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Food Insecurity, Depression, and Social Support in HIV-infected Hispanic Individuals

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Abstract

Background—Previous research has identified an association between food insecurity and depression in a variety of world regions in both healthy and HIV-infected individuals. We examined this association in 183 HIV-infected Hispanic adults from the Greater Boston area.

Methods—We measured depression with the Burnam Depression Screen and food insecurity with the Radimer/Cornell Questionnaire. Dietary intake was assessed with an adapted version of the Block Food Frequency Questionnaire. Logistic regression models were created with depression as the outcome variable and food insecurity as the main predictor.

Results—In bivariate analyses, food insecurity was significantly associated with depression (odds ratio [OR] = 2.5; 95% confidence interval [CI]: 1.1, 5.5; $P = 0.03$). When we accounted for social support, food insecurity was no longer significant. We found no differences in the quality or quantity of dietary intake between the food insecure and food secure groups.

Discussion—Our findings highlight the importance of social support in the association between food insecurity and depression. Food insecurity may reflect social support more than actual dietary intake in this population.

Keywords

Depression; Food Insecurity; HIV; Social Support; Hispanic

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New Contribution To The Literature: To our knowledge this is the first study to examine the role of social support in the association between food insecurity and depression in an HIV-infected, urban, Hispanic cohort of the northeast US. Our data include actual dietary intake.

Leonid Kapulsky, Dr. Alice Tang, and Dr. Forrester declare that they have no conflicts of interest.

Introduction

Food insecurity has been found to be significantly associated with depression in a variety of populations including in HIV-infected individuals [1-3]. Both food insecurity and depression have been shown to be predictors of poor HIV-treatment adherence and other HIV-related outcomes [4-9]. Several authors have postulated that food insecurity leads to depression as a result of the increased stress conferred by the inability to find food [1, 10]. In addition, the relationship has been shown to be most evident in persons lacking instrumental social support, presumably because those with high instrumental social support receive tangible assistance in procuring food, thus relieving some of the stress associated with food insecurity [1]. Another proposed mechanism by which food insecurity may cause depression is through the direct effect of nutritional deficits [2, 10]. It has been shown that macronutrient deficiencies and even the early stages of vitamin deficiency can induce negative changes in mental functioning and behavior [11, 12]. While past studies examining the relationship between food insecurity and depression have suggested that dietary differences may contribute to depression, most studies lacked the dietary data needed to examine this hypothesis.

Our study was built on a cohort study that looked at the role of nutrition and drug use in HIV-infected Hispanic individuals. In addition to measures of food insecurity and depression, data were collected on dietary intake, sociodemographic variables, drug use, and other factors related to nutritional status. We took advantage of this dataset to see if we could replicate previous findings of an association between food insecurity and depression in this low-income, HIV-infected population living in a resource-rich area, and if so, to examine the role of social support and dietary intake in this association.

Materials and Methods

Participants

The data used in the present study were derived for secondary analyses (secondary hypotheses) from the BIENESTAR Study, a two-phased prospective cohort study of Hispanics conducted in Boston, MA, which aimed to examine the roles of chronic hepatitis, and drug use in HIV-associated malnutrition. A detailed description of study participants and recruitment methods is available elsewhere [13]. Recruitment was done through outreach in streets, homeless shelters, urban health clinics, and HIV support groups. Inclusion criteria for the BIENESTAR study were: self-identified Hispanic ethnicity, age older than 18 years, Spanish fluency, HIV seropositivity, and/or current drug use. Exclusion criteria were pregnancy at recruitment, non-HIV-associated malignancies, refusal to sign a consent form to release medical records, and chronic renal replacement therapy. The Institutional Review Board at Tufts Medical Center (Boston, MA) approved the study, and informed written consent was obtained from all participants. Of the original cohort, those selected for this sub-study were participants who were HIV-infected and participated in the first five year phase of the study during which measures of food insecurity and depression were collected. Of the 266 participants in the original cohort, 183 participants met these criteria for this sub-study.

