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Measuring Unmet Needs to Assess the Quality of Home Health Care

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Until now home care research has been primarily focused on functional limitations. The instrument presented in this article also takes into account needs for psychosocial care, extra information, nursing care, and extra arrangements such as adaptations of the house. Elderly people with a chronic disease ($n = 311$) were interviewed using structured questions concerning the presence of unmet needs. The six need scales represented two dimensions: needs referring to physical functioning and needs referring to psychosocial well-being. However, considerable differences were found in the amount of formal and informal care and in the presence of unmet needs between the need scales constituting one dimension. Indications for construct validity were found for five out of six need categories. The results show that, when evaluating home health care, the full range of needs has to be considered and the presence of unmet needs can be used as an indicator of the quality of home health care.

Key words: Home care services, quality of health care, evaluation studies.

INTRODUCTION

In The Netherlands, as in many western countries, there is a great deal of interest in expanding and improving home health care [1]. Home health care refers to the care given to

people living in their own home and is broadly defined to include all primary health care, such as care given by GPs, nurses, home helps, social workers, physiotherapists etc. Little is currently known about the assessment of care quality however, especially as seen from the patients' perspective. In this article an attempt is made to measure the quality of home health care for chronically ill elderly as it is reflected in the correspondence between health care needs and the care received.

Chronically ill patients often require long-term care by multiple providers, which frequently causes problems because of the fragmented organization of home health care. In The Netherlands, family medicine, physiotherapy and pharmacy are usually provided by independent contractors. District nurses, social workers and home helps, on the other hand, are employed by local or regional foundations. This is a poor basis for integrated and continuous care provision. Many attempts are made to get better co-ordinated care, such as the foundation of integrated health centres, the fusion of foundations for district nurses and home helps, the introduction of case-managers and overall intake procedures. Instruments are necessary to evaluate these attempts.

Up until now, care needs have often been assessed by focusing on the patient's ability to perform specific activities of daily living (ADL) and instrumental activities of daily living (IADL). But there are other aspects that are also important for independent functioning and good quality of life. It was shown that half of those experiencing ADL/IADL problems also had psychosocial problems [2], often required extra technical equipments, and experienced material needs [3]. After reviewing literature, it was concluded that needs could be divided into

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six categories [4]: ADL needs, IADL needs, psychosocial needs, special arrangements such as technical equipment requirements and other material assistance (e.g. transporting arrangements), a need for information, and a need for nursing services. These six health care needs were assessed in this study.

Needs can be assessed by using several resources [5] and studies have shown disagreement among these resources [4]. A professional is able to recognize needs, such as medical care needs by diagnosing a disease, which the patient is not aware of. The patient, in turn, can report needs that are not known to professionals. This is especially valuable for nonmedical needs. In this study, the involvement of patients was viewed as an essential element of the evaluation of home health care. This view is supported by a study comparing self-ratings and physician ratings of the functional limitations to performance-based testing criteria [6]. Patients' ratings were most accurate.

Continued functioning at home requires a fit between health care needs and provided care. So, the number of unmet needs was hypothesized to be an indicator of (the lack of) quality of home care. To study the validity of the instrument the relationship between unmet needs and satisfaction was measured. Satisfaction is an indicator for quality, particularly for personal care services [7,8].

In conclusion, the purpose of this article was to test an instrument for measuring the quality of the home health care as perceived by the patient. The first step was the development of unidimensional and reliable scales to assess the health care needs within different need categories. The second question refers to the surplus of using six different need scales instead of one or two need scales. Finally, the validity of using unmet needs as an indicator of care quality was investigated by examining the relationship with satisfaction of the patient.

METHOD

Sample

The sample consisted of elderly people of 55 and older. Everyone was, as a result of a chronic

illness, disabled (or expected to be disabled within a short period of time) in one or more activities of daily living. Twenty-two GPs screened their patients (circa 4980 patients of 55 and older and publicly insured) and 1024 patients (21%) met the criteria for the chronically ill and disabled.* A sample of 594 patients was asked to participate in this study and 335 responded positively (56%). Finally, full information on 311 individuals was gathered. The sample consisted of 27% males and 73% females: 19% were 65 years of age or younger, 45% were between 65 and 75 years of age, and 36% were 75 years of age or older.

