

Food Insecurity and Mental Health: A Pilot Study of Patients in a Psychiatric Emergency Unit in Israel

Nimrod Grisaru · Roni Kaufman · Julia Mirsky ·
Eliezer Witztum

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Abstract The objective of this study was to examine food insecurity among psychiatric patients and as a concern for mental health practitioners. Food security and psychological distress were measured among 113 patients hospitalized in a psychiatric emergency unit. Of 113 respondents 67 (59.3%) enjoyed food security and 46 (40.7%) lacked food security. Food insecure respondents showed a higher level of psychological distress than food secure respondents. A large proportion of in-patients may be suffering food insecurity which is negatively associated with their psychological well being. Mental health practitioners need to be aware of the potential association of food insecurity and mental distress among psychiatric patients.

Keywords Food security and insecurity · Mental health · Psychological distress

Introduction

The term “Food security” denotes a situation when people at all times have access to enough food for an active, healthy life. It is considered a basic human right under several covenants of international law (Food and Agriculture Organization of the UN 1996). This provision states

that nutritionally safe foods need to be accessible in socially acceptable ways. In developed countries, food security includes autonomy in food consumption, freedom from psychological stress related to feeding, and avoidance of situations that lead to shame and stigma (Eisinger 1998). Food secure individuals and families should not have to resort to emergency food supplies, begging, stealing, and/or scavenging for food (Holben 2002; Bickel et al. 2000). Although food security is not identical to food quality, a link was found between the level of food security and the level of food quality and safety (Evans and Dowler 1999; Kendall et al. 1996; Stitt et al. 1994).

Food insecurity in western countries has been linked to the decline of the welfare state and to shifting economic and social policies (Eisinger 1998; Riches 1997). In Israel, for example between 2000 and 2006 governmental expenditure for health, welfare and education services were reduced by 11%. (Kop 2006). The evolution of food insecurity, as a new social problem in Israel has also been attributed to the economic recession and to high unemployment rates in the last 10 years (Kaufman and Slonim-Nevo 2004).

A recent national survey showed that 22% of Israeli households experience food insecurity (Brookdale Institute 2003) nearly twice the percentage found in the US. The government response to the problem has been to rely on community and voluntary activity. This policy has led to an increase in the number of soup kitchens and food distribution centers in the country (Kaufman and Slonim-Nevo 2004).

Unlike malnutrition that characterizes underdeveloped countries (Seipel 1999), food insecurity does not endanger life, but has pervasive effects on health. It is linked to dietary intake, nutritional status, and ultimately to physical health outcomes like child growth morbidity and mortality

N. Grisaru (✉) · E. Witztum
Emergency Hospitalization Department, Faculty of Health Sciences, Ministry of Health Mental Health Center, Ben Gurion University of the Negev, POB 4600, 84170 Beer Sheva, Israel
e-mail: grisarun@gmail.com

R. Kaufman · J. Mirsky
Department of Social Work, Faculty of Humanities and Social Sciences, Ben Gurion University of the Negev, Beer Sheva, Israel

(Wolfe and Frongillo 2001). Studies have shown that food security affects daily functioning as well as the social, physical, and psychological well being of individuals and families. It was found to be linked to family instability, mental and physical health problems as well as behavior problems such as delinquency, crime and drug abuse (Holben 2002). Food insecurity reduces the short and long-term physical and mental health status. It causes, fatigue and illness (Blaylock and Blisard 1995). Research shows that food insecurity is linked to impaired cognitive and physical ability, school and work absenteeism, as well as involvement with non normative social activities (Hamelin et al. 1999). Food insecurity appears to be higher among clients of social welfare agencies, recipients of welfare benefits, the unemployed, new immigrants, drug addicts and homeless people (Kaufman and Slonim-Nevo 2004; Booth and Smith 2001; Himmelgreen et al. 1998).

While there are relatively many studies about the association between food insecurity and physical health, studies on the relationship between food insecurity and mental health are scarce.

