Quality of hospital care evaluated by Danish nurses and doctors – based on experience from their own or a close family member's hospitalization

Finn Gyntelberg[1], *Poul Suadicani*[1], *DDS, Bo Andreassen Rix*[2], *Peder Skov*[3], *Poul Ebbe Nielsen*[4] *& Erik Juhl*[5]

1) Epidemiological Research Unit, Clinic of Occupational and Environmental Medicine, Bispebjerg University Hospital, Copenhagen NV, Denmark. 2) Department of Education, Bispebjerg University Hospital, Copenhagen NV, Denmark. 3) Clinic of Occupational Medicine, University Hospital of Roskilde County. 4) Department of Cardiology, University Hospital of Roskilde County. 5) The Lundbeck Foundation, Hellerup, Denmark.

Correspondence: Epidemiological Research Unit, Clinic of Occupational and Environmental Medicine, H:S Copenhagen University Hospital, Bispebjerg, Bispebjerg Bakke 23, DK-2400 Copenhagen, Denmark.

E-mail: FG01@bbh.hosp.dk

Dan Med Bull 2006;53:342-8

Abstract

Introduction: No studies have systematically asked larger groups of health professionals about their own experience as patients. This study estimated the level of satisfaction with hospital care among health professionals based on experience from their own hospital admission or that of a close family member.

Methodology: A cross-sectional questionnaire study of 1995 doctors (41% women) and 1472 nurses (98% women) drawn randomly from union registers. Response rate: 70%.

Results: Twenty-seven percent had themselves been hospitalized within the preceding five years, and 31% had followed a hospital stay for a close relative during the preceding two years. At least 85% were satisfied with these conditions: information from the hospital, nursing staff, and doctors before admission; quality of the sickroom; level of smoke exposure; quality of breakfast, lunch, and beverages; nursing staff's and doctors' communication with the patient, and; doctors' treatment and diagnostics. Dissatisfaction above 15% was seen for several other factors associated with facilities, care, and treatment. One severe observation was related to the degree of treatment complications, reported by 23% of the patients. When reporting on behalf of an admitted relative a tendency was found to be slightly more critical. Generally, the results of this study are in agreement with previous Danish studies on patient satisfaction.

Conclusion: The results of the present study indicate room for improvement in several respects in Danish hospital care: Better physical facilities, improved patient information, and a continuous quality surveillance to prevent treatment errors.

The quality of treatment, care and information among hospitalized patients has been evaluated in a number of studies during the last decades (1, 2). Most studies have shown a high degree of patient satisfaction; e.g., a national Danish study found that 90% of patients asked stated that their hospital stay was very good or excellent (3). In a comparable English study (4), 94% of patients rated their overall stay as good, very good or excellent, although in both studies criticism was expressed about some specific parameters (3, 4).

It has been shown that questionnaire studies including patient populations are quite reliable, with respect to overall satisfaction and treatment quality (1). It is far more difficult to measure or ascertain the validity of the patient answers to questionnaires. Patient expectations to hospital care may influence their answers (4), and, perhaps more important, only a small fraction of patients are health professionals, who, due to their professional insight, should be well equipped to evaluate which level of treatment, care and information a hospital patient should expect and accept. It is reasonable to assume that answers to questions on treatment complications and therapeutic errors given by observers with a professional background, would be more valid than answers from patients in general. In some studies the patients' evaluation of the quality of the treatment, service and communication during their hospitalization, has been compared to that reported by the health care staff (1, 5, 6). The professionals typically had a less positive opinion than the patients.

No previous studies have systematically asked larger groups of health professionals about their own experience as patients. This study was performed to explore the level of satisfaction with hospital care among health professionals based on experience from their own hospital admission or that of a close family member.

MATERIAL AND METHODS

This cross-sectional questionnaire study consisted of two parts:

Part 1. Doctors and nurses are queried about the quality of their own hospitalization during the preceding five years.

Part 2. Doctors and nurses are queried about the quality of the hospitalization of a close family member. To reduce the influence of a possible recall bias, reporting on behalf of a close relative was restricted to hospitalization within the preceding two years.

