

A Research Note on:

HYPOTHERMIA AND THE ELDERLY: ENVIRONMENTAL FACTORS

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ABSTRACT

The purpose of this paper is to assess knowledge and opinion of people over age 65 regarding the problem of accidental hypothermia and to survey the living conditions of the elderly to identify factors that might lead to accidental hypothermia. The sample consists of nearly 400 people in 18 northern Florida counties who receive congregate meals or home-delivered meals.

The majority of the respondents are white, widowed females who are longtime residents of northern Florida. Most live on less than \$5000 per year. They generally lack both knowledge of hypothermia and knowledge of the day and nighttime temperatures of their homes. Some respondents experience housing conditions and money-saving practices which put them in greater risk of developing accidental hypothermia. Specific recommendations are drawn.

PURPOSE

Despite low-income weatherization programs and supplemental appropriations to provide money for fuel, few attempts have been made to investigate the housing conditions of the elderly and to relate these conditions to the dangers of accidental hypothermia. The purposes of this paper are threefold: 1) to report public knowledge and opinion regarding the problem of accidental hypothermia among elderly residents of northern Florida, 2) to indicate current living conditions, and 3) to make recommendations regarding the prevention of accidental hypothermia.

INTRODUCTION

Accidental hypothermia is defined as an inadvertent drop in the body's temperature to below 95 F. Although the problem of accidental hypothermia has been recognized in England for more than 25 years (Dunlevy, 1979), only recently have researchers in the United States (Besdine, 1979; Rango, 1979) shown that individuals over age 75 have a five-times greater probability of dying from this

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condition than those under age 75.

Several physical factors account for the occurrence of hypothermia among the elderly. These include reduced levels of thermal control in the central nervous system due to various diseases (Collins, Exton-Smith, and Dore, 1981; Exton-Smith, 1973), diminished shivering response to the cold (Collins, 1981; Exton-Smith, 1973) and lower metabolic heat production (Wagner, Robinson, and Marino, 1974). Such conditions may develop at the very time when elderly persons can no longer move around to generate additional body heat, pay rising fuel costs, or make house repairs that would help keep them warm.

An additional problem in Florida concerns migrants from the north who believe that they are moving to a warmer climate. Actually, most elderly victims of accidental hypothermia become ill as a result of exposure to relatively mild temperatures (50 F to 65 F) that would not seriously affect younger individuals (U.S. Office of Consumer Affairs, 1984). Unfortunately, average winter temperatures in the mid-40s are common in the northern part of Florida. They often drop into the 20s there during severe cold snaps. The U.S. Commerce Department's National Oceanic and Atmospheric Administration Office in Tallahassee, Florida reports that there were 1785 heating-degree days (determined by daily degrees below 65 F) in Tallahassee in 1980. Newcomers, unaware of these dangers, may not take the necessary precautions to stay warm.

METHODS

The sample includes individuals 65-and-over who participated in home-delivered and congregate meal-site programs in northern Florida's 24 counties. These counties stretch from Jacksonville on the east coast to Pensacola in the western panhandle. Four counties had no meal programs and two counties were unable to participate at the time of the study. The remaining counties contain 43 congregate meal sites and 18 Meals-on-Wheels programs serving nearly 4000 people daily. A ten percent stratified sample, randomly drawn from lists of elderly individuals at each meal site location, yielded 400 names to be contacted.

The interview schedule included questions about: 1) income, race, education, type of meal program, sex and age; 2) health status; 3) knowledge of hypothermia; 4) opinions regarding the prevention of hypothermia; 5) environmental conditions; 6) perceived comfort levels; and 7) strategies used to keep warm. Two pilot studies were carried out to refine the interview schedule.

Ten home economics graduate students were trained to carry out the interviews which were conducted during the week of January 3, 1983. At the conclusion of each interview, the subject received a copy of a public service bulletin on the prevention of hypothermia.

Results

Useable responses were received from 375 persons. Thirty-eight percent of the responses were from those who received meals at home and 62 percent of the responses came from those who attended congregate meal sites. The subjects' ages ranged from 65 to 105 years with a mean of 76 years. Approximately 61 percent were white and 70 percent were female. The income level of the sample was low. Over half (51 percent) lived on less than \$5000 a year, primarily from Social Security payments. More than half (58 percent) were widowed and most were longtime residents of Florida rather than recent arrivals.

Seven out of ten respondents did not know the meaning of hypothermia. When those who said they did know were questioned further, only 45 (12 percent) were able to give a correct or partially correct definition of the term. Only 28 respondents (8 percent) could identify a cause or symptom. A very small number of people (8 percent) believed the elderly were at risk of developing hypothermia. Respondents with high incomes and those with higher educational levels were more likely to know the meaning of hypothermia than were the other respondents.

The most frequent sources of information, in descending order of importance, for those familiar with hypothermia were reading materials (books, newspapers and magazines), television and friends or relatives. No one mentioned learning about hypothermia from a utility company, a public interest group, a state or local government, or from the Cooperative Extension Service.

Housing and Comfort

More than two-thirds of the sample (69 percent) live in their own single-family detached homes. Nine percent reside in group situations, six percent live in mobile homes and six percent reside in two-to-four family dwellings. Five percent live in dwellings for more than four families and four percent of the respondents reside in single attached homes. While more than half (52 percent) live alone, one-third (34 percent) live with one other person.

