

Quality of care from the perspective of elderly people: the QUOTE-Elderly instrument

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Abstract

Background: patient views on the quality of care are usually assessed by means of patient satisfaction questionnaires.

Aim: to develop an instrument that would: (i) produce data related to the expectations and experiences of non-institutionalized elderly people, (ii) contain items that had been formulated in collaboration with elderly people, (iii) measure quality from the perspective of the users of health care services and (iv) produce data on generic quality aspects and quality aspects specifically related to the needs of elderly people.

Methods: we developed the instrument for measuring quality of care from the perspective of non-institutionalized elderly people (QUOTE-Elderly) by using a combination of qualitative and quantitative methods. We obtained empirical data on the opinions and experiences of 338 elderly people. We evaluated the taxonomy of the instrument, internal consistency of (sub)scales and the feasibility of the instrument using explorative and confirmative factor analyses and reliability analysis.

Results: using scale optimization, we produced a self-administered questionnaire on quality of health care from the perspective of elderly people. This contains scientific characteristics and provides specific information for practical quality-assurance policies.

Keywords: elderly, home care, instruments, patient reports, patient satisfaction, quality of care

Introduction

Patient views on quality of care are generally assessed by patient satisfaction questionnaires. However, such questionnaires often produce highly skewed scores, with greater satisfaction being associated with higher age [1–3] and with scores being almost unrelated to individual levels of expectations or needs [4]. Also, patients are only occasionally involved in the development of instruments producing patient satisfaction scores [5]. In order to facilitate the empowerment of users of health and social care services in quality assessment and total quality management programmes, we believe a new generation of instruments is needed. Such instruments should (i) produce specific data on the performance of health care services, (ii) produce data related to individuals' needs and expectations and (iii) contain items formulated in collaboration with elderly people. The QUOTE-Elderly—the acronym 'QUOTE' stands for Quality Of care Through the patients' Eyes—is such a new instrument.

In this article we aim to describe the development process and psychometric characteristics of QUOTE-Elderly, which is based on the concept of Zastowny *et al.* [6]. Within this framework, quality of care is defined as the degree to which (perceived) performances of health and social care services meet the needs of people with respect to important aspects. Individual (*i*) performance or problem frequency scores (*P*) and importance scores (*I*) on different quality of care aspects (*j*) are used to calculate quality impact indices (*Q*), applying the formula $Q_{ij} = P_{ij} \times I_{ij}$. Quality aspects should cover different sub-dimensions, such as 'structure' (e.g. continuity of care, costs, accommodation and accessibility) and 'process' (e.g. courtesy, information, autonomy and competence).

Patients and methods

Focus group discussions

We used focus group methodology [7, 8] to generate a

pool of quality aspects as possible indicators for good quality of care. Two groups of elderly people—eight women and five men of 65 years or older—participated in a series of three focus panel discussions per group. The first two sessions were audio-taped and transcribed. We used the third session to test and discuss a pilot version of the instrument. Content clustering of the quality aspects mentioned in the focus panel discussions, combined with the results from three parallel studies [9], resulted in 45 aspects to be included in a first draft of the instrument. To examine the feasibility and to compare the cost-effectiveness of different modes of administration, we completed this first draft using a sample of 159 non-institutionalized elderly people who took part in a local ‘meals-on-wheels’ project [10].

Empirical testing

A second draft of the instrument, with 37 generic and 22 category-specific quality aspects, was sent to a random sample of 961 elderly people derived from the files of 75 general practices in the Netherlands. Inclusion criteria were: (i) being 65 or older, (ii) having used general practice services over the 2-month period before being selected, (iii) experiencing difficulties in activities of daily living and (iv) being able to complete a postal questionnaire. A total of 338 questionnaires (35%) was completed.

Measures

Questions included for methodological reasons refer to perceived health, disability level, contacts with health and social care services and socio-demographic characteristics (age, sex, educational level). We measured importance and performance ratings of the 59 quality aspects by 4-point Likert-type items. We asked non-specifically about the importance of most aspects. We calculated scores for the categories (1 = ‘not important’, 2 = ‘fairly important’, 3 = ‘important’ and 4 = ‘extremely important’) by linear transformation of standardized values (Z-scores) to values between 0 and 10 [9]. Performance items referred to contacts with general practitioners, hospital consultants, home helps and home care agencies. We dichotomized response categories (1 = ‘no’, 2 = ‘not really’, 3 = ‘on the whole, yes’, and 4 = ‘yes’) into percentages ‘yes’ and ‘no’.