Measures

All variables were measured at baseline visit. Depression was assessed with the validated Burnam Depression Screen [14]. The score was converted to a binary variable of depressed and non-depressed at the established cutoff of 0.06. This cutoff has been shown to have sensitivities of 86% and 89% and specificities of 95% and 87% in primary care patients and mental health patients, respectively, in a cohort consisting of 46% Hispanics, against the criterion of the Diagnostic Interview Schedule. [14]. Food insecurity was measured with the Radimer/Cornell questionnaire [15] and was dichotomized to a binary variable of food insecure or food secure based on recommendations of the authors [15]. According to these recommendations, food secure individuals are those who respond “no” to all questionnaire items related to anxiety about food, lack of quantity of food, and lack of quality of food. The Radimer/Cornell questionnaire has been validated in North America and has been shown to have a range of sensitivity of 84%-89% and specificity of 63%-71% in detecting food insecurity against a criterion that was based on items including two 24-hour dietary recalls, fruit and vegetable consumption and two household food-stores inventories [16]. The social support variable was based on self-reported levels of support received from friends, relatives, and others [17, 18]. The range of possible scores for social support was 6-34. Of the six social support questions, four were related to emotional support and two were related to instrumental support. Drug use (intravenous and non-intravenous) was determined by using a questionnaire that included items related to the type, mode, and frequency of use. A participant was considered a drug user if he or she reported having used any one of heroin, cocaine, “speedball” (heroin with cocaine), or methadone (prescription or nonprescription use) by any route at least once in the last 6 months. Dietary data were collected using a Food Frequency Questionnaire (FFQ) adapted from the National Cancer Institute/Block FFQ [19].

Analysis

All analyses were performed using Statistical Analysis System (SAS) software, version 9.1 (SAS institute, Cary, NC). In tables 1-3, we compared characteristics of food insecure and food secure individuals as well as depressed and non-depressed individuals. Categorical data were analyzed using either χ^2 or Fisher exact tests when appropriate, and continuous data were analyzed using either t-test or Wilcoxon rank-sum test when appropriate. Results were considered to be statistically significant at a $p < 0.05$ (two-tailed). Continuous data with non-normal distribution were log transformed, and analyses were conducted on transformed data. When transformation did not adequately normalize the data, nonparametric tests were used. Non-normally distributed data are expressed in tables 1-3 as median (25th percentile, 75th percentile). In table 4, the crude odds ratio expressing the association between food insecurity and depression was derived from a logistic regression model in which food insecurity was the independent variable and depression was the dependent variable.

Our covariate selection strategy began with an assessment of stressors such as age, poverty, unemployment, homelessness, and social support; factors potentially damaging to one's overall well-being such as injection drug use, and chronic hepatitis infection; and factors that can put a strain on a household's budget such as family size and smoking. Variables that we found to be associated with both depression and food insecurity at a level of significance of P less than 0.2 were also assessed. Each variable was assessed for its effect on the

magnitude of the odds ratio describing the association between food insecurity and depression, and its role as a potential effect-modifier (i.e., statistical interaction effect). Factors were dropped from the model if they did not alter the odds ratio describing the association between food insecurity and depression by at least 10% and were not effect modifiers. Additionally, factors that were independent predictors of depression at a $P=0.05$ level were retained in the model.

Based on previous literature [1] that showed that social support can protect individuals by buffering the effects of food insecurity on depression, we initially examined social support as an effect modifier. We also considered social support as being in the causal pathway (i.e., a mediator) of the relationship between food insecurity and depression as evidenced by an attenuation of the association between food insecurity and depression. Thus, we considered two possible theoretical models, one in which social support was an effect modifier (buffer) and one in which social support was a mediator.

Since this study had data on dietary intakes, the dietary data were analyzed to see if there was evidence that food insecurity reflects actual reductions in dietary intake, and if so, if that can serve as an explanation for the association between food insecurity and depression.

Results

The characteristics of the participants are shown in Table 1. Those who were food insecure were more likely to be depressed than those who were not food secure. Though not shown in the table, this association was true in men but not in women. Food insecure individuals were more likely to have low incomes. Both food insecure and the depressed individuals reported less perceived social support than food secure and non-depressed individuals, respectively. Food insecure individuals were also less likely to be employed than those who were food secure. While not significant, food insecure men were more than three times as likely to be receiving food stamps than food secure men ($p=0.055$; data not shown).

