

Change in Functional Disability of Geriatric Patients in a Family Medicine Program: Implications for Patient Care

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Multi-dimensional functional impairments of a sample of 130 new patients, aged 60 years and older, at a family medicine center were previously described. Of these, 48 persons representing the combinations of impairment originally present were selected by means of modified random sampling for follow-up 13 to 27 months later (m=20 months). Patients were assessed both at the time of the initial visit and on follow-up with the Older Americans Resources Services (OARS) Multi-dimensional Functional Assessment Questionnaire, an instrument permitting assessment of functional status in five areas of personal functioning: social, economic, mental health, physical health, and the ability to perform activities of daily living (ADL). Fourteen of the 130 initial subjects died during the follow-up interval. Impairments in mental health, physical health, and ADL were associated with increased risk of mortality; but impairments in social and economic functioning did not increase risk. For the survivors there was decline in economic and mental functioning and little, if any, change in social resources or the ability to perform activities of daily living. However, there was notable improvement in their physical functioning.

Among the characteristic health difficulties of the elderly which require special attention by the physician are the tendency to multiple problems and the resulting functional impairment.¹

The reality of multiple disabilities of elderly patients has been well documented.² In addition to multiple physical problems, the elderly are also likely to have impairments in other areas of functioning which, themselves, can affect physical health. For example, economic problems may prevent the person from filling a prescription, lack of transportation may prevent an office visit altogether, and decisions of whether to institutionalize an individual often involve an assessment of the social support system.

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Functional impairments in social, economic, mental health, physical health, and activities of daily living (ADL) among family medicine patients have been described.¹ In a survey of 130 ambulatory patients aged 60 years and over, 32 percent were found to be socially impaired, 33 percent were economically impaired, 58 percent had physical health impairments, 48 percent had mental health impairments, and 28 percent were impaired in the ability to perform routine activities of self-care.

Little is known about the effect of available medical intervention on functional impairments. The purpose of the present study is to determine the course of functional impairments in social, economic, mental health, physical health, and ADL areas of family medicine patients over time, and also to identify risk factors for mortality among elderly family medicine patients.

Methods

Information on the initial functional status of newly enrolled older (aged 60 years and over) family medicine center patients was available for a group of 130 persons.¹ In order to examine change in functional status over time all persons were followed up to determine survival status, and 48 persons, selected in the manner described below, were re-administered the original assessment instrument, the Older Americans Resources Services Multi-dimensional Functional Assessment Questionnaire (OMFAQ).³

The OMFAQ consists of two parts. Part A permits assessment of functional status, Part B permits assessment of services utilization. Part A evaluates five major areas of personal functioning: social resources, economic resources, mental health, physical health, and capacity to perform activities of daily living.

The social resources area is concerned with the extent and adequacy of social relationships, and the availability and anticipated duration of help from family or friends in case of sickness or disability.

Economic resources focuses on the source, actual amount, and subjectively assessed ade-

quacy of personal income.

The mental health area includes the Short Portable Mental Status Questionnaire, a ten-item schedule designed to assess the presence of organicity^{4,5}; the Short Psychiatric Evaluation Schedule, a 15-item scale focusing on the presence of psychiatric symptoms commonly seen in the elderly⁶; the subject's assessment of his or her own mental health, an informant's assessment, and the interviewer's observation of behavioral condition.

The physical health area includes number of physician visits in the past six months, number of days incapacitated at home, and number of days spent in a health care facility. Subjects are also asked whether they have taken any of a broad range of prescription medicines, suffer from any of a number of significant illnesses, and use particular supportive devices.

In assessing ability to perform activities of daily living, subjects are asked to indicate the extent to which they are able to perform each of seven instrumental and seven physical activities.

For each of the five areas the responses to the questions asked are summarized as a rating on a 6-point scale. On this scale a rating of 1 indicates excellent functioning, 2 indicates good functioning, while ratings of 3, 4, 5, and 6 indicate mild, moderate, severe, and total impairment, respectively. Thus, Part A permits a detailed overall assessment of personal well-being, while the five scale ratings permit summarization of the detailed information, and construction of functional profiles.

Part B of the OMFAQ inquires about 19 services (some services, eg, medical services, are in Part A where they fit more logically). For each service, information is sought regarding extent and duration of receipt, type of provider, and perceived need for the service. The OMFAQ, its development, validity, reliability, and examples of use have been described.^{3,7}

The OMFAQ was administered in the patient's home by a trained interviewer.

