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Adequacy of and Satisfaction with Delivery and Use of Home-Delivered Meals

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Abstract

For home-delivered meals to have a beneficial impact on older persons, it is important that both delivery of services and use by older persons are adequate. From November 2004 to February 2005, we conducted a random-sample telephone survey of 1505 New York City home-delivered meals recipients, asking them about adequacy of and satisfaction with delivery of services and use of meal services. Fourteen percent of recipients relied solely on program food. Two-thirds prepared other foods themselves. Consumption of fruit, vegetables, and milk was low; 14–20% of recipients consumed each of these less than 1 time per day. Most recipients saw (and about half talked with) the meal deliverer most of the time. Most could contact the meal provider agency, but had not done so. A second stratified sample of 500 meal recipients was surveyed in June 2006 regarding satisfaction with food packaging and labels, food acquisition, meal delivery, and meal variety. About three-fourths of recipients reported satisfaction most of the time with the meals in terms of taste, variety, ease of preparation, healthfulness, and fit to religious or cultural needs. The most satisfied recipients were those who were receiving hot meals, food-secure, without hearing problems, frailer, in better emotional health, with informal social support, and more religious.

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Keywords

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

Introduction

The Elderly Nutrition Program (ENP) provides home-delivered and congregate meals along with other nutrition- and health-related services to about 7% of the overall older population, including an estimated 20% of the nation's poor elders (1). Ambulatory and homebound ENP participants are better nourished and achieve higher levels of socialization than non-participants (1). Because most older persons tend to stay in their neighborhoods, usually within a 10-block radius of their homes (2), the home-delivered meals program is aimed especially at serving a homebound population who cannot easily get to a senior center for meals and have difficulty shopping or cooking due to limitations on mobility resulting from physical and=or mental health problems. Home-delivered meals are seen as crucial in ensuring that older persons have a nutritious meal, and as essential for healthy aging and for the prevention of chronic disease and future increased disability. Home-delivered meal programs help to mitigate the limited ability of frail older persons to get around outside or within their homes due to the nature of their health status and dependency on walkers or canes. Home-delivered meal programs can increase food security, decrease problems caused by shopping or lack of transportation, and decrease food rationing (3).

The nutritional risk factors of living alone, reduced functionality, morbidity, and medication use predict nutritional risk especially for calcium, magnesium, zinc, and folate in home-delivered meal recipients (4). Among home-delivered meal recipients, social (i.e., eating alone) and economic (i.e., lacking enough money for food) risk for poor nutrition are also associated with disability, as defined by the Instrumental Activities of Daily Living (IADL) scales (5). Specific nutritional risk factors are directly and indirectly associated with indicators of nutritional risk and increased severity of disability (6) and with meal frequency and unintended weight change (7). Meal programs can improve or maintain nutritional risk for vulnerable older persons (8). One study showed that the addition of a breakfast service to a home-delivered meal program can improve energy intake, food security, and depressive symptoms in homebound elderly (9).

For home-delivered meals to have a beneficial impact on older persons, it is important that there is (1) understanding of the need for the program services, (2) targeting to those who have potential to benefit, (3) adequate delivery of services, (4) seeking and use of services by older persons, and (5) generation of benefit with use of the services. Achieving all of these elements in practice is challenging. For example, turnover rates for home-delivered meal programs are often high, with as many as 27% recipients choosing not to continue without specifying a reason (3). Also, there are potential food safety hazards such as bacterial growth on non-refrigerated food, which can be more easily prevented with increased knowledge of recipients' food safety behaviors. The more that is known about the ways that older persons use home-delivered meal programs and the determinants of their satisfaction, the better these programs can serve them.

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This article reports on the results of a random-sample survey of New York City home-delivered meals recipients that aimed to provide understanding about the adequacy of and satisfaction with delivery and use of home-delivered meals services, points 3 and 4 above. Specifically, we aimed to answer how participants acquired food, what types of meals they received and how they used them, what contact they had with the deliverer and agency, and how satisfied they were with the delivery and meals. We also aimed to study the determinants of meal satisfaction. We conceptualized that satisfaction is determined by demographic characteristics, food insecurity, health and frailty, informal support, and formal support. We expected that recipients living alone, with greater financial need, with health and frailty problems, and without social support would be more satisfied with the meals.