A questionnaire designed by the authors, based in part on previous patient satisfaction questionnaire studies, thus rendering information on conventional core issues associated with hospitalization, was sent to 2500 Danish registered nurses and 2500 Danish doctors randomly drawn from their union registers, which comprise almost every Danish nurse and doctor. In addition to questions concerning the hospital stay specifically, basic questions were asked about gender, age, number of years of education, and job title.

As a particular feature, to our knowledge never previously included in patient satisfaction studies, also questions on the participants' own psychosocial work environment were asked, in order to analyze if a negative psychosocial work load would influence the degree of satisfaction with the hospital admission, whereby an unrecognized bias could theoretically have been introduced. All questionnaires were sent from and returned to an independent IT management institution (UNI-C), where the questionnaires were scanned, and after labeling of variables, the database was sent to the authors for analysis.

Key questions in this study concern complications and unintended incidents and were phrased as follows: Did treatment complications occur during admission? Which complications? A similar question was asked regarding complications after discharge. Did the complication(s) lead to long-term illness? Disability? and (for relatives) Death?

In all, 3535 subjects returned the questionnaire, giving an overall participation rate of a little more than 70%, higher for the doctors, approximately 80%, than for nurses, approximately 60%. Eleven percent of study participants were retired. Among work active participants, the median age for nurses was 44, for doctors 47. A recent report from the Danish Ministry of Health has shown that the median age for nurses and doctors in Denmark was 42 and 47 (7). Including all participants in the present study, median age values were 46 and 49, respectively. These age characteristics and the high response rate, in particular for doctors, support the relevance, i.e. representativeness, of the study population. Questionnaires from 1995 doctors (41% women) and 1472 nurses (98% women) could be analyzed, and 3460 subjects had answered the question, if they themselves had been hospitalized within the last five years.

Within this group, 908 had been hospitalized within the last five years (27%). To the question if a close family member (mother, father, spouse/cohabitant or child) had been hospitalized for at least two days within the last two years, 3414 had given a useful answer, and 1048 participants (31%) stated that they had witnessed such a hospital stay.

Table 1. With study participant as patient: Quality of hospital facilities, care, and treatment. Items with a reported level of dissatisfaction >15% according to education, age, gender, the study participant's psychosocial work load, patient type, and complications. For readability, values are rounded to the nearest integer. Significant results in bold.

	Profession		Age group			Gender		Negative psychosocial work environment		Operation patient		Treatment complications	
Hospital facilities, care, and treatment	doctors n= 460	nurses n=439	–39 n=358	40-59 n=324	60+ n=192	F n=702	M n=202	yes n=283	no n=625	yes n=503	no n=405	yes n=207	no n=701
Too many patients in sickroom,%	28	29	28	31	26	31	21**	32	27	27	30	33	27
Would have preferred private room,%	**72**	**63****	**80**	**57**	**61*****	69	63	**74**	**64****	**64**	**72***	64	68
Dissatisfied with													
Sound conditions,%	27	30	30	30	25	**31**	**21****	**35**	**26****	27	30	32	27
Cleaning quality,%	**22**	**29***	25	26	27	27	21	29	24	25	26	**33**	**23****
Quality of sickbed,%	**11**	**24*****	**27**	**12**	**10*****	**20**	**6*****	**22**	**15***	17	18	**24**	**15****
Toilet conditions,%	21	25	22	25	22	25	19	27	22	**26**	**20***	29	22
Bathing facilities,%	21	26	23	26	21	24	22	**28**	**22***	26	21	29	23
Radio- and TV-facilities,%	24	25	**30**	**24**	**14*****	**27**	**19***	**29**	**22***	24	26	25	25
Possibility to use a telephone,%	27	27	**31**	**26**	**20****	**29**	**19****	30	36	27	27	31	26
Quality of living rooms,%	32	30	26	37	30	30	35	24	30	**36**	**25*****	37	30
Complications													
Treatment complications,%	21	24	20	26	23	22	23	25	22	**32**	**12*****	–	–
Complications after discharge,%	17	19	13	21	21	16	22	17	18	**23**	**11*****	**50**	**8*****
Dissatisfied with													
Quality of supper,%	**23**	**15****	**22**	**18**	**15***	20	17	**24**	**18***	18	21	21	19
Nurses' patient care,%	**11**	**20*****	**19**	**19**	**6*****	**19**	**7*****	**19**	**14***	17	14	**23**	**14****
Oral information at discharge,%	**13**	**19***	15	20	13	17	14	17	16	18	14	**27**	**13*****