Selection of Patients for Follow-Up

Resources did not permit re-interviewing all the survivors in the original group of 130. Further,

since information from those re-interviewed was intended to be relevant not only for follow-up purposes, but also to provide information in an additional study, a stratified random sampling procedure supplemented by random sampling was used so that the requirements of the additional study would be met.

The initial summary ratings on four of the five areas (social, economic, mental health, physical health) were dichotomized to reflect simply whether, separately for each area, functioning was unimpaired (ratings of 1 or 2) or impaired (ratings of 3 through 6). All possible combinations of unimpaired/impaired status across the four areas were then obtained. This resulted in 2⁴, or 16, classes. Of these, three were empty and four contained fewer than four persons. One man and one woman were then selected at random from each class to the extent that this was feasible so that each class would be represented. The remainder were selected at random from the pool of uncontacted patients until a total of 48 participants had been obtained.

Of the 130 initial clients, 48 were administered the OMFAQ. The follow-up data reported here are based on those 48 patients. In addition, survival status of all remaining patients was determined. Of the 130 in the initial group, 14 had died by the time of follow-up. Demographic and initial functional status information is provided for both the survivors and the non-survivors.

The interval between participation and follow-up ranged from 13 to 27 months, with a mean of 20 months, and a standard deviation of 4 months.

In summary, 14 patients of the initial group of 130 had died by the time of follow-up, and 48 of the 116 survivors were re-interviewed.

Extent to Which Those Interviewed Are Representative of Surviving Patients

The manner of selection ensured that the entire variety of problem areas present initially would be represented. However, probably because of the manner of selection, those interviewed were disproportionately male (33 percent vs 22 percent of the non-interviewed survivors); were more likely to be white (81 percent vs 68 percent); and tended to

be younger (2 percent were 75 years or older compared with 41 percent of the non-interviewed).

Perhaps more important is a consideration of their functional status. Those interviewed had enjoyed a somewhat better economic status (52 percent adequate vs 24 percent of non-interviewed), better mental health and physical health (19 percent unimpaired vs 6 percent).

Thus, those interviewed tended to be slightly better off than their non-interviewed counterparts. Nevertheless, while initially slightly better off than the non-interviewed survivors, it is important to note that they fairly represent the types of problems presented by older patients in a family medicine practice.

Results

Death

In the mean interval of 20 months between initial contact and re-evaluation 11 percent of the initial group had died. Those dying were far more likely to be male (of those dying 57 percent are male, but males represent only 27 percent of the survivors), to be less educated (64 percent had 0 to 4 years of schooling, compared with 32 percent among the survivors), and were more likely to have been married (62 percent vs 39 percent). Statistical tests showed that decedents and survivors did not differ significantly on initial age.

Those who died were more likely to have severely impaired mental health (21 percent vs 3 percent), and were much more likely to have severe physical health impairments (36 percent vs 2 percent) and ADL impairments (50 percent vs 10 percent).

Thirteen of the 14 (93 percent) who died came to the clinic with impaired physical health, and 10 of the 14 (72 percent) suffered from impairments in both physical health and ADL capacity. This compares with 28 percent so impaired among the survivors.

In addition to considering each area of functioning separately, the five areas were also looked at in combination, for concomitant impairment in a number of diverse, interrelated areas more truly

Table 1. Change in Functional Status of Family Medicine Clinic Patients Aged 60 Years and Over on Each of Five Functional Areas (percentage)

Level of Functioning	Social		Economic		Mental		Physical		ADL	
	Initial	Later	Initial	Later	Initial	Later	Initial	Later	Initial	Later
Good	48	52	52	38	65	46	19	31	52	54
Somewhat impaired	37	29	42	60	33	50	81	65	40	33
Severely impaired	15	19	6	2	2	4	0	4	8	13

ADL=Activities of daily living

Table 2. Comparison of Initial and Later Patient Assessment of Personal Health Status (percentage, N=48)

