Nutritional Issues

Stefan G. Kertesz, MD, MSc

Homeless persons in the USA experience a variety of nutritional problems that may affect health and quality of life. Significant numbers of homeless adults and children are hungry and report problems obtaining sufficient food when asked about their recent dietary history. Paradoxically, homeless individuals are at least as likely as the overall US population to be obese, and obesity carries a wide range of health consequences.

In addition to problems resulting from too few or too many calories, homeless persons are susceptible to specific vitamin and nutrient deficiencies. Nutritional deficiency diseases are uncommon in the USA, and clinicians frequently have difficulty recognizing these often subtle problems. Clinicians, counselors, and social workers seeking to help homeless persons obtain adequate nutrition face numerous challenges, especially for those with diabetes, hypercholesterolemia, and other chronic diseases that require specialized diets. This chapter reviews the common nutritional problems faced by homeless persons and recommends responses for their caregivers.

Prevalence and Distribution

We will consider the nutritional problems of hunger, overweight and obesity, and specific nutritional deficiency disorders. Some problems that are not specifically related to homelessness, such as excessive or harmful intake of particular vitamins or nutrients, will not be considered in this chapter.

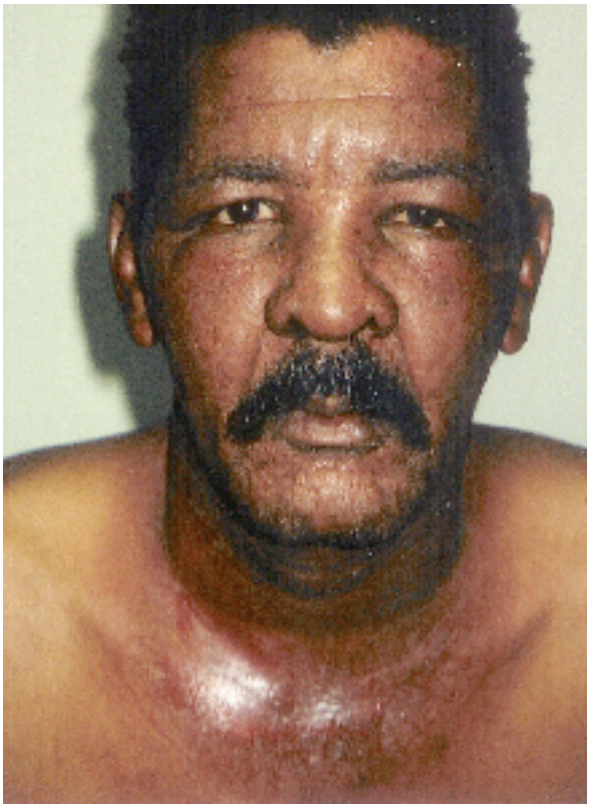
Hunger

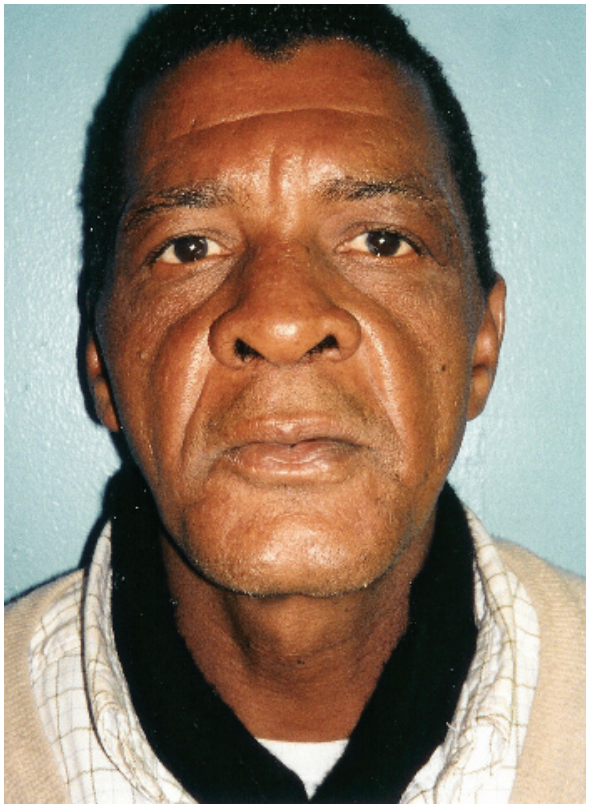
Homeless persons across the USA report significant problems obtaining food. Among 2938 currently homeless persons interviewed across the country in the 1996 National Survey of Homeless Assistance Providers and Clients, 19% reported going one or more days in the preceding week without anything at all to eat, and 40% went a whole day in the preceding month without anything to eat. Less than half the persons interviewed reported eating three times a day.