Methods

In New York City, the week-day home-delivered meals are funded by the Older Americans Act through sub-contracts 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 non-profit organization receiving, in the main, contributions from private citizens in the community.

Data Collection

A random telephone survey, stratified by New York City borough, of 1505 Citymeals-on-Wheels recipients was conducted from November 2004 to February 2005. Although this article reports only the results relating to recipients' use of and satisfaction with home-delivered meals, survey questions addressed all of the following: the 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 driver, interaction with agency providing food, and religion and cultural compatibility. A second stratified random telephone survey of 500 recipients was conducted in June 2006, with half of the sample drawn from the original sample and half from an updated census of participants in fall 2005. The purpose of the second survey was to gain more understanding about satisfaction with food packaging and labels, food acquisition, meal delivery, and meal variety. Recipients were asked a series of close-ended, standard-response questions as well as given an opportunity to share any further comments.

To evaluate use of delivered meals, recipients were asked about the type of meals they receive, if they eat their meals as soon as they receive them, and, if not, how they store and reheat their meals as well as what they do with leftovers. Some recipients received 5 hot meals delivered once per weekday, while others received 5 frozen meals delivered twice per week. Recipients also received meals for the weekends, the holidays, and in case of emergencies. Because many local meal centers are closed for holiday observances, Holiday Food Boxes are delivered on the last weekday before the holiday. These food boxes include staple foods, such as canned tuna, chicken, and shelf-stable milk, and treats, including cookies, crackers, and juices. Emergency Food Packages are delivered once each year in November in case of weather-related emergencies, which may prevent delivery. Recipients

were asked if they were able to open the boxes, if they found box foods useful, if they eat the boxed foods, and, if not, then why.

Recipients were also asked about their contact with the agency that oversees meal preparations and deliveries and the deliverers. They were asked how often they have contact, the kind of contact they have, and if the deliverers or agencies are responsive. Recipients were also asked to evaluate the meals based on taste, variety, ease of preparation, and whether the food was appropriate for their health, religious, and cultural needs. Each item had a response set of “most of the time,” “some of the time,” “only occasionally,” and “not at all.” Finally, recipients were asked whether they preferred to choose their own meals and about their overall satisfaction with the program. A satisfaction composite score was created by combining items on satisfaction with taste, variety, ease of preparation, healthiness, and appropriateness for religious and cultural needs. The items were summed, and the resulting composite variable was re-scored to range from 0 (meaning not at all satisfied) to 100 (meaning satisfied most of the time on all questions), with mean 84.7, standard deviation 20.2, and Cronbach alpha reliability 0.79.

Recipients were asked if they were married, divorced/separated, widowed, or never married, and if they lived with others. Education was assessed by the highest grade completed.

Food insecurity was assessed by an affirmative response to 1 or more of 3 items referring to the last 4 weeks: “Were there times when you couldn't choose the right foods and meals for your health because you couldn't afford them?” “Did you ever cut the size of your meals or skip meals because there wasn't enough money for food?” “Were you ever hungry, but didn't eat, because you couldn't afford enough food?”

Emotional mental health was assessed by asking how each recipient had been feeling during the past 30 days, with the response set being “all of the time,” “most of the time,” “some of the time,” “a little of the time,” or “none of the time.” They were asked about feeling nervous, feeling restless or fidgety, feeling so depressed that nothing could cheer you up, and feeling that everything was an effort. A summed scale was created that ranged from 0 to 16, with mean 5.2, standard deviation 3.9, and Cronbach alpha reliability 0.77.

Some items for frailty that had the same response set as for emotional mental health were having problems or difficulty: “handling your money matters by yourself,” “doing your shopping,” “using the bath or shower by yourself,” “doing light chores such as washing dishes,” “cleaning the stove top and kitchen counter, and taking out the garbage,” “doing heavy chores such as sweeping or vacuuming floors and rugs, cleaning the kitchen floor, changing the sheets (bed linen) and cleaning the toilet, bath and basin,” and walking. Additional frailty items were: “Does health prevent you from getting out as much as you want to?”; “How often do you leave your apartment or house for any reason?” (times per week); and “Compared with persons your age, how would you rate your physical health at the present time?” (excellent, good, fair, poor). Three items used the response set “most of the time,” “some of the time,” “only occasionally,” and “not at all”: “Do you have difficulty with your vision such as seeing at night or reading?” “Do you have problems with your teeth or mouth that make it difficult for you to eat?” “Do you have difficulty hearing?” A summed

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scale was created from the first 11 items that ranged from 9 to 41, with mean 26.8, standard deviation 6.9, and Cronbach alpha reliability 0.76. Having problems with hearing was used as a distinct variable.