*) p<0.05; **) p<0.01; ***) p<0.001 Chi^2 test or Kendall's tau B trend test (for age group).

Table 2. With study participant as patient: Covariates of dissatisfaction with quality of hospital facilities, care, and treatment. Multiple logistic regression analyses using backward elimination of variables. Independent variables included in all analyses: profession, age, gender, psychosocial work load, patient category,and treatment complications. Variables are presented according to strength of association with the outcome after adjustment. Variables with p>0.10 after adjustment are excluded. Odds ratio (95% confidence interval) = OR. Significant results (p<0.05) in bold.

Too many patients in sickroom	OR	Would have preferred private room	OR	Dissatisfaction with sound conditions	OR	Dissatisfaction with cleaning quality	OR	Dissatisfaction with quality of sickbed	OR
Women vs men	**1.7 (1.2-2.6)**	Age group		Women vs men	**1.6 (1.1-2.4)**	Treatment complications vs not	**1.6 (1.1-2.2)**	Age group	
		– 39	**1**					– 39	**1**
		– 40-59	**0.3 (0.2-0.4)**					– 40-59	**0.4 (0.3-0.6)**
		– 60+	**0.3 (0.2-0.5)**					– 60+	**0.4 (0.2-0.7)**
Treatment complications vs not	1.4 (0.96-1.9)	Nurses vs doctors	**0.5 (0.4-0.7)**	Psychosocial work load vs not	**1.4 (1.05-2.0)**	Nurses vs doctors	**1.4 (1.05-2.0)**	Nurses vs doctors	**2.5 (1.6-3.7)**
								Treatment complications vs not	**1.7 (1.1-2.5)**
								Psychosocial work load vs not	**1.5 (1.04-2.3)**

Dissatisfaction with toilet conditions rooms	OR	Dissatisfaction with bathing facilities	OR	Dissatisfaction with radio- and TV-facilities	OR	Dissatisfaction with possiblity to use a telephone	OR	Dissatisfaction with quality of living rooms	OR
Operation patient vs not	1.4 (0.99-1.9)	Operation patient vs not	1.3 (0.96-1.8)	Age group		Women vs men	**1.8 (1.2-2.8)**	Operation patient vs not	**1.6 (1.1-2.2)**
				– 39	**1**				
				– 40-59	**0.7 (0.5-1.0)**			Age group	
				– 60+	**0.4 (0.4-0.6)**			– 39	**1**
								– 40-59	**1.5 (1.1-2.2)**
								– 60+	**1.2 (0.8-1.8)**

Treatment complications	OR	Complications after discharge	OR	Dissatisfaction with quality of supper	OR	Dissatisfaction with nurses' patient care	OR	Dissatisfaction with oral information at discharge	OR
Operation patient vs not	**3.5 (2.4-5.0)**	Treatment complications during hospital stay vs not	**10.9 (7.3-16.3)**	Nurses vs Doctors	**0.5 (0.3-0.7)**	Treatment complications vs not	**1.9 (1.3-2.9)**	Treatment complications vs not	**2.3 (1.5-3.5)**
		Age group							
		– 39	**1**	Women vs Men	**1.8 (1.1-3.0)**	Age group		Nurses vs Doctors	**1.5 (1.0-2.3)**
		– 40-59	**1.7 (1.1-2.7)**			– 39	**1**		
		– 60+	**1.8 (1.0-3.0)**			– 40-59	**1.2 (0.8-1.8)**		
						– 60+	**0.4 (0.2-0.8)**		
						Nurses vs doctors	**1.6 (1.0-2.4)**		
						Women vs men	2.0 (0.95-4.2)		

