 18(52.9) 14(53.8) 7(87.5) 9(60.0) 2(100) 5(55.6) 2(22.2) 2(66.7) 2(100)
<b>Living Status:</b> Alone With Family	32(34) 14(25.9)	62(66) 40(74.1)	39(41.5) 19(35.2)	55(58.5) 35(64.8)

## Recommendations

- The international student population is vulnerable and more prone to FI and has been provided with fewer resources to deal with FI.
- There should be initiatives both at the state and federal levels targeting these groups of people to fight the growing problem of FI among risk populations such as international students.

## References

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4. Martinez SM, Frongillo EA, Leung C, & Ritchie L. No food for thought: Food insecurity is related to poor mental health and lower academic performance among students in California's public university system. *Journal of Health Psychology*. 2020;25(12), 1930-1939. <https://doi.org/10.1177/1359105318783028>.
5. USDA. U.S. Household Food Security Survey Module: Six-Item Short Form. 2012. <https://www.ers.usda.gov/media/8282/short2012.pdf>.