Recipients were asked if they usually talk with children every day or week, see relatives every day or week, have someone to talk to most of time, and have someone to give help most of the time. They were asked about importance of religion ("very important," "somewhat important," "not too important," "not important at all"), and frequency attending services ("more than once a week," "once a week," "several times a month," "once a month," "several times a year," "once a year," "less than once a year," and "never").

Recipients were initially contacted by a letter from Citymeals-on-Wheels. The survey was conducted by telephone, using the Survey Research Institute (SRI) at Cornell University. Surveys were conducted using computer-assisted interviewing in English or Spanish. SRI had successfully completed a pilot study of 20 recipients and did not encounter any difficulty in reaching recipients or completing interviews. SRI used a system of tracking and call-backs to ensure that a strong effort was made to reach each recipient selected for the random sample to minimize selection bias. Recipients were informed of the purpose of the study and were asked to give consent to participate. Recipients participating in the survey were offered an opportunity to talk with a staff member at Citymeals-on-Wheels about any concerns they had. The cooperation rate (i.e., completed interviews divided by completed plus refused interviews) for the survey was excellent (89.7%) and was similar in each of the 5 boroughs.

Statistical Analysis

After completion of data collection, data were provided as a documented SPSS file. Descriptive statistical procedures were used to tabulate proportions and means of the variables. Contingency table methods were used to examine associations of variables, in particular to examine bivariate associations with race/ethnicity. In the rare instances of missing data, the expectation-maximum algorithm in SPSS was used to impute the missing values (10).

Regression analyses were performed to determine the factors predicting the composite score of satisfaction with meals. The predictors were demographic characteristics (i.e., ethnicity, gender, age, marital status, living alone, and education), food insecurity, health and frailty (i.e., frailty scale, mental health score, vision problems, and hearing problems), informal support (i.e., frequency of talking with children, seeing relatives, seeing friends, having someone to talk to, having someone to give extra help, importance of religion, and service attendance), and formal support (i.e., SSI, Food Stamps, and Medicaid). We considered on both theoretical and empirical grounds which variables provided distinct information for inclusion in the regression model. SPSS Complex Samples procedures were used to account for disproportionate sampling across the 5 New York City boroughs.

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Results

Most recipients were older than 60 years, the majority was widowed (61.5%), and only 29% had never lived alone (Table 1). The majority of recipients were female (73%) and graduates of high school (68%).

Food Acquisition

Recipients were asked about their grocery shopping habits to understand the role of food acquisition in their lives. Although 44.1% said that they go grocery shopping on their own, 49.2% indicated that someone else buys their groceries for them. Most commonly the person buying the groceries for them is a relative (40.8%) or home attendant (39.9%); 6.7% have their groceries delivered, all from a local grocery store. Of the 44.1% who do their own grocery shopping, the majority walks to the store (67.6%) and carry their own groceries from the store to the house (65.6%). Recipients who did their own grocery shopping were then asked about specific shopping habits; many recipients (43.9%) buy less than 5 items at a time, while 31.1% buy 6–10 items and another 12.8% buy 11–15 items during one grocery store visit.

Enrollment and Meal Types

Although 36.8% of recipients were enrolled in the program for less than 1 year, 24.1% were enrolled for 1 to 2 years, 21.4% for 2 to 3 years, and 17.7% for 3 or more years. Duration of enrollment did not differ by ethnicity. Many enrolled recipients received a mixture of meal types, including hot, frozen, and chilled. Most (90.6%) recipients received hot meals. Hispanics (67.4%) were less likely than Whites (92.4%) or Blacks (90.3%) to receive hot meals ($p < 0.001$) and more likely to receive frozen meals, at 67.4% compared to 51.7% for Whites and 54.1% for Blacks.

