Published in final edited form as:

Care Manag J. 2010 ; 11(1): 19–40.

Who Are the Recipients of Meals-on-Wheels in New York City?: A Profile of Based on a Representative Sample of Meals-on- Wheels Recipients, Part I

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Keywords

home-delivered meals; nutrition program; older persons; frailty

Every day in New York City, many thousands of meals are distributed to older people who are homebound and deemed to have difficulty with meal preparation. In addition to ensuring that such elders receive at least one nutritious meal each weekday and have meals for the weekend, home-delivered meals help reduce social isolation through daily contact with the

meal provider (i.e., the driver). Case management agencies certify the eligibility for participation in the program and offer backup services as needed. The daily home-delivered meals are funded by the Older Americans Act through subcontracts from local Areas on Aging offices to community groups, primarily senior centers. Weekend meals and holiday meals are funded in New York City by Citymeals-on-Wheels, a nonprofit organization receiving, in the main, contributions from private citizens in the community.

Although the home-delivered meals program has been in operation for a considerable period of time, there is little information regarding the nature of the participants, their degree of isolation, how they prepare and utilize the meals received, and their views about the value of the program to them.

To learn more about the program, its participants, and their preparation, utilization and satisfaction with the delivered meals, Citymeals-on-Wheels and the Cornell Institute for Translational Research on Aging jointly undertook the current study. We hope that the findings will answer many questions about the recipients and their social and nutritional needs and will provide findings that will be useful in future planning for the program regarding client satisfaction and the extent to which the program realizes its stated goals.

KEY FINDINGS

Recipients of home-delivered meals are a diverse group, as illustrated by their demographic, economic, and social characteristics and by their use of home-delivered meals.

Demographic, Economic, and Social Characteristics

- Recipients are an ethnic mix, with 63% White, 29% Black, 11% Hispanic, and 1% Asian (an underestimate because of the languages used in the survey).
- The majority are older; two-thirds are 80 years and older, and 12% are 90 years and older. One-third are in their 70s, and 12% are younger than 70. White recipients are older on average than Blacks and Hispanics.
- About three-fourths (73%) live alone.
- Almost two-thirds are currently widowed.
- Almost three-fourths are women.
- Three-fourths are high school graduates or attended college, and 15% have only an elementary school education.
- One-fifth of recipients have at least one indication of difficulty getting access to food, and 6% (or 1,000 recipients) cannot make ends meet financially. Hispanic recipients are poorer on average than Whites and Blacks.
- About half have difficulty walking most of the time. Use of assistive devices is widespread, with 66% using a cane, 39% using a walker, and 16% using a wheel chair.

- About one-third have vision problems most of the time, and 15% have hearing problems most of the time.
- Many indicate a need for assistance in the tasks of daily living most of the time, especially with heavy chores (50%), shopping (28%), light chores (23%), and bathing and showering (20%).
- About 40% rarely or never leave their homes. Another one-fourth leaves two to four times a week, and a small number leaves five or more times a week.
- Most have some component of an informal support system, mainly children who they see and with whom they talk, but 27% did not have any children, and 8% (or 1,300 recipients) have no one with whom to talk.
- Most recipients have spoken to a social worker, but only about one-third reported contact with any other community service with the exception of Social Security and Medicare.

In an attempt to learn more about the program, its participants, and their preparation, utilization, and satisfaction with the delivered meals, Citymeals-on-Wheels and the Roybal Gerontology Center of Cornell University have jointly undertaken the current study. A random telephone survey of 1,505 home-delivered meals recipients in New York City was conducted from November 2004 to February 2005. Computer-assisted interviewing was done in English and Spanish. The questionnaire asked about recipients' demographic profile; financial status; physical and mental health status; informal social networks; use of formal services; length of time enrolled in the program; type of meals received; use of meals; food preparation; extent and use of kitchen facilities; nutrition intake; relationship and interaction with the driver; interaction with the agency providing food; satisfaction with the food; and religion and cultural compatibility. A second random telephone survey of 500 recipients was conducted in June 2006, with half of the sample drawn from the original sample of October 2004 and half from an updated census of participants in fall 2005. This second survey was designed to fill gaps in understanding about satisfaction with food packaging and labels, food acquisition, meal delivery, and meal variety.

WHO RECEIVES MEALS-ON-WHEELS?

Like all older New Yorkers, recipients of Meals-on-Wheels are very diverse with regard to age, ethnicity, marital status, living arrangements, and a variety of other demographic descriptors. But they have one thing in common: they tend to be frail and have limited mobility. The profile below, based on responses from a random sample of 1,505 current Meals-on-Wheels recipients, details the extent of variability of recipients of home-delivered meals as well as their needs for assistance. Where possible, comparisons will be made with other older New Yorkers in general based upon the 2000 U.S. Census and the last major study of older New Yorkers, entitled *Growing Older in New York City in the 1990s* (Cantor & Brennan, 1993a). Because previous research about older New Yorkers has indicated the importance of ethnicity and culture in all aspects of life, particularly in social networks and attitudes toward health and food, we will compare the findings for the three major ethnic groups of older New Yorkers: White, Black, and Hispanic. Unfortunately, the sample size

and issues of translation prevent the examination of Asian American elderly as a separate group; thus, in the current study, Asian Americans are included in the White subgroup. Wherever there are significant differences between the three groups, they will be noted as well as indicated in the accompanying tables.

Ethnic Composition of the Sample

As noted previously, the total sample consisted of 1,505 individuals drawn from the latest list of recipients of Citymeals-on-Wheels, as seen in Table 1. Based on their self-identification, 63% of the sample were White, 29% were Black, 11% were Hispanic, and 1% were of Asian background (data were not available on 64 persons). According to the New York City Department of Aging, 65% of elder New Yorkers are White, 18% are Black, 12% are Hispanic, and the remainder is of other races. In general, our sample is representative of the population of elders living in New York City; however, it should be noted that Blacks were slightly overrepresented in this sample (18% citywide and 29% in the sample).

With regard to language spoken at home with friends and family, often used as a measure of acculturation, 87% indicate they speak English, 9% Spanish, and 3% other.

Age—As seen in Table 1, the vast majority of recipients of Meals-on-Wheels are in the upper reaches of the age continuum. Looking at the group as a whole, slightly less than half are in their 80s (45%), another 30% are in their 70s, 12% are 90 or older, and only 12% are the young-old, in their 60s. Black and Hispanic recipients were significantly younger than their White peers and tend to be either in their 70s or 60s, with smaller proportions of Blacks and Hispanics found in their 80s or 90s than among White peers. The mean age of the older people receiving Meals-on-Wheels was 80, compared with a mean age of 74 among the citywide sample of older New Yorkers in Cantor and Brennan (1993a).

Living Arrangements—As seen in Table 1, the vast majority of recipients of Meals-on-Wheels live alone (73%). The high proportion of those who live alone is particularly striking when compared with the elderly population of the city as a whole. Of the approximately one-quarter of the current sample who live in a household containing another person, such a person is usually a child or other adult relative. Virtually no one indicated living with a friend or paid housekeeper. In the 1990 study, only 39% of older New Yorkers lived alone, compared with 73% in the current study (Cantor & Brennan, 1993a). Currently, according to the 2000 U.S. Census, 32% of elderly New Yorkers live alone; of these, 22% are men and 39% are women.

The unusually high proportion of people who live alone among recipients of Meals-on-Wheels in New York City is further underscored when compared with the proportion of those who live alone in a recent national pilot study of Older American Act program participants conducted for the Administration on Aging (2004). Both congregate and home-delivered nutrition services were examined in this pilot study on the effectiveness of the Older American Act programs. Among the home-delivered nutrition services participants surveyed, 59% lived alone, compared with 73% in the case of recipients in the current study of older New Yorkers receiving Meals-on-Wheels.

Although persons living alone are not necessarily isolated, the absence of anyone else in the household can be a contributing factor to the sense of being alone.

Marital Status—Given the high proportion of those living alone, it is not surprising that almost two-thirds are currently widowed, with the White recipients, the older of the three groups, being more likely to be widowed than their Black and Hispanic peers (65% Whites, 59% Black, and 51% Hispanics, respectively). As seen in Table 1, the proportion of Meals-on-Wheels recipients currently widowed is higher than found in the elderly population as a whole in New York City (58%), suggesting that the absence of someone else in the household coupled with advanced age presents challenges in ensuring proper nutrition for this high risk population. Furthermore, many of the respondents have lived alone for a considerable length of time; the average number of years living alone is 12 for the group as a whole.

Gender—As is typical in older populations, longevity is greater among women and they outnumber men. But the gender difference is particularly striking in the case of recipients of home-delivered meals, as seen in Table 1; almost three-quarters (73%) are women, compared with 60% women among New Yorkers 65 and older in general (Cantor & Brennan, 1993a).

Education—Also seen in Table 1, the education level of older New Yorkers has been rising in the last 30 years, and this is reflected in the educational level of recipients of Meals-on-Wheels. Although there are wide differences in the amount of education among the respondents, the vast majority are relatively well educated for an elderly population. Three-fourths were high school graduates or attended college (36% were high school graduates and 33% had attended college, and 15% had an elementary school education or less). However, there were significant differences in educational level among the three groups, with White and Black respondents more likely to have completed high school or attended college than their Hispanic peers. The educational level of the recipients mirrors closely that of older New Yorkers in general. In the 1990 study, the mean number of years of schooling was 11, compared with 12 in the current sample (Cantor & Brennan, 1993a).