Statistical analysis

Data analyses included item and inter-item analyses (non-response, skewness, correlations), explorative factor analysis (principal component analysis), with varimax rotation and Kaiser normalization), confirmative factor analysis (simultaneous component analysis) [11] and reliability analysis. The process of scale-optimization resulted in a new version of the

QUOTE-Elderly instrument with 16 generic and 16 category-specific quality aspects. Reliability and validity of the scales were evaluated primarily by looking at the importance scores. These importance ratings are assumed to be more stable and less situation-dependent than performance scores. We evaluated feasibility by a comparison of quality impact indices within and between health care services. We analysed differences in importance and performance scores using *t*-test statistics and tests on differences of percentages. *P* values lower than 0.05 are considered significant.

Results

This section concentrates on the QUOTE-Elderly instrument as it was derived from the second empirical test, with analyses being performed on the sample of 338 elderly people. Table 1 shows the main characteristics of this sample. Mean age of the response group was 78 years (SD 14.5), with ages ranging from 65 to 92 years. Chronic diseases frequently reported were heart failure (21%), high blood pressure (27%), arthroses (45%), rheumatoid arthritis (17%) and cancer (12%). In the year before receiving the questionnaire, 95% of the respondents were seen by a general practitioner. Respondents also had contact with other health care services—physiotherapists (40%), community nursing (21%) and home help services (47%).

With respect to the validity of the conceptual framework, confirmative factor analyses showed that

Table 1. Characteristics of the sample of elderly people (*n* = 338)

	%	<i>n</i>
Age		
65-74	24.2	76
75-84	50.6	159
85+	25.2	79
Unknown/no answer	-	24
Sex		
Men	33.2	106
Women	66.8	213
Unknown/no answer	-	19
Education		
Low (primary school)	53.1	179
Medium-high	46.9	133
Unknown/no answer	-	26
Subjective health		
Excellent	0.9	3
Very good	2.7	9
Good	33.0	109
Fair	50.0	165
Poor	13.3	44
Unknown/no answer	-	8
Physical limitations		
Severely limited	53.1	146
Slightly-moderately limited	46.9	129
Unknown	-	63

Table 2. Item content, factor labels, factor loadings and internal consistencies (Cronbach's α) of the QUOTE-Elderly; generic part ($n = 320$)

Quality of care indicator	Factor 1 (‘structure’)	Factor 2 (‘process’)
Process		
1 Take patients seriously	0.15	0.62
2 Keep appointments punctually	0.12	0.68
3 Patients have access to case notes/files	0.15	0.60
4 Patients receive information about combinations of medicines	0.49	0.44
5 Patient decides about treatment	0.23	0.62
6 Choice of another health care provider	0.27	0.52
7 Good understanding of the patient' problems	0.10	0.59
8 Work efficiently	0.15	0.71
Structure		
9 Access to hospital specialist within 2 weeks	0.71	0.22
10 Immediate home help after discharge from hospital	0.66	0.27
11 Good care co-ordination	0.61	0.37
12 Waiting time <15 min	0.24	0.32
13 Good accessibility by telephone	0.60	0.36
14 Medicines free of charge	0.71	0.11
15 Reimbursement of costs within 2 months	0.81	0.01
16 Costs/benefits balance	0.71	0.17
Consistency coefficient (α)	0.83	0.79

the assumed taxonomy in structure quality and process quality was only confirmed for the generic part of the instrument. Within the generic part of the QUOTE-Elderly, the ‘process’ dimension and the ‘structure’ dimension are both represented with eight items. For the category-specific a forced one-factor principal component analysis solution for the 16 items fitted the data best. The 32 items included in the QUOTE-Elderly, the underlying structure, factor loadings and internal consistencies are presented in Table 2 (generic part) and Table 3 (category-specific part).