Food insecure individuals were more likely to be smokers, and use cocaine than food secure persons. There was no association between food insecurity and heroin use. Those who were depressed used drugs, including heroin, at a higher rate than those who were not depressed. Depressed individuals were also more likely to inject drugs. Neither homelessness nor having children in the household was associated with food insecurity or depression (data not shown).

There was no association between food insecurity or depression and dietary intake including total calories per day, vitamin intake or other macronutrient intakes. There was also no association between food insecurity and body mass index (BMI) (Table 2).

In our unadjusted analysis, food insecurity was a significant predictor of depression [OR = 2.5, 95% CI: 1.1-5.5]. After adjusting for the covariates poverty, social support and injection drug use, food insecurity was no longer a significant predictor of depression [OR = 1.5, 95% CI: 0.6-3.7] (Table 3). The addition of social support to the crude model attenuated the odds ratio from a value of 2.5 to 1.8. The emotional component of social support attenuated the odds ratio more than the instrumental component of social support (1.8 vs. 2.1, respectively)

(Table 3). The following factors did not attenuate the odds ratio: age, homelessness, unemployment, family size, and smoking. In a model that included only food insecurity and social support as independent variables, food insecurity was not a significant predictor of depression [OR = 1.8, 95% CI: 0.8-4.2] (Table 3). An examination of potential modifying factors (interaction effects) found no evidence of modification of the association between food insecurity and depression by social support, instrumental social support, poverty or injection drug use ($p > 0.1$ for all).

Table 4 shows the significant predictors of depression within our study population. These were social support [OR = 0.94, 95% CI: 0.89-0.99] and injection drug use [OR = 2.7, CI: 1.2-6.2] (Table 4). Variables that were not significantly associated with depression were age, poverty, unemployment, chronic hepatitis infection, homelessness, family size and smoking.

Discussion

In agreement with previous studies [1-3], we found that food insecurity was significantly associated with depression in bivariate analyses. Social support was a significant mediator of this relationship.

The nature of the role of social support in our study appears to differ from that observed in previous studies. A study of depression and food insecurity in a population of Latinos with type 2 diabetes from Hartford, Connecticut found that those with high social support were less likely to become depressed when confronted with food insecurity than those with medium or low social support, suggesting that social support acts modifies the association and acts as a buffer in the association between food insecurity and depression in this population [3]. A buffering effect of social support was also seen among people living with HIV/AIDS in Uganda, such that instrumental social support protected against the depressive effects of food insecurity [1]. The authors of that study did not find that emotional social support had the same effect. In contrast, we did not find that either emotional or instrumental social support had a buffering effect in our population, as neither was an effect modifier.

While we saw no evidence of effect modification, we did find that social support, and especially the emotional component of social support—being loved, cared for, and having friends—significantly attenuated the association between food insecurity and depression. This observation has several possible explanations. First of all, it may be that those who are food insecure tend to also have low emotional support which is the actual cause of the depression seen in food insecure individuals. Second, it is possible that low social support can cause food insecurity which in turn causes depression. A third possibility is that in our population, depression, which is associated with low social support, causes food insecurity and not the other way around. Indeed, a bi-directional relationship between food insecurity and depression was shown in the only longitudinal study conducted on this topic [20]. Further research is still needed to assess these possibilities.

Actual dietary intakes did not differ between food insecure and food secure groups in terms of total calories, and micro- and macro-nutrients. This was an unexpected finding. Our observation is not in agreement with previous studies on dietary intake in food insecure

individuals from the US [21, 22] and abroad [23-25] which found that food insecurity was associated with decreased intakes of protein, fruits, and dairy. While we cannot readily explain this discrepancy, it is possible that our population of HIV-infected urban-dwelling Hispanics obtain an adequate diet by accessing services for food-insecure individuals more than other food-insecure populations. This might explain the similarity in dietary intakes between food secure and food insecure groups in our study. While prior studies [11, 26], have speculated that the depression seen in food insecure individuals might be mediated by dietary deficits or hunger, this appears not to be the case in our population.

