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Food insecurity and risk of depression among refugees and immigrants in South Africa

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Abstract

South Africa's refugee population has grown considerably over the last decade. Both food insecurity and mental illness are common in developing countries, but this relationship remains unexamined in an African refugee population. 335 adult refugees in Durban, South Africa were interviewed using a self-report of food insecurity and the Hopkins Symptom Checklist-25. The proportion of those who responded 'often true' to not having enough food and eating less was 23.1% and 54.3% respectively. The proportion of individuals with a significant level of anxiety and depressive symptomatology was 49.4% and 54.6% respectively. The adjusted logistic regression indicated that not eating enough was significantly associated with anxiety (aOR=4.52, 95% CI:2.09–9.80) and depression (aOR=4.51, 95% CI:2.01–10.09). Similarly, eating less was significantly associated with anxiety (aOR=2.88, 95% CI:1.56–5.31) and depression (aOR=2.88, 95% CI:1.54–5.39). The high prevalence of food insecurity, and its relationship to mental illness, highlights the importance of addressing basic needs among this population.

Keywords

refugees; South Africa; depression; anxiety; food security

Introduction

Since the end of the apartheid regime and the subsequent transition to democracy in 1994, South Africa has become an increasingly popular destination for refugees from other African nations. According to the July 2014 estimate of the United Nations High Commissioner for Refugees, the country was host to 309,616 refugees, with an unknown

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number of asylum seekers who have not being formally recognized [1]. Refugees are defined by the United Nations High Commissioner for Refugees (UNHCR) as individuals who are unable to return to their country of origin because of a well-grounded fear of persecution. Often viewed as competition for already scarce resources in difficult economic circumstances [2], they often face a host of additional social environmental challenges upon settlement that are stressful, including xenophobia (discrimination, and violence) and crime, which makes them vulnerable to mental illnesses, specifically depression [3,4].

As cornerstones of sustainable development that are closely linked to challenges associated with poverty [5], food security and the right of access to sufficient food are rooted in South African Constitutional Law of 1996 [6]. Food insecurity can affect health and quality of life either directly or indirectly through nutritional status [7], and is linked to mental illness in several ways [8]. Refugees represent an “at risk” population for nutrient deficiencies, such as vitamin B12 and iron [9–11], which could predispose them to depression [12]. Added to this, the psychological distress individuals may experience as a result of not being able to afford food, not having adequate access to nutritious or culturally appropriate food or being able to feed their families, further compounds this risk of depression. While South Africa [13] at a country-level may be considered food secure, it is estimated that 38% of households are food insecure [14], with insecurity at household level in rural areas remaining a persistent challenge [15]. To date, few studies have examined the extent of food insecurity challenges on non-South Africans, and how this is associated with mental health outcomes. In this study, we examine the association between food insecurity and mental health outcomes among refugees in South Africa.

Methods

Sample and procedures

This prospective study was conducted between July 2013 and April 2014 at a non-government organization (NGO) that runs a soup kitchen, in addition to providing medical and legal assistance for refugees and asylum seekers in Durban, South Africa. This organization is situated in the city’s central business district, and is in close proximity to areas well known for housing refugees. In our study, the UNHCR definition of refugee was broadly extended to include immigrants and asylum seekers. The NGO provides assistance to all those who seek them, and adults (18–75 years) who received services at the center were approached to be part of the study. In order to be eligible to participate, a person had to be conversant in English, French or Swahili. Informed consent was obtained, and interviews were conducted by two trained clinicians (nurses) who were fluent in the above-mentioned languages. The questionnaires were administered in English, and orally translated during the interviews by the nurses into the language of preference of the participant. Ethical approval was granted by the University of KwaZulu-Natal Biomedical Research Ethics Committee. 335 refugees consented to participate in the study, and those who screened positive for anxiety or depression were referred for further evaluation and follow-up to local mental health services.