Reliability and stability

We further explored the validity and stability of the instrument and its subscales for subgroups of elderly people. We broke down respondents' sub-categories by sex, level of education, subjective health and physical limitations. Table 4 shows that differences between the sub-samples with respect to the internal taxonomy of the instrument, factor loadings and internal consistencies are small. However, with respect to the mean scale and subscale scores, we found some small but significant

Table 3. Item content, factor labels and loadings and internal consistencies (Cronbach's α) of the category-specific part of the QUOTE-Elderly ($n = 320$)

Item	Factor 1 (category-specific)
17 Friendly attitude towards the patient/client	0.62
18 Willingness to discuss matters that have not run satisfactorily	0.64
19 Always allow enough time for the patient/client	0.59
20 Arrangements on what to do in an emergency	0.74
21 Information leaflet with any medicines dispensed	0.58
22 Information about the risks involved in any treatment	0.65
23 Prescriptions delivered to the patients' home address	0.59
24 No objections if the patient brings someone with him/her to an appointment	0.56
25 Considerations about home help before being discharged	0.70
26 Cover to be provided when my regular home help is ill or on holiday	0.61
27 Easy access for physically disabled or people in wheelchairs	0.64
28 Easy to get to by public transport	0.65
29 Easy to get to	0.71
30 General practitioner's phone switched through directly to the doctor on call	0.69
31 Home help for as many hours as the client needs	0.68
32 Possibility to determine how to allocate the budget for care services	0.62
Consistency coefficient (α)	0.90

Table 4. Means, standard deviations, internal consistencies and average inter-item correlations for the scales and subscales of the QUOTE-Elderly, broken down by different patient/respondent groups

QUOTE-Elderly scale/subscale	Patient/respondent group								Total
	Gender ^a		Education ^b		Subjective health ^c		Physical limitations ^d		
	1	2	1	2	1	2	1	2	
All (32 items)									
Mean scale score	201.5	212.5	210.6	207.9	196.1	216.9 ^f	207.3	205.9	208.8
Standard deviations	44.9	49.4	47.6	48.6	47.1	47.6	50.0	47.8	48.2
Cronbach's α	0.91	0.93	0.92	0.93	0.92	0.93	0.93	0.92	0.93
Average inter-item correlation	0.26	0.30	0.27	0.32	0.28	0.29	0.31	0.30	0.37
Generic part (16 items)									
Mean scale score	98.4	101.9	100.5	101.2	93.0	105.3 ^e	100.4	98.3	100.3
Standard deviations	24.4	25.3	25.1	24.9	26.0	24.9	26.8	25.8	26.0
Cronbach's α	0.85	0.86	0.85	0.86	0.87	0.85	0.88	0.86	0.87
Average inter-item correlation	0.27	0.29	0.28	0.30	0.32	0.28	0.32	0.29	0.30
Generic part, 'process' items (8)									
Mean scale score	50.6	51.4	51.0	51.4	48.5	52.5 ^e	50.3	50.8	50.9
Standard deviations	12.9	12.7	13.1	12.2	13.3	12.6	13.4	12.9	13.1
Cronbach's α	0.76	0.77	0.78	0.74	0.80	0.75	0.78	0.78	0.77
Average inter-item correlation	0.29	0.29	0.31	0.27	0.33	0.27	0.31	0.31	0.30
Generic part, 'structure' items (8)									
Mean scale score	47.1	51.4	50.5	49.3	44.6	53.0 ^g	50.1	47.9	49.9
Standard deviations	15.6	15.8	16.2	15.5	15.8	15.7	16.1	16.6	16.3
Cronbach's α	0.81	0.82	0.82	0.83	0.82	0.82	0.83	0.83	0.83
Average inter-item correlation	0.37	0.38	0.37	0.41	0.38	0.38	0.40	0.39	0.40
Category-specific part (16 items)									
Mean scale score	99.8	110.4	109.4	105.0	100.9	110.6 ^f	106.0	105.2	107.3
Standard deviations	27.4	26.9	26.1	27.9	26.6	27.7	27.2	27.2	28.0
Cronbach's α	0.89	0.90	0.88	0.91	0.89	0.90	0.89	0.90	0.90
Average inter-item correlation	0.35	0.35	0.32	0.40	0.34	0.37	0.35	0.37	0.37

^a1 = male, 2 = female; ^b1 = low, 2 = medium/high; ^c1 = good/excellent, 2 = poor/moderate; ^d1 = severe, 2 = slightly.

differences. A poor to moderate perceived health is associated with somewhat higher importance scores.

Feasibility

To test the feasibility of the QUOTE-Elderly, we applied the 32 items to the functioning of general practitioners, hospital consultants, and home helps and home care agencies. Since not every item is relevant to each service, this resulted in 24 quality impact indices for general practitioners, 25 indices for hospital consultants and 17 indices for home help and home care agencies (Table 5).