Source of data

Respondents were interviewed by telephone. The instrument developed consists of six subscales. Each subscale refers to an area of possible care needs. The ADL and IADL items were adopted from Kempen and Suurmeijer [9]. The items of the other scales were formulated relying on conceptual guidelines and considering the needs that are expected to be important for chronically ill elderly. The subscales are:

Activities of Daily Living (ADL). Eleven items were used [9]. Examples of ADL items were: dressing, washing oneself, taking care of feet/nails. For each item respondents were asked to state whether they could perform the activity independently and easily, independently but with difficulty, or whether they were often dependent on others, or always dependent on others. If an individual had difficulty performing the activity it was considered as a need for help.

Instrumental Activities of Daily Living (IADL). These were assessed by using seven items [9]. Examples were preparing dinner, easy house cleaning activities, and bed making. The possible answers were equivalent to the ADL scale. Respondents who never did one of these activities were asked to rate whether they expected that they could perform the activity. A

*In The Netherlands, only publicly insured persons (these are below a designated income level; 60% of the population) are more or less uniformly registered. Every person is registered by only one GP and is expected to visit this GP if necessary. For that reason, we confined ourselves to this subpopulation.

need for care was registered whenever the respondent encountered difficulties.

Arrangements/technical needs. The need for special arrangements of technical services was assessed by seven items. Items were, for example, the need for adaptations of the house (e.g. removing doorsteps), for an alarm system, for transportation arrangements, and for recreational activities (e.g. gymnastics for elderly people).

Psychosocial needs. Eight items referred to eight psychological or social problems (e.g. loneliness, spending leisure time, aging). The respondent was asked to indicate whether s/he wanted to talk with somebody about these topics.

Nursing services. Nine items described ten nursing activities, such as care of pressure sores and wounds, stomacare, and catheterization. The respondent was asked whether there was a need for these nursing services.

Information. Thirteen topics were mentioned by the interviewer, such as information about medicine, complaints, diet, and rules of life. Respondents were asked whether they wanted to be better informed.

If the respondent needed help with a particular item the interviewer asked whether help was received. If no help was received, this item reflected an unmet need. The gap between needs and received care within each need category was measured by counting the number of items where the respondent needed care but was not helped (either by formal or by informal care-givers).

Patient satisfaction was measured by evaluating the formal care received for each need category. First, the respondent evaluated the quantity of help given by professionals (six-point rating scale; 1 = very bad, 6 = excellent). For example, what is your opinion of the amount of information you received? Second, the respondent evaluated the quality of care given by professionals (six-point rating scale). These questions were not being asked whenever there was no need for help. Consequently, each respondent could make a minimum of zero ratings and a maximum of twelve ratings (six

need categories, two questions for each category).

Analysis

First, the unidimensionality and internal consistency of the six subscales were tested by performing principal components analyses and calculating Cronbach's Alphas. Second, the surplus of differentiating between six need categories was examined. A principal components analysis was conducted to study underlying dimensions. It may not be necessary to distinguish between six need categories when the need scales are highly correlated. However, when formal and informal caregivers are not equally involved in the provision of care, it may still be useful to differentiate between types of needs when evaluating the quality of professional care. To study differences in the provision of care, we calculated the percentage of respondents with unmet needs within each need scale and the frequency with which formal and informal caregivers were involved in care-provision. Third, to assess the construct validity of unmet needs as an indicator of quality of home health care, respondents were split into two groups: those having unmet needs and those being helped in respect of all their needs. Student's *t*-tests were conducted to test the hypothesis that the second group would be more satisfied with care than the first group.

RESULTS

Unidimensionality and reliability of the separate need scales

Table 1 shows that most respondents had limitations in ADLs and IADLs. Almost two out every three respondents also experienced needs for special arrangements, for psychosocial help, and for extra information. Needs for nursing services were mentioned less often.

As can be seen in Table 2 each need category consisted of one main factor and at least one minor factor. For ADL, the analysis indicated two factors. The gap between the first and second factor (32 and 10% variance explained) indicated one main factor. All items had factor loadings on the first factor of at least 0.30 and the internal consistency Cronbach's alpha was satisfactory (0.78). Similar results were found

TABLE 1. Perceived needs of noninstitutionalized chronically ill elderly people ($N = 311$)

Need category	Respondents who		Items most often mentioned	
	did not encounter difficulties with items	did encounter difficulties with items		
	%	%		
ADL	4	96	up/down stairs	81%
			care of feet/nails	76%
			moving outdoors	69%
			arising from chair	60%
IADL	6	94	heavy house-cleaning	88%
			shopping	75%
			bed making	69%
			ironing clothes	62%
Arrangements/technical needs	34	66	transporting arrangements	24%
			social meetings	24%
			adaptations of the house	19%
Psychosocial needs	37	63	acceptance of illness	33%
			loneliness	26%
			leisure activities	25%
			aging	23%
Technical nursing services	58	42	assistance by injections	13%
			skin care	10%
			support in strict diet	9%
			care of pressure sores	9%
Information	36	64	the nature of complaints	28%
			the use of medicines	21%
			contacting fellow-sufferers	21%

with the IADL items and the items referring to psychosocial needs. Because of the substantial difference between each pair of factors we considered the items as representing a single dimension.