Measures

The Hopkins Symptom Checklist-25 is a reliable and valid instrument, and was used to assess significant risk of anxiety and depression [16]. Response is based on self-report using a 4-point Likert scale, ranging from '1 - not at all', '2 - a little bit', '3 - quite a bit' to '4 - extremely' for each item, with 10 and 15 items for anxiety and depression domains respectively. Mean scores of 1.6 for each subscale indicate a positive screen for anxiety and depression symptoms respectively [17].

The main covariate was food security. Although the definition of food security varies, the South African Department of Agriculture, Forestry and Fisheries defines it as an individual's daily ability to obtain sufficient food [18]; and we based the current study on this notion of food insecurity representing marked food hardship. Food security was assessed using two questions from Short Form of the 12-month Food Security Scale [19, 20]. For the first question, study participants were asked whether the food that he or she had was not enough, and did not have enough money to buy more food. The response choices were either 'often true', 'sometimes true' or 'never true'. For the second question, study participants were asked whether he or she ate less than one should have or miss a meal because there wasn't enough money to buy food. Response choice were either 'yes' or 'no'.

Socio-demographic characteristics of participants were collected using a questionnaire, namely: age, sex, marital status (single, married, with partner, divorced or widowed), employment history (employed, unemployed or other), financial income (earning up to R2,499 per month or earning more than R2,500 per month which represents approximate minimum wage in South Africa), educational background (tertiary education), social support (number of people the participant had to provide support-none or more than 1), migration status (by choice or forced to leave family behind) and exposure to racism (did the participant feel they were treated differently based on race).

Analysis

Following the analysis of their demographic details, two sub-analyses were conducted. The first involved assessing the bivariate association between demographic/clinical characteristics and food security using a chi-square (χ^2) test. The second analysis involved examining associations between food security status and mental health outcomes (i.e. positive for anxiety and depression symptoms), using adjusted logistic regression models. The findings from bivariate analysis partially guided which specific variables would be controlled in the adjusted logistic regression models. Beyond sex and age, only variables found to be significant ($p < 0.05$) in the bivariate analyses were included. STATA 14 was used to analyze the data.

Results

The baseline demographics in Table 1 indicate that the 335 participants were mostly male ($n = 178$, 53.1%), between the ages of 25–34 ($n = 160$, 47.9%) and married ($n = 172$, 51.3%) (Table 1). More than half the sample ($n = 202$, 60.7%) fell into the low-income category (household income R0 – R2,499 per month), and third ($n = 116$, 35.3%) had experienced

racism at some point during their stay in South Africa. In terms of nationality, 47.5% were from the Democratic Republic of Congo (DRC), 34% from Zimbabwe, and 14% from Burundi. The remaining 4.5% were from five other countries (Ghana, Malawi, Mozambique, Rwanda, and Uganda) in Sub-Saharan Africa. The proportion of study participants responded 'often true' to not having enough food and eating less was 23.1% and 54.3% respectively. Lastly, proportion of study participants with significant level of anxiety and depressive symptomatology was 49.4% and 54.6% respectively.

The results of the bivariate analysis in Table 2 show that symptomatology in anxiety ($p<0.01$) and depression ($p<0.01$), age ($p<0.01$), employment status ($p<0.01$), income ($p<0.01$), migration type ($p<0.01$), number of social support ($p<0.01$), exposure to racism ($p<0.01$) were significantly associated with food security (not enough and eating less food).

The results of the adjusted logistic regression in Table 3 (model 1a and 1b) indicated that not eating enough (aOR=4.52, 95% CI: 2.09–9.80) and eating less (aOR=2.88, 95% CI: 1.56–5.31) was significantly associated with anxiety symptomatology. Models 2a and 2b in Table 3 indicated that not eating enough (aOR=4.51, 95% CI: 2.01–10.09) and eating less (aOR=2.88, 95% CI: 1.54–5.39) was significantly associated with depression symptomatology. Migration type [forced to leave behind family] was independently associated with higher risk of depression, but being married and being older [ages 21–24] were protective factors in both models 2a and 2b.