The relative importance of quality aspects are shown in the first column of Table 5. Quality aspects that received relatively high importance scores (7.8) are item number 27 ('The waiting and consultation rooms of hospitals, doctor's surgeries and other health and social care should be easily accessible for disabled people or people in a wheelchair') and number 22 ('Health and social care providers should inform me about the risks of treatment'). Prolonged waiting times (item number 12) received the lowest importance score (3.8). Standard deviations of the importance scores varied between 2.39 (item number 8) and 3.59 (item number 12).

Table 5 also shows performance scores of health and social care providers. With respect to general-practice services, the performance score of 0.05 for item number 1 indicates that 5% of the respondents report that they were not always taken seriously by their general practitioner.

The relative impact of importance and performance ratings on overall quality of care scores can be illustrated by the use of quality impact indices, presented in the quality columns of Table 5. Regarding the services of home care agencies, the quality impact of item number 20 ('information what to do in emergency situations') is rather high (4.16) as a result of the product of a high (non)performance score (0.57) and a high importance score (7.3). Quality impact indices can be compared within and between services and might facilitate the selection of quality aspects to be included in quality improvement and total quality management programmes.

Discussion

All quality of care aspects derived from the focus group discussions and included in earlier drafts of the

Table 5. Importance, performance and quality impact indices^a for the QUOTE-Elderly subscales, evaluating the services of general practitioners, hospital consultants and home-care services

Subscale	Importance (SD)	Group/index					
		General practitioners		Hospital consultants		Home-care services	
		Performance ^b	Quality	Performance ^c	Quality	Performance ^d	Quality
Process							
1 Take patients seriously	7.6 (2.4)	0.05	0.38	0.05	0.38	0.07	0.53
2 Keep appointments punctually	6.1 (2.5)	0.04	0.24	0.06	0.37	0.10	0.61
3 Access to case notes/files	4.6 (3.2)	0.13	0.60	0.25	1.15	0.41	1.89
4 Information about medicines	7.5 (2.5)	0.14	1.05	0.23	1.72	-	-
5 Patient decides about treatment/help	5.8 (3.1)	0.09	0.52	0.22	1.30	0.28	1.62
6 Choice of another care provider	5.7 (2.8)	0.11	0.63	0.23	1.31	0.20	1.14
7 Understanding of patients' problems	6.1 (2.7)	0.05	0.30	0.12	0.73	0.12	0.73
8 Work efficiently	6.7 (2.4)	0.04	0.27	0.05	0.33	0.10	0.67
Structure							
9 Access to hospital specialist	6.9 (2.6)	0.11	0.76	0.17	1.18	-	-
10 Home help after hospital discharge	6.8 (2.8)	-	-	0.36	2.45	0.17	1.16
11 Good care co-ordination	6.7 (2.5)	0.13	0.87	0.25	1.67	0.29	1.94
12 Waiting time <15 min	3.8 (3.6)	0.44	1.67	0.46	1.75	-	-
13 Accessibility by telephone	7.0 (2.6)	0.10	0.70	0.18	1.26	0.10	0.70
14 Medicines free of charge	6.0 (3.2)	0.21	1.26	0.21	1.26	-	-
15 Reimbursement of costs within 2 months	5.7 (3.3)	-	-	-	-	-	-
16 Costs/benefits balance	5.8 (3.3)	0.27	1.57	0.42	2.44	-	-
Category-specific							
17 Friendly attitude	7.0 (2.5)	0.03	0.21	0.03	0.21	0.01	0.07
18 Discuss problems/mistakes	6.0 (2.6)	0.09	0.54	0.16	0.96	0.13	0.78
19 Enough time during consultation	5.7 (2.7)	0.09	0.51	0.14	0.80	0.13	0.74
20 Emergency arrangements	7.3 (2.5)	0.50	3.65	0.53	3.87	0.57	4.16
21 Information leaflet with medicines	6.7 (2.9)	-	-	-	-	-	-
22 Information about risks of treatment	7.8 (2.5)	0.16	1.25	0.22	1.72	-	-
23 Home-delivery of medicines	6.3 (3.1)	-	-	-	-	-	-
24 Possibility to bring someone with me	5.6 (2.9)	0.02	0.11	0.00	0.00	-	-
25 Considerations about home help before discharge	6.8 (2.8)	-	-	0.27	1.84	-	-
26 Cover when my regular home help is absent	5.8 (3.0)	-	-	-	-	0.25	1.45
27 Accessibility for physically disabled people	7.8 (2.5)	0.19	1.48	0.05	0.39	-	-
28 Easy to reach by public transport	6.9 (3.0)	0.39	2.69	0.18	1.24	-	-
29 Easy to get to	6.6 (2.7)	0.17	1.12	0.18	1.19	-	-
30 General practitioner's phone switched to doctor on call	7.2 (2.8)	0.35	2.52	-	-	-	-
31 Home help for as many hours needed	5.8 (2.9)	-	-	-	-	0.18	1.04
32 Care budget is patient's responsibility	5.9 (3.2)	-	-	-	-	0.44	2.60