Religious Background—The recipients come from a wide range of religious backgrounds, with 40% indicating they were Catholic, 28% Jewish, 24% Protestant, and the remainder from a variety of religions including Muslim and nondenominational (see Table 1). Religion is very important to 59% of the sample and somewhat important to 28% of the sample, while a small minority indicated that religion was not too important or not important at all in their lives. However, attendance at church or synagogue was less frequent among this group of elderly than among New York elderly in general, undoubtedly a reflection of their reduced mobility. Only a small proportion attended services weekly, while most attend several times a year or monthly.

Financial Status—An essential component of quality of life of older adults is their economic well-being. Although Meals-on-Wheels was not conceptualized as an economic benefit, for older people with limited incomes and mobility constraints, receiving a nutritious meal can make a difference in health as well as disposable income for other needs.

As noted, the recipients are diverse in many ways, including income (see Table 2). To obtain a picture of the economic situation of the recipients, four income-related questions were asked. Three pertain to the ability to purchase the things they need (In the last four weeks, were there times when you couldn't choose the right foods and meals for your health because you couldn't afford them? In the last four weeks, did you ever cut the size of your meals or skip meals because there wasn't enough money for food? In the last four weeks, have you ever been hungry but did not eat because you couldn't afford enough food?) The final question, widely used in studies involving older people, asked the recipients to evaluate how well they can manage on their incomes (Which of the following best describes the position you (and your spouse) find yourself: I (we) really can't make ends meet; I (we) just about manage to get by; I (we) have enough money with a little extra, or money is not a problem). With respect to obtaining the food they needed—including the right foods, the quantity of food, and the financial ability to purchase food to assuage hunger—the vast majority of the recipients state that lack of money was not a barrier to obtaining food. Eighty percent could afford to buy the right foods for their health needs, while virtually everyone (90%) could buy enough food or didn't suffer from hunger for lack of money (96%). However, as shown in Table 1, Hispanic elderly were more likely to report difficulties because of lack of money than their Black or White peers. Although a small proportion indicated that they had to forgo food because of financial pressures, a substantial proportion were having difficulty making ends meet or just managing to get by on their incomes. For the group as a whole, 51% expressed problems managing on their incomes, while, among Hispanic and Black recipients, the proportion unable to make ends meet or just managing to get by rose to 70% and 62%, respectively. Thus, economic pressures are real for many of the Meals-on-Wheels recipients, with only 15% indicating that money is not a problem and 33% indicating that they have enough to get along and even a little extra. It should be noted that the questions relating to making choices between food and money might have been more acute had the questions been about medicine versus food choices. Thus, although not a poverty program per se, the data suggest that receiving a nutritious meal each day and/or weekend packages helps many recipients on tight or inadequate income budgets to manage.

It is important to note that Meals-on-Wheels serves older people of a broad economic spectrum. Thus, among older New Yorkers in general, 79% perceive their incomes as inadequate (i.e., cannot make ends meet or just manage to get by), compared with 52% perceiving their incomes as similarly inadequate in the case of the recipients of Meals-on-Wheels. Clearly, income plays a part, particularly with respect to elders of color, but it is health and mobility issues that appear to be the overwhelming basis for the homebound recipients of the programs.

Health and Frailty—What stands out starkly in the population studied is the extent and nature of health and mobility problems. Meals-on-Wheels is aimed at serving a homebound population who cannot easily get to a senior center for meals and have difficulty with shopping and cooking due to limitations of physical and/or mental health and mobility. The home-delivered meals are crucial in ensuring that such elderly have a nutritious meal essential for healthy aging and for the prevention of chronic disease and related disability. Home-delivered meals help to mitigate the limited ability of frail elderly to get around

outside or within their houses due to the nature of their health status and their dependency on walkers or canes to mitigate difficulties in movement and self-care. What does homebound mean in the context of Meals-on-Wheels recipients, and to what extent do the recipients require assistance from others to live independently in their own home?

To ascertain a picture of the health status of the study respondents, a series of questions was asked pertaining to health and well-being. A frequently asked question pertaining to a person's perception of overall health involves comparisons of his or her health with others of the same age (i.e., "Compared with persons your age, how would you rate your physical health at the present time? Would you say that it is excellent, good, fair, or poor?"). This question provides an insight into the subjective well-being of an individual. Research has shown that individual self-perception is moderately correlated with a physician's assessment of health and is predictive of mortality (Berkman & Gurland, 1993). As seen in Table 3, among the study sample, the largest group reported their physical health as fair (41%) or good (32%). A small minority (8%) said excellent, while 19% described their current health as poor. The White elderly (the oldest of the three groups) were more likely to appraise their health as fair or poor (62%). Among Black and Hispanic recipients, the proportion indicating fair or poor health status was similar (57% among Blacks and 55% among Hispanic). It is likely that the higher proportion of persons rating their health as fair or poor in the case of the White elderly is correlated with the greater number of old-old among that group of respondents. In most research involving the elderly, it is the minority elderly who suffer from poorer health, but, in the current sample, the minority elderly are significantly younger and perceive their health as better (mean age of Black and Hispanic respondents was 78 and 77, respectively, compared with a mean age of 82 among White respondents).

An older person's perception of current health status is a valuable indicator of how the person feels about his or her health. But the level of functional ability to perform the tasks of every day life as measured by specific behavioral-oriented questions provides a more precise picture of what they can and cannot do and the extent of assistance they require to continue to function in their homes. Chronic disorders and the extent of functional disabilities have a relationship to a person's quality of life and their need for services, especially maintenance services such as home-delivered meals, special transportation, and home care, including home health aides and visiting nurse service. Functional ability in performing such instrumental tasks as shopping, cooking, and cleaning and personal care tasks including bathing, toileting, and ability to move around tell us a great deal about the health status of an older person, particularly when taken together with their appraisal of their health in relation to others of their age. To measure the functional ability of the participants, home-delivered meal recipients were asked questions adapted from standardized measures of functional ability covering both activities of daily living and self-care items, as well as difficulties in mobility, vision, hearing, and eating. In each case, respondents were asked to indicate whether they had difficulties most of the time, some of the time, only occasionally, or not at all. The items can be grouped according to those pertaining to ordinary activities of daily living and items involving instrumental issues of self-care. Items pertaining to ordinary activities of daily living included problems or difficulties shopping; handling money matters; doing light chores such as washing dishes, cleaning the stovetop and kitchen counter, and taking out the garbage; and problems or difficulty doing heavy chores such as

sweeping or vacuuming floors and rugs, changing the sheets, and cleaning the toilet, bath, and basin. Questions pertaining to self-care and mobility included difficulty using the bath or shower by oneself, difficulty walking, and the use of devices to help the person walk or get around. Finally, specific questions were asked about vision (“Do you have difficulty with your vision such as seeing at night or reading?”), hearing (“Do you have difficulty hearing?”), and eating (“Do you have problems with your teeth or mouth that make it difficult for you to eat?”). The extent and scope of the questions pertaining to ability to function, taken both individually and as a group, suggest the extent of limitations and frailty of the recipients of home-delivered meals. Table 3 indicates the responses for each item for the group as a whole and for the White, Black, and Hispanic respondents separately. Certain tasks are well within the capability of most of the respondents. For example, three-quarters of the respondents indicate that they have no difficulty handling money for themselves, with the other quarter equally divided between having difficulty most of the time (10%), some of the time (8%), and only occasionally (10%). Similarly, doing light chores does not present any difficulty or only occasional difficulty for two-thirds of those receiving home-delivered meals (35% no difficulty at all, 10% only occasionally). But one-third expressed difficulty some or most of the time in performing light chores (23% most of the time and 13% some of the time). Thus, although most of the respondents are able to perform light chores around the house, there is a small but not insignificant group for whom washing dishes and taking out the garbage presents problems. There is no difference in level of competence regarding light chores among the three ethnic subgroups.

Tasks such as shopping, heavy chores, bathing/showering, and walking are far more difficult for this group of elderly, and we begin to see the limitations of the homebound elderly. While 47% have no difficulty shopping, approximately two-thirds report having some difficulty with shopping—28% indicating difficulty most of the time and 25% have difficulty shopping occasionally. As the amount of physical strength required by the task increases, the proportion of recipients having difficulty also increases. Thus, 50% have difficulty most of the time doing heavy household chores, and 13% report difficulty some of the time; the proportion having no difficulty is 28%, with another 10% having difficulty occasionally.

It is in walking that the clear level of difficulty emerges. Over half have difficulty most of the time, 9% some of the time, 11% occasional difficulty walking, and 18% report no problem with walking. There are no significant differences in level of difficulty walking among White, Black, or Hispanic elderly. Given the problems in walking, over two-thirds use a cane, 37% use a walker, and a small percent uses other devices such as wheelchair (16%), mobility scooter (4%), and other devices (4%). Interestingly, the one item pertaining to self-care—“problem using a bath/shower without anyone helping”—is reported as less problematic; approximately two-thirds have no or only occasional difficulty. However, 20% have difficulty bathing/showering by themselves most of the time, and another 10% have difficulty some of the time without assistance.

