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Nutrition and Health Services Needs Among the Homeless

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Synopsis.....

This review discusses nutrition and related health problems among homeless Americans, summarizes recent information, and identifies needs for services and future research. The nature of homelessness today provides a context for the discussion. Many homeless persons eat fewer meals per day, lack

food more often, and are more likely to have inadequate diets and poorer nutritional status than housed U.S. populations. Yet many homeless people eligible for food stamps do not receive them. While public and private agencies provide nutritious food and meals for homeless persons, availability of the services to homeless persons is limited.

Many homeless people lack appropriate health care, and certain nutrition-related health problems are prevalent among them. Compared with housed populations, alcoholism, anemia, and growth problems are more common among homeless persons, and pregnancy rates are higher. The risks vary among homeless persons for malnutrition, nutrition-related health problems, drug and alcohol abuse, and mental illness. For example, among homeless persons, fewer heads of families than single adults are substance abusers, and mental illness varies in prevalence among single men, single women, and parents in homeless families.

Homeless persons need improved access to food, nutrition, and health services. More nutrition education needs to be available to them and to service providers. Use of representative samples and validation of self-reported nutrition and health data will help future investigators to clarify the relationships between the characteristics of the homeless and their nutritional status.

THE FOOD HABITS, nutritional status, and nutrition-related health problems of homeless people in the United States have received increasing attention from researchers and policymaking groups recently. We review the findings on these issues, emphasizing studies of homeless families and single adults in metropolitan areas, and provide suggestions for needed services and research on nutrition among the homeless.

National estimates of the size of the homeless population vary from 250,000 (1) to more than 2.2 million persons (2). Most are single, nonelderly adults or members of families with children, usually headed by a single adult (1, 3, 4) (see accompanying box, page 365). Compared with homeless adults who are single, those in families are younger, and they are more likely to be female and to receive means-tested benefits. Among homeless Americans, the proportion who live in cities is unknown (5). Elderly persons and runaway teenagers account for about 5 to 10 percent of the homeless population (1, 3) and have been described elsewhere (5-7). The rising demand for emergency food and shelter suggests that homelessness is increasing and that homeless households with children are the fastest growing component (3, 8, 9).

Economic, environmental, social, and health characteristics place the homeless at nutritional risk. Poverty is associated with poor nutrition and health outcomes, poor access to health care, and the inability to purchase and store food on a regular basis (10-14). Many homeless people lack spouses or other supports that could provide them with food and shelter (15-17). Lack of adequate kitchen facilities, mental illness, and substance abuse (prevalent among some groups of homeless people), together with physical conditions that alter or increase nutritional needs (such as growth, pregnancy, lactation, and chronic diet-related diseases) may increase risk of dietary inadequacy among the homeless.

Factors contributing to homelessness today include deinstitutionalization of the mentally ill, without compensating community-based care; the economic recession in the early 1980s; reduced outlays for public housing; declining value of means-tested benefits in constant dollars; and an inadequate supply of affordable housing (17-21). Among people affected by these factors, homelessness may be precipitated by a lack of social supports (15-17), disabilities that cause job loss and impoverishment, behavioral problems that affect tenancy, and the loss of housing through fire or urban renewal (17).

Demographic Characteristics in Recent Studies of Homeless Single Men and Women, Compared with Families with Children

Distribution

Single adults: men, 49-66 percent; women, 13 percent (1, 3)

Families with children: 20-34 percent (1, 3, 4)

Age

Single adults: late 20s to 30s (1, 24, 25, 46)

Families with children: parents, mid to late 20s (34, 58); children, 50 percent younger than 6 years (41), 67-92 percent younger than 5 years (34, 35)

Education 12 years or more

Single adults: 34-60 percent (4, 24, 25, 37, 46)

Families with children: parents, 50-59 percent (34, 58)

Duration of homelessness

Single adults: most less than 12 months (1, 25), median 25 months (24), median 12 months (4)

Families with children: median 4.5 months (4)

Income sources

Single adults: work, 15-23 percent (1, 3, 25, 37); public assistance, 25-50 percent (1, 25, 37)

Families with children: work, 9 percent (34); public assistance, 91-96 percent (15, 34)

Household size

Single adults: one

Families with children: three (4, 34, 58)

Race

Single adults: reflects local low-income population (1)

Families with children: reflects local low-income population (34)

Sex

Single adults: 75-80 percent men (4, 24, 25, 46)