DATA TREATMENT AND ANALYSIS

In the data analysis, in addition to the basic data on distribution of answers, conventional statistical methods were used: Chi-square test, trend test (Kendall's tau B), and logistic regression analysis, using backward elimination of variables, and the maximum likelihood ratio method. For readability, in the tables (except Table 2) all numbers have been rounded to the nearest integer value. Where relevant, p-values for the analysis results are presented in the tables. A two-sided level of significance of 0.05 was used. In the multivariate analyses we used the programme default allowing factors with $p<0.10$ to remain in the final adjusted model. With respect to Table 4, statistical comparisons between groups were regarded as irrelevant for most issues, and presentation of the data in this table should be regarded as descriptive only.

RESULTS

Regarding questions on satisfaction, typically four answer categories were possible: 1) Very satisfied, 2) Satisfied, 3) Dissatisfied, and 4) Very dissatisfied. With respect to questions on information from the hospital, from the nursing staff, and from the doctors, an additional category was possible: 5) None was given. For the analyses presented in tables, a dichotomous approach was used, i.e. groups 3 and 4 were regarded as dissatisfaction.

WITH STUDY PARTICIPANT AS PATIENT

Only items with a reported level of dissatisfaction above 15% are shown. A number of other items are not presented in tables because at least 85% of the participants were satisfied with these conditions: information from hospital, nursing staff, and doctors before admission; quality of the sickroom; level of smoke exposure; quality of breakfast, lunch, and beverages; the nursing staff's and doctors' communication with the patient during the hospital stay, and; doctors' treatment and diagnostics.

Table 1 shows the distribution of answers according to education, age, gender, the study participants' own psychosocial work load, patient category, and treatment complications. It appears that a vast majority would have preferred to have a private room, in particular among the youngest, among doctors, and among the group reporting a negative psychosocial work environment, defined as either a "much too fast work pace" and/or "little or no influence on work planning". More women than men found that there were too many patients in the sick room. The median number of patients in the sick room for those who reported that they would have preferred a room of their own was 3.5, compared to a median of 2.0 for the whole group of patients. Furthermore, this group was significantly more dissatisfied with the following physical facilities: sound conditions, cleaning quality, toilet and bathing, radio- and TV, access to telephone, quality of living rooms, and the quality of supper. Treatment complications during and after discharge did not differ (data comparing those who would have preferred a room of their own with those who did not are not shown in table form).

Dissatisfaction with sound conditions, i.e. the level of noise, was most frequently reported by women, and by those least satisfied with their own psychosocial work environment. Complaints concerning cleaning quality were most frequent among nurses and those with treatment complications. Dissatisfaction with the quality of the sickbed was most frequent among the youngest, among nurses and females, among those with treatment complications, and those with a negative psychosocial work environment. Operation patients and those with a perceived negative psychosocial work load, had the highest complaint rate with respect to toilet conditions and bathing facilities. The youngest group, and females, and those with a negative psychosocial work environment, had the most frequent complaints about radio- and TV facilities, and about possibilities for using a telephone. Operation patients were those most inclined to complain about the quality of living rooms.

Only status as operation patient was associated with a higher occurrence of treatment complications, and this was the case also for complications after discharge. Altogether, 867 of the 908 subjects who themselves had been hospitalized had answered the question on treatment complications; 197 (22.6%) reported that treatment complications had occurred; within this group, 190 subjects had answered the question on whether they considered the complication avoidable; 87 (45.8%) reported yes.

Those most dissatisfied with the quality of supper were the doctors, the youngest age group, and those with a negative psychosocial work environment. Dissatisfaction with nurses' patient care was most frequent among nurses, the youngest group, females, those with negative psychosocial work conditions, and those with treatment complications – the latter being also the patient group most likely to be dissatisfied with the oral information at discharge.