However, it is well documented that food insecurity is a stressful life event (Alaimo et al. 2002; Heflin et al. 2005; Wilton 2003) and stressful events have been shown to influence the hypothalamic-pituitary-adrenocortical axis (Sapolsky 1998). From a broad anthropological point of view it is plausible to assume that acute or chronic exposure to periods of uncertainty in the food supply can influence the mental health of individuals and induce uncertainty and psychological and distress. There are compelling reasons to expect that food insecurity may be related to mental health morbidities (Hadley and Patil 2006).

Research in the US links food insecurity to a wide range of poor health outcomes, including psychological outcomes (Hamelin et al. 1999; Alaimo et al. 2002; Heflin et al. 2005; Hadley and Patil 2007; Vozoris and Tarasuk 2003). Elevated levels of depression and psychological distress were identified among food-insufficient households in a nationally representative data set from Canada, even after adjusting for a range of possible confounders (Vozoris and Tarasuk 2003). In a longitudinal study it was found that among 753 welfare recipients, changes in food sufficiency over 3-years were strongly related to changes in a measure of depression (Siefert et al. 2004).

To the best of our knowledge, only a few small studies examined the relationship between hunger and mental health illness (Bettigole et al. 1997). According to this survey from 65 patients who were invited to participate, 51 completed the survey and 47% reported some difficulty obtaining an adequate supply of food. They conclude that “many persons with severe psychiatric disabilities may be un able to meet their basic need for food”.

Therefore we undertook this pilot study, the objectives of which were: (a) to describe the level and the characteristics of food insecurity among psychiatric patients, and (b) to identify associations between food insecurity and psychological distress in this group.

Method

Sample

The study included 113 adult respondents (51 men and 62 women) who were recruited among patients who had been referred to the Beer Sheva Mental Health Center and hospitalized for short periods (up to 2 weeks) in an emergency psychiatric unit. All patients were receiving pharmacological treatment. The study was conducted over 14 month and included all patients that were admitted to the unit during this period.

The respondents were surveyed upon admission to the unit with a self-report questionnaire. A trained psychiatric nurse was present while they answered the questions and was available for their inquiries.

Instruments

Food insecurity was measured with a short version of the Food Security Core Survey Module (FSCSM) (US Department of Agriculture 1999). This instrument (see Appendix) is widely used to measure food insecurity and hunger (Holben 2002; Blumberg et al. 1999). It comprises six questions about having money to buy food; affording nutritious and balanced meals; skipping meals because food could not be afforded etc. Based on the FSCSM households or individuals can be classified as “Food Secure” “Food Insecure without evidence of hunger” or “Food Insecure with evidence of hunger”. The cut off point that was in this study to determine food insecurity was the one specified by the creators of the instrument (Holben 2002). Internal and test-retest reliability of the 6-item FSCSM was assessed in a previous study ($N = 20$) and found satisfactory (Cronbach alpha coefficient 0.77 and Guttman split-half coefficient 0.97, test-retest validity = 0.96) (Kaufman and Slonim-Nevo 2004).

Psychological distress was measured with the Brief Symptom Inventory (BSI-53) (Derogatis and Melisaratos 1983). This instrument is a shortened version of the SCL-90-R Symptom Checklist (Derogatis 1977, 1994; Derogatis and Cleary 1977; Derogatis et al. 1973, 1974) a self-report scale measuring the level of common psychiatric symptoms. The BSI-53 consists of 53 items describing a variety of symptoms (trouble remembering things, feeling lonely, feeling strain, nausea, etc.). The subjects are asked to

indicate on a 5-point scale to what extent each of the 53 symptoms troubled them in the past month (0 = not at all, 4 = extremely). The BSI is composed of nine symptom categories: somatization, obsessive-compulsive symptoms, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, and psychoticism. Three global indexes may be calculated from raw BSI scores: (1) the General Severity Index (GSI), based on the mean of the ratings the subject has designated for each symptom; (2) the Positive Symptom Total (PST), a frequency count of the number of nonzero symptoms the subject has reported; and (3) the Positive Symptom Distress Index (PSDI), a score reflecting the intensity of distress, corrected for the number of symptoms cited. This study applied an existing Hebrew version of the BSI which has been widely used in research and clinical practice (Gilbar and Ben-Zur 2002).

In addition to the BSI, the diagnoses of the participants were recorded and background data collected on age, gender, place of birth, education, marital and employment status, and sources of income.