Families with children: parents 75-80 percent women (4, 34)

Social network

Single adults: 31-74 percent report no current contact with family or friends (16, 55)

Families with children: 43 percent report none to 1 social support (34)

Unmarried or separated

Single adults: 50-100 percent (16, 24)

Families with children: 60-90 percent (15, 34, 58)

Veterans

Single adults: men, 26-50 percent; women, 2 percent (37)

Families with children: not available

'Factors contributing to homelessness today include deinstitutionalization of the mentally ill, without compensating community-based care; the economic recession in the early 1980s; reduced outlays for public housing; declining value of means-tested benefits in constant dollars; and an inadequate supply of affordable housing.'

Accurate assessment of needs, required for planning and allocating resources for programs for the homeless (22), is hampered by often imprecise or not-comparable data describing the homeless. Shortcomings in available data are reflected in the study design limitations shown in the box on page 367. While the health and nutrition studies we reviewed (see the accompanying box on page 369) provided sound data for local use, synthesis of the findings frequently was complicated by inconsistencies in sampling strategies and diagnostic criteria.

Food-Related Practices

Sources of food. Soup kitchens, run by charitable agencies to provide meals, and shelters are the most frequent sources of meals cited by the homeless (4). Burt and Cohen interviewed 1,700 homeless adults in soup kitchens, shelters, and on the streets in 20 cities nationwide. Sixty-three percent reported obtaining meals from soup kitchens and 51 percent from shelters in the week preceding the interview. Smaller proportions reported buying food from restaurants (29 percent) or stores (20 percent), or receiving food from friends and family (18 percent), and food pantries (5 percent) in the week before the interview (4). In addition, 9 percent reported obtaining food from garbage cans (4).

Food sources used by the homeless vary among subgroups and in comparison to housed groups. Wood and coworkers showed that, compared to housed low-income families, homeless families reported obtaining more meals from fast food restaurants and convenience stores (23). Nationally, two-thirds of single, homeless adult males used soup kitchens, compared to a third of the homeless families (4). This is consistent with data indicating that proportionately more single males live on the

street or in emergency shelters that do not provide all meals (24, 25). Mental illness was less common among homeless adults who obtained food from shelters and soup kitchens than among nonusers (4). The homeless mentally ill are more likely to obtain food from garbage cans, as are others who do not obtain food from shelters, soup kitchens, and food pantries (4, 24). Homeless adults who obtain food from trash, or who lack institutional food sources, may be at especially high risk of food poisoning and dietary inadequacy.

Storage and food preparation. A lack of kitchen facilities, by limiting what foods can be purchased, stored, and prepared, can affect the diets of those homeless who prepare their own meals. Higher food costs may result from increased use of restaurants and the purchase of small quantities of foods at high unit cost. While Luder and coworkers reported no association between availability of kitchen facilities and dietary adequacy among homeless, single adults in New York City (26), some of those without cooking facilities were in shelters serving two to three meals per day.

Agency food policies affecting the homeless. Staff members at soup kitchens, food pantries, and shelters are nutritional gatekeepers for their homeless clientele. Nationally, three-fourths of shelters and soup kitchens surveyed reported having at least one worker with food service experience. At 63 percent of the sites this was a former cook or restaurant owner (4). Only 17 percent of the sites were working with a nutritionist or dietician, however.

Hotels rarely provide food or meals to homeless guests. They usually have regulations governing food storage and cooking in rooms, regulations that are consistent with fire safety and sanitation codes.

Analyses of food available to the homeless. Soup kitchens, shelters, and food pantries provide foods that are appropriate for emergencies or as supplements to usual dietary intakes. However, these foods are of limited availability and thus do not meet all nutrient needs if they are the sole source of nourishment (4, 26-29). Nationally, most urban soup kitchens and shelters surveyed served only one meal a day and were not open daily (4). On average, only 1.4 meals were available per homeless person per day (4). Meal quality was good, however; meals included items from several food groups and provided more than half of the 1980

Recommended Dietary Allowances (RDA) (30) for protein, vitamin C, thiamin, riboflavin, niacin, vitamin A, and phosphorous (4).

In one New York City study, lunch menus at five soup kitchens varied widely in nutrient content (27). All menus met or exceeded fat, energy, and protein content recommendations, but were low in carbohydrate; however, several menus were low in vitamin C, thiamin, or folacin when compared to one-third of the 1989 RDAs for adult males (31) and to U.S. Dietary Goals (32).

