Functional Disability of Elderly Family Medicine Patients in Acute Care Hospital and Nursing Homes

James T. Moore, MD, and Yonkel Goldstein, PhD
Durham and Fayetteville, North Carolina

This report describes the functional impairments of elderly patients from a family medicine program who were admitted either to an acute care hospital or long-term care facilities over the course of a year. Assessments were performed in the areas of social and economic resources, mental health, physical health, and the ability to perform routine activities needed for independent living. The presence of significant functional impairment in many of the areas suggests the need for the family physician to develop skills in working as a member of a health care team in order to design and implement a comprehensive treatment plan for elderly patients admitted either to hospitals or long-term care facilities.

Elderly persons are more likely than younger persons to require medical treatment. This increased use of health care resources is particularly striking in institutional settings. While persons over age 65 comprise 10 percent of the population, they account for 30 percent of acute care hospital admissions[1] and 95 percent of nursing home admissions.[2]

The importance of multidimensional functional assessment in meeting the health care needs of elderly persons seen in ambulatory family medicine settings has been described.[3] Multidimensional assessment is important because the elderly are subject to impairments in multiple areas of function which can affect physical health status. Impairments in mental health, in social and economic resources, and in the individual's capacity for self-care and independent living have profound implications for the type of health care intervention necessary, eg, an insulin-dependent diabetic is more likely to require institutionalization if he/she has significant impairment of intellectual function and lives alone than if the same individual lives with a supportive spouse and/or family who can assist in management of the diabetes. Similarly, plans for discharge of an elderly disabled patient from an acute care hospital must consider intellectual, social, and economic function as well as assessment of the activity of daily living capacity (eg, ability to self-administer insulin).

A functional as well as multidimensional assessment is important in working with the elderly patient. It is necessary to know not only the areas of impairment, but also the implication each impairment has on the ability of the individual to function.

The purpose of this study is to obtain functional assessment profiles of elderly family medicine patients who were admitted to either an acute care hospital or a nursing home.

Methods

Functional assessment profiles of elderly family medicine patients admitted to either an acute care hospital or a long-term facility were obtained using the Multidimensional Functional Assessment

From the Departments of Psychiatry and Community and Family Medicine, Duke University Medical Center, Durham, and the Family Medicine Program, Fayetteville, North Carolina. Requests for reprints should be addressed to Dr. James T. Moore, Duke-Watts Family Medicine Program, 407 Crutchfield Street, Durham, NC 27704.

0094-3509/80/010105-07$01.75

Table 1. Demographic Data of Institutionalized Family Medicine Patients (n=60)

	n	(%)
Age		
<60	4	(7)
60-64	7	(12)
65-69	13	(21)
70-74	4	(7)
75-80	11	(18)
>81	21	(35)
Sex		
Male	22	(37)
Female	38	(63)
Race		
White	49	(82)
Black	11	(18)
Marital Status		
Single	6	(10)
Married	11	(18)
Widowed	33	(55)
Divorced	7	(12)
Separated	3	(5)
Education		
0-4 years	20	(33)
5-8 years	16	(27)
Some high school	11	(18)
High school	8	(14)
Post high school	2	(3)
College completed	2	(3)
Post-grad college	1	(1)
Type of Help Available		
Indefinitely	20	(33)
Short-term	9	(15)
Now and then	14	(23)
No help available	17	(28)
Income Sufficient		
Yes	30	(50)
No	30	(50)
Cannot make payments	4	(7)
Barely make payments	17	(28)
Payments no problem	39	(65)
Need for Assistance		
Yes	22	(63)
No	38	(37)
Ability to Purchase Extras		
Yes	29	(48)
No	31	(52)

questionnaire developed at the Duke University Center for the Study of Aging and Human Development. This questionnaire has been used to determine functional impairment of elderly persons in various clinical settings and among a community sample of elderly individuals living independently.[4] Both reliability and validity have been evaluated and been found to be acceptable.[5] The questionnaire evaluates five areas of human functioning: social resources, economic resources, mental health, physical health, and capacity for self-care (ie, performance of activities of daily living [ADL]). The questionnaire takes approximately one to two hours to administer depending upon the degree of impairment of the subject.

Social resources are evaluated by 10 questions. These items assess the quality and quantity of social relationships, including the presence of someone who could care for the subject in the event of illness and/or disability.

Economic resources are evaluated by 16 questions, including employment status, amount and sources of present income, home ownership, and the individual's subjective evaluation of his or her financial circumstances.