Statistical Analysis

The levels of food security and psychological distress were computed. Descriptive statistics, χ^2 and *T* test analyses were used in order to compare the food secure group with the food insecure group on psychological distress and selected demographic characteristics Table 1.

The project was approved by the Human Subjects Research Review Committee of the center (Helsinki committee) and an informed consent was obtained from each respondent in writing.

Results

The sample included 113 participants, 47.6% men and 52.4% women. The average age was 36.93 (SD 12.62, range 19–63). Most participants were born in Israel (58.4%), the rest in Europe (mainly former USSR) 18.6%, Asia/Africa (20.4%), and other countries (2.6%). Most participants had high school education (62.2%), 13.5% had elementary school education, 10.8%—tertiary and 13.5% academic education. Half of the participants were single (50.4%), 26.5% were married, 21.2% divorced (or separated) and 1.8% were widowed. Mean number of children below age 18 was 1.04 (SD 2.35, range 0–20). Two men of Bedouin ethnicity reported having 10 and 20 children, respectively, from a number of different wives. With these participants omitted, the mean number of children was 0.78 (SD 1.25, range 0–6). Work status showed 4.5% full employment, 11.6% partial employment, 82.1% unemployed, and 1.8% retired.

Diagnoses included psychoactive substance use (2.0%), schizophrenia, schizotypal and delusional disorders (55.3%), mood disorders (29.1%), neurotic, stress related and somatoform disorders (8.8%), behavioral syndromes associated with physiological disturbances and physical factors (1.0%), and disorders of adult personality and behavior (3.8%).

Based on their answers on the food security questionnaire, subjects were assigned to two groups: The Food Secure Group (FSG) and the Food Insecure Group (FIG). Respondents affirming zero or one item were classified as food secure. Households affirming 2–6 items were classified as food insecure.

The food secure group (FSG) included 67 (59.3%) respondents, and the, food insecurity group (FIG), included 46 (40.7%) respondents. More than half of them, 25, were found to be in the more severe degree of food insecurity with hunger evidenced (22% of the sample). The two groups differed significantly only on two background parameters: spouse work status and support from family and friends. Significantly more fully employed spouses were in the food secure group (68.4%) than in the food insecure (27.2%, $P < 0.001$) and significantly more respondents in the food insecure group relied of support from family and friends (56.6.4%) than respondents in the food secure group (18.2% $P < 0.001$). The two groups did not significantly differ on all other background characteristics: gender, age, number of children, place of birth, education and work status, reliance on support on donation or social benefits. Because of the small number of cases, it was impossible to compare the distribution of diagnoses in the two groups.

In order to estimate the level of psychological distress among respondents mean BSI scores found in the sample were compared to Israeli norms on the BSI-53. The BSI showed good internal reliability (Chronbach Alpha between 0.70 and 0.96). BSI scores in the sample were significantly higher than the Israeli norms on all BSI parameters (see Table 2). This elevated level of distress was expected as the sample was recruited from a psychiatric hospital emergency department. In order to examine the association between food insecurity and psychological distress, BSI scores in of the FSG and the FIG were compared (see Table 2). Food insecure respondents had higher BSI scores than food secure respondents on the global index, the GSI ($P = 0.005$) and on five out of nine subscales (somatization, anxiety, phobic anxiety, paranoid ideation and psychotism ($P < 0.001$).

Discussion

Food insecurity is a significant factor that affects health status and ability to function. In this study we found that

Table 1 Comparison of demographic characteristics in the food secure and food insecure groups (means, SDs, %, *T* test, χ^2)