Approximately 78 percent of these elderly, northern Floridians live in "homes" with four or more rooms requiring heating. Twenty-two percent of the sample live in three rooms or less. Non-portable room heaters are the most commonly used method of heating (40 percent) followed by electric heat (20 percent), hot air heat (19 percent), fireplaces or stoves (5 percent) and heat pumps (4 percent). Piped or bottled gas is the major source of fuel for 48 percent of the respondents. Twenty-seven percent of the respondents use electricity and 18 percent of the respondents use fuel oil or kerosene. The level of warmth is controlled by valves (44 percent), wall thermostats (34 percent) and heater thermostats (12 percent).

When subjects were asked the temperatures at which they keep their homes, 45 percent said they did not know. Tables 1 and 2 show that approximately 14 percent of the respondents kept their homes below 69 F during the day and 27 percent kept temperatures

below 65 F at night. Sixteen percent of the sample, whether by choice or necessity, had no heat at night.

When asked "How often do you feel cold in your home in the winter?", 47 percent of the respondents said "Once in a while" or "Some of the time." An additional 17 percent said they feel cold "most of the time". Yet, when asked later "How satisfied are you with the temperature of your home in winter?", almost half of the respondents (48 percent) replied that they are very satisfied, 24 percent of the respondents were somewhat satisfied, two percent of the sample are neutral, 14 percent of the respondents are somewhat satisfied and 11 percent of the sample are very dissatisfied. Those who are dissatisfied cited the cold climate (35 percent), inadequate heat (27 percent), inadequate housing (17 percent), inadequate heating system (14 percent) or insufficient fuel (13 percent) as the reasons for their discomfort.

Although 42 percent of the elderly report that their homes feel drafty, the majority lack energy-saving measures such as insulation (61 percent), caulking (76 percent), plastic coverings for doors or windows (86 percent) or storm windows (86 percent). Very few respondents had insulating blankets (5 percent) or timers (12 percent) for their hot water heaters and few (8 percent) had ever had an energy audit. Only 17 percent report receiving energy assistance. Even fewer (4 percent) take advantage of low-income weatherization programs.

Table 1. Temperatures of Respondents' Homes in Daytime.

Temperature in Degrees	N	%
Don't Know	171	45.6
Over 80	2	.5
77-80	14	3.7
73-76	52	13.9
69-72	81	21.6
68 or less	55	14.7

Table 2. Temperatures of Respondents' Homes in Nighttime

Temperature in Degrees	N	%
Don't know	169	45.0
76-80	9	2.4
71-75	21	5.6
65-70	75	20.0
64 or less	41	11.0
No heat	60	16.0

When questioned as to what would be needed to make their homes more comfortable, 29 percent of the respondents requested money for fuel, 17 percent of the sample want more insulation or weatherization improvements, 16 percent of the respondents desire a different type of heating system, 13 percent of the sample suggested sealing off drafts and nine percent require repairs to their heaters or heating systems. Almost three-fourths of the respondents (70 percent) feel that the cost of the fuel is a serious problem.

RECOMMENDATIONS

The plight of elderly northern Florida residents interviewed for this study is not a particularly comforting one, but it is probably typical of many other areas of the South. A large number of persons live alone in their own single-family homes which they attempt to maintain and heat on incomes of less than \$5000 a year. Many of these homes have five or more rooms heated to unknown temperatures by non-portable gas or electric room heaters.

Most homes have few energy conservation measures. They provide little protection from the cold spells that are frequent occurrences during Southern winters. As a result, three-fourths of the respondents feel cold at least some of the time, blaming their problems on inadequate heat, housing, heating systems and fuel. The lack of a warm, comfortable home is especially severe for the respondents who had low educational and income levels.

Lack of knowledge concerning hypothermia and lack of awareness that elderly individuals are in danger of developing the condition also add to the risk. People who do not know the temperature inside their homes or who keep the temperature below 69 F during the day and below 65 F at night are placing themselves in a hazardous position. This is especially true for 16 percent of the respondents who were found to have no heat at night. Even the elderly who reported being satisfied with the temperatures of their homes may be in danger because they have become accustomed, or even expect to feel cold, or because they developed decreased sensitivity to the cold.

The first recommendation for reducing the risk is to conduct educational programs to alert the elderly and/or their caretakers to the dangers of hypothermia. Special efforts should be made to simplify this information for those with little education.

The second suggestion is to provide large, easy-to-read thermometers with the danger zones clearly indicated in red so people who cannot read numbers will recognize the danger. Both these projects could be undertaken by utility companies, public interest groups, state or local governments or Cooperative Extension agents as well as by educational institutions.

The third recommendation is to continue supplemental allowances for home heating and to expand the low-income weatherization programs. Efforts should be made to reach more people and to service those at the lowest income levels. Needs could be assessed by the Area Agencies on Aging and carried out by government or volunteer groups.

The fourth recommendation is to develop support networks of friends, neighbors, agency personnel and volunteers, especially for those who live alone in drafty homes without telephones. Individuals within these networks could use a checklist, similar to the one developed by the authors and available free of charge from the Center for Family Services at Florida State University, to assess the risk of their "clients" developing accidental hypothermia. Although the elderly see themselves as bearing the greatest responsibility for preventing hypothermia, it is evident from this and other studies that they must not be left to go it alone, as they have so often in the past.

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