^aImportance index = mean score on a scale ranging from 0 ('not important') to 10 ('extremely important'), *n* = 300; performance index = percentage of respondents in the scale categories 1 ('no') and 2 ('not really'); quality index = importance × performance.

^bNumber of respondents varied between 192 and 306; ^cnumber of respondents varied between 144 and 221; ^dNumber of respondents varied between 89 and 195.

QUOTE-Elderly instrument are important for at least some of the respondents, and would contribute to the face validity of the scale. However, from a practical point of view, a scale with 60 or more items covering different services is simply too much. Based on the process of scale optimization and discussions with the focus panel discussion participants, we therefore decided to restrict the number of quality aspects to 32 items (or quality of care indicators) and apply these items to relevant primary and secondary health care services.

The 32 items included in the QUOTE-Elderly instrument refer to (i) 'process' quality, (ii) 'structure' quality and (iii) 'category-specific' quality. Aspects that refer to 'outcome' quality were not included. First,

because such measures were not mentioned in either the focus panel discussions or in the answers on 'open questions', so their validity for the 'quality of care from the patients' perspective' concept is questionable. Secondly, we believe that it is extremely difficult to define good quality of care in terms of outcome criteria, such as 'improved health care status' or 'less functional disabilities' for this specific group of elderly people (and for any other group of disabled or chronically ill people).

By concentrating on cognitive performance judgments, we believe that the QUOTE-Elderly circumvents the problems associated with (more subjective) patient satisfaction scores. Here we agree with Cleary and Edgman-Levital [12] that questions asking for 'reports'

tend to reflect better the quality of care and are more interpretable and actionable for quality improvement purposes than ratings of satisfaction or excellence. However, future research will have to clarify not only (i) the relationships between the QUOTE-Elderly and other quality of care instruments, but also (ii) the test-retest stability of the instrument and (iii) the sensitivity of the instrument with respect to changes in structure and process of health care services as a result of quality management. Such tests are presently being carried out as part of a series of community intervention trials.

The QUOTE-Elderly instrument described in this article is an assessment instrument for quality of care from the perspective of cognitively intact, non-institutionalized elderly people. The instrument can be regarded as a method, more than a set of items, developed in the Netherlands for non-clinical use. However, we believe that the conceptual framework underlying the new instrument can also be applied in other countries and other groups of people. When applied in other countries, a process of cross-cultural and cross-systems validation will be necessary, since health care systems differ from country to country and (within countries) sometimes from district to district. Such a process may be facilitated by focus group discussions with experts and patients.

With respect to the Dutch version of the QUOTE-Elderly, follow-up research will have to clarify whether the results are not affected by the relatively low response rate and can be generalized towards a 'normal' population of non-institutionalized elderly people in the Netherlands. If the results are valid, our conclusion would be that quality management programmes for elderly people should aim at topics such as (i) emergency procedures, (ii) adequate telephone services during nights and weekends, (iii) accessibility of practice locations, (iv) reduction of the time spent in waiting rooms, (v) adequate home help arrangements and (vi) better communication with elderly people about medicines prescribed and the risks of medical treatment.

Key points

- Most instruments for measuring user satisfaction have conceptual and validity problems; the new QUOTE-Elderly instrument tries to overcome these weaknesses.

- Users of health and social care services should be involved in the development and testing of quality of care measuring instruments from the outset.
 - By concentrating on (more cognitive) performance judgements instead of (highly subjective) satisfaction ratings, the QUOTE-Elderly circumvents the problems associated with traditional instruments.
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