A principal component analysis of the seven arrangement items showed two factors. The first factor composed of five items referring to material arrangements. These arrangements contributed to independent living and to the mobility of the person (e.g. adaptations of the

house, an alarm system, transportation arrangements). The second factor constituted two items referring to social activities (gymnastics and a social club). These items were deleted. The ultimate need category 'Arrangements' referred to material assistance and was formed by five items. The internal consistency index Cronbach's alpha of this scale was moderate (0.63).

The need items for nursing services displayed an uninterpretable picture of three factors. The

TABLE 2. Principal components analysis for each need category ($N = 311$)

Need category	Explained variance (%)				Cronbach's alpha
	factor 1	factor 2	factor 3	factor 4	
ADL	32	10	—	—	0.78
IADL	43	16	—	—	0.78
Arrangements	30	17	—	—	0.63
Psychosocial needs	35	13	—	—	0.71
Nursing services	31	14	11	—	0.57
Information	24	11	9	8	0.71

TABLE 3. Pearson correlations between distinct needs ($N = 311$)

Need category	ADL	IADL	Arrangements	Psychosocial needs	Nursing services	Information
ADL	—					
IADL	0.68*	—				
Arrangements	0.26*	0.24*	—			
Psychosocial needs	0.04	0.07	0.09	—		
Nursing services	0.38*	0.29*	0.10	0.08	—	
Information	0.12	0.19*	0.21*	0.48*	0.24*	—

* Pearson correlation significant ($p < 0.001$).

TABLE 4. Principal components analysis of the need categories

Need category	factor 1	factor 2
ADL	0.89	-0.05
IADL	0.85	0.02
Arrangements	0.43	0.23
Nursing services	0.58	0.16
Psychosocial needs	0.00	0.85
Information	0.20	0.84
Eigenvalue	2.22	1.36
% of explained variance	37.0	22.7

considerable variety in services and the implausibility of a requirement for a large number of nursing services might be the cause of this result. The internal consistency of all items was examined and was found to be very moderate at 0.57. Since we did not want to discard the information on nursing services completely, this scale was included in further analyses. Nevertheless, results must be interpreted carefully.

The principal component analysis on the information items revealed one main factor and three small additional factors. The considerable variation between the content of the information items may be the cause of the multidimensionality. For reasons of parsimony we decided to treat the information items as representing a general information scale (alpha was 0.71).

Reducing the number of need scales

As can be seen in Table 3 ADL needs and IADL needs were highly correlated. These needs were also related to needs for material arrangements and nursing services. There was also a strong correlation between needs for

information and needs to talk about psychosocial problems. There seemed to be two global needs (Table 4): on the one hand needs which are important for physical functioning and, on the other hand, needs which are important for the psychosocial well-being of a person.

However, need categories within each dimension vary in terms of the amount of unmet needs (Table 5). This is most evident when considering the scales important for physical functioning. Most people with ADL problems were not always helped. Furthermore, a considerable number of the respondents lacked assistance with material arrangements. In contrast, those who needed nursing services generally received help.

There are also differences between the scales in respect to the formal and informal care-givers involved (Table 6). The first column of Table 6 shows the percentage of respondents who did not receive any help, although they reported needs for help. The highest percentage was found for arrangements: 40% required assistance but did not get any. People who needed IADL assistance and nursing services usually obtained at least some help. Over half of the respondents who needed ADL assistance or nursing services, were helped by formal care-givers. Formal help was often combined with informal help. Information was also often given by professionals. In contrast, IADL assistance and psychosocial help usually came from informal caregivers.

Table 5 and 6 indicate that care provision depends on the type of needs and consequently the need scales are not automatically suitable for clustering into two overall dimensions. For the evaluation of the quality of home care it is necessary to consider each category separately.