The above responses with respect to activities of daily living suggest that there is a group who can care for themselves without assistance and a small group of Meals-on-Wheels recipients who struggle with difficulties in caring for themselves most of the time. However,

as a group, the recipients of Meals-on-Wheels, though clearly showing signs of frailty, appear to fall somewhere between the homebound requiring some personal assistance and those who are relatively independent (although they may suffer from chronic illness such as arthritis and high blood pressure).

Homebound and Isolation—A basic tenet of the Meals-on-Wheels program is that the target population is homebound individuals for whom the likelihood of social isolation is increased by their inability to leave the home except with difficulty or assistance. A sense of social isolation involves physical, social, and psychological aspects, and there are varying definitions of such an inclusive concept as homebound. In the current study, we have examined a measure of physical and psychological ability, the nature of the individuals' social networks, and their relationship to isolation. The extent to which older people leave their homes and the barriers to getting out are important criteria regarding the extent to which they are homebound. Respondents were asked how often they leave their home for any reason and, when they go out, which mode of transportation they most often use. As shown in Table 4, 13% indicated that they never leave their apartment or house, and 28% leave once a week or less. Thus, approximately 40% of the participants rarely or never leave their dwelling unit. Another quarter leave from two to four times a week, and a small number of participants leave five or more times a week. Recipients who leave several times a week or daily may be more mobile or have a family member or friend who can help them go out of their homes. Interestingly, Hispanic elderly, who are younger than their Black or White peers, are the most likely to never or rarely leave their homes. This may reflect to some degree poor health but may also involve cultural mores.

As was found in *Growing Older in New York City in the 1990s*, most older people tend to stay in their neighborhoods, usually within a 10-block radius of their homes (Cantor & Brennan, 1993b). Thus, it is not surprising that, when they leave home, the recipients indicate that they most often walk, with "Access a Ride" being the next most important mode of transportation.

Health prevents about 90% of recipients from getting out. Auxiliary barriers such as stairs, waiting for the arrival of Meals-on-Wheels, and neighborhood safety are cited by a relatively small minority (20% stairs, 18% waiting for Meals-on-Wheels, and 17% neighborhood safety, respectively). The reasons for not leaving home are uniform across all three groups of respondents, suggesting that the major barrier to reducing the level of home-boundedness are health related, including physical and psychological.

Vision, Hearing, and Difficulty With Teeth—As people age, issues regarding vision, hearing, and teeth come to play a major role in the perception of well-being and independence. It is estimated that millions of older adults have vision problems ranging from cataracts to macular degeneration and other debilitating disease of the eye. Respondents were, therefore, asked about any difficulty with vision, such as seeing at night or reading. As noted in Table 5, about one-third indicated they had vision problems most of the time, and 16% had problems seeing some of the time. Thus, half of the respondents suffer from difficulty with their vision, including reading and seeing at night. With respect to vision, unlike most of the other health items where ethnicity was not a factor, there is

significantly more vision difficulty expressed by Black and Hispanic elderly recipients than their White peers (41% of minority elderly had difficulty with vision most of the time, compared to 32% in the case of the White respondents). It is impossible to determine from the current study how much of the greater reported difficulty with vision among minority elderly is due to lack of access to vision care. But, clearly, vision care is an important area for consideration, because sight problems influence what an older person can do as well as his or her sense of well-being.

Although a sizeable group reports hearing difficulty, it is somewhat smaller than those who report vision difficulties. Thus, two-thirds indicate they have none (56%) or occasional trouble hearing (12%). However, 31% express having hearing difficulties, with 15% of the latter group having hearing problems most of the time and another 17% some of the time. Unlike the difference among the three groups of elderly with regard to vision, the White elderly express having the most difficulty with hearing. Because the White elderly are the oldest of the three groups, it is likely that their hearing deficiencies have worsened over time, and fewer of the White elderly are without hearing problems. Research has supported that dual sensory problems are frequent among the older population, and, in the current sample, this is also true.

Problems with teeth or the mouth that make it difficult to eat have particular relevance for programs serving meals. Here, the largest group, about three-quarters of all respondents have no problems involving teeth or eating (65% not at all and 10% only occasionally); 14% report difficulty most of the time; and 10% report having difficulty some of the time. Ethnicity is not a significant factor with respect to teeth or mouth problems.

We have looked at the level of functional ability by asking about specific items that give a picture of some of the difficulties experienced by older people in the community. To obtain some overall measure of functional ability, the individual items were combined into a single measure: an index of functional ability. As presented in Table 6, scores on the index of functional ability ranged from 6 to 24; higher scores indicate higher levels of frailty. The mean for the group as a whole is 13.6, with a standard deviation of 4.82. The distribution of scores suggests (as we have noted with respect to the individual items) that there are three subgroups in the Meals-on-Wheels population. The first group, about one-third of respondents, with lower-range scores (i.e., 6 to 11) have some functional difficulties probably mainly due to mobility limitations, but they can manage for themselves with respect to many aspects of independent living. The second group, somewhat larger, about 43%, has middle-range scores (i.e., 12 to 17). A final group (20%) is clearly frail, with scores ranging from 18 to 24. As we have seen with the individual items, the recipients of home-delivered meals fall on a continuum, with a sizeable group having some health-related mobility problems but able to function fairly independently. A slightly larger group has moderate difficulty with most of the chores of living, and a small group of elderly is clearly suffering from greater frailty and requires greater assistance.

Mobility limitations are pervasive, and the inability to get around without the help of devices such as canes or walkers contributes heavily to homeboundness. In later sections, we will relate the level of immobility and frailty to the important issue of isolation.

Mental and Emotional Health—An individual's emotional and psychological health can play a key role in social isolation. Depression or anxiety may prevent an individual from taking part in activities or meeting with others. For this study, emotional and psychological health was measured via four questions that asked how often respondents felt nervous, restless, or depressed or felt that everything that they did was an effort (see Table 7). In this sample of Meals-on-Wheels recipients, 29% reported that they do not feel nervous at all, 17% reported feeling nervous a little of the time, 28% reported feeling nervous some of the time, and 16% reported feeling nervous most or all of the time. Perceptions of the extent of nervousness differed by ethnic group; one-third of White respondents reported feeling nervous none of the time, compared to 43% of Black and Hispanic elderly. Additionally, one-quarter of Hispanic elderly reported feeling nervous most or all of the time, compared to 16% of White elderly and 13% of Black elderly.

In terms of restlessness, 42% of the sample indicated that they did not feel restless at all, 16% reported feeling restless a little of the time, 28% reported feeling restless some of the time, 8% reported feeling restless most of the time, and 7% reported feeling restless all of the time. In contrast to perceptions of nervousness, a higher percentage of Black and Hispanic respondents indicated that they felt restless none of the time (46% and 43%, respectively), compared to 40% of White respondents.

In terms of how often they reported feeling depressed, one-half of respondents reported feeling depressed at some time during the week. Fifteen percent reported feeling depressed a little of the time, 22% reported feeling depressed some of the time, and 12% reported feeling depressed most or all of the time. Within the groups, a larger percentage of White (41.5%) and Hispanic (61%) elderly reported feeling some depression, compared to Black elderly (39%). Finally, 75% reported that everything they did was an effort at some time in the week. Again, this may be due to other health problems, such as arthritis or mobility issues.

These four items were summed to create a mental health index (as seen in Table 7). The alpha for the scale was .77. Scores ranged from 4 to 20, with higher scores indicating more mental health problems. The mean for the entire sample was 9.23 ($SD = 3.91$), indicating a relatively low level of mental health problems. Within the groups, there were differences, with Black elderly reporting the lowest number of mental health problems ($M = 8.63$, $SD = 3.72$), followed by White ($M = 9.36$, $SD = 3.86$) and Hispanic elderly ($M = 9.87$, $SD = 3.91$).

Informal Social Supports

Basic to any discussion of social isolation among older people is whether they have a functional informal support network and the adequacy of the assistance they receive from their informal system. We examined the informal networks of Meals-on-Wheels recipients based on self-reports about the composition of such networks, the extent of interaction with members, and the assistance received from the informal support system. It is to this system that older people turn to first and most frequently for assistance (Cantor, 1975a, 1980; Horowitz & Dobrof, 1982). Family, friends, and neighbors play a substantial role in providing support to the elderly and the reciprocal network of the supportive informal exchange between generations (Brody, 1983; Cantor, 1975b; Horowitz & Dobrof, 1982; Rosow, 1967; Sussman, 1972). But the nature and role of the family is undergoing many

changes, and its capacity to provide the primary support for the elderly is being strained, particularly in light of the geographic dispersion of families and the increasing involvement of women in the labor force. Therefore, it seemed appropriate to examine the nature and viability of the informal networks of Meals-on-Wheels recipients and the extent to which informal network members are available to provide supplementary assistance on an ongoing basis as well as during periods of crisis.

The informal social support system is composed of six major parts: spouse, children, siblings, other relatives, friends, and neighbors. Each of these is examined in the following sections, and data are presented in Table 8.

Spouse—For older people with spouses, support generally comes first from them. But, as noted, the vast majority of Meals-on-Wheels recipients (87%) are widowed, divorced or separated, or never married, compared to 57% without a spouse in 1990 (Cantor & Brennan, 1993b). Thus, for this group of elderly, spouses are not a major part of the informal support system.