What do these observations say about food insecurity in this population and its relationship to depression? Our data suggest that the depression seen in food insecure individuals in this population is not caused by nutritional deficits. Additionally, the attenuation of the odds ratio from 2.5 to 1.8 when social support was included as a mediator suggests that social support can account for some of the association between food insecurity and depression. However, the large magnitude of the residual odds ratio, 1.8, although not statistically significant – possibly due to a lack of power – suggests that other factors likely have a role in this relationship.

Strengths of our study include the collection of detailed dietary data. This allowed us to assess actual dietary intake in relation to food insecurity, which has rarely been done in previous studies of food insecurity and depression. Another strength of our study was that we had detailed data on substance abuse, which is a common co-morbidity of mental health disorders. There were several limitations to this study including the cross-sectional design. More longitudinal studies should be carried out to clarify the direction of these associations. The self-report nature of food insecurity, depression, and social support can result in non-differential misclassification which would underestimate the association between food insecurity and depression. Finally, the results of our study conducted in Hispanics of the Greater Boston area may not be generalizable to other populations.

Our findings have potential implications for future policies to ameliorate food insecurity and its negative sequelae in this population. Our results suggest that it would be useful to add a component of social support to the existing programs that address food insecurity in this population. Increases in emotional social support might promote the overall emotional well-being of the food insecure and may improve HIV-outcomes, though further research is still needed to establish whether social support could be a beneficial component of food-assistance programs. Particular efforts should be made to reach marginalized populations. It may be necessary to tailor HIV support programs to the needs of the population served. Additionally, further research should be done to study the relationship between social support and depression in this group.

In conclusion, our data suggest that in this population of HIV-infected Hispanics, persons with food insecurity have higher rates of depression that is partially explained by a lack of social support and not dietary inadequacies.

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References

1. Tsai AC, et al. Food insecurity, depression and the modifying role of social support among people living with HIV/AIDS in rural Uganda. *Soc Sci Med.* 2012; 74(12):2012–2019. [PubMed: 22513248]
2. Anema A, et al. High prevalence of food insecurity among HIV-infected individuals receiving HAART in a resource-rich setting. *AIDS Care.* 2011; 23(2):221–230. [PubMed: 21259135]
3. Kollannoor Samuel G, et al. Social support modifies the association between household food insecurity and depression among Latinos with uncontrolled type 2 diabetes. *J Imm Minor Health.* 2012; 13(6):982–989.
4. Weiser SD, et al. Food insecurity is associated with morbidity and patterns of healthcare utilization among HIV-infected individuals in a resource-poor setting. *AIDS.* 2012; 26(1):67–75. [PubMed: 21904186]
5. Weiser SD, et al. Food insecurity as a barrier to sustained antiretroviral therapy adherence in Uganda. *PLoS ONE.* 2010; 5(4):e10340.10.1371/journal.pone.0010340 [PubMed: 20442769]
6. Weiser SD, et al. Food insecurity and HIV clinical outcomes in a longitudinal study of homeless and marginally housed HIV-infected individuals in San Francisco. *AIDS.* 2013 Epub ahead of print.
7. Weiser SD, et al. Longitudinal assessment of associations between food insecurity, antiretroviral adherence and HIV treatment outcomes in rural Uganda. *AIDS.* 2013 Epub ahead of print.
8. Starace F, Ammassari A, Trotta MP, et al. Depression is a risk factor for suboptimal adherence to highly active antiretroviral therapy. *J Acquir Immune Defic Syndr.* 2002; 31(Suppl 3):S136–9. [PubMed: 12562037]
9. Vedhara K, Nott KH, Bradbeer CS, et al. Greater emotional distress is associated with accelerated CD4+ cell decline in HIV infection. *J Psychosom Res.* 1997; 42:379–390. [PubMed: 9160277]
10. Heflin C, Siefert K, Williams D. Food insufficiency and women's mental health: Findings from a 3-year panel of welfare recipients. *Soc Sci Med.* 2005; 61:1971–1982. [PubMed: 15927331]
11. Hesecker H, et al. Psychological disorders as early symptoms of mild-moderate vitamin deficiency. *Ann N Y Acad Sci.* 1992; 669:352–357. [PubMed: 1444045]
12. Isaac R, et al. Declines in dietary macronutrient intake in persons with HIV infection who develop depression. *Public Health Nutr.* 2008; 11(2):124–131. [PubMed: 17582240]
13. Forrester JE, Tucker KL, Gorbach SL. Dietary intake and body mass index in HIV-positive and HIV-negative drug abusers of Hispanic ethnicity. *Public Health Nutr.* 2004; 7(7):863–870. [PubMed: 15482611]
14. Burnam MA, Wells KB, Leake B, et al. Development of a brief screening instrument for detecting depressive disorders. *Med Care.* 1988; 26(8):775–789. [PubMed: 3398606]
15. Radimer K, Olson C, Campbell C. Development of indicators to assess hunger. *J Nutr.* 1990; 120:1544–1548. [PubMed: 2243303]
16. Frongillo EA Jr, et al. Questionnaire-Based measures are valid for the identification of rural households with hunger and food insecurity. *J Nutr.* 1997; 127:699–705. [PubMed: 9164989]
17. Sherbourne CD, Stewart AL. The MOS social support survey. *Soc Sci Med.* 1991; 32(6):705–14. [PubMed: 2035047]
18. Lubben J. Assessing social networks among elderly populations. *Fam Community Health.* 1988; 11(3):42–52.
19. Tucker KL, et al. Adaptation of a food frequency questionnaire to assess diets of Puerto Rican and non-Hispanic adults. *Am J Epidemiol.* 1998; 148(5):507–518. [PubMed: 9737563]