MULTIVARIATE ANALYSES

Table 2 shows which of the six participant subgroups were significantly associated with the items and conditions shown in Table 1 after multivariate analyses. Among the fifteen items, being an operation patient was the only significant covariate of dissatisfaction with respect to three conditions: dissatisfaction with toilet conditions, bathing facilities, and treatment complications, and the strongest covariate with respect to dissatisfaction with the quality of living rooms. Statistically, the strongest association with four other items: cleaning quality, complications after discharge, nurses' patient care, and dissatisfaction with oral information at discharge, was found for the group with treatment complications. This group also had the strongest odds ratio with respect to complications after discharge, 10.9. Most other odds ratios were not very high, in agreement with the relatively small differences between patient subgroups in the proportion of complaints for most items presented in Table 1.

Figure 1 and Figure 2 show the distribution of categories of treatment complications among men and women, respectively. Of the 908 study participants, 867 subjects had answered the question on complications. Patients were categorized according to their main

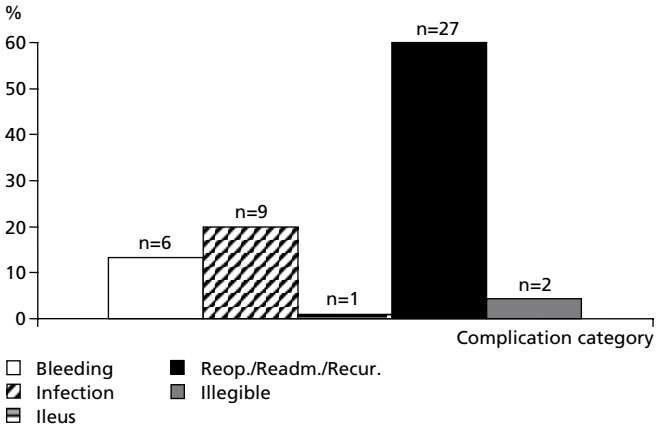

Figure 1. Treatment complication categories (main complaint) among men based on their own handwritten description: 45 of 198 men (23%).

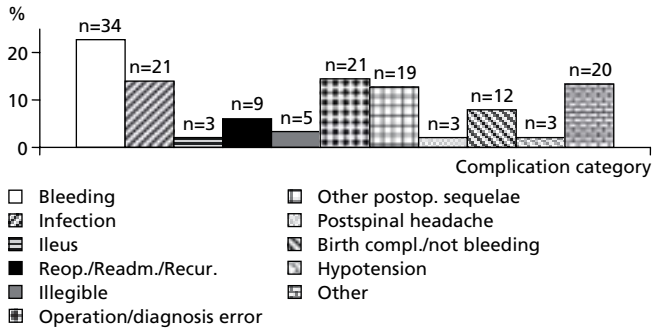

Figure 2. Treatment complication categories (main complaint) among women based on their own handwritten description: 150 of 669 men (22.4%).

complication. For both groups bleeding and infection were quite frequent dominant complications, but a variety of complications seem to be important for both groups, including complications having caused re-operation, re-admission or recurrence of the disease.

WITH A CLOSE RELATIVE AS PATIENT

Table 3 shows quality of general conditions, communication, care and treatment, stratified according to profession, age, gender, and perceived psychosocial work load of the reporter. Reporting con-

Table 3. With a close relative as patient: Quality of general conditions, communication, care and treatment. Results are stratified according to profession, age, gender, and perceived psychosocial work load of the reporter. Significant results in bold.