TABLE 5. Percentage of respondents with and without unmet needs

Need category	Respondents without unmet needs	Respondents with unmet needs	Total
	%	%	N*
ADL	8	92	297
IADL	56	44	293
Arrangements	31	69	150
Nursing services	86	14	131
Psychosocial needs	54	46	189
Information	40	60	195

*Respondents having no needs at all within a particular need category were excluded.

TABLE 6. Formal and informal care within each need category

	Care				Number of respondents N*
	No care at all %	Formal care only %	Formal + informal care %	Informal care only %	
ADL	24	29	22	25	297
IADL	10	11	22	57	293
Arrangements	40	29	9	22	150
Nursing services	9	41	15	35	131
Psychosocial needs	17	7	16	60	189
Information	30	44	16	10	195

*Respondents having no needs at all within a particular need category were excluded.

TABLE 7. Differences of satisfaction with formal home care among respondents with and without unmet needs

Need category	Without unmet needs		With unmet needs		sign.
	N	satisfaction	N	satisfaction	
ADL					
quantity	16	5.5	130	5.2	
quality	16	5.9	130	5.5	*
IADL					
quantity	62	5.3	38	4.4	*
quality	62	5.8	38	4.9	*
Arrangements					
quantity	31	4.6	25	4.7	
quality	31	4.6	25	5.0	
Nursing services					
quantity	69	5.3	5	3.8	*
quality	68	5.6	5	4.8	*
Psychosocial needs					
quantity	33	5.3	11	5.0	
quality	33	5.6	11	4.9	*
Information					
quantity	65	5.5	48	4.7	*
quality	65	5.5	49	4.9	*

*One-tailed *t*-test ($p < 0.05$).

Validation: Unmet needs and satisfaction

A person with unmet needs was expected to be less satisfied than a person with all needs fulfilled. This hypothesis was only partially confirmed (Table 7). Respondents with unmet needs concerning IADL, nursing services, and information were significantly less satisfied with the quantity, as well as the quality of the formal care. Respondents with unmet ADL needs and psychosocial needs were on the other hand only less satisfied with the quality of care. They were equally satisfied with the quantity of formal care. As far as arrangements were concerned no evidence was found for the validity of unmet needs as an indicator of the quality of home care.

DISCUSSION

In this study we investigated the extent to which it is possible to develop a method for the measurement of the quality of home health care for chronically ill elderly people. The study clearly demonstrates that it is important to consider a wider set of needs. The type of care and the amount of unmet needs varied among the different need categories. Generally, there is some evidence that unmet needs are a valid indicator for quality of home health care.

The clustering of ADL and IADL into one single need factor corresponds with other research, finding a unidimensional scale for ADL and IADL problems [9,10]. The distinction between needs referring to psychosocial well-being and other needs is also supported by other research [11].

Need estimates in this study were based on self-reports. A possible danger of this approach is that the interviewer may have triggered the respondent's awareness of particular needs. If this was the case, the gap between needs and received care was overestimated. A second possible danger is that social desirability may lead to under-reporting of some problems, for example, psychosocial problems. In such cases the number of unmet needs would be underestimated. A study comparing prevalence of ADL and IADL limitations among elderly people as determined by self-reporting and medical examination found no differences in the overall prevalence of help needed, but noted disparity

between self-reporting and clinical assessment on selected activities [12]. Consequently, the approach followed in this article seems to be accurate in assessing unmet needs.

Results suggest a relationship between type of need and source of care (formal/informal). The data correspond with the proposition that formal care-givers are best suited for tasks involving a specific interval of time and requiring technical skills, like ADL-care and nursing care [13]. Informal care-givers were involved with IADL needs and psychosocial needs. Accordingly, care has to be taken to reduce the needs to broad dimensions, depending on the objects of the research. When evaluating quality of home health care it is preferable to consider the original categories of needs.

In conclusion, this study shows that the gap between needs and home care can be used by researchers to evaluate the quality of home care for chronically ill elderly people. Indications for construct validity were found for five out of six need categories. A lack of help for material arrangements did not imply that the respondent was less satisfied. We do not have an unequivocal explanation for this result but we do have a presupposition. Many persons who received assistance with material arrangements said that they were not completely satisfied because the procedure had been difficult and long-lasting. They seemed to be disappointed. This explanation corresponds with the thesis that satisfaction depends on primary expectations [14,15]. Respondents in this study who are being helped may expect arrangements to be quickly organized. They may have had higher hopes than those who have not (yet) been helped.

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