20. Huddleston-Casas C, Charnigo R, Simmons LA. Food insecurity and maternal depression in rural, low-income families: A longitudinal investigation. *Public Health Nutrition*. 2009; 12:1133–1140. [PubMed: 18789167]
21. Hong MJ, et al. Household food insecurity is associated with food intake, and household income among Hispanics in Hartford, CT. *FASEB J*. 2006; 20:A1008–A1009. Abstract.
22. Himmelgreen DA, et al. A comparison of the nutritional status and food security of drug-using and non-drug-using Hispanic women in Hartford, Connecticut. *Am J Phys Anthropol*. 1998; 107:351–361. [PubMed: 9821498]
23. Kirkpatrick SI, Tarasuk V. Food insecurity is associated with nutrient inadequacies among Canadian adults and adolescents. *The Journal of nutrition*. 2008; 138(3):604–612. [PubMed: 18287374]
24. Oh SY, Hong MJ. Food insecurity is associated with dietary intake and body size of Korean children from low-income families in urban areas. *Eur J Clin Nutr*. 2003; 57(12):1598–1604. [PubMed: 14647225]
25. Isanaka S, et al. Food insecurity is highly prevalent and predicts underweight but not overweight in adults and school children from Bogota, Colombia. *J Nutr*. 2007; 137(12):2747–2755. [PubMed: 18029494]
26. Muldoon KA, et al. Food insufficiency is associated with psychiatric morbidity in a nationally representative study of mental illness among food insecure Canadians. *Soc Psychiatry Psychiatr Epidemiol*. 2013; 48(5):795–803. [PubMed: 23064395]