Mental health functioning is evaluated by 30 questions. Ten of these questions form a screening test of intellectual function (the Short Portable Mental Status Questionnaire developed by Pfeiffer).[6] Fifteen questions ask about the presence of psychiatric symptoms commonly seen in the elderly. The subject's report of present life satisfaction and subjective evaluation of his or her own mental health as well as interviewer observation of behavioral traits are also considered in this evaluation.

Physical health is assessed by 20 questions which include information on number of physician visits, number of days of disability at home, and length of stay in a hospital or nursing home. Sub-

jects are asked whether they take any of a broad range of prescription drugs and whether they suffer from any of a number of significant illnesses. The presence or absence of disabilities and the use of and need for supportive devices (eg, cane, wheelchair, hearing aid) are determined.

The subject's ability to perform activities necessary for independent living (ADL) is assessed by 36 questions. The subject's need for and use of 19 generic support services, such as transportation assistance, is also determined.

Information from the questionnaire can be summarized in a functional rating score for each of the five areas assessed. In this summary, a rating of 1 equals excellent functioning, 2 good functioning, 3 mild impairment, 4 moderate impairment, 5 severe impairment, and 6 complete impairment.

All family medicine patients over the age of 60 years who were admitted to either an acute care hospital or a long-term facility during the one-year study were included. In addition, four patients under age 60 years were included because the responsible physician felt their problems were typical of those of older patients and requested that the patient be evaluated with the assessment questionnaire.

During the study year, 122 individuals were admitted to a hospital and/or nursing home. Sixty persons completed the entire questionnaire, 43 were too ill to complete it, 2 were deaf and could not, 3 had recently been interviewed with the same instrument at home, 1 refused to answer the questionnaire but supplied enough information to make some assessment, 3 were discharged before they could be interviewed, and 10 were missed. In addition to the 60 who completed the entire questionnaire, there was sufficient information available to assess the function of another 47 patients (ie, those too ill, those who had recently completed the questionnaire, and the one patient who refused the complete interview). The information for these 47 individuals came from family members and the medical records.

Results

Demographic Data

Demographic data are summarized in Table 1. Eighty-one percent of the patients were over 65 years old, and 35 percent were 81 years of age or older.

Table 2. Mental Health Symptoms Reported by Institutionalized Family Medicine Patients (n=59)

	n	(%)
Lose balance (Yes)	46	(78)
Feel useless (Yes)	39	(65)
Can't get going (Yes)	37	(62)
Heart pounding and short of breath (Yes)	34	(57)
Feel weak (Yes)	33	(55)
Understood by others (No)	28	(48)
Sleep fitfully (Yes)	26	(43)
Well recently (No)	26	(43)
Wake up rested (No)	24	(40)
Headaches (Yes)	23	(38)
Daily life interesting (No)	20	(33)
Wanted to leave home (Yes)	16	(27)
Happy (No)	15	(25)
Lonely (Yes)	11	(18)
Plotted against (Yes)	1	(2)

Fifty-five percent of the patients were widowed and seventy-eight percent had less than a high school education.

While one third of the sample had someone who could care for them indefinitely if necessary, 28 percent had no one who could care for them, and 38 percent had help available only for a short time.

Economic Data

Twenty-seven percent of the patients did not know their monthly income. Of the 41 patients who knew their income, 78 percent had incomes of less than $334 per month.

Fifty percent of the patients felt their income was insufficient and 65 percent felt paying their bills was no problem.

Mental Health Data

By the criteria for evaluating results of the screening test for intellectual functions (the Short Portable Mental Status Questionnaire), 47 percent of the sample had intact intellectual function, 23 had mild impairment, 25 had moderate impairment, and 5 percent had severe impairment.

Sixty-eight percent of patients felt their mental health was fair or poor, and 70 percent felt it was worse than it had been five years previously. Table 2 shows the number of patients reporting the presence of 15 common psychiatric symptoms.