	Food secure group <i>N</i> = 67		Food insecure group <i>N</i> = 46		<i>T</i> (<i>P</i>)
	M	SD	M	SD	
Age	36.5	13.2	37.6	11.9	111 (0.66)
Children below 18	0.86	1.6	0.87	1.4	
Gender	%		% χ^2 (<i>P</i>)		
Men	46.3		43.5		0.3 (0.77)
Women	53.7		56.5		
Place of birth					2.26 (0.52)
Israel	58.2		58.7		
Europe	14.9		23.9		
Asia/Africa	23.9		15.2		
Other	3.0		2.2		
Education					2.23 (0.53)
Elementary	10.4		18.2		
High school	62.8		61.4		
Tertiary	13.4		6.8		
Academic	13.4		13.6		
Marital status					5.66 (0.13)
Married	28.4		23.9		
Single	55.2		43.5		
Divorced/separated	16.4		28.3		
Widowed	0.0		4.3		
Work status					3.23 (0.36)
Full employment	6.0		2.2		
Partial employment	13.4		8.9		
Unemployed	77.6		88.9		
Retired	3.0		0.0		
Spouse work status					38.68 (0.00)
Full employment	68.4		27.2		
Partial employment	10.5		45.5		
Unemployed	5.3		27.3		
Retired	15.8		0.0		
Support from family or friends					18.22 (0.00)
Occasionally	18.2		56.6		
Never	81.8		43.4		
Support from donations					3.69 (0.05)
Occasionally	10.4		23.9		
Never	89.6		76.1		
Social benefits					0.35 (0.55)
Yes	59.1		64.4		
No	40.9		35.6		

43.5% male and 56.5% female-patients in a psychiatric emergency unit in Israel were suffering food insecurity. The level of their food insecurity was over twice as high as that found in Israeli general population (22%) (Brookdale Institute 2003). More than one fifth (22%) of all patients and half of the food insecure patients, suffered severe food insecurity with hunger evidence. This figure is almost

thrice as high as in the general population (8%) (Brookdale Institute 2003).

Although Israel has developed and implements policies that address the health and social welfare needs of its citizens, it appears that the safety net provided by the state for basic human needs is not adequate and does not prevent food insecurity among weak populations such as individuals

Table 2 Comparison of BSI-53 scores in the sample with the Israeli norms (Gilbar and Ben-Zur 2002) and between the food secure and food insecure groups (means, SDs, *T* test)

BSI subscale ^{###}	Men					Women					Food secure group <i>N</i> = 67		Food insecure group <i>N</i> = 46		<i>T</i>
	Sample <i>N</i> = 54		Israeli norms <i>N</i> = 248		<i>T</i>	Sample <i>N</i> = 59		Israeli norms <i>N</i> = 262		<i>T</i>	Mean	SD	Mean	SD	
	Mean	SD	Mean	SD		Mean	SD	Mean	SD						
Somatization	1.20	0.89	0.58	0.71	4.93**	1.61	0.96	0.67	0.66	7.48**	0.86	1.25	1.61	1.40	2.89*
Obsessive-compulsive	1.67	1.04	0.91	0.79	5.16**	1.91	0.98	0.98	0.79	7.24**	0.86	1.22	1.57	1.78	2.44*
Interpersonal sensitivity	1.40	1.21	0.63	0.74	4.49**	1.90	1.11	0.73	0.69	8.02**	1.26	1.63	1.72	1.68	1.39
Depression	2.22	1.27	0.69	0.74	8.50**	1.99	1.22	0.72	0.66	7.91**	1.80	1.83	2.25	1.81	1.26
Anxiety	1.77	1.10	0.83	0.76	6.06**	1.99	1.17	0.87	0.67	7.30**	1.15	1.59	1.85	1.76	2.14
Hostility	1.15	0.97	0.75	0.72	2.93*	1.25	0.93	0.69	0.69	4.62**	0.34	1.21	0.92	1.30	2.37
Phobic anxiety	1.34	1.11	0.45	0.64	5.66**	1.49	1.05	0.49	0.58	7.23**	1.25	1.61	2.16	1.91	2.66*
Paranoid ideation	1.57	1.02	0.94	0.82	4.41**	1.75	1.04	0.89	0.75	6.26**	0.72	1.20	1.46	1.41	2.90*
Psychoticism	1.60	1.04	0.56	0.65	7.11**	1.53	1.09	0.58	0.6	6.68**	1.24	1.60	2.07	1.66	2.62*
GSI	1.56	0.8	0.71	0.63	7.51**	1.72	0.88	0.74	0.56	8.50**	1.24	1.34	2.03	1.46	2.90*

* $P < 0.01$; ** $P < 0.001$; ### The answers range from 0 (lowest distress) to 4 (highest distress)

with psychiatric illness. In a similar vein a previous study in Israel reported that among people addicted to drugs 37% suffer food insecurity (Kaufman et al. 2005).