In another New York City study, Luder and coworkers assigned dietary adequacy scores (33) to menus at four New York City sites; two served three meals a day and attained the maximum possible score of 16 points, while others served two meals a day and attained lower scores of 7 and 8 points (26). Food pantry packages in Wisconsin and Texas did not meet 1980 RDAs for vitamin C, vitamin B6, calcium, magnesium, and zinc (28, 29).

Use of food assistance programs by the homeless. Because of their poverty, most of the homeless are eligible for means-tested nutrition and food assistance programs. Nationally, however, only 15 percent of homeless, single adults and 50 percent of homeless families surveyed received food stamps (4). In two Massachusetts studies, 58 to 70 percent of homeless families with children received food stamps (34, 35); moreover, 52 percent received benefits from the Special Supplemental Food Program for Women, Infants, and Children (35). Other data on homeless people's participation in other food assistance programs are not available.

Nutritional Status

Homeless adults. Burt and Cohen compared data on diets of homeless adults to data from the Department of Agriculture's 1985 Continuing Survey of Food Intakes of Individuals (CSFII) and the 1977-78 National Food Consumption Survey (NFCS). While 20 percent of housed low-income adults in the CSFII reported "sometimes or often" consuming inadequate amounts of food, 38 percent of homeless adults responded this way (4). The homeless reported eating fewer meals per day than did other low-income Americans (1.9 meals versus three or more), and more than a third reported eating nothing for 1 or more days in the week prior to the interview (4). Homeless adults reported eating a smaller variety of foods and were less likely to have eaten foods from any one food group than were NFCS respondents (4). Their 24-hour recalls in-

Potential Data Biases Resulting from Designs of Studies of the Homeless

Data collection method

Retrospective record reviews: potential for lack of standardization and for subjectivity within records and in abstracting

Interviews: reliability of self-reported health and nutrition data may be poor and may limit validity

Diagnostic criteria

Use of different criteria or standardized diagnostic instruments: resulting prevalence estimates may vary and not be comparable

Locale

Location of study in a single city or locale for data collection: generalizability to other areas is not known

Sampling strategy (respondents)

Use of nonrandom samples or samples whose relation to sampling frame is not established: generalizability not known

Sampling strategy (sites)

Use of nonrandom samples or samples whose relation to sampling frame is not established: site characteristics differ; data may not be generalizable to other site types

Time frames

Long data collection periods: secular changes in population may affect results in unknown ways; potential for double counting

Single time points: counts may be unrepresentative of other time points

cluded foods from only half of five core food groups studied (milk and milk products, grain products, meat and meat alternates, fruits, and vegetables) (4).

Dietary differences among subgroups within the national survey were apparent (4). Compared with adults who did not obtain food from shelters or soup kitchens, users of those facilities ate more meals per day and averaged half as many days per week without food (0.66 days versus 1.35 days). Adults in families were more likely to eat at least two meals per day than were single adults.

A New York City study by Luder and coworkers examined dietary, biochemical, and physical indices of nutrition status in homeless New York City adults (26). Of 96 respondents, 41 completed 24-

hour dietary recalls. Nutrients for which more than a third of recalls were below two-thirds of 1989 RDAs were zinc (66 percent), vitamin B6 (51 percent), vitamin A (49 percent), and calcium (34 percent). No correlation was observed between iron intake and hemoglobin or hematocrit levels. Other correlations between intake, biochemical indices, and anthropometric measures were not reported. Additional studies that include multiple measures of nutrition status are needed.

Anthropometric evidence of malnutrition among homeless adults is sparse and difficult to interpret. Nationally, obesity occurs among homeless adult outpatients at a rate comparable to that among housed adults, and it is three times more common among homeless women than men (17). In Luder and coworkers' study, 37 respondents (39 percent) were obese by standards of the body mass index (BMI) and 6 (6 percent) were underweight (26). (BMI = weight in kilograms divided by height in meters squared). In comparison, one-third of the homeless single adults in a Los Angeles study were underweight (36). Differences in age, sex, and lifestyle characteristics of the subjects in these studies may explain some variability in the findings.

Biochemical evidence of malnutrition varies among the studies and by sex and residency status. Estimates of the prevalence of anemia among homeless adults range from 9 percent (26) to 25 percent (37) and are higher among homeless women than among men (17, 37).