	Initial	Later
Mental-Emotional Health		
Poor	13	6
Fair	25	44
Good	54	35
Excellent	8	15
Mental Health Compared to 5 Years Ago		
Worse	35	29
Same	48	48
Better	17	23
Physician Visits in Last 6 Months		
None	8	19
1-3	79	35
4-6	10	23
7-9	0	4
≥10	2	19
Incapacitation by Illness		
None	44	58
≤1 Week	21	10
Week-Month	19	17
1-3 Months	10	10
4-6 Months	4	4
Days in Hospital		
None	88	88
1-7	8	2
8-14	2	4
≥14	2	6
Days in Nursing Home		
None	98	100
1-7	2	0
≥8	0	0
Physical Disabilities (patient assessment)		
Eyesight:		
Excellent	4	13
Good	44	38
Fair	33	27
Poor	19	21
Blind	0	0

Table 2. Comparison of Initial and Later Patient Assessment of Personal Health Status, continued (percentage, N=48)

	Initial	Later
Hearing:		
Excellent	15	13
Good	46	40
Fair	38	35
Poor	2	10
Present Health		
Excellent	8	6
Good	42	44
Fair	33	33
Poor	17	17
Health Compared to 5 Years Ago		
Better	13	10
Same	40	38
Worse	48	52
Hindered by Health		
Great deal	33	35
Some	29	35
Not at all	35	29

represents the situation faced by the patient. Those who died are three times as likely to be impaired in three or more areas (57 percent vs 19 percent for survivors).

Thus, not unexpectedly, it is the males and those who are more impaired, particularly those impaired in multiple areas, who are more likely to die.

Change in Functional Status Among Survivors

Table 1 presents information on initial and follow-up functional status in each of the five areas; ratings of 1+2/3+4/5+6 were combined to represent good, somewhat impaired, and severely impaired function. Among these older people there has been more improvement than deterioration in their physical health, a statement which cannot be made for their status in any of the other

four areas. In the social and ADL areas the group tends to hold its own, but decline in functioning is evident in the economic and mental health areas. The former may be due to decline in income on retirement. There is no ready explanation for the latter.

Looking at change in the number of areas impaired, rather than in the type of area impaired, the situation has remained stable for 44 percent of those followed up, while 31 percent are, on re-interview, impaired in fewer areas, and 25 percent are impaired in more areas. Thus, the trend emphasizes stability and improvement in overall status.

OMFAQ based information permits not only an overall assessment of personal well-being, but also examination of specific issues. Table 2 lists some of the mental health and physical health items on which information is available both initially and on follow-up.

According to their personal assessment their mental or emotional health has declined slightly

Table 3. Change Over Time Among Family Medicine Patients Aged ≥ 60 Years. Reported Capacity to Perform Activities of Daily Living (percentage, N=48)

Activity	Initial		Later	
	Totally Unable	Able (unaided)	Totally Unable	Able (unaided)
Use telephone	0	88	2	90
Travel	0	79	0	75
Shop	8	71	8	77
Prepare meals	4	81	10	81
Do housework	6	54	17	71
Take medicine	2	94	6	90
Handle money	4	85	8	83
Feed self	0	100	0	96
Dress	0	98	0	98
Groom	0	96	0	98
Walk	0	98	0	100
Get in and out of bed	0	98	0	98
Bathe	0	88	6	88
Remain continent		90		90

since initially seen, although they are more likely, on follow-up, to assess their mental health as being better than five years previously. Visits to a physician because of physical health problems are more frequent on follow-up than they were initially. This does not necessarily mean that these patients became sicker. On the contrary, they are less likely to report incapacitation due to illness on follow-up than they did initially. The number of days spent in a hospital or nursing home has barely changed—and this in an aging population. They report minimal change in eyesight or hearing. On follow-up their personal assessments of their health agree with the assessments they made initially, although they do see their health as declining, and increasingly preventing them from doing some of the things they wish to do.

A matter which should be of close concern to persons responsible for the elderly is the extent to which care is available to them from family and friends when they are sick or disabled, for the availability of such help may determine whether a

person can be cared for in his or her own home, or whether he or she must move to an institution. Here it is disturbing to find that, while initially 13 percent of the group felt that no help would be available in time of need, on follow-up 19 percent so report.

Where activities of daily living are concerned (Table 3) little change in capacity occurred. However, an additional four percent cannot travel unaided, take their own medicine, or handle their finances. Ten percent are now totally unable to prepare any meals for themselves (formerly 4 percent), 17 percent can do no housework at all (formerly 6 percent), and 4 percent now need some help in feeding themselves. The trend, however, is not all downhill. The percentage capable of shopping and of doing their housework unaided has improved from 71 percent to 77 percent, and from 54 percent to 71 percent, respectively. One person who needed help with walking can now do so unaided, and unaided grooming is now feasible for another.