Although such problems were less common among homeless children living with their mothers, the findings in this national survey were troubling. Seven percent of mothers reported that at least once in the preceding month their children were hungry because they could not get enough food, and 1% indicated their children had gone a whole day without eating during the previous month.

While hunger is a serious problem among homeless persons, physical evidence of malnutrition due to lack of calories has not been consistently

Homelessness and Hunger.
Many people are forced to find food that has been discarded by others. In Boston and other cities, Salmonella food poisoning is seen frequently in homeless persons.
Photo by Robert T. Souther, www.geocities.com/bob_souther





(left) Pellagra. This man at Long Island Shelter in Boston had been eating only corn chips each day for several weeks. His face shows cutaneous weeping, edema, erythema, fissuring, and scaling over the ears, face, and collar area.

(right) Pellagra, One Year Later. The rash and other skin findings have resolved with adequate nutritional intake. Photos reprinted with permission from Kertesz SG. Pellagra in 2 homeless men. Mayo Clinic Proceedings 2001;76:315-318.

documented in published studies. The results of these studies have varied because different cities and regions have different availability and accessibility of food resources, and the sub-groups of the homeless population studied have been inconsistent (e. g., those who use shelters and those who live on the streets). One New York study suggested that approximately 1/3 of homeless shelter-users had obtained less than 2/3 the recommended number of calories during the previous 24 hours. In contrast, studies of homeless persons in Alabama and Florida found that over 1/3 had evidence of either fat-wasting or muscle-wasting, problems related to excessive food intake. A study of 87 long-term outdoor-dwellers found that they averaged 500 calories less per day than was recommended and that among men, alcohol accounted for 44% of caloric intake.

Hunger is thus a serious problem among homeless persons, and evidence of malnutrition can be found in some but not all persons who are homeless. Such problems may be most common among chronically homeless individuals, particularly those with alcohol abuse. Even in the absence of measurable malnutrition, however, hunger is likely to affect a person's capacity to perform productive activity and remains inconsistent with the values of a humane society.

Overweight and Obesity

Despite the high frequency of hunger, homeless persons are at least as likely as other Americans to be overweight. Overweight is defined as a body-mass index of 25.0 to 29.9, which can be calculated after measuring height and weight. Obesity is indicated when the body mass index is 30 or greater. Together, these problems affect 61% of Americans, with 27% of Americans qualifying as obese. Homeless persons are equally if not more likely to have evidence of obesity, with approximately one-third of homeless adults qualifying as obese in two separate studies.

Obesity carries a broad range of long- and short-term health risks, including high blood pressure, diabetes, heart disease, stroke, arthritis, sleep apnea, depression, and asthma. Such problems can be especially difficult for homeless people. Not only are homeless individuals subject to increased risk of major illness (e.g. heart attack or stroke), but complications such as arthritis can also interfere with getting to and from work, appointments, or shelters. Additionally, obese individuals can face special barriers to shelter and/or rehabilitation because some facilities are unable to offer special accommodations, such as a lower bunk bed or night-time respiratory equipment for persons with sleep apnea.

Nutritional deficiency disorders

Several homeless studies based on detailed dietary questionnaires have described insufficient intake for a range of vitamins and minerals, including thiamine (vitamin B1), riboflavin (B2), pyridoxine (B6), folate, calcium, magnesium, iron, and vitamin A, among others. Deficient intake does not always lead to a classic vitamin deficiency disease, however. Most homeless persons are unlikely to develop a nutritional deficiency disease for the following reasons: (a) classic vitamin deficiency diseases take a long time to develop; (b) shelter-based meal programs most typically offer nutritionally appropriate meals; and (c) most American flour is enriched with B vitamins.

Certain homeless persons, however, are at special risk. In particular, homeless persons who do not make use of soup kitchens and those who are extremely heavy drinkers may be more likely to develop nutritional deficiency diseases. Homeless persons who chronically sleep outdoors ("rough sleepers") are at especially high risk for such problems. Those coping with diabetes and other special medical conditions face serious challenges in maintaining a medically appropriate diet. Finally, pregnant women are expected to maintain especially high intake of nutrients such as folic acid, calcium, and iron, and this can be a very difficult challenge for pregnant women who are homeless.