Discussion

The health and nutrition status of refugees represents a major public health concern, and to the best of our knowledge, this is the first study to examine the relationship between food security and common mental disorders in a refugee population in South Africa; although previous studies have found evidence for such a relationship within conflict-affected and internally displaced populations in other low- and middle-income countries (LMICs), such as Uganda [21] and Sri Lanka [22]. The results indicate a high prevalence of food insecurity in this population in South Africa; and that food insecurity has an impact on their mental health status, particularly contributing to an increase in depression and anxiety.

Previous research (including a systematic review) examining the relationship between food insecurity and common mental disorders has shown an association between the two in LMICs [23–25]. The same association is evident in high-income countries such as Canada and New Zealand, where food insecurity has been shown to increase risk for mental disorders, in nationally representative samples [26, 27].

In the current study, being forced to leave one's family behind was associated with a risk of depression. One might speculate that having a choice (with regards to leaving family members behind) might provide the opportunity to prepare mentally, materially, psychologically and emotionally for the departure. This may include the opportunity to plan ahead in terms of addressing basic needs (including accommodation, availability of food), so that arrival and adjustment in a new country might be a little easier. Being forced to leave your family behind on the other hand might be equated with little opportunity for

preparation, as well as a sense of helplessness and lack of agency in having to leave with little or no sense of what lies ahead. Finally, this type of migration may imply exposure to social, economic and/or political hardships in the country of origin, including war and conflict situations that are prevalent in many parts of the continent. Under all these circumstances, it is not difficult to explain the increased risk for depression in this sample of refugees.

The main strength of our study, we would argue, is its success in capturing resettlement experiences of African refugees in an African country; with most previous studies having been conducted on this population in Europe and North America. The findings however should be interpreted within the context of several limitations. Firstly, recruiting from a community-based NGO means that our sample may not be representative of all refugees in Durban; secondly, the cross sectional nature of our study does not allow us to examine the longitudinal relationship between food security and common mental disorders; and thirdly, our use of verbal language translation (rather than written translations) may have led to lower semantic, normative and conceptual equivalence of the adapted measures..

Conclusion

Food insecurity is a significant risk factor for depression and anxiety in African refugees in South Africa, many of whom do not have access to support structures to assist them in meeting their basic needs. The stress of leaving their home country, particularly for those who had to flee, is compounded by an uncertain future with unmet basic needs, which in many cases results in depression. While food insecurity is a difficult concept to define, especially within different socioeconomic contexts, it is clearly an important risk factor for mental ill-health in this vulnerable population; and attempting to detect and address food insecurity may be an important strategy to help reduce the burden of mental illness in this context. International policy makers need to be mindful of the link between refugees' basic needs (in this instance food security) and their mental health. This needs to translate into policies at country level that include food aid programs, in light of the level of food insecurity and its consequences, especially within LMICs. Subsidies need to be provided to refugees to enable them to access food, as well as other basic needs, all of which are likely to affect their state of mind, particularly those who were forced to leave their home countries. Providing food security to refugees will improve their mental health and improve their ability to cope, function and adapt to a foreign environment. It is our hope that the findings of this study will stimulate additional research in this important area.

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Table 1

Baseline characteristics (n=335)

Variable	Category	n	%
Gender:	Male	178	53.1
	Female	157	46.9
Marital status:	Single	111	33.1
	Married	172	51.3
	With partner	19	5.7
	Divorced/widowed	33	9.9
Age category	18–20	15	4.5
	21–24	37	11.1
	25–34	160	47.9
	35+	122	36.5
Income per month:	R0–R2,499	202	60.7
	R2,500	131	39.3
Migration type:	Not forced to leave family behind	212	67.3
	Forced to leave family behind	103	32.7
Employment status:	Unemployed	119	35.7
	Employed	142	42.6
	Other	72	21.6
Tertiary education:	Yes	165	51.1
	No	158	48.9
Number of social support:	None	75	22.5
	1 or more supportive persons available	258	77.5
Exposure to racism:	Yes	116	35.3
	No	213	64.7
Food enough 12 months:	Often true	76	23.1
	Sometimes true	124	37.7
	Never true	129	39.2
Eating less 12 months:	Yes	181	54.3
	No	152	45.7
Anxiety symptomatology:	Positive (≥1.6)	165	49.4
	Negative (<1.6)	169	50.6
Depressive symptomatology:	Positive (≥1.6)	180	54.6
	Negative (<1.6)	155	45.4