In the national study of homeless adult outpatients, nutritional deficiencies were 20 times more prevalent among the homeless than among housed ambulatory health care users (17). Low stores of iron were significantly more common, and protein malnutrition less common in sheltered versus unsheltered homeless adults in Los Angeles (36). Luder and coworkers found no evidence of poor protein status, but detected high serum cholesterol levels in 83 percent of subjects (26).

Homeless children's nutritional status. In a Los Angeles study, homeless families were more likely to report recent food shortages than housed, low-income families (23). However, an equivalent proportion of both homeless and housed children's diets in this study (as reported by mothers) were rated as marginal or deficient by the investigators. We were unable to locate other dietary data on homeless children.

The prevalence of anemia among homeless children varies among studies from 2.2 percent to 50

percent (17, 38, 39). In these studies, anemia is almost twice as prevalent among homeless children as it is among standard reference populations (39) or housed comparison groups (17, 38).

While being overweight is common among homeless children, risks of both chronic and acute undernutrition also seem to be high. Twelve to 35 percent of homeless children studied in Los Angeles (23) and Seattle (40) were overweight (that is, exceeding the 95th percentile of weight-for-height on National Center for Health Statistics growth charts). Measures consistent with chronic undernutrition, however, were seen in 6 percent of the Seattle children (height-for-age below the third percentile) (40) and in 7.7 percent of homeless children in a Boston study (height-for-age below the fifth percentile) (35). Statistical testing in the Boston study showed that this proportion was not significantly different from the expected 5 percent (35). Underweight (weight-for-height below the fifth percentile) was evident in 9 percent of Los Angeles girls, but in only 5 percent of boys (23). Slightly more homeless children (8.6 percent) than housed children (6.4 percent) were underweight in a New York City study (41). Thirteen percent of pediatric failure-to-thrive patients at an inner-city Massachusetts clinic were homeless (42).

Other studies of low-income children (although the proportion of housed compared with homeless is unknown) have identified higher than expected levels of overweight, low height-for-age, and probable iron deficiency anemia (12, 43). Homeless children therefore appear to experience patterns of potential malnutrition similar to those seen in other samples of like age and income. Nevertheless, homeless children with growth and nutrition problems may be less likely to receive timely attention than housed children, given their transience and potentially poor access to health care.

Nutrition-Related Health Problems

Certain health problems common among homeless adults have a nutritional component in their etiology or treatment. These include alcoholism (17, 36, 37, 44, 45); anemia (15, 36, 37); dental problems (17, 37); gastric ulcers (16); other gastrointestinal complaints (17, 42); cardiovascular disease (17, 37); hypertension (16, 17, 37); hypercholesterolemia (26); acute and chronic infectious diseases, such as upper respiratory, skin, tuberculosis, acquired immunodeficiency syndrome, and others, (17, 37, 46); and malnutrition (17).

Wright and Weber used data from the Health

Characteristics of Recent Studies of Health and Nutrition Among the Homeless

Studies of adults

Bassuk in reference 16, 1983, data collection period 1/4 month, Boston, 78 subjects. Type of study: descriptive. Survey data primarily collected using structured questionnaires in face-to-face interviews. Sites: 1 shelter. Sampling strategy: census. Tests of psychological status or chemical dependency: Brief Psychiatric Rating Scale, Global Assessment Scale.

Bassuk (15), 1986, 4 months, 8 cities in Massachusetts, 80 subjects. Type of study: descriptive. Survey data primarily collected using structured questionnaires in face-to-face interviews. Sites: 14 shelters. Sampling strategy: census. Tests of psychological status or chemical dependency: Social Support Network Interview.

Robertson, (25), 1986, 5 months, Los Angeles, 238 subjects. Type of study: descriptive, comparisons between strata presented. Survey data primarily collected using structured questionnaires in face-to-face interviews. Sites: 2 shelters, 1 lot, 3 meal programs. Sampling strategy: nonrandom.

Fischer (57), 1986, 3 months, Baltimore, 51 subjects. Type of study: comparative (author collected additional data on a comparable housed group). Survey data primarily collected using structured questionnaires in face-to-face interviews. Sites: 4 missions. Sampling strategy: random. Tests of psychological status or chemical dependency: Diagnostic Interview Schedule, General Health Questionnaire, Mini-Mental State Examination.

Chavkin (50), 1987, 30 months, New York City, 401 subjects. Type of study: comparative (author collected additional data on a comparable housed group). Data were collected by means of a record review. Sites: hotels. Sampling strategy: census.