The analysis of demographic correlates of food status reveals a number of possible risk factors for food insecurity.

Although generally, marital status was not associated with food insecurity, there were twice as many separated, divorced or widowed patients in the food insecure group. Many studies indicate that persons who were formerly married and are not married any more have higher rates of mental illness than those who are married (Gove 1972). Even patterns of mortality are enhanced due to gender and marital roles: it was found that marriage contributes to psychological well being, especially for men, and the presence of a spouse discourages activities leading to death and encourages compliance to treatment regimens (Umberson 1987). The present results expand the understanding of the implications of non-married status as a risk factor for health and mental health.

Among married patients, spouse unemployment emerges as a risk factor for food insecurity. This may have to do with the fact that most patients are not employed themselves and may be relying on the income provided by their spouses. Supporting this suggestion is the finding that the food insecure patients were relying more than food secure patient on support from family or friends and from donations.

It would be plausible to suggest that the above mentioned factors—the lack of support system in the immediate family (whether because of a lack of a spouse or spouse unemployment) may be related to illness induced disabilities in the social sphere, which render the mentally ill at a disadvantage in terms of food security. The significantly

higher psychological distress among food insecure patients may be viewed as supporting this interpretation. On the other hand, food security may be not the result but the cause of psychological distress. By definition, food insecurity in developed countries may be connected to psycho-social components such as stigma and ability to provide for one's self. People living in food insecurity may feel that they fail in basic normative tasks and this can contribute to their psychological distress. In addition the need to deal with the viability of food or lack of good food can also promote stress (Eisinger 1998; Holben 2002; Kop 2006; Hadley and Patil 2007).

However, the correlative research design of the present study makes it impossible to determine causality and the primary cause: psychological distress or food insecurity. The finding only indicate a close association between the two and it is likely that a feedback loop operates between them, whereby food insecurity increases psychological distress and this distress then raises food insecurity.

The present study is the first attempt to explore food security among psychiatric patients. As a pilot study, it was based on a convenience sample and a small number of respondents. This limits the generalizability of our results and the possible analysis of risk factors. For example, a non significant association was found between the place of birth (in Israel or outside the country) and food insecurity. However, in our limited sample it was impossible to perform a finer analysis of the impact of immigration variables on food security, such as the county of origin, the period and the age of immigration etc. Future studies need to be based on more representative and larger samples. These limitations notwithstanding, the findings of this study—that over half of patients in a psychiatric emergency unit suffer

food insecurity, suggests the need to focus more attention to the problem of food insecurity in psychiatric settings and render food insecurity into a concern of mental health practitioners.

The limitations of this study are its prospective nature, relatively small sample, the fact that it was conducted in one location and at one point in time. Therefore, its findings may be of limited generalizability. Nevertheless, they alert not only practitioners also researchers to the need to study the association between food security and mental health in larger samples, multicenter and longitudinal designs.

Appendix: Food Security Core Survey Short Form of the 12-Month Food Security Scale <http://www.ers.usda.gov/briefing/foodsecurity/surveytools/>

1. “The food that I bought just didn’t last, and I didn’t have money to get more.” Was that often, sometimes, or never true for you in the last 12 months?
 - (1) Often true (2) Sometimes true (3) Never true
2. “I couldn’t afford to eat balanced meals.” Was that often, sometimes, or never true for you in the last 12 months?
 - (1) Often true (2) Sometimes true (3) Never true
3. In the last 12 months, did you ever cut the size of your meals or skip meals because there wasn’t enough money for food?
 - (1) Yes (2) No
4. How often did this happen—almost every month, some months but not every month, or in only 1 or 2 months?
 - (1) Almost every month (2) Some months but not every month (3) Only 1 or 2 months
5. In the last 12 months, did you ever eat less than you felt you should because there wasn’t enough money to buy food?
 - (1) Yes (2) No
6. In the last 12 months, were you ever hungry but didn’t eat because you couldn’t afford enough food?
 - (1) Yes (2) No

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