Table 2

Bivariate analyses between demographic characteristics and food insecurity

Variables	Category	Food not enough						Eating less food						Total	df	χ ²	p			
		Often true			Sometimes true			Never true			Yes							No		
		n	%	n	%	n	%	n	%	n	%	n	%					n	%	
Gender:	Male	39	22.29	73	41.71	63	36.00	175	2	2.70	0.26	93	52.84	83	47.16	176	1	0.34	0.56	
	Female	37	24.03	51	33.12	66	42.86	154				88	56.05	69	43.95	157				
Marital status:	Single	28	25.93	36	33.33	44	40.74	108	6	7.88	0.25	60	54.05	51	45.95	111	3	9.71	0.02	
	Married	37	21.76	61	35.88	72	42.35	170				84	49.41	86	50.59	170				
Age category:	With partner	4	21.05	9	47.37	6	31.58	19				11	57.89	8	42.11	19				
	Divorced/widowed	7	21.88	18	56.25	7	21.88	32				26	78.79	7	21.21	33				
Income per month:	18–20	1	6.67	2	13.33	12	80.00	15	6	16.72	0.01	1	6.67	14	93.33	15	3	19.95	<0.01	
	21–24	5	13.51	12	32.43	20	54.05	37				15	40.54	22	59.46	37				
Migration type:	25–34	38	24.05	64	40.51	56	35.44	158				89	56.33	69	43.67	158				
	35+	32	26.89	46	38.66	41	34.45	119				76	62.3	46	37.7	122				
Employment status:	R0–R2,499	64	32.49	92	46.70	41	20.81	197	2	71.64	<0.01	148	74.00	52	26.00	200	1	78.41	<0.01	
	R2,500	12	9.23	31	23.85	87	66.92	130				32	24.43	99	75.57	131				
Tertiary education:	Not forced to leave family behind	41	19.52	76	36.19	93	44.29	210	2	10.83	<0.01	104	49.29	107	50.71	211	1	8.39	<0.01	
	Forced to leave family behind	32	32.32	41	41.41	26	26.26	99				68	66.67	34	33.33	102				
Number of social support:	Unemployed	40	34.48	46	39.66	30	25.86	116	4	23.83	<0.01	83	70.34	35	29.66	118	2	24.34	<0.01	
	Employed	25	17.86	45	32.14	70	50.00	140				56	39.72	85	60.28	141				
Exposure to racism:	Other	9	12.68	33	46.48	29	40.85	71				40	55.56	32	44.44	72				
	Yes	41	25.62	60	37.50	59	36.88	160	2	2.45	0.29	94	57.32	70	42.68	164	1	1.58	0.21	
Anxiety symptomatology:	No	29	18.47	62	39.49	66	42.04	157				79	50.32	78	49.68	157				
	None	23	31.94	35	48.61	14	19.44	72	2	15.13	<0.01	56	76.71	17	23.29	73	1	18.83	<0.01	
	1 or more supportive persons available	53	20.78	88	34.51	114	44.71	255				124	48.06	134	51.94	258				
	Yes	39	34.82	55	49.11	18	16.07	112	2	41.56	<0.01	92	80.00	23	20.00	115	1	48.91	<0.01	
	No	33	15.64	68	32.23	110	52.13	211				84	39.62	128	60.38	212				
	Yes	26	15.66	50	30.12	90	54.22	166	2	32.00	<0.01	68	40.24	101	59.76	169	1	27.10	<0.01	

Variables	Category	Food not enough						Eating less food						Total	df	χ^2	p			
		Often true			Sometimes true			Never true			Yes							No		
		n	%		n	%		n	%		n	%						n	%	
Depressive symptomatology:	No	50	30.86	73	45.06	39	24.07	162			112	68.71	51	31.29	163					
	Yes	22	14.38	41	26.80	90	58.82	153	2	46.95	57	36.77	98	63.23	155	1	37.21			
	No	54	30.68	83	47.16	39	22.16	176			124	69.66	54	30.34	178		<0.01			

Use of Fisher's exact test did not alter the above findings.