Table 3. General Health of Institutionalized Family Medicine Patients (n=60)

Physician Visits Past 6 Months			Physical Disabilities (Patient Assessment)		
Visits	**n**	**(%)**	**Eyesight**	**n**	**(%)**
0	6	(10)	Excellent	0	(0)
1-3	19	(32)	Good	21	(35)
4-5	13	(22)	Fair	22	(36)
6-9	17	(28)	Poor	13	(22)
10	5	(8)	Blind	4	(7)
Incapacitation by Illness			**Hearing**		
None	9	(15)	Excellent	0	(0)
>Week	5	(8)	Good	42	(70)
Week to Month	22	(37)	Fair	12	(20)
1-3 Months	14	(23)	Poor	6	(10)
4-6 Months	10	(17)	Deaf	0	(0)
Days in Hospital			**Present Health**		
None	10	(16)	Excellent	0	(0)
1-7	25	(42)	Good	10	(17)
8-14	7	(12)	Fair	36	(60)
>14	18	(30)	Poor	14	(23)
Days in Nursing Home			**Health Compared to 5 Years Previous**		
None	33	(55)	Better	2	(3)
1-7	10	(17)	Same	7	(12)
8-14	7	(11)	Worse	51	(85)
>14	10	(17)			
			Hindered by Health		
			Not at all	3	(5)
			Same	11	(18)
			Great deal	46	(77)

Table 4. Use of Physical Aids by Family Medicine Patients Age ≥60 years (n=60)

	n	(%)
Cane	13	(22)
Walker	8	(13)
Wheelchair	26	(43)
Leg brace	2	(3)
Back brace	2	(3)
Hearing aid	1	(2)
Colostomy	1	(2)
Catheter	7	(12)
Need aids do not presently have	3	(5)

The presence of five or more symptoms has been reported to indicate significant psychiatric disability. Seventy-one percent of patients reported five or more symptoms.

Physical Health Data

Physical health data are summarized in Tables 3 and 4. Fifty-eight percent of patients reported four or more visits by a physician in the previous six months, 77 percent had been incapacitated by illness for more than one week, and 42 percent had been in the hospital for more than one week during the past six months. At the time they were ques-

Table 5. Institutionalized Patients Able to Perform Activities of Daily Living by Their Report (n=60)

Activity	Unable %	Able with Help %	Able %
Telephone	10	22	68
Travel	27	62	12
Shopping	70	20	10
Meal preparation	64	18	18
Housework	67	27	7
Take medicine	3	30	67
Handle money	33	28	38
Eat	0	5	95
Dress	2	37	62
Grooming and hygiene	3	28	68
Walk	27	45	28
In and out of bed	17	43	40
Bathe	17	58	25

tioned, 83 percent felt their health to be fair or poor, and 77 percent felt themselves to be hindered a great deal by their health.

Although up to 43 percent of the patients reported the need for a particular aid and at least 78 percent of patients needed some aid, only 5 percent wanted an aid they did not already have.

Activities for Independent Living

Data regarding patients' ability to perform activities of daily living are summarized in Tables 5 and 6. Table 5 shows the number of persons unable, able with help, and able without help to perform a number of activities required for independent living. Over two thirds of the patients are unable to perform housework or prepare meals.

Table 6 shows the number of persons reporting a need for several supportive services.

It is of interest that there is a significant variation among the specific services available with respect to how many of the people who felt they needed the service were actually receiving it. Only 34 percent of the people who felt the need to participate in planned programs were actually participating in such programs; 41 percent of the people who felt the need to learn basic personal skills were receiving such training. Fifty-seven percent of those who desired nursing care, 58 percent of those who wanted prescription medications, 64 percent of those who wanted a full-time companion, 75 percent of those who wanted physical therapy, 76 percent of those who wanted help with legal matters, and 100 percent of those who wanted help finding a place to live, received the services they wanted. In the cases of psychiatric treatment, comprehensive evaluation by a physician or social worker, and having someone to

Table 6. Need for Services by Institutionalized Patients (n=60)

	% Needing
Household help	83
Checking services	75
Nursing care	62
Legal administrative aid	58
Psychotropic drugs	53
Systematic evaluation	52
Personal care	50
Physical therapy	48
Information-referral services	43
Continuous supervision	37
Meal preparation help	23
Social-recreational services	23
Remedial training (personal)	17
Relocation services	10
Transportation	8
Employment aid	3
Mental health services	3
Sheltered employment	2
Job training	2

Table 7. Functional Ratings of Institutionalized Family Medicine Patients*

	Completing Questionnaire %	Not Completing Questionnaire %
Social	**(n=60)**	**(n=8)**
1	28	0
2	22	50
3	30	25
4	13	0
5	7	25
6	0	0
Economic	**(n=60)**	**(n=8)**
1	3	13
2	32	63
3	50	13
4	10	0
5	5	13
6	0	0
Mental Health	**(n=60)**	**(n=47)**
1	0	0
2	25	6
3	48	17
4	13	4
5	12	38
6	0	34
Physical	**(n=60)**	**(n=47)**
1	0	0
2	2	0
3	18	4
4	50	11
5	25	45
6	3	40
Activities of Daily Living	**(n=60)**	**(n=47)**
1	0	0
2	5	0
3	8	2
4	22	4
5	53	28
6	12	66