Delivery of Meals

Most (88.2%) of the recipients saw the meal deliverer most of the time, and almost half (47.2%) chatted with the deliverer most of the time. Hispanics (84.1%) were slightly less likely to see the deliverer most of the time than were Whites (88.2%) or Blacks (89.85) ($p < 0.054$). Of those who did not chat with the deliverer, 59.8% said it was because the deliverer is in a hurry. Recipients who were unable to come to the door when meals arrive had their caretaker take the meals. Almost all recipients (96%) were satisfied with the friendliness and service of the deliverer most of the time.

Regarding interaction with the agency, 87.5% of recipients knew how to contact the meal provider agency, but 64.6% had never called them with their concerns. Only 1.6% called the agency at least once a week. Whites (39.5%) were slightly more likely to contact the agency than Blacks (27.2%) or Hispanics (31.8%) ($p < 0.01$). Most (85%) of those who did call the agency said the agency listened to their concerns and was responsive most of the time.

Eating Behavior

Table 2 summarizes recipients' overall eating behavior and distinguishes between recipients and non-recipients of hot meals. A majority (60.6%) of recipients reported eating their meals

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every day in the same sitting. A small minority (1.8%) of recipients reported giving away their meals every day, but a more sizeable group (13.9%) gave away their meals sometimes, one time or less per week. Many recipients also stored their food for later consumption: 19.3% keep the food on the counter every day, while about a third (33.7%) put the food in the refrigerator every day.

Recipients not receiving hot meals received frozen meals on weekdays, and hence were less likely to put food on the counter and more likely to put it in the refrigerator than those who received hot meals. The use of the microwave to reheat meals was higher for recipients of non-hot meals than for recipients of hot meals ($p < 0.007$). Frequency of giving away meals and eating all of the meal in the same sitting were similar for recipients of hot and non-hot meals.

When food was left over, 16.0% of recipients ate it later the same day, 7.8% ate it later the same week, and 10.5% threw it away. The other respondents had no leftovers, ate the food more than one week later, had someone else eat it, or did something else with the food. To reheat the food, half (50.9%) of the recipients used microwaves and about a quarter (25.9%) of them used the stove. Toaster ovens were used by 9.9% of recipients. The remaining respondents specified other ways of reheating their meals; a small percentage (3.5%) did not reheat their food, and 0.2% left food out to bring it to room temperature.

Use of Boxed Food

Almost all (97.5%) recipients reported receiving boxes, and 82.5% were able to open them. Recipients who were unable to open the boxes received help from family members, neighbors, meal deliverers, and others. About half (46.2%) of the recipients ate the boxed foods all of the time, and another third (33.8%) ate them most of the time. Although no recipients reported that the boxed foods were always useful, more than 95% reported them as useful at least some of the time. Most often, when boxed foods were not eaten, it was because a recipient did not like the food provided (38.7%) or canned food in general (16.0%). For 20.6% of respondents, the boxed food was unnecessary because they already had enough food, so they did not eat it.

Most recipients (87.1%) reported satisfaction with meal packaging and labeling most of the time. Of the 30.4% of recipients who said they would like to see improvements in the food packaging, 32.2% suggested tighter-fitting lids, 28.7% suggested microwave-safe material, and 24.3% suggested making packages easier to open. Other suggestions included color-coding and/or Braille for the visually impaired (7.8%), oven-safe material (4.3%), and toaster oven-safe material (2.6%). Sixty percent said that food labels were present on the food containers they received. Of these respondents, 86.1% were satisfied with the labeling most of the time. Of the 25.4% who wanted improvements in the labeling, 66.7% requested larger font, 27.0% requested nutritional information, and 6.3% requested Braille or tactile labels.

Satisfaction

About three-quarters (77.1%) of recipients reported overall satisfaction with the home-delivered meals program in terms of taste, variety, ease of preparation, healthiness, and