Children—The absence of a spouse makes children even more important. Most of the sample had living children (73%), and one-quarter are childless.

Having a child or one nearby is, of course, only a part of the picture. Perhaps more important is how often parents see or hear from a living child. Respondents were therefore asked how often they see or talk on the telephone with at least one of their children. Among those who had at least one living child, 64% indicated that they saw at least one child weekly (30% every day, 34% every week). Another 15% reported seeing at least one child every month. However, 19% indicated seeing a child only once or several times a year, underscoring the impact of geographic separation on the amount of face-to-face contact elderly parents have with children; 3% of those with living children never see a child.

Although not all children are able to visit parents every day or every week, ongoing contact can be maintained by telephone. Talking on the phone with children is more frequent among Meals-on-Wheels recipients than face-to-face contact. Thus, 87% of the respondents with children talk to at least one child once or more per week. Many of these may both see and talk to children weekly, but, as in previous studies, the telephone is an important source of contact, particularly in the case of home-bound elderly.

There were significant differences among the three ethnic groups with respect to both frequency of seeing children and phone contact with children. Black and Hispanic elderly were significantly more likely than White elderly to see or talk with at least one child weekly or monthly. Of the three subgroups of elderly, Hispanic elderly report seeing or talking on the phone to their children most often, followed next by the Black elderly, with the White elderly having somewhat less face-to-face or phone contact with at least one child. The findings regarding greater interaction between Hispanic and Black elderly and their children than among the White elderly mirror the patterns found among older New Yorkers in general (Cantor & Brennan, 1993b). Issues of culture as well as the extent of geographic

dispersion of children undoubtedly contribute to the differences of frequency of contact among the three subgroups of elderly surveyed.

Relatives in the City—Sometimes other relatives play an important role in reducing social isolation in the case of homebound elderly. Because of the greater similarity in age, relatives are less likely to provide instrumental hands-on assistance, but they can be crucial in providing emotional support and socialization. Half of the sample reported having a relative living in New York City that they see or talk to regularly (i.e., sibling, niece, nephew, cousin). Among those having such a relative, 74% of the respondents indicated seeing or talking to a relative daily or weekly, and virtually none indicated never being in contact with such a relative. There were no differences between the three ethnic groups with respect to how often they see other relatives.

Friends and Neighbors—Friends are also essential to the elderly as a source of companionship or someone to assist when needed. Most of the recipients indicated that they had seen or heard from a close friend regularly. Over two-thirds of the sample report that they have contact with at least one close friend at least on a daily or weekly basis (36% and 34%, respectively). There were differences between the three groups, with Black elderly reporting a higher frequency of contact with friends on a daily (43%) or weekly (32%) basis, compared to Hispanic (34% and 27%, respectively) and White (33% and 36%, respectively) elderly.

Additionally, 52% of the sample reported that they had a helpful neighbor that can help occasionally. With respect to neighbors, White and Black elderly reported more interaction, with 54% of White elderly and 53% of Black reporting that they knew a helpful neighbor, compared to 40% of Hispanic elderly. This may reflect that Hispanic elderly tend to have more contact with family and relatives and less contact with individuals in the community such as friends and neighbors. Thus, the primacy of the family in the Hispanic community is greater than in the case of their White and Black peers, who tend to have more different components (including friends and neighbors) in their social networks. While they do have some contact with individuals in the community, Hispanic elderly may be more socially isolated due to language or culture.

To summarize the findings regarding the nature of the informal support system of recipients of Meals-on-Wheels, there is a small but not insignificant group of recipients who have limited informal social support networks (having none or few children, relatives, friends, and neighbors). Thus, 27% were without living children, and 51% report having no close friends or neighbors who they could talk to or call on for assistance. However, most of the respondents have at least several of the six components of an informal support system. Clearly, children are the most important, and many Meals-on-Wheels recipients see or hear from at least one child several times a month, with many, particularly in the case of the Hispanic and Black elderly, in contact daily or weekly. The majority of the recipients also have relatives and friends they interact with, while somewhat fewer report intimacy with neighbors. The level of interaction with members of the informal social support system among the Meals-on-Wheels recipients is similar to older New Yorkers in general (Cantor & Brennan, 1993b). Most have contact with members of their informal social networks, but

some have weak or nonexistent informal networks. Further research is necessary to determine the full extent of recipients with weak informal support networks and who helps them in times of need.

Adequacy of Assistance Provided by the Informal Support System—

To ascertain the respondents' perceptions of the value of their informal networks in providing assistance when needed, they were asked evaluative questions tapping into both instrumental and emotional support: "In an average day, about how many people do you see other than the person who delivers your Meals-on-Wheels?" "If you need someone to talk to, do you usually have someone you can count on: Would you say most of the time, some of the time, only occasionally, or not at all?" "When you need extra help with shopping, house cleaning, cooking, or getting a ride, do you usually have someone you could count on to help you: Would you say most of the time, some of the time, only occasionally, or not at all?" Results are presented in Table 8.

Number of People Seen—In the average day, the vast majority of participants see between 1 and 3 people. However, the number of people seen daily is a continuum ranging from 0 to 50, with a mean of 3.86 individuals and a standard deviation of 7.63.

Adequacy of Emotional Support—In terms of having emotional support, such as someone to talk to or discuss personal matters with, 71% indicated that they had someone to whom they could turn for such support most of the time. Another 13% had someone some of the time, and 16% felt they were without someone to provide emotional support (9% occasionally and 7% not at all).

Among the Hispanic elderly, 22% report that they do not have someone to count on at all (14%) or only occasionally (8%), compared to 17% of White elderly and 14% of Black elderly. The higher level of unmet emotional needs among the Hispanic elderly is surprising given their higher level of interaction with their children. It is likely that cultural expectations are involved in some of these differential findings.

Adequacy of Instrumental Support—The availability of instrumental help if needed was also considerable according to the respondents but was less positive than with respect to emotional support. Sixty percent indicated that they had someone they could turn to for extra help with the instrumental tasks of daily living most of the time. However, 26% had someone they could turn to only some of the time or occasionally, and 8% had no one to turn to if they needed extra help. Thus, among the recipients of Meals-on-Wheels, there is a sizeable group of elderly—slightly over one-third of the 1,505 recipients—who need additional help with shopping, house cleaning, cooking, and getting a ride. Clearly, Meals-on-Wheels meets some of the basic food needs of this group, but other services may be needed to ensure an adequate quality of independent living for some of those receiving Meals-on-Wheels. This is not surprising considering the limitation of mobility, vision, and hearing indicated by many of the respondents in the study.

LEVEL OF INTERACTION AND EXTENT OF FUNCTIONALITY OF INFORMAL SUPPORT SYSTEM OF MEALS-ON-WHEELS RECIPIENTS

Factors in Social Interaction and Isolation

Social isolation is a serious problem as one ages, particularly when compounded by issues of diminished mobility and the potential loss of a spouse, relatives, and friends. Although the delivery of Meals-on-Wheels was not conceptualized primarily as a means of reducing isolation, the delivery of a meal has always been seen as one method of ensuring at least some daily contact with homebound elderly. In the previous sections, we have examined the nature of the informal social networks of recipients of Meals-on-Wheels to ascertain the extent of their informal supports and the viability of assistance received from family, friends, and neighbors. In ascertaining the ability of a child, relative, friend, or neighbor to potentially provide assistance at times of need, Cantor (1979, 1980) has separated the geographic location and the degree of contact and stressed the concept of functionality of support elements. The definition of a functional child, relative, friend, and so forth is one who is in at least monthly face-to-face contact or in touch by telephone on a weekly basis with the older person.

To obtain an overall picture of the functionality and social interaction among the study population as a whole, we reviewed the questionnaire, noting items that could shed light on the issue of functionality and social isolation. The items, individually and collectively, seemed to fit conceptually dimensions of isolation and interaction that are basic to the functionality of the informal support system (we recognize that some individuals may interact with other people and still feel socially isolated, while others may rarely or never see other people and still not consider themselves isolated). In Table 9, the questions and the distribution of answers are grouped into three categories according to their level of functionality and extent of social isolation. The definition of a functional element is one in which the respondent is seen weekly or daily (column 1), a moderately functional group involving contact with the respondent at least monthly (column 2), and nonfunctional elements in which interaction between respondent and element occurs rarely or never (column 3). Functional elements are associated with moderate or not isolated but never with socially isolated elderly.

As seen in Table 9, the extent and frequency of interaction with elements and the informal support system vary among recipients of Meals-on-Wheels. The largest group, well over half, have some aspects of a functional support system, although daily assistance may not necessarily always be available. Most have a living child (73%), and many of these see or talk with at least one child on a daily or weekly basis. About half have other relatives in New York City, and most of these talk with a relative at least monthly or more frequently. The vast majority have a friend that they talk to regularly, and half have one or more helpful neighbors or have someone available to talk to or provide extra help with tasks of daily living if needed. Such connected people see anywhere from one to three persons each day, other than the Meals-on-Wheels driver (see columns 1 and 2).