Symptoms and Diagnoses

For clinicians working in shelter clinics and on the streets, it is more important to recognize when medical evaluation and/or vitamin supplementation are required than to be able to recognize the signs and symptoms of specific nutritional deficiency diseases. Most nutritional deficiency disorders can present in ways that do not resemble textbook descriptions, and very often more than one nutritional deficiency can be present in the same person. For these reasons, it can be difficult to make a particular diagnosis. The most important consideration for a shelter-

Table 1: Manifestations of Major Vitamin Deficiency Disorders

Nutrient	Deficiency Disorder	Symptoms of Deficiency	Factors associated with deficiency
Thiamine (B1)	Beriberi	Heart failure, (with or without coexistent Wernicke's encephalepathy)	Alcohol, heart failure with loop diuretic therapy
	Peripheral neuropathy	Motor, sensory and/or reflex loss in hands & feet	
	Wernicke's Encephalopathy	Acute confusional state, eye movement abnormalities, fever, confusion, coma	
	Korsakoff Syndrome	Amnesia, impaired ability to learn (patient appears alert)	
Pyridoxine (B6)	B6 Deficiency	Dermatitis, glossitis, cheilosis, nausea, weakness	Phenytoin, isoniazid, oral contraceptives, pregnancy
Cyanocobalamin (B12)	B12 Deficiency	Macrocytosis, anemia, memory loss, irritability, numbness or paresthesias in hands & feet	Gastric atrophy, gastritis, or gastric resection; phenytoin, omeprazole, metformin; strict vegetarianism
Niacin	Pellagra	Dermatitis in sun-exposed areas (collar, forearms, face), mental status changes (depression, confusion, dementia, peripheral neuropathy), gastrointestinal disruption (diarrhea, abdominal discomfort, vomiting)	Alcoholism
Riboflavin (B2)	Riboflavin deficiency	Sore throat, irritation of oral mucous membranes, glossitis, anemia	Phenobarbital treatment, long-term avoidance of dairy products, malabsorption
Vitamin C	Scurvy	Hemorrhages and hyperkeratotic papules around hair follicles, bruising, bleeding into muscles or joints, gum breakdown, tooth loss, depression, neruopathy	Pregnancy, lactation, thyrotoxicosis, drug and alcohol abuse

based clinician is to recognize potential nutritional problems and quickly facilitate further evaluation and nutritional support by an expert.

Situations in which nutrition may be inadequate and require urgent attention:

- a person returns to the shelter or other care facility after a period of sleeping outdoors, with or without high levels of alcohol intake during that time. Such a person may be visibly ill with signs or symptoms of one of the classic diseases described below, or they may simply report fatigue;
- a homeless person has been unable to maintain good nutritional intake due to sustained problems of the digestive tract, such as diarrhea or vomiting, or because of lack of regular access to any source of food;
- a homeless person reports "eating normally" and appears well but is pregnant, has diabetes, or other medical conditions that require special dietary attention.

Some classic nutritional deficiency diseases are mentioned below, but clinicians should be prepared to refer patients for evaluation and to offer vitamins and additional nutritional support even if these diseases are not clearly evident.

Specific nutritional deficiency disorders

Some major nutrient deficiency disorders are reviewed in Table 1. More detailed information is available from conventional texts like those cited in the suggested references for this chapter. Definitive diagnosis often requires laboratory testing and consideration of other diseases that may have similar presentations.

Homeless persons who maintain a moderately balanced diet through regular use of shelter-based meal programs or other planned meal sources rarely develop any of the following disorders unless a coexisting medical condition predisposes to deficiency (such as alcoholism, isoniazid therapy, malabsorption, or pregnancy). Whenever regular nutritional and vitamin intake may have been seriously disturbed, shelter-based clinicians should consider the disorders listed below and have a low threshold to consult a clinician with nutritional expertise.

Treatment and Complications

Treatment of vitamin deficiency generally requires restoration of normal nutritional support. Supplementation with therapeutic doses of the missing vitamin constitutes appropriate treatment. Isolated replacement of a single vitamin, however, is often inappropriate. Restoration of a single lacking vitamin may induce demand for other vitamins that participate in the same metabolic process. In some instances, treatment for one vitamin deficiency can cause symptoms due to the relative lack of another vitamin. Therefore, when a full nutritional deficiency disorder is manifest, shelter-based clinicians should seek consultative support and consider initiating treatment in a monitored hospital setting.