*Functional Rating
1=Excellent functioning
2=Good functioning
3=Mild impairment
4=Moderate impairment
5=Severe impairment
6=Complete impairment

coordinate the various types of help the person received, there was a small percentage of patients (3-8 percent) who believed they did not need the help they were receiving.

Table 7 summarizes functional ratings in each of the five categories assessed by the questionnaire. Impairment is defined as a rating of 4, 5, or 6 (ie, those patients considered moderately, severely, and totally impaired). Of those patients completing the questionnaire, 20 percent suffered social impairment, 15 percent economic impairment, 25 percent mental impairment, 78 percent physical impairment, and 87 percent were impaired in the ability to perform activities of independent daily living. For those patients not completing the questionnaire but for whom sufficient data were available to make an assessment, 25 percent had social impairment, 25 percent economic impairment, 77 percent mental impairment, 96 percent physical impairment, and 98 percent were impaired in the ability to perform activities of independent daily living.

Discussion

As might be expected in a sample of institutionalized elderly patients, the individuals surveyed tended to have many severe functional impairments. These impairments were not limited to the area of physical function: 20 percent of this sample suffered social impairment and 87 percent were impaired in the ability to perform activities for independent living.

Because 36 percent of subjects were too ill to complete the questionnaire, the figures reported for functional impairment are likely lower than would be expected for all elderly institutional individuals.

An important feature of the multiple functional impairments characteristic of this sample of patients is the complex way in which impairments in different functional areas interact. That is, economic difficulties frequently intensify social isolation—both of these problems increase the complexity of planning adequate medical treatment following discharge from an institution. This trait of multiple, interacting problems requires the skills of a variety of health care professionals for effective management. While many hospitals and nursing homes have professional staffs to help deal with problems of social, economic, and ADL disability, physicians are often inadequately trained to function as an effective member of the team necessary for treatment of the interacting problems often present. While the need for training of physicians in the team approach is important for all elderly patients, it is especially urgent in the case of the institutionalized elderly. There is a need for educational programs which can prepare future health care professionals for the type of integrated, multidisciplinary approach necessary to provide quality health care to this segment of the population.

While busy practitioners may feel that the instrument used in this survey is too lengthy for routine clinical use, it is important in survey studies of this nature to use an instrument of proven validity and reliability. The purpose of this study was to determine the level of functional impairment, not to address the question of cost effectiveness of the instrument. It is important that family physicians evaluate their elderly patients using a multidimensional and functional methodology. Different methods of obtaining functional assessments need to be compared in terms of validity and clinical relevance of information vs cost and efficiency.

Acknowledgement

The authors wish to acknowledge the assistance of Ms. Anne Bishop who collected the data reported in this paper and George L. Maddox, PhD, Director of the Duke University Center for the Study of Aging and Human Development who assisted in the implementation of this survey. This project was supported, in part, by a grant from the NRTA/AARP Andrus Foundation.

References

1. Somers HM, Somers AR: Medicare and the Hospitals. Washington, DC, Brookings Institution, 1967
2. Subcommittee on Long-Term Care, Special Committee on Aging, US Senate: Nursing Home Care in the United States: Failure in Public Policy, publication No. 93-1420. Washington, DC, Government Printing Office, 1974
3. Moore JT: Functional disability of geriatric patients in a family medicine program: Implications for patient care, education, and research. J Fam Pract 7:1159, 1978
4. Blazer D: The OARS Durham surveys: Description and application. In Multidimensional Functional Assessment: The Oars Methodology, ed 2. Durham, NC, Duke University Center for the Study of Aging and Human Development, 1978, p 75
5. Fillenbaum GG: Validity and reliability of the multidimensional functional assessment questionnaire. In Multidimensional Functional Assessment: The OARS Methodology, ed 2. Durham, NC, Duke University Center for the Study of Aging and Human Development, 1978, p 25
6. Pfeiffer E: A short portable mental status questionnaire for the assessment of organic brain deficit in elderly patients. J Am Geriatr Soc 23:433, 1975