About one-quarter of the respondents have a weak social support system and tend to be more socially isolated (see column 3). Twenty-seven percent of Meals-on-Wheels recipients have no children, and nearly half of those with children see them rarely or never. The more socially isolated individuals (column 3) are likely to have no relatives in New York, never or rarely talk with a friend (19% of the sample), and 48% have no helpful neighbors. Among this group of more isolated individuals with weak functional support networks, 16% to 25% indicate having someone to talk to only occasionally or not at all or to provide extra help with tasks of daily living if needed. Such people tend to see no one or only one person other than the Meals-on-Wheels driver each day. Thus, for such persons, weak functional support systems and greater isolation go hand in hand.

Contact with family, friends, and neighbors is only one aspect of social isolation, and more research on social isolation is warranted. But an interesting conclusion drawn from the data is the wide variety among elderly regarding their social isolation and the fact that most recipients of Meals-on-Wheels have some contact with others—although the amount may be tenuous and, in some cases, may involve only the meal deliverer. It is vital that inquiries regarding the availability of informal social support and the degree of isolation be important parts of any assessment of need, whether for Meals-on-Wheels or general preparedness against any kind of emergency or disaster.

Utilization of Formal Services

The expressed preference of most older people for assistance, if needed, from the informal system of kin, friends, and neighbors does not vitiate the importance of formal community services. In a citywide survey of older New Yorkers (Cantor & Brennan, 1993b), about one-fourth had no living children, and one-fifth reported they were without any alternative informal network. For the current study, 27% were without a living child, and 51% had no alternative kin, friends, or neighbors. For such older people, community agencies are essential.

There are many services older people require that are beyond the capacity of informal caregivers, often requiring specialized skills and knowledge. Increasingly, formal community agencies have been called upon to complement or supplement the assistance provided by kin, friends, and neighbors for many elderly in need. With this in mind, the current study, like previous studies of New York's elderly in 1970 and 1990 (Cantor & Brennan, 1993b; Cantor, 1975a) presented respondents with a list of special services and agencies offering assistance of importance to older people and asked them to indicate whether they had used any of them in the past six months. The questions were worded to exclude mere contact with a health or social service agency, stressing the positive concept of using the service in time of need. The list included a broad spectrum of health and welfare services similar to those used in past studies in New York City, including special transportation; attendance at senior centers or another place with a meal program for older people; use of a visiting nurse or home health attendant; homemaker service to provide help with cooking or cleaning; hiring someone to cook or clean; friendly visitor services; talking with a social case worker, minister, priest, or rabbi for reassurance of advice; and going to a hospital emergency room for help (see Table 10).

Home health services are in place to assist elders to stay in their homes instead of requiring institutionalization once they become frail. About one-third of the recipients of Meals-on-Wheels received visiting nurse service (36%) or homemaker services (30%) during the previous six months. Although there were no differences in the use of visiting nurse services by the different ethnic groups, there were differences in the use of homemaker services. White elderly were least likely to have used homemaker services (27%), compared to 38% of Black elderly and 30% of Hispanic elderly. Personal help (paid for privately by the elder) was used by one-quarter of the sample, with White elderly most likely to employ such help (30%), compared to 15% among minority elderly.

Senior centers also can be beneficial to older people as they provide needed socialization and services in addition to meals. However, given the limited mobility of the study population, it is not surprising that only 15% of Meals-on-Wheels recipients attended senior centers, and there were no significant differences in the level of attendance among the three ethnic subgroups.

In view of the limited mobility of many Meals-on-Wheels recipients, there was more use of special transportation, with over one-third (36%) receiving special transportation (e.g. Access a Ride). Here ethnic differences emerged, with special transportation used the most by Black elderly (41%), followed by Hispanic (37%), and White elderly (34%).

Counseling services can help the elderly to overcome social isolation and connect with needed services. These services include speaking with a social worker or clergy and the use of telephone reassurance. About two-thirds of respondents have spoken with a social worker (62%); Black elderly spoke with a social worker the most (69%), compared to 60% of White elderly and 57% of Hispanic elderly. A differential pattern was also true for those who have turned to a member of the clergy for assistance. One-quarter of the sample have spoken with a member of the clergy during the previous six months. Forty percent of Black elderly, 25% of Hispanic elderly, and 19% of White elderly reported speaking with a member of the clergy for assistance. The greater use of clergy among Black recipients reflects the importance of the church in the Black community. A small percentage of the sample used telephone reassurance (13%), again with Black elderly receiving the most (18%), followed by White elderly (13%) and Hispanic elderly (8%).

Going to the emergency room was also examined. About one-third of participants went to the emergency room, but there were no significant differences between the ethnic groups in their utilization of these services.

Benefits and Entitlements—In addition to assistance from health and social service organizations, older people are entitled to benefits provided by the federal, state, or local government. Some of these benefits are for all, such as Medicare and reduced fares on public transportation; others have economic or need requirements. Respondents were therefore asked whether they received any of the following benefits during the last six months: Social Security, supplementary security income (SSI), food stamps, a reduced fare card, rent exemption, EPIC (for prescription drugs), Medicare, Medicaid, and the Medicaid drug card. Questions pertaining too many of these entitlements were included in previous

studies of New York City elderly so that comparisons can be drawn between entitlement use by recipients of Meals-on-Wheels and older New Yorkers in general.

As seen in Table 11, most respondents in the study received some type of benefits. As is true for all New York City elderly, the vast majority of the sample received Social Security (93%). However, there were differences between the three ethnic subgroups. Ninety-six percent of White elderly received Social Security, compared to 91% of Black elderly and 84% of Hispanic elderly.

Similarly, most recipients of home-delivered meals received Medicare (87%). However, there were significant differences within three ethnic subgroups in terms of who received Medicare; the majority of White elderly respondents (90%) received Medicare, followed by Hispanic elderly (86%) and Black elderly (81%).

Only 19% of the overall sample of respondents received Medicaid, reflective of income levels within the sample, and specifically within the three ethnic subgroups. More than half of Hispanic respondents received Medicaid (51%), and a quarter of Black respondents and 11% of White respondents received Medicaid. This pattern was similar to that seen with the use of the Medicare drug card; although one-quarter of the total sample received the Medicare drug card, there were significant differences between the ethnic groups, with Hispanics receiving it the most (40%), followed by Black (29%) and White respondents (23%).

The same pattern that was seen with the use of Medicaid was also seen in SSI and food stamps. While 14% of the overall sample received SSI, one-third of Hispanic elderly received SSI compared to 16% of Black elderly and 9% of White elderly. Eleven percent of the sample received food stamps. Of these, 29% were Hispanic, 11% were Black, and 7% were White. These differences are reflective of the wide range of income levels among the recipients of home-delivered meals.

The reduced fare card allows seniors to access public transportation at half the price of the normal fare. In this study, just over one-quarter of respondents utilized this service, probably reflecting their inability to use public transportation. There were slight differences in the use of the program, with higher percentages among the minority elderly than among White elderly, who are the oldest of the three groups.

The Senior Citizen Rent Increase Exemption (SCRIE) is a program designed to work with landlords to prevent rent increases for the elderly. Less than one-fifth of the sample utilizes SCRIE. However, over one-third of Hispanic elderly receives SCRIE, compared to less than one-fifth in White and Black elderly.

EPIC is a program to help with the expenses of purchasing prescription drugs. About one-quarter of Meals-on-Wheels recipients in our survey receive EPIC benefits. There are similar rates of EPIC use among White and Black elderly (27% in White elderly and 25% in Black elderly), compared to 18% of Hispanic elderly.

In summary, although recipients of home-delivered meals are covered by other specialized benefits for the elderly, the coverage was spotty, and ethnicity played a bigger role, reflecting income and attending disparities among the three groups of elderly.

As expected, Social Security was the most widely utilized entitlement (93%) followed by Medicare (87%), with Hispanic and Black recipients somewhat less likely to be covered by these universal programs. With respect to Medicaid (where income eligibility requirements are involved), enrollment was considerably lower: 19% among the sample as a whole, with Hispanic elderly being the most likely to be enrolled (51% Hispanic, 23% Black, and 11% White).

Reflecting the wide diversity of income among Meals-on-Wheels recipients, enrollment in SSI, food stamps, and rent exemptions was lower, ranging from 13% to 19% of the sample, with Hispanic elderly followed by Black elderly and a small percentage of White elderly covered by the latter programs. Further research is necessary to determine how much of the enrollment differential is due to income disparities and/or attitudinal differences among the recipients of home-delivered meals. (A similar disparity in the use of entitlements was found in *Growing Older in New York in the 1990s*, with many of the entitlement programs being underutilized when level of income and attitude about accepting help were factored into the utilization equation.)

Characteristics Related to Length of Program Enrollment and Levels of Physical and Mental Health in Meals-on-Wheels Recipients

Previous sections have described the physical and mental health, informal support systems, and use of formal services among recipients of Meals-on-Wheels. In these descriptive discussions, we have paid particular attention to the similarities and differences among older recipients of varying ethnic backgrounds and the impact of race/ethnicity on the health and lifestyles of White, Black, and Hispanic elderly. However, to obtain a more comprehensive overview of the cluster of characteristics of the group as a whole associated with varying levels of disability and their impact on levels of home-boundedness and social isolation, we turn now to multivariate analysis. Such an approach allows us to simultaneously analyze a variety of variables, determine the importance of specific variables in affecting level of disability, and need for home-delivered meals. This approach provides insight into the most important variables related to varying levels of disability. Furthermore, through cluster analyses, we will attempt to determine whether there are several groupings of recipients with different characteristics and potentially differing program needs.