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appropriateness for religious and cultural needs (Table 3). About two-thirds (67.0%) of recipients were satisfied with meal variety most of the time, with only 2.7% reporting that they were not at all satisfied with the variety. Regression analyses found that the most satisfied recipients (as measured by the composite satisfaction score) were receiving hot meals, food-secure, without hearing problems, frailer, in better emotional mental health, with informal social support, and more religious (Table 4). The strongest predictor of satisfaction was receiving hot meals, followed by food security. While almost half (47.1%) of the recipients reported that most of the time it was important for them to choose the food they eat every day, 65.4% of the recipients reported that the home-delivered meals program did not allow them to choose their own foods. There were no ethnic differences in the reporting of importance of choosing foods. When asked if they would be interested in ethnic foods if they were offered, 16.4% were interested in Italian, 6.1% in Chinese, and less than 1% each in Japanese, Mexican, Puerto Rican, and West Indian. About half of the respondents reported no preference for special food for religious, cultural, or health needs. Of those who were interested, 21.3% wanted kosher foods, 15.2% wanted diabetic foods, 7.4% wanted vegetarian foods, 2.9% wanted specially prescribed therapeutic foods, 2.7% wanted soft foods, 2.5% wanted lactose-free foods, and 0.4% wanted foods for people with renal failure.

Recipients reported on various foods or meal types recommended by their physicians. Recommended foods or meal types included fruits and=or vegetables (72.4%), low sodium (64.2%), low fat (59.6%), low cholesterol (58.2%), low sugar (47.6%), lactose-free (19.2%), low potassium (18.7%), and soft or puree foods (11.0%).

Discussion

Home-delivered meal recipients are at risk of nutritional deficiency, especially if they eat alone (11). In a survey of home-delivered meal recipients in Massachusetts, actual energy, calcium, and fiber intake were insufficient even though the meals contained the recommended quantities of energy and individual nutrients (12). The Administration on Aging of the U.S. Department of Health and Human Services, which heads the home-delivered meals program, encourages deliverers to interact with the elders; our results show that deliverers usually do chat with the recipients, but this may be insufficient social contact to decrease nutritional risk.

A substantial minority of recipients practiced unsafe food handling behaviors, such as leaving food out on the counter, and a very small minority “heated up” leftovers by leaving them on the counter until they reached room temperature. These behaviors were especially common for those who received hot meals. Time in conjunction with temperature can be used as a hazard control measure to reduce food-borne illness caused by improper food-handling procedures (13), so safety hazards increase when food is delivered much earlier than recipients wish to eat it or if they do not handle leftovers safely. Roseman (14) suggested that many home-delivered meal and congregate meal recipients in Kentucky have risky food safety beliefs. Their unsafe practices varied by demographic characteristics, including age, gender, marriage status, ethnicity, and education level. The risky behaviors included storing food on the counter and eating food that should have been thrown away.

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Different risky behaviors were more common among different groups, with married couples having different risky behaviors than unmarried people, but men and older people practiced more risky behaviors than women and younger elders. Another study of home-delivered meal use found that more than one-third of clients did not eat their meal as soon as it was delivered and did not follow adequate warming and refrigeration procedures (15). These results are consistent with another study showing that recipients sometimes ate fewer than 3 meals a day, ate at unconventional locations and times, and shared food with neighbors (16).

In our study, most recipients were highly satisfied with the program overall, especially those that received hot meals. Ethnic differences were insignificant. Many of the recipients did, however, report special food needs for health, so the Meals-on-Wheels program could improve by providing more specialized meal types for diverse health needs. This study found that participants who were frailer had higher satisfaction with the program. It might be expected that persons with more mobility problems would appreciate the program more. Those who were more food secure, who were without hearing problems, and had more informal social supports were more satisfied with the program. These results may be surprising, since it seems those who were, in these aspects, less in need of the program were more satisfied with it. Furthermore, another home-delivered meal program study found that clients who participated longer, which may have reflected greater satisfaction, were older and less poor, needed less assistance preparing or cooking meals, used nutritional supplements, and were more likely to be on modified diets (3). Those who participated for a shorter time period were less able to cook or prepare food, use kitchen facilities, open containers for themselves, or had declining health. The results may reflect a threshold of frailty beyond which the home-delivered meal program cannot fit the needs of participants of declining health. The referenced recipient sample was, on the whole, more frail than the current study's sample. Another study of voluntary early withdrawers from a different home-delivered meal program found, less surprisingly, that early withdrawers, at baseline, were more mobile, ate less often, and responded that food tastes good less often (17). In this study it seems that recipients who withdrew may have had less need or desire for the program and less satisfaction with the food's quality or variety. Future studies might address how these factors of frailty, food security, informal social support, and specific health problems individually affect meal program satisfaction.