Table 3

Adjusted logistic regression models

Variable	Category	Anxiety (model 1a)			Anxiety (model 1b)			Depression (model 2a)			Depression (model 2b)		
		aOR	SE	95% CI	aOR	SE	95% CI	aOR	SE	95% CI	aOR	SE	95% CI
Food insecurity: [Never true]	Often true	4.52	1.78	2.09 9.80				4.51	1.85	2.01 10.09			
	Sometimes true	3.15	1.05	1.64 6.04				4.43	1.56	2.22 8.82			
	Yes				2.88	0.90	1.56 5.31				2.88	0.92	1.54 5.39
Eating less food: [No]	Yes												
Gender: [Male]	Female	1.29	0.38	0.72 2.30	1.16	0.33	0.66 2.04	1.67	0.53	0.89 3.12	1.31	0.40	0.72 2.38
Age category: [18–20]	21–24	0.40	0.29	0.09 1.68	0.39	0.28	0.09 1.57	0.18	0.14	0.04 0.82	0.22	0.16	0.05 0.93
	25–34	0.77	0.49	0.22 2.70	0.73	0.45	0.22 2.46	0.37	0.24	0.10 1.33	0.44	0.28	0.13 1.51
	35+	0.87	0.58	0.24 3.22	0.83	0.54	0.23 2.98	0.57	0.39	0.15 2.18	0.58	0.39	0.16 2.14
Marital status: [with partner]	Single	0.53	0.32	0.16 1.73	0.48	0.29	0.15 1.54	0.37	0.26	0.10 1.44	0.35	0.23	0.10 1.26
	Married	0.50	0.30	0.16 1.61	0.47	0.27	0.15 1.48	0.27	0.19	0.07 1.04	0.28	0.18	0.08 1.01
	Divorced/widowed	1.31	0.98	0.30 5.64	1.00	0.72	0.25 4.11	0.53	0.44	0.11 2.69	0.49	0.38	0.11 2.25
Current employment status: [unemployed]	Employed	0.84	0.27	0.44 1.58	0.88	0.28	0.47 1.65	0.77	0.27	0.39 1.53	0.81	0.27	0.41 1.57
	Other	0.93	0.35	0.45 1.95	0.86	0.31	0.43 1.76	0.66	0.26	0.30 1.43	0.68	0.26	0.32 1.44
	R2,500	1.11	0.36	0.59 2.09	1.05	0.33	0.56 1.94	1.18	0.40	0.61 2.29	1.03	0.34	0.54 1.96
Monthly income: [R0–R2,499]	R2,500												
Migration status: [Not forced]	Forced to leave family behind	1.33	0.38	0.75 2.34	1.40	0.40	0.80 2.44	2.45	0.76	1.34 4.51	2.34	0.70	1.30 4.22

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Variable	Category	Anxiety (model 1a)			Anxiety (model 1b)			Depression (model 2a)			Depression (model 2b)		
		aOR	SE	95% CI	aOR	SE	95% CI	aOR	SE	95% CI	aOR	SE	95% CI
Number of social support: [None]	1 or more supportive persons available for support	0.84	0.27	0.44	1.58	0.28	0.47	1.64	0.55	0.20	0.28	0.21	0.31
Exposure to racism: [Yes]	No	0.81	0.23	0.46	1.42	0.24	0.47	1.44	0.65	0.20	0.35	0.19	0.34

Model 1a: Pseudo $R^2 = 0.11$ and goodness-of-fit based on $\chi^2 = 209.79$ and $p = 0.45$

Model 1b: Pseudo $R^2 = 0.09$ and goodness-of-fit based on $\chi^2 = 209.88$ and $p = 0.30$

Model 2a: Pseudo $R^2 = 0.18$ and goodness-of-fit based on $\chi^2 = 205.15$ and $p = 0.56$

Model 2b: Pseudo $R^2 = 0.14$ and goodness-of-fit based on $\chi^2 = 203.80$ and $p = 0.41$