Wright (17), 1987, 15 months, 11,797 subjects, 16 U.S. cities. Type of study: descriptive, comparisons between strata presented. Data were collected by means of a retrospective record review from outpatient clinics. Sites: clinics. Sampling strategy: census.

Burt (4), 1988, 1 month, 1,704 subjects, 20 U.S. cities. Type of study: descriptive, comparisons between strata presented. Survey data primarily collected using structured questionnaires in face-to-face interviews. Sites: 381 shelters, meal programs, and other sites. Sampling strategy: random.

Gelberg (24, 36), 1988, 1989, 3 months, Los Angeles, 529 subjects. Type of study: descriptive, comparisons between strata presented. Survey data primarily collected

using structured questionnaires in face-to-face interviews. Sites: 3 shelters, 9 lots, and 7 meal programs. Sampling strategy: nonrandom. Tests of psychological status or chemical dependency: CAGE, a screening test for alcoholism.

Breakey (37), 1989, 2 months, Baltimore, 528 subjects. Type of study: descriptive, comparisons between strata presented. Survey data primarily collected using structured questionnaires in face-to-face interviews. Sites: 20 missions, jails, and shelters. Sampling strategy: random. Tests of psychological status or chemical dependency: Standard Psychiatric Examination, Eysenck Personality Interview, Quick Test of Intelligence, Short Michigan Alcoholism Screening Test, and Mini-Mental State Examination.

Luder (26), 1990, 1 month, New York City, 96 subjects. Type of study: descriptive, comparisons between strata presented. Survey data primarily collected using structured questionnaires in face-to-face interviews. Sites: single room occupancy hotels, 2 shelters, and 2 drop-in clinics. Sampling strategy: nonrandom.

Studies of children

Rutherford, in reference 47, 1983, New York City, 2,100 subjects. Type of study: descriptive. Survey data collected by physical examination. Sites: shelters and hotels.

Bassuk (15), 1986, 4 months, 8 cities in Massachusetts. Type of study: descriptive. Survey data primarily collected using structured questionnaires in face-to-face interviews. Tests of psychological or developmental status: Achenbach Behavior Problem Checklist, Denver Developmental Screening Test, Simmons Behavior Checklist, Children's Depression Inventory, Children's Manifest Anxiety Scale.

Acker (38), 1987, 9 months, New York City, 98 subjects. Type of study: comparative (author collected additional data on a comparable housed group). Data were collected by means of a retrospective record review from outpatient clinics. Sites: clinics. Sampling strategy: consecutive records.

Wright (17), 1987, 15 months, 16 U.S. cities, 1,028 subjects. Type of study: descriptive, comparisons between strata presented. Data were collected by means of a retrospective record review from outpatient clinics. Sites: clinics. Sampling strategy: census.

Alperstein (41), 1988, 42 months, New York City, 265 subjects. Type of study: comparative (author collected additional data on a comparable housed group). Data were collected by means of a retrospective record review from outpatient clinics. Sites: clinics. Sampling strategy: census.

Miller (40), 1988, 2 months, Seattle area, 158 subjects. Type of study: descriptive, comparisons between strata presented. Data were collected by means of a retrospective record review from outpatient clinics. Sites: 15 shelters. Sampling strategy: probability.

Bass (49), 1990, 12 months, Framingham, MA, 78 subjects. Type of study: descriptive. Data collected by means of a retrospective record review from outpatient clinics. Sites: 1 shelter. Sampling strategy: census.

Hu (58), 1989, 2 months, San Diego, 30 subjects. Type

of study: descriptive, comparisons between strata presented. Survey data primarily collected using structured questionnaires in face-to-face interviews. Sites: 1 shelter. Sampling strategy: random.

Lewis (35), 1989, 12 months, Boston, 213 subjects. Type of study: descriptive. Data collected by means of a retrospective record review from outpatient clinics. Sites: 10 shelters, 1 hotel. Sampling strategy: census. Tests of psychological or developmental status: Denver Developmental Screening Test.

Wood (23), 1990, 10 months, Los Angeles, 194 subjects. Type of study: comparative (author collected additional data on a comparable housed group). Survey data primarily collected using structured questionnaires in face-to-face interviews. Sites: 10 shelters. Sampling strategy: census. Tests of psychological or developmental status: Denver Developmental Screening Test, Achenbach Behavior Problem Checklist.

