Food Insecurity and Depression:

Findings from the High-Frequency Phone Surveys in Burkina Faso, Malawi and Tanzania

Joshua Kirabo Sempungu[1 3], Minjae Choi[2 3], Eun Hae Lee[1 3], Yo Han Lee[3]

[1]Program in Public Health, Korea University, [2]Institute for Future Public Health, Graduate School of Public Health, Korea University, [3]Department of Preventive Medicine, Korea University College of Medicine

Correspondence to: Yo Han Lee, Korea University College of Medicine, Email: vionic@korea.ac.kr

In a study of surveys carried out in Burkina Faso, Malawi, and Tanzania during the COVID19 pandemic, experiences of **food insecurity** were found to **increase the risk of depressive symptoms** prevalence among **household heads**. The risk remained significant in all countries even after accounting for the household heads' age, sex, employment, residence, and household size.

Introduction

- In Africa, moderate or severe food insecurity prevalence has increased from 21.8% in 2014 to 28.1% in 2021of the total population in the same period which is the highest among all global regions.
- In the same period, disability-adjusted life years for depressive symptoms increased from 7.1 million to 9.7 million, with a 1.3 million increase between 2018 and 2019.
- Although possibly exacerbated by the COVID 19, previous studies have linked depression to food insecurity, which also increased during the COVID 19 period.
- There also are few studies documenting the prevalence of depressive symptoms in most African countries

Objective

- To establish the association between food insecurity experiences and risk of depressive symptoms in the 3 countries

Methods

- We used data from the World Bank High Frequency Phone Surveys (HFPS) 2021.
- We considered countries that collected data about mental health outcomes and food insecurity in the same wave. (Burkina Faso(Round 10), Malawi(Round 9), and Tanzania(Round 1))
- Depressive symptom prevalence was surveyed using the Patient Health Questionnaire (PHQ-8)
- Food insecurity was measured using the Food Insecurity Experience scale (FIES)
- We used bivariate analysis using Chi-square tests to examine the significance of food insecurity and other factors that are associated with prevalence of depressive symptoms
- We used multivariate logistic regression analysis to determine the association between different levels of food insecurity experiences and depressive symptoms prevalence

Figure 1. Adjusted associations between food insecurity and depressive symptoms

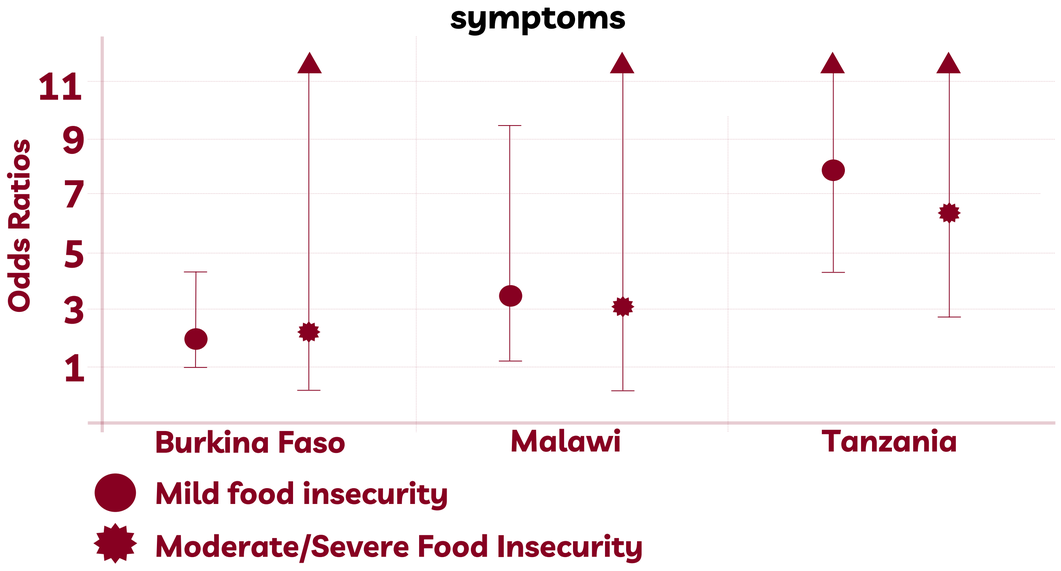

Table 1. Distribution of Prevalence of depressive symptoms Among Study Participants (P<0.05, ***P<0.01)**

Variables \ Country		Burkina Faso	Malawi	Tanzania
		N = 1658	N = 1389	N = 1650
		n (%)	n (%)	n (%)
Prevalence of Depressive Symptoms		52 (3.14)	43 (3.10)	238 (14.42)
Age	20~29	2 (2.56)	13 (4.92)	2 (9.09)
	30~39	12 (2.95)	11 (2.58)	54 (13.04)
	40~49	14 (2.95)	10 (2.95)	85 (15.57)
	50~59	8 (2.19)	7 (3.59)	48 (15.95)
	60+	16 (4.83)	2 (1.25)	48 (13.11)
Sex	Male	47 (3.31)	32 (2.91)	153 (12.77)***
	Female	5 (2.13)	11 (3.86)	84 (18.63)***
Employment	Employed	34 (2.36)***	30 (2.66)**	120 (10.83)***
	Unemployed	18 (8.29)***	13 (5.08)**	89 (20.27)***
Residence	Urban	37 (3.54)	22 (4.29)**	96 (12.50)***
	Rural	15 (2.45)	21 (2.41)**	141 (16.00)***
No. of Children	1~2	20 (3.29)	19 (2.93)	85 (12.50)
	3~5	23 (3.01)	21 (3.28)	126 (16.09)
	6+	9 (3.15)	3 (3.16)	26 (13.98)
Household Size	1~2	0 (0.00)	1 (3.23)	9 (16.36)***
	3~5	7 (2.88)	0 (0.00)	31 (26.27)***
	6~10	19 (3.10)	28 (3.63)	111 (14.74)***
	10+	26 (3.31)	14 (2.53)	86 (11.89)***
Food Insecurity	No experience	13 (2.01)	4 (1.25)**	17 (3.15)***
	Mild	37 (3.87)	37 (3.73)**	209 (20.08)***
	Moderate/Severe	2 (3.85)	2 (2.78)**	11 (16.42)***

Results

- Bivariate analysis indicated significant associations between depression and food insecurity in Malawi and Tanzania ($p<.05$, $p<.01$, respectively) (Table 1.)
- Employment, residence, household size, and sex were also significantly associated in some countries
- In both adjusted and unadjusted logistic regression models, compared to those who did not experience food insecurity, those who experienced both mild and moderate/severe food insecurity had higher odds of having depressive symptoms : adjusted odds ratios(aOR) for mild: Burkina Faso = 2.24(95%CI 1.16-4.34) , Malawi = 3.32 (95%CI 1.16-9.50), Tanzania = 7.73(95%CI 4.53-13.16); aOR for severe/moderate: Burkina Faso = 2.44(95%CI 0.52-11.40) , Malawi = 3.06 (95%CI 0.54-17.45), Tanzania = 6.33(95%CI 2.70-14.82) (Figure 1)

Conclusions

- We found a strong relationship between food insecurity and depressive symptoms. Specifically in Tanzania, the 7-fold risk of depressive symptoms among those exposed to food insecurity as compared to those that weren't shows that there is need to address food insecurity in programs aimed at addressing depressive symptoms.