Length of Enrollment in Meals-on-Wheels Program—Before turning to the characteristics most pertinent to differing levels of physical and emotional health, we examine the extent of participation in Meals-on-Wheels over time to determine, if possible, the relationship between length of time in the program and personal characteristics of the program users.

In gerontological research, the most frequent model to describe program utilization is the Andersen Model of Health Utilization (originally utilized in the health field to determine factors relating to medical usage). In this model, a series of predictor variables are organized

into three groups: (1) predisposing factors that the individual brings to service utilization (these are basically demographic in nature); (2) enabling factors that help the individual use the services (these are factors that support the utilization of services); and (3) the need factors that propel a person to turn for assistance.

Predisposing factors include age, gender, living arrangements (alone or with others), education (highest grade completed), importance of religion in life, and ethnicity (two dummy codes for Black and Hispanic). Enabling factors include strength of informal social network, adequacy of emotional and instrumental support from family and friends, receipt of home-based services, and the number of persons seen each day besides the deliverer of Meals-on-Wheels. Need factors include level of functional disability, number of mobility problems, level of mental health, extent of vision problems, perceptions of adequacy of income, receipt of need-based entitlements, number of additional meals other than Meals-on-Wheels eaten each day, and frequency of leaving the home. The criterion variable utilized in the regression involving use of service was number of years receiving Meals-on-Wheels. Because the criterion variable was continuous, multiple regression analysis was preferred, using a combination of hierarchical simultaneous entry of predictor variables. The separate effect of each factor within predisposing, enabling, and need factors was examined through three separate regressions, followed by a combined model with all three factors (i.e., predisposing, enabling, and need) included. Results of the regression on years of enrollment in Citymeals-on-Wheels indicated that age and number of services received were the only significant predisposing predictors on how long a respondent had been receiving Meals-on-Wheels (see Table 12). No other predisposing, enabling, or need predictors were significantly related to length of program enrollment. It is not surprising that age should be related to length of time on the program, but it is surprising that none of the other enabling or need factors predicted length of enrollment. These findings suggest that, once a person is on the program, his or her continuance is not influenced so much by change in frailty, disability, or financial status but rather by the difficulty of removing a person from the program and/or low lack of consistent evaluation of the status of the recipients. The amount of variance explained by the regression of the predictor variable on length of enrollment in Meals-on-Wheels program is very small ($r^2 = 0.034$), pointing to the need for further exploration of the retention on the program given possible changes in other aspects of a respondent status over time.

Characteristics of Individual Predictors of Functional Ability—We turn next to the characteristics of individuals that are predictive of level of functional disability among recipients of Meals-on-Wheels. Clearly, level of ability to perform the tasks of daily living are related to an individual's ability to remain independently in the community and to an older person's quality of life. Eligibility to receive Meals-on-Wheels is related to both functional ability and level of emotional health. In making assessments of needs, certain characteristics may be highly predictive of vulnerability and need. An attempt to highlight potential characteristics through the use of multiple regressions can highlight the relative importance of certain variables in making such assessments. In the sections below, we utilize the same regression model based on the Andersen Model described above with regard to length of enrollment in the program. Again, we will utilize a series of predisposing,

enabling, and need predictive factors on two dependent criteria: the level of functional ability and the level of mental health.

Level of Disability and Level of Mental Health—With respect to the level of disability and level of mental health, multiple regression explains much more of the variance than was the case with respect to enrollment in the program (disability $r^2 = 0.348$ and mental health $r^2 = 0.234$). And a much wider group of individual factors (or characteristics) was predictive of higher levels of disability (see Table 13). Looking at the complete model as shown in Table 13, we find that predisposing factors predict increased frailty (higher score on measure of disability) to a modest degree ($r^2 = 0.030$), with gender and level of education being significantly related to higher levels of disability. As noted earlier, White participants had higher scores on the measure of disability, reflecting in part their greater age. However, age as an independent predictor drops out when the other variables are entered simultaneously. The absence of age as a significant predictor of disability illustrates the great variability of disability in the elderly population, with recent recipients of knee or hip replacement probably resulting in greater functional limitations, although they may be younger than the old with overall frailty but not specific functional disability.

With respect to enabling factors, again a modest amount of disability score is affected by such factors, with the exception of the receipt of in-home services, which is significantly predictive of higher levels of disability. But the need factors have the greatest predictive importance. Need factors explain 24% of the variance in level of disability. Individuals with more mobility impairments, more mental health problems, more vision problems, and more difficulty managing on their current income are more likely to have higher levels of disability. In addition, not receiving income-based entitlements and leaving the house less often are also related to having a higher level of disability. Thus, although family supports, availability of someone to talk with, and help with tasks of daily living contribute to quality of life, they are clearly overshadowed as predictors of level of disability by concrete need factors involving actual number and type of impairment, adequacy of income, and mobility issues. Of all the need factors, as discussed previously, mobility and the possibility of getting around, leaving the house, and caring for one's personal and instrumental requirements are clear-cut major criteria in the need for Meals-on-Wheels among elderly of all ages and ethnic backgrounds. Finally, because women outlive men, although they may suffer from chronic disabilities such as arthritis and heart trouble, it is not surprising that being a woman was more likely to be associated with having a disability.

Characteristics of Individual Predictors of Emotional Health—Finally, a similar model was utilized to ascertain the predictors of level of mental health (i.e., predisposing, enabling, and need factors regressed against scores on measures of mental health). As stated previously, multiple regression explains much more of the variance (mental health $r^2 = 0.234$), and a much wider group of individual factors (or characteristics) proved to be predictive of higher levels of mental health (see Table 14). Looking at the complete model as shown in Table 14, we find that predisposing factors increased the number of mental health symptoms to a slight degree ($r^2 = 0.015$), with individuals who were not Black and individuals with lower levels of education having a higher level of mental health symptoms.

With respect to enabling factors, again a modest amount of disability score is affected by such factors ($r^2 = 0.063$); specifically, lower perceived levels of emotional and instrumental help predict higher levels of mental health symptoms. However, as found with level of disability, need factors predicted the largest percentage of variance (15.6%). Individuals with a greater level of disability, more mobility impairments, more problems with vision, and higher income pressures are more likely to have more mental health symptoms.

Differences in Extent of Vulnerability—To create groupings of individuals based on common characteristics, a cluster analysis was conducted. This allows us to create three groups of individuals based on a common pattern of characteristics. Individuals were grouped by their level of functional disability, level of mental health, number of mobility problems, level of education, receipt of home-based services, level of vision problems, financial adequacy, how often they leave the house, receiving help with preparing meals, and receiving help with shopping. The three groups are similar on certain characteristics, such as number of mobility problems, education, receipt of in-home care, income adequacy, and help with shopping. It is not surprising that the groups are similar with respect to the number of mobility problems that they experience, as this may be the principal factor as to why they are receiving Meals-on-Wheels. However, as found in the cluster analysis, the three groups differ with respect to their levels of disability, mental health, vision problems, how often they leave the house, financial adequacy, and receipt of help with preparing meals. It is possible to speculate that individuals in one of the groups have relatively lower levels of disability and mental health but do have some type of vision problem and mobility problem; as such, they are able to leave their house more often and do not require help preparing meals. However, individuals may have moderate levels of disability, mental health, and vision problems and therefore need more help with tasks of daily living, such as with meal preparation and with shopping. The final group of Meals-on-Wheels recipients is a group of individuals who have a relatively high level of disability, mental health symptoms, vision problems, and who suffer from greater financial inadequacy, all of which may require the individuals to need more help with tasks of daily living, such as shopping and meal preparation.

In conclusion, our analysis of the factors associated with length of time in the program and level of physical and mental health underscore the importance of need as the overriding characteristic of persons receiving Meals-on-Wheels. Such other factors as age, gender, and ethnicity also play a part. But it is the need of the recipients for assistance with getting around, performing the tasks of daily living, and, to a lesser extent, the absence of help in the house that provide the tipping point between persons able to go out for meals (to senior centers and other community groups) and those who are more homebound and less able to independently care for their needs without some additional help. For such persons, Meals-on-Wheels can ensure that they receive one nutritious meal a day and help them preserve other limited health, vision, and mobility efforts for other aspects of independent living. Although many have functional informal support systems, such systems do not necessarily translate into constant daily assistance and the kind of support necessary to ensure adequate quality of independent living without the assistance of community-based programs such as Meals-on-Wheels. The evidence suggests that the vast majority of those receiving Meals-on-

Wheels have deficits of health, mobility, often low income, and some degree of isolation including living alone, which warrants the assistance they may receive. Like all programs, some fine tuning involving more frequent reassessment and differential food programs may be in order. But the overall match between personal need and receipt of assistance from Meals-on-Wheels is clearly evident.

Acknowledgments

This study was conducted jointly by Citymeals-on-Wheels of New York and the Cornell Institute for Translational Research on Aging, an Edward R. Roybal center funded by the National Institute on Aging (1 P30 AG022845, Karl Pillemer, PI). The authors conducted the study in collaboration with Jaclyn Daichman, the Cornell Survey Research Institute, and Marcia Stein, Andrea Kopel, and Mark Sweeney of Citymeals-on-Wheels. We are grateful to meal recipients for providing the information collected in this study and our advisory group for suggestions. Funding for the study was provided by Citymeals-on-Wheels, Community Trust, Cornell Bronfenbrenner Life Course Center, Cornell Institute for Translational Research on Aging, and Cornell-Weill Medical College.