Prevention and Control

Dietary Counsel

Although soup kitchens offer relatively balanced meals, such meals are not always accessible to all homeless persons. Homelessness poses many challenges to a person attempting to adhere to recommendations concerning a well-balanced diet. Clinicians can take several actions to help. First, assess the available food sources in the community and advocate for appropriately funded food programs within shelters, soup kitchens, and food pantries. Second, have a dialogue with patients about how they obtain food and when and how they eat. In all instances, the patient's understanding, competing needs, resources, and comfort with the specific clinician will determine exactly how the dialogue on food and nutrition should evolve.

Traditional medical issues and more complex psychosocial considerations will influence how the discussion of food proceeds. As a practical matter, clinicians should attempt to identify issues that will require care, such as diabetes, alcohol abuse, diseases of the digestive system, and pregnancy. In the example of pregnancy, the most appropriate interventions will be to assure that the woman is taking prenatal vitamins, has access to sufficient calories through shelter meals and food stamps, and has decent and safe shelter each night.

Complex social and psychic issues will also influence the discussion of food between homeless patients and clinicians. As one example, consider the discussion of sugar intake by a homeless diabetic individual who also abuses alcohol. Some practical suggestions typically made to diabetics are useful for those living in shelters and on the streets, including the use of dilute juices, diet soda, eating bread instead of cake, and attempting to maintain regular meal intake. Clinicians must be mindful that these recommendations could have limited value for patients with limited capacity to understand them or limited choices in their environment. A casual recommendation to a diabetic patient with alco-

holism ("eat less concentrated sweets") has potential to be helpful or harmful. The clinician wishing to be helpful must ground the dialogue in a well-informed relationship characterized by trust. Sometimes it is important to wait for such a relationship to develop before offering too much advice.

Food Stamps

The federal government assures access to food stamps to citizens and some non-citizens who meet specific income and asset requirements. Food stamps can be used to purchase food in grocery stores, although ready-to-eat items (such as a sandwich prepared and packaged at a grocery store) are generally not covered by food stamps, and this limits the utility of food stamps for homeless individuals. Items such as bread, fruit, and milk, however, do not require access to a kitchen and can be obtained with food stamps.

A person does not generally need to meet criteria for disability in order to receive this benefit. Since only 37% of homeless individuals reported receiving food stamps in the 1996 National Survey of Homeless Assistance Providers and Clients, it is likely that many homeless persons could qualify for this benefit but do not receive it. A person's particular situation, including household size and disability status, influences eligibility for food stamps. As a rough example, a single homeless person with assets less than $2,000 and income below $960 per month could qualify for food stamps up to $139 per month as of January, 2003 (See www.fns.usda.gov/fsp/default.htm for detailed information on this benefit). Some non-citizens also qualify for food stamps. Application procedures for this federally supported program vary from state to state and are generally obtained through a state benefits office or hotline.

Multiple Vitamins

Standard recommendations support the use of prenatal multiple vitamins among pregnant women. No consensus exists to support routine administration of multiple vitamins to homeless persons, but such a practice should be considered in any patient where dietary intake is irregular or where medical conditions like pregnancy or alcoholism raise special concerns.

Special Clinical Situations

Rough Sleepers

Of special note, when homeless "rough sleepers," particularly those who are alcoholic and intoxicated, appear for medical care, the potentially life-threatening nutritional risks of thiamine deficiency and/or pellagra (niacin deficiency) must be anticipated and treated presumptively. In hospital emergency departments this is accomplished by offering intravenous fluids with both thiamine and a multivitamin containing niacin. Unfortunately, rapid intravenous nutritional support is not available when a "rough sleeper" is found acutely ill on the street or seeks care at a shelter, rescue mission, mobile services van, or outpatient clinic.

In these situations clinicians should refer patients to the hospital emergency department if any of the following conditions are present:

- the patient appears acutely ill;
- the patient is acutely intoxicated and the facility is not equipped to closely monitor the patient's mental status;
- signs or symptoms of intoxication fail to resolve over the expected time course.

Alcohol Withdrawal

Standard guidelines mandate administration of thiamine to all patients being treated for alcohol withdrawal. In the setting of alcohol withdrawal, the addition of a multiple vitamin can be justified on grounds that it is not harmful and could prevent emergence of a secondary vitamin deficiency.

Summary

Homeless persons are susceptible to both problems of overweight and nutritional deficiency. Vulnerability to either problem may predate the experience of homelessness itself and will vary depending on the current living conditions. The counsel and material assistance we offer patients must be grounded in a well-informed and trusting relationship. ■

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Nutrition Medication List

Generic	Brand Name	Cost
isoniazid	INH	$
metformin	Glucophage	$$$
omeprazole	Prilosec	$$$$
phenytoin	Dilantin	$

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