Table 4. Change Over Time Among Family Medicine Patients Aged ≥ 60 Years. Initial and Later Reported Use of and Need for Services (percentage)

Service*	Initial		Later	
	Use	Need	Use	Need
Transportation	79	19	96	15
Social/Recreational	8	38	15	33
Employment	6	2	4	4
Sheltered employment	0	6	0	4
Employment related education	2	2	0	4
Remedial training	0	2	0	2
Mental health	4	17	4	13
Psychotropic drugs	31	42	33	42
Personal care	10	10	17	8
Nursing care	13	8	25	13
Physical therapy	6	6	4	23
Continuous supervision		10		6
Check-up	69	31	38	35
Relocation and placement	10	10	0	4
Homemaker-Household	25	25	38	38
Meal preparation	17	23	27	23
Administrative, legal, and protective	19	15	23	27
Systematic multi-dimensional evaluation	20	21	4	19
Coordination, information, and referral	33	29	10	27
Number of Services:				
Mean	3.67	3.17	3.50	3.40
Standard deviation	2.34	3.03	2.78	3.40

*Information is not available from all 48 followed up patients for each service

Change in Use of Services Over Time

Part B of the OMFAQ permits examination of the use of and need for 19 generically defined services. Table 4 lists the percentage of followed-up patients using each of these services initially and on follow-up, and their expressed need for these services on both occasions. With rare but important exceptions, the percentage of patients using a service has remained stable or has increased. Thus, a large percentage has been availing themselves of transportation (96 percent vs 79 percent initially); social/recreational services (15 percent vs 8 percent); has had nursing care (25 percent vs 13 percent; note that this does not necessarily mean that they were sick, the definition includes preventive health care); homemaker-household serv-

ices (38 percent vs 25 percent); and meal preparation (27 percent vs 7 percent). Notable by reduction in use are checking services (38 percent on follow-up, 69 percent initially); systematic multi-dimensional evaluation (4 percent vs 20 percent); and coordination, information, and referral services (10 percent vs 33 percent). Thus, certain services basic to appropriate care of the whole person are no longer being received.

While extent of use of services has changed there has been little change in expressed need for services. Important exceptions include an increased need for physical therapy (23 percent on follow-up, 6 percent initially—very few have been receiving this service, 4 percent on follow-up, 6 percent initially), for homemaker-household serv-

ices (38 percent vs 25 percent) and for administrative, legal, and protective services (27 percent vs 15 percent initially).

Discussion

This study examines a sample of patients carefully selected to represent the types of problems seen in a family practice setting. It may not be appropriate to generalize with the older population as a whole. This study documents that improvement in functional status of persons attending a family medicine practice is possible. Among the elderly, just as with younger patients, there is individual variability in prognosis. In general, patients' physical health status, as measured by several parameters, improved or at least stabilized during the two years of this study. Patients in this study did not fare as well in terms of mental health and social and economic function as they did in physical health. It might be argued that the improvement in physical health is due to statistical artifact (ie, if changes were due to statistical artifact, we would predict improvement in other areas beside physical). However, differences in outcome among the functional areas examined suggest that the findings are not attributable to statistical artifact. In addition, the data are not based solely on a subjective assessment which might allow patients to perceive medical care as more helpful than it was, but also include objective measures by an independent observer. This contrast of improvement in physical health while social, economic, and mental health declined indicates a need for evaluation and arrangement for intervention in these areas as well as in the area of physical health. While it might be argued that coordination of such evaluation and intervention is outside the traditional role of medicine, it is obvious that many elderly will not receive these services unless the physician initiates them. The need for a multi-disciplinary approach to meeting health care needs of the elderly has been often stated in recent years and these data verify this need. They also imply a need for training the family physician to function as a member of a multi-disciplinary team.

The physician must not only be aware of functional impairment in multiple areas, but must also be aware that changes in functional impairments

may occur relatively quickly in the elderly. Because an individual can go shopping, do housework, and prepare meals today does not guarantee that the same individual will be able to perform all of these tasks 6, 12, or 24 months later. Similarly, because appropriate services are being received now does not mean that such services will necessarily be appropriate at a later time.

In this sample, death was not closely related to age. Impairment in physical health and the ability to perform activities of daily living were the most important predictors of death (13 of the 14 persons who died during the follow-up interval began the study with significant physical impairment). Functional status rather than age was important in establishing prognosis for these patients.

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