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TABLE 1

Meals-on-Wheels Recipients' Sociodemographic Characteristics

	White %	Black %	Hispanic %	Total %
Age categories ***				
Younger than 60	0.4	0.0	2.2	0.5
Age 60 to 69	6.2	18.0	21.1	11.1
Age 70 to 79	26.2	40.3	41.6	31.8
Age 80 to 89	52.4	33.9	29.2	44.7
Age 90 and older	14.8	7.8	5.9	11.9
Marital status ***				
Married or coupled	13.8	9.7	14.1	12.8
Divorced or separated	7.9	18.6	26.1	13.0
Widowed	65.0	58.7	50.5	61.5
Never married	13.4	13.0	9.2	12.8
Years living alone ***				
Never lived alone	25.0	33.9	38.0	28.9
1 to 9 years	28.3	22.1	28.3	26.7
10 to 19 years	17.8	17.9	16.3	17.7
20 to 29 years	14.0	10.9	9.8	12.7
30 to 39 years	9.0	5.9	4.3	7.6
40 years or more	5.8	9.2	3.3	6.4
Gender				
Male	26.6	31.4	23.2	27.4
Female	73.4	68.6	76.8	72.6
Education ***				
Never attended school	0.2	0.0	0.5	0.2
Elementary school	7.2	18.4	47.5	15.2
Some high school	15.2	19.7	14.2	16.3
High school graduate	39.7	33.2	23.0	35.9
Some college or technical school	20.7	18.9	9.3	18.8
College graduate	17.1	9.8	5.5	13.7
Frequency attend services ***				
More than once a week	3.6	8.1	7.0	5.2
Once a week	16.8	25.6	23.8	19.9
Several times a month	3.7	6.8	5.4	4.7
Once a month	3.2	9.1	7.6	5.3
Several times a year	18.3	14.2	14.6	16.7
Once a year	5.5	3.5	3.8	4.8
Less than once a year	5.1	3.5	4.3	4.6
Never	43.9	29.1	33.5	38.7
Importance of religion ***				

	White %	Black %	Hispanic %	Total %
Very important	50.6	75.9	68.1	59.4
Somewhat important	33.6	17.7	20.5	27.8
Not too/not important at all	15.8	6.3	11.4	12.8

 $p < .001$.

TABLE 2

Meals-on-Wheels Recipients' Financial Status

	White %	Black %	Hispanic %	Total %
Cannot afford the right foods ***				
Yes	14.5	24.1	24.9	18.3
No	85.5	75.9	75.1	81.7
Cannot afford enough food ***				
Yes	6.8	11.9	32.4	11.3
No	93.2	88.1	67.6	88.7
Hungry because cannot afford food ***		5.3	9.2	4.0
Yes	2.4	94.7	90.8	96.0
No	97.6			
Income adequacy ***				
Can't make ends meet/Just manage to get by	44.2	61.5	70.3	52.0
Have enough with a little extra	39.2	24.1	18.9	32.8
Money is not a problem	16.5	14.4	10.8	15.3

 $p < .001$.

TABLE 3

Meals-on-Wheels Recipients' Physical Health and Frailty

	White %	Black %	Hispanic %	Total %
Physical health compared to others***				
Excellent	6.1	7.6	17.3	7.8
Good	32.1	35.2	27.6	32.4
Fair	43.4	38.5	35.1	41.1
Poor	18.5	18.7	20.0	18.7
Problem handling money				
Most of the time	10.4	8.6	14.6	10.4
Some of the time	8.1	9.4	8.1	8.4
Only occasionally	10.8	7.8	9.7	9.9
Not at all	70.7	74.2	67.6	71.2
Problem doing shopping**				
Most of the time	30.6	24.1	21.1	27.7
Some of the time	11.8	12.2	15.7	12.4
Only occasionally	14.1	10.1	14.1	13.0
Not at all	43.6	53.7	49.2	46.9
Problem using bath/shower alone***				
Most of the time	23.0	13.4	15.7	19.6
Some of the time	9.8	9.6	9.7	9.8
Only occasionally	8.9	7.6	6.5	8.2
Not at all	58.3	69.4	68.1	62.4
Problem doing light chores				
Most of the time	21.9	23.8	23.8	22.7
Some of the time	12.4	14.2	10.3	12.6
Only occasionally	10.8	9.1	6.5	9.8
Not at all	54.8	52.9	59.5	54.9
Problem doing heavy chores				
Most of the time	51.2	47.1	47.0	49.6
Some of the time	14.1	10.9	10.8	12.8
Only occasionally	9.1	11.9	9.7	9.9
Not at all	25.6	30.1	32.4	27.6
Difficulty walking				
Most of the time	53.4	51.9	54.1	53.1
Some of the time	18.8	18.2	17.8	18.5
Only occasionally	10.5	10.6	10.8	10.6
Not at all	17.3	19.2	17.3	17.8

* $p < .05$.

** $p < .01$.

*** $p < .001$.

TABLE 4**Meals-on-Wheels Recipients' Level of Mobility and Use of Devices**

	White %	Black %	Hispanic %	Total %
How often leave the house [*]				
Never	14.9	10.9	7.0	12.9
One time per week or less	27.7	26.6	32.4	28.0
Two to three times per week	27.1	31.9	32.4	29.0
Four times per week	5.1	7.6	3.8	5.6
Five or more times per week	25.2	23.0	24.3	24.5
Most used transportation method ^{***}				
Walk	32.7	23.1	33.9	30.3
Bus	9.8	21.5	19.9	14.4
Access-A-Ride	16.1	22.2	16.4	17.7
Taxi	10.8	13.8	8.8	11.3
Do not go out	1.1	0.0	0.6	0.7
Other	29.5	19.4	20.5	25.5
Trouble getting out [*]				
No, able to get out as often as like	29.0	30.4	40.0	30.7
Yes	71.0	69.6	60.0	69.3
Health prevents getting out				
No	12.7	12.5	7.2	12.1
Yes	87.3	87.5	92.8	87.9
Stairs in the apartment prevent getting out				
No	81.2	79.9	74.8	80.2
Yes	18.8	20.1	25.2	19.8
Waiting for Meals-on-Wheels prevents getting out				
No	82.0	84.6	80.2	82.5
Yes	18.0	15.4	19.8	17.5
Neighborhood safety prevents getting out				
No	89.8	85.7	83.8	88.1
Yes	10.2	14.3	16.2	11.9

*
 $p < .05$.

**
 $p < .01$.

 $p < .001$.

TABLE 5**Meals-on-Wheels Recipients' Vision, Hearing, and Teeth**

	White %	Black %	Hispanic %	Total %
Difficulty with vision *				
Most of the time	31.7	40.3	41.6	35.1
Some of the time	16.6	14.9	15.1	16.0
Only occasionally	11.7	10.9	7.6	11.0
Not at all	40.0	33.9	35.7	37.9
Difficulty with hearing ***				
Most of the time	16.9	11.1	9.7	14.5
Some of the time	16.3	15.9	18.9	16.5
Only occasionally	14.8	7.8	10.3	12.4
Not at all	52.0	65.1	61.1	56.5
Difficulty with teeth				
Most of the time	12.9	15.2	17.8	14.1
Some of the time	9.9	10.9	10.3	10.2
Only occasionally	9.7	9.9	11.9	10.0
Not at all	67.5	64.1	60.0	65.6

Mean and Standard Deviation for Continuous Variables

	White	Black	Hispanic	Total
Emotional health composite score ***				
Range	4–20	4–20	4–20	4–20
Mean	9.36	8.63	9.87	9.23
SD	3.86	3.72	4.37	3.91
Level of frailty *				
Range	6–24	6–24	6–24	6–24
Mean	13.86	13.13	13.31	13.60
SD	4.90	4.53	4.94	4.82

* $p < .05$.*** $p < .001$.

TABLE 6**Meals-on-Wheels Recipients' Mental Health**

	White %	Black %	Hispanic %	Total %
Uses a cane	64.5	70.9	65.4	66.3
Uses a walker**	42.2	34.2	31.9	38.8
Uses mobility scooter*	3.0	6.1	5.9	4.2
Uses a wheelchair	14.8	17.2	15.7	15.5
Uses other device to walk	4.4	2.3	2.2	3.6

*
 $p < .05$.

**
 $p < .01$.

TABLE 7

Meals-on-Wheels Recipients' Use of Assistive Devices

	White %	Black %	Hispanic %	Total %
Felt nervous***				
All of the time	8.4	4.6	13.0	8.0
Most of the time	8.0	7.8	12.4	8.5
Some of the time	29.4	30.9	17.3	28.3
A little of the time	18.3	14.4	13.5	16.7
None	35.9	42.3	43.8	28.5
Felt restless*				
All of the time	6.6	5.1	9.7	6.6
Most of the time	7.5	9.4	5.9	7.8
Some of the time	27.8	28.9	24.3	27.6
A little of the time	18.2	11.1	16.8	16.1
None	40.0	45.6	43.2	41.9
Felt depressed***				
All of the time	3.7	3.3	10.8	4.5
Most of the time	6.5	5.1	14.6	7.1
Some of the time	23.0	20.5	23.2	22.4
A little of the time	17.3	9.9	12.4	14.8
None	49.5	61.3	38.9	51.3
Felt that everything did was an effort***				
All of the time	14.5	8.4	14.1	12.8
Most of the time	13.4	10.1	18.9	13.2
Some of the time	33.7	34.9	24.9	33.0
A little of the time	15.5	14.4	18.9	15.6
None	22.9	32.2	23.2	25.4

*
 $p < .05$.