Care for the Homeless (HCH) program funded by the Robert Wood Johnson Foundation and the Pew Memorial Trust to examine morbidity among the homeless (17).

Data on homeless clinic patients in 16 U.S. cities were compared with data from the 1979 National Ambulatory Medical Care Survey describing urban housed adults and children. Homeless adults, compared with housed adults, had more alcoholism, infectious disease, and gastrointestinal illness, among other conditions, but had similar rates of diabetes, heart disease, and stroke (17). Other diseases, notably cancer, were documented less frequently among homeless adults (17). Differences between single adults and adults with children were not examined.

Nutrition-related health problems that are especially common among homeless children include anemia (17, 40, 41, 47); dental problems (17, 40); and gastrointestinal complaints, including diarrhea and asymptomatic enteric infections (17, 48, 49). Compared with housed children, homeless children have more gastrointestinal ailments (17), dental problems (17), nutritional deficiencies (17), and lead poisoning (41). Nevertheless, a Los Angeles study detected no differences between housed and homeless mothers' ratings of their children's health or frequency of recent illnesses (23).

Common health problems among the homeless that are not directly related to nutrition are re-

viewed elsewhere (17, 51). They include skin infestations, exposure, trauma, sexually transmitted diseases, and peripheral vascular disease.

Nutrition and childbearing-related problems among homeless women. Homeless women have higher pregnancy rates (11.4 percent) than American women overall (about 5 percent) (17) and their pregnancies are associated with higher risks (17, 50). In a New York City study of linked birth and death certificates, low birth weight occurred in 16.3 percent of births to homeless mothers living in hotels, in 11.4 percent of births to low-income women in public housing, and in 7.4 percent of all births in the city (50). The infant mortality rate among hotel mothers' babies was 24.9 per 1,000, twice the city's overall rate, but not significantly different from the rate in the public housing sample (50).

Further research is needed to identify the reasons for these poor pregnancy outcomes among the homeless and to assess their generalizability. Inadequate prenatal care, drug abuse, and poor nutrition all may be influential. In the New York City study, more than 50 percent of the homeless mothers studied had fewer than four prenatal visits, three to six times the percentage of the subjects of the control groups having fewer than four prenatal visits (50). Nationally, homeless illicit drug users have slightly higher pregnancy rates (1.28 times) than nonusers (17). We were unable to locate data

on prenatal diet or weight gain among homeless women.

Substance abuse, mental illness, and nutritional risk. There are many studies of substance abuse and mental illness among homeless adults without children (52, 53). These risk factors influence diets, use of food services (4), and health. Some studies indicate that the most prevalent health problems overall among homeless adults are associated with substance abuse (17, 37). Indeed, adult alcoholics in the HCH study had 30 to 70 percent higher rates of malnutrition (including anemia), gastrointestinal disorders, and hypertension than nonalcoholics, while drug abusers had 40 percent more anemia compared to others (17). Mentally ill HCH outpatients had 90 to 130 percent higher rates of malnutrition, and 20 to 50 percent higher rates of anemia and hypertension than others. Nevertheless, in a Los Angeles study of homeless street people, adults with and without previous hospitalizations for mental disability had similar weight and mid-arm muscle circumference (24).

The prevalence of substance abuse varies among homeless subgroups. About 13 to 20 percent of homeless adults abuse drugs (17, 37), and 20 to 40 percent of homeless adults abuse alcohol (16, 17, 22, 54). In the HCH study, these behaviors were more common among men than among women (17). Blacks had the highest rates of drug abuse, and blacks and Native Americans had the highest rates of alcohol abuse (17). Moreover, 16.8 percent of homeless parents were alcoholic, compared with 32 percent of single homeless adults, and 6.9 percent of homeless parents used illicit drugs compared with 10.7 percent of single adults (17).

Estimates of the prevalence of mental disorders among homeless adults range from 21 percent to 84 percent (55), with one-third frequently cited as an accepted prevalence (6, 17). While schizophrenia, depression, and personality disorders are most frequently documented (16, 17, 54), phobic and anxiety disorders also are prevalent (17, 37). Although some studies report that a higher proportion of homeless women than men are or have been mentally disturbed, other studies do not support this conclusion (16, 56). Comorbidity of drug abuse, alcohol abuse, or mental illness is seen in at least 25 percent of homeless adults (17, 37).