Table 1

Characteristics of the 183 study participants

	Food insecure		Depressed	
	No n=31	Yes n=152	No n=84	Yes n=99
SOCIAL FACTORS:				
Depressed	11 (35.5) *	87/151 (57.6) *	--	--
Food Insecure	--	--	64 (76.2) *	87/98 (88.8) *
Male	26 (83.9)	104 (68.4)	63 (75.0)	68 (68.7)
Age	41.0 (9.2)	39.6 (7.6)	39.6 (8.3)	40.0 (7.6)
Graduated High School	17/30 (56.7)	57 (37.5)	39 (46.4)	35/98 (35.7)
Employed	8/30 (26.7) **	8/150 (5.3) **	11/82 (13.4)	5/98 (5.1)
Individual income \$10,000/year	20/30 (66.7) **	138/151 (91.4) **	69/83 (83.1)	89/98 (90.8)
Receives Food Stamps	4 (12.9)	41 (27.0)	19/84 (22.6)	26 (26.3)
Has Health Insurance	29 (93.6)	140/151 (92.7)	76/83 (91.6)	93 (93.9)
Perceived Social Support ^a	23.9 (7.0) **	19.5 (5.8) **	21.8 (6.2) **	18.8 (6.1) **
Current Smoker	10 (32.3) **	96 (63.2) **	44 (52.4)	62 (62.6)
Current Drinker	14 (45.2)	65 (42.8)	39 (46.4)	40 (40.4)
Current Drug User	8/30 (26.7) *	70/151 (46.4) *	28/83 (33.7) *	51/98 (52.0) *
Current Injection Drug User	4 (12.9)	35/149 (23.5)	10 (11.9) **	29/96 (30.2) **
Current Cocaine User	1 (3.2) *	26 (17.1) *	9 (10.7)	19 (19.2)
Current Heroin User	4 (12.9)	39 (25.7)	13 (15.5) *	30 (30.3) *
Homeless	1 (3.2)	18 (11.8)	7 (8.3)	13 (13.1)
Chronic Hepatitis B or C Diagnosis	18 (58.1)	83/151 (55.0)	40/83 (48.2)	61/99 (61.6)

Data are expressed as mean (s.d.) number (%)

^a Social support score possible range 6-34

* p<

** p<

Table 2
Average daily dietary intake of selected nutrients for the 183 participants

N=183	Food insecure		Depressed	
	No n=31	Yes n=152	No n=84	Yes n=99
Total Kilocalories	2442 (864)	2428 (853)	2422 (840)	2469 (899)
Fiber (g)	19 (13, 30)	17 (12, 24)	18 (13, 27)	17 (12, 23)
Percent Calories From Carbohydrates	53 (7)	54 (7)	54 (6)	53 (7)
Vitamin A (IU)	6126 (3783, 11046)	6108 (3397, 9943)	6056 (3342, 10120)	6222 (3786, 9936)
Vitamin B6 (mg)	3 (2, 4)	2 (2, 4)	2 (2, 4)	2 (2, 3)
Vitamin B12 (mcg)	6 (3, 8)	6 (3, 9)	5 (3, 9)	6 (4, 9)
Vitamin C (mg)	177 (98, 257)	136 (81, 206)	138 (87, 216)	137 (81, 218)
Vitamin D (mcg)	6 (3, 8)	5 (3, 8)	4 (3, 7)	6 (3, 9)
Vitamin E (IU)	14 (10, 22)	14 (10, 18)	15 (11, 21)	14 (9, 18)
BMI (kg/m ²)	26.7 (4.5)	26.9 (5.9)	27.1 (5.9)	27.0 (5.5)

Data are expressed as median (25th percentile, 75th percentile) or mean (s.d.) BMI: Body Mass Index

*
p<0.05

**
p<0.01

Table 3
Crude and adjusted odds ratios^a for the association between food insecurity and depression

N=183	Crude Odds Ratio	Odds Ratio Adjusted for Social Support ^b	Odds Ratio Adjusted for Emotional Social Support	Odds Ratio Adjusted for Instrumental Social Support	Odds Ratio Adjusted for Social Support and Poverty ^c	Odds Ratio Adjusted for Emotional Social Support, Poverty and Injection Drug Use
Food Secure	1.0 (Reference)	1 (Reference)	1 (Reference)	1 (Reference)	1 (Reference)	1 (Reference)
Food Insecure	2.5 (1.1-5.5) ^a	1.8 (0.8-4.2)	1.8 (0.8-4.3)	2.1 (0.9-4.8)	1.6 (0.7-3.9)	1.5(0.6-3.7)

^aData expressed as Odds Ratio (95% Confidence Interval)

^bSocial support was entered as a continuous variable with a possible range of 6-34

^cIndividual income \$10,000/year

Table 4
Factors independently associated with depression in the most parsimonious logistic regression model

N=183	Odds Ratio (95% Confidence Interval)	P-value
Food Insecurity ^a	1.5 (0.6-3.7)	0.28
Social Support	0.94 (0.89-0.99)	0.01
Injection Drug Use	2.7 (1.2-6.2)	0.02

^a Food insecurity was included in the final model as it was the main predictor of interest