 $p < .001$.

TABLE 8

Meals-on-Wheels Recipients' Contact With Family, Relatives, Friends, and Neighbors

	White %	Black %	Hispanic %	Total %
How often see children ***				
Every day	16.1	25.8	34.1	20.9
Every week	24.3	23.5	25.4	24.3
Every month	13.3	11.4	7.0	12.0
Several times per year	10.2	6.3	8.6	9.0
Once a year or less	3.9	5.6	6.5	4.7
Never	32.2	27.3	18.4	29.2
How often talk to children ***				
Every day	39.2	40.5	56.2	41.7
Every week	21.6	22.0	14.6	20.9
Every month	4.1	6.8	6.5	5.1
Several times per year	1.7	2.0	3.2	2.0
Once a year or less	0.5	1.3	0.5	.7
Never	32.8	27.3	18.9	29.6
How often see relatives				
Every day	29.8	32.1	37.5	31.5
Every week	42.3	43.3	38.5	42.0
Every month	16.3	15.3	6.7	14.7
Several times per year	6.9	6.0	8.7	6.9
Once a year or less	2.6	2.3	2.9	2.6
Never	2.1	0.9	5.8	2.3
How often talk to friends ***				
Every day	32.6	43.3	33.5	35.5
Every week	35.8	31.9	27.0	33.7
Every month	10.4	13.4	11.9	11.4
Several times per year	4.6	3.5	3.2	4.2
Once a year or less	1.7	2.5	1.1	1.9
Never	14.8	5.3	23.2	13.4
Know helpful neighbors **				
Yes	54.3	53.2	40.0	52.2
No	45.7	46.8	60.0	47.8
Have someone to talk to ***				
Most of the time	68.6	75.7	68.1	70.4
Some of the time	14.9	10.9	10.3	13.3
Only occasionally	8.9	8.6	7.6	8.6
Not at all	7.6	4.8	14.1	7.6
Have someone to give extra help **		62.0		
Most of the time	59.8	15.4	58.9	60.3

	White %	Black %	Hispanic %	Total %
Some of the time	17.5	8.6	16.2	16.8
Only occasionally	9.7	13.9	9.7	9.4
Not at all	13.0		15.1	13.5

**
 $p < .01$.

 $p < .001$.

TABLE 9

Social Isolation and Degree of Functionality of the Informal Support System of Meals-on-Wheels Recipients

	Column 1 Functional/Not Isolated	Column 2 Moderately Functional/Isolated	Column 3 Minimally Functional/Isolated
Questions	Percent of Responses		
Do you have children?	Have children (72.6)		Have no children (27.4)
Frequency that you see your children	Weekly or daily (45.1)	At least monthly (12.0)	Never or rarely (42.9)
Frequency that you talk to your children	Weekly or daily (62.5)	At least monthly (5.1)	Never or rarely (32.4)
Do you have any other relatives in New York City?	Have relatives in New York City (49.3)		Have no relatives in New York City (50.7)
Frequency that you see or talk with relatives	Weekly or daily (82.1)	At least monthly (12.1)	Never or rarely (5.8)
Frequency that you see or talk with a friend	Weekly or daily (69.2)	At least monthly (11.4)	Never or rarely (19.4)
Do you have helpful neighbors?	Helpful neighbors (52.2)		No helpful neighbors (47.8)
Availability of someone to talk to if needed	Most of the time (70.4)	Some of the time (13.3)	Occasionally or not at all (16.3)
Availability of someone to provide extra help with tasks of daily living when you need it	Most of the time (60.3)	Some of the time (16.8)	Occasionally or not at all (22.9)
Number of people seen daily other than the driver	See three or more people (47.4)	See one or two other people (50.5)	No one (2.1)

TABLE 10**Meals-on-Wheels Recipients' Use of Formal Services**

	White %	Black %	Hispanic %	Total %
Used visiting nurse service	34.5	40.0	33.5	35.8
Used homemaker service ***	26.8	38.7	30.3	30.4
Hired personal help ***	29.6	16.2	14.6	24.3
Attended senior center	14.9	17.5	11.9	15.2
Used special transportation *	33.5	40.8	37.8	35.9
Spoke with social worker **	59.6	69.1	56.8	61.7
Spoke with clergy ***	19.1	39.5	25.4	25.2
Used telephone reassurance **	12.6	17.5	7.6	13.3
Went to hospital emergency room	30.5	31.6	28.1	30.5

*
 $p < .05$.

**
 $p < .01$.

 $p < .001$.

TABLE 11**Meals-on-Wheels Recipients' Use of Benefits and Entitlements**

	White %	Black %	Hispanic %	Total %
Received Medicare ***	89.6	81.3	85.9	87.0
Received Medicaid ***	11.2	23.3	51.4	19.3
Received Medicare drug card ***	22.8	28.6	39.5	26.4
Received Social Security ***	95.7	91.4	84.3	93.2
Received supplemental security income ***	8.5	15.9	34.1	13.6
Received food stamps ***	7.2	10.9	29.2	10.9
Received reduced fare card **	25.3	34.9	30.3	28.4
Received rent exemptions ***	15.2	17.0	35.1	18.1
Received EPIC*	27.4	24.8	18.4	25.6

*
 $p < .05$.

**
 $p < .01$.

 $p < .001$.

TABLE 12

Multiple Regression Analyses for Years of Enrollment in City Meals-on-Wheels Program

	Predisposing Model		Enabling Model		Need Model		Complete Model	
	R ²	β	R ²	β	R ²	β	R ²	β
Predisposing	0.014**						0.019*	
Age		.096***						.130***
Gender (female)		-.031						-.019
Live alone (yes)		.041						.045
Education		.013						.017
Importance of religion		.000						-.019
Black		.016						.022
Hispanic		-.024						-.042
Enabling			0.001				0.001	
Strength of informal support				.000				.011
Emotional availability				-.019				-.005
Instrumental availability				.009				.005
Receive home-based services				.018				.011
Number of people seen every day				-.023				-.018
Need					0.005		0.007	
Level of disability						-.004		.026
Level of mental health						-.045		-.048
Problem with vision						.011		.020
Financial adequacy						.005		-.025
Receive income-based entitlements						.035		.068
Number of non-Meals-on-Wheels meals						-.035		-.021
How often leave home						-.031		-.005
Total	0.014*		0.001		0.005		0.026a	

*
 $p < .05$.**
 $p < .01$.***
 $p < .001$.

TABLE 13
Multiple Regression Analyses for Level of Disability in City Meals-on-Wheels Program

	Predisposing Model		Enabling Model		Need Model		Complete Model	
	R ²	β	R ²	β	R ²	β	R ²	β
Predisposing	0.038***						0.030***	
Age		.004						-.007
Gender (female)		.166***						.058*
Live alone (yes)		-.046 a						-.034
Education		.066*						.089***
Importance of religion		-.014						.017
Black		-.046 a						-.052*
Hispanic		-.027						-.035
Enabling			0.080***				0.076***	
Strength of informal support				.032				.023
Emotional availability				-.104***				-.020
Instrumental availability				-.034				-.012
Receive home-based services				.224***				.147***
Number of people seen every day				-.125***				-.029
Need					0.316***		0.241***	
Level of mobility impairments						.252***		.234***
Level of mental health						.248***		.221***
Problem with vision						.130***		.124***
Financial adequacy						-.075***		-.097***
Receive income-based entitlements						-.063***		-.044 a
Number of noon-Meals-on-Wheels meals						.041 a		.018
How often leave home						-.231***		-.205***
Total	0.038***		0.080***		0.316***		0.348***	

* $p < .05$.

$p < .01$

 $p < .001$

TABLE 14
Multiple Regression Analyses for Level of Mental Health in Citymeals-on-Wheels Program

	Predisposing Model		Enabling Model		Need Model		Complete Model	
	R ²	β	R ²	β	R ²	β	R ²	β
Predisposing	0.019***						0.015**	
Age		-.048 a						-.013
Gender (female)		.072**						-.012
Live alone (yes)		-.014						-.015
Education		-.057*						-.052 a
Importance of religion		.001						.028
Black		-.101***						-.097***
Hispanic		.008						-.035
Enabling			0.061***				0.063***	
Strength of informal support				.034				.017
Emotional availability				-.180***				-.117***
Instrumental availability				-.102***				-.080***
Receive home-based services				.077*				.005
Number of people seen every day				-.059*				-.014
Need					0.190***		0.156***	
Level of functional ability						.293***		.259***
Level of mobility impairments						.123***		.114***
Problem with vision						.078***		.088***
Financial adequacy						-.134***		.149***
Receive income-based entitlements						.034		.034
Number of non-Meals-on-Wheels meals						-.024		-.025
How often leave home						.007		-.014
Total	0.019***		0.061***		0.190***		0.234**	

* $p < .05$.

.100' > p

.10' > p
**

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