Less is known about mental illness in homeless families, and further research is needed. One Massachusetts study identified 70 percent of homeless parents in shelters as having personality disorders and 13 percent with schizophrenia or major affec-

'Accurate assessment of needs, required for planning and allocating resources for programs for the homeless, is hampered by often imprecise or not-comparable data describing the homeless.'

tive disorders. According to researchers, 50 percent of respondents' children required further psychiatric evaluation (34).

Use of Medical and Nutrition Services

Many homeless single adults (24, 25, 37, 50, 57) and families with children (35, 38, 40, 41, 49) do not obtain needed primary, preventive, and therapeutic medical care. For example, immunization delays have been observed in 15 percent to 49 percent of homeless children studied (38, 40, 41, 49).

Barriers to use of health care services by the homeless include lack of medical insurance or money (25, 37, 58), lack of transportation (25), mistrust of hospitals and health care providers (59), belief that conditions are not serious enough to warrant intervention (25), and inability or lack of desire to participate in therapy owing to mental illness (5). Some providers are reluctant to treat the homeless (59), either because they find the population unpleasant to deal with or because they do not treat destitute or uninsured patients. Moreover, the homeless may find prescription regimens difficult to comply with because they cannot obtain or store medications, or because they lack privacy for using them (60).

Homeless persons apparently recognize a need for nutrition-related services. One-third of the homeless families in a San Diego study reported needing nutritional and dietary counseling (59). In a New York City study almost 52 percent of homeless adults reported having dietary restrictions, yet only half of this group said they could follow these restrictions; the reasons for noncompliance were not assessed (26).

Conclusion

Homelessness reflects both societal forces and individual circumstances. Homeless people are a diverse population characterized by a high degree

'The homeless need improved access to health services, to food, and to nutritional services, both clinical services and food assistance programs, in order to meet their dietary and nutrition-related health needs.'

of disability, economic insecurity, and social isolation. Homelessness may cause or exacerbate some health, nutritional, and behavioral conditions through poor access to care and through lifestyle attributes, such as transience, environmental exposure, and sporadic contact with providers of food, shelter, or health care (6).

Service needs of the homeless. The homeless need improved access to health services, to food, and to nutritional services, both clinical services and food assistance programs, in order to meet their dietary and nutrition-related health needs. In addition to expanding services, barriers to participation in current services need to be identified and reduced. Services are needed that address the varying nutrition and health risks among different groups of homeless people. Training food providers in meal planning and food safety would assist in this regard by improving their ability to feed homeless guests, especially those who are children, pregnant, or lactating, or who have chronic diseases. Many homeless persons would benefit from nutrition education that would help them to spend their scant food dollars wisely and to avoid foodborne illness. Whether food and health care providers serving the homeless can expand to meet the needs we have identified is a question of human and financial resources that is beyond the scope of this review.

Research priorities. The emphasis in future nutrition research should be on clarifying the relationships between homelessness and nutritional status. Characteristics or factors that are associated with nutritional outcomes among homeless people should be identified using appropriate housed groups for comparison. Characteristics that especially warrant investigation are both personal, such as age, mental illness, physical disability, and substance abuse, and environmental, such as rural or urban location, and the availability of kitchen facilities, food services, and nutrition and health pro-

grams. Studies of the etiology and generalizability of poor pregnancy outcomes among homeless women also are warranted.

Methodological recommendations. Where data are available, wide variations exist in estimates of nutrition and health problems among the homeless. Multi-site studies and surveillance using consistent diagnostic criteria can help distinguish real regional and temporal variability from methodological artifacts. Most researchers, however, are restricted to narrow windows of time and place. The external validity of smaller studies is strengthened by using censuses or random sampling and by comparing study samples to the populations from which they were drawn (34, 37). The validity of health and nutrition assessments can be improved by using objective measures, such as physical examination and blood samples, alone or with self-reports (36). Nutritional assessment, for example, should use anthropometric, biochemical, clinical, and dietary measures in combination and should attempt to validate homeless people's reports of dietary intake. For example, the contents of dietary recalls can be compared to foods available to respondents in their rooms or from the agencies where they report eating. Finally, because contacting homeless respondents can be quite difficult, we recommend (a) allotting generous amounts of time for this activity, (b) planning sample sizes and recruitment protocols to allow for nonrespondents, and (c) incorporating into the interview methods of assessing the validity of the interview, since attempts at followup are unlikely to be successful.

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