These findings have implications for policy. First, although it is not the intent of the program, a sizable proportion of the recipients relied solely on the program for their meals. This suggests that targeting the program to these recipients in particular is crucial. Second, quality of recipients' overall diet is low, so the program benefits the health and nutrition of recipients by providing fruit, vegetables, and milk as sources of essential nutrients. Third, educating recipients about safe food handling methods especially with hot meals will reduce risk of food-borne illness. Fourth, the Elderly Nutrition Program aims to both improve the diets and reduce social isolation of recipients. Although contact with the deliverer is brief, it is frequent and potentially important for those with limited other social contact. Fifth, recipients' high overall satisfaction with the delivered meals suggests that the program is providing important benefits for this population, since participating is essential to generating benefit and satisfaction is essential for ensuring continued participation when needed.

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Take Away Points

- Fourteen percent of home-delivered meals recipients in New York City relied solely on program food; two-thirds prepared the other foods themselves.
- Consumption of fruit, vegetables, and milk was low, with 14–20% of recipients consuming these less than 1 time per day.
- Most recipients saw (and about half chatted with) the meal deliverer most of the time. Most know how to contact the meal provider agency, but most had not made contact.
- Most recipients were satisfied with the meals most of the time; the most satisfied recipients were receiving hot meals, food-secure, without hearing problems, frailer, in better emotional mental health, with informal social support, and more religious.

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Table 1

Sociodemographic Characteristics of Recipients, Presented as the Percentage in the Population (i.e., Weighted from the Sample)

	White	Black	Hispanic	Total
Sample size	925	395	185	1505
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

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Table 2

Frequency of Recipients' Eating Behavior with Regard to Receipt of Hot Meals (n = 1218) or Not (n = 287)

	Eat meal in one sitting (%)			Put food in refrigerator (%)			Put food on counter (%)			Give meal away (%)		
	Total	Hot meals	No hot meals	Total	Hot meals	No hot meals	Total	Hot meals	No hot meals	Total	Hot meals	No hot meals
Every day	60.6	60.6	61.2	33.7	33.1	39.9	18.5	19.3	10.7	1.8	1.9	0.7
4–6 Times/week	14.3	14.6	12.1	6.3	6.4	4.9	5.2	5.3	4.1	0.6	0.6	0.3
2–3 Times/week	14.6	14.9	12.5	24.9	24.6	27.7	15.0	15.0	15.6	4.0	4.0	4.6
Once/week	3.3	3.3	3.5	13.5	14.2	7.3	12.6	13.0	8.2	13.9	13.6	16.8
Never	7.0	6.7	10.6	21.5	21.7	20.3	48.8	47.5	61.4	79.9	79.9	77.6

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Table 3

Satisfaction with Meals-on-Wheels Meals (n = 1505)

	Taste (%)	Variety (%)	Ease of preparation (%)	Healthiness (%)	Appropriate for religious and cultural needs	Overall satisfaction
Most of the time	69.1	67.0	82.5	72.3	83.5	77.1
Some of the time	21.3	23.3	11.3	17.8	8.3	16.4
Only occasionally	6.8	7.0	3.8	6.9	2.4	4.9
Not at all	2.7	2.7	2.4	3.0	5.9	1.7

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Table 4

Regression Analysis Predicting Composite Score for Overall Satisfaction (n = 1505)

Parameter	Estimate	Std error	p-value
(Intercept)	94.210	4.457	<0.001
Married	−2.214	1.696	0.192
Divorce/separated	0.299	1.340	0.824
Never married	−1.003	1.754	0.567
Widowed (reference)			
Hearing problem most times	1.313	1.343	0.328
Hearing problem sometimes	0.248	1.210	0.838
Hearing problem occasionally	3.243	1.268	0.011
No hearing problem (reference)			
Not received hot meal	−9.682	1.515	<0.001
Live with others	1.021	1.166	0.382
Food insecurity	−5.665	1.308	<0.001
Frailty (high means less frailty)	0.123	0.075	0.101
Emotional mental health (high means poorer health)	−0.111	0.142	0.433
Talk with children every day or week	1.278	1.018	0.210
See relatives every day or week	1.360	1.084	0.210
Have someone to talk to most of time	2.204	1.222	0.072
Have someone to give help most of time	2.691	1.054	0.011
Importance of religion (high means more important)	1.467	0.598	0.014
Frequency attending services	−0.240	0.206	0.245