	Profession		Age group			Gender		Negative psychosocial work environment	
	doctors n= 584	nurses n=451	–39 n=264	40-59 n=579	60+ n=151	F n=682	M n=356	yes n=231	no n=817
Reporting concerns									
Mother,%	34	36	**31**	**40**	**21**	**36**	**32**	33	35
Father,%	24	28	**32**	**28**	**5**	**28**	**22**	27	25
Spouse/cohabitant,%	21	17	**13**	**14**	**52*****	**14**	**30*****	16	20
Child, boy,%	8	8	**14**	**6**	**5**	**9**	**6**	10	8
Child, girl,%	13	12	**11**	**12**	**18**	**14**	**10**	14	12
Visited the admitted daily/several times/week,%	**82**	**88****	85	84	85	85	83	88	83
Age of admitted, years, mean	58	58	44	63	65	**57**	**60***	**54**	**59***
Admittance year, mean	2003	2003	2003	2003	2003	2003	2003	2003	2003
Duration of admittance, if discharged (no. of days)	12	14	13	13	12	13	13	13	13
Acute admittance,%	72	74	76	73	67	**68**	**75***	76	71
Waiting time before admittance (no. of days), mean	44	55	50	47	49	53	42	48	50
Wating time much too long/too long,%	35	46	38	39	43	**43**	**32***	35	41
Was informed about treatment plan,%	76	75	76	74	78	74	77	73	76
Treatment complications,%	**26**	**32***	27	29	31	29	29	29	29
Complications caused									
Long lasting illness,%	11	15	12	13	12	13	12	13	12
Permanent injury,%	5	5	5	4	6	6	3	6	5
Death,%	5	7	4	6	6	6	6	6	6
Neither of the above,%	12	11	12	11	14	11	13	12	12
Believes the admitted has experienced treatment error,%	14	13	11	16	14	14	13	15	14
Treatment error caused									
Long lasting illness,%	7	8	**3**	**9**	**8***	8	6	8	7
Permanent injury,%	4	3	2	4	5	4	2	5	3
Death,%	3	3	2	3	2	3	3	4	2
Neither of the above,%	6	5	4	6	5	5	6	4	6
Expectations to care of the admitted before admission									
Positive,%	55	57	**45**	**58**	**69**	56	56	51	57
Neutral,%	43	41	**53**	**41**	**30*****	43	42	47	41
Negative,%	2	2	**3**	**2**	**1**	2	2	3	2
Expectations to doctors' diagnostics and treatment of the admitted before the admission									
Positive,%	67	62	**57**	**65**	**73**	63	67	60	66
Neutral,%	31	36	**41**	**33**	**26*****	35	32	39	32
Negative,%	1	2	**2**	**2**	**0**	2	1	2	2
Was the care of the admitted as you expected?									
Better than expected,%	**13**	**14**	17	12	13	**13**	**14**	12	14
As expected,%	**70**	**59****	63	65	68	**63**	**69***	67	64
Worse than expected,%	**17**	**27**	20	24	19	**24**	**17**	21	22
Doctors' diagnostics and treatment of the admitted as you expected									
Better than expected,%	12	12	**14**	**11**	**10**	12	13	13	11
As expected,%	66	67	**69**	**65**	**66***	67	66	65	67
Worse than expected,%	23	22	**17**	**24**	**24**	22	22	22	22
Kind of treatment received by the admitted									
Operation,%	46	44	**41**	**46**	**51***	44	46	44	46
Medicine,%	59	66	**67**	**64**	**48****	**65**	**57***	63	62
X-ray,%	3	2	**2**	**2**	**7****	2	3	3	3
Training,%	18	16	16	19	15	17	17	17	17
None of the above,%	6	7	4	6	8	6	6	6	7
Other,%	13	15	14	14	16	14	14	12	14
Complications/death									
Complication(s) of illness or treatment after discharge,%	20	24	23	21	23	23	21	25	21
The disease of the admitted has caused death,%	15	17	12	18	16	16	15	16	16

*) p<0.05; **) p<0.01; ***) p<0.001 Chi^2 test or trend test (for age group).

cerned most frequently mothers, least frequently boys. Of the nine reporter subgroups presented, only two differed statistically; reporting on spouses was most frequent among males, and among the oldest.

More than 80% of reporters had visited their relative several times a week (at least), most frequently the nurses. Approximately three quarters of the admissions of relatives were acute, and the waiting time approximately 50 days for those not acutely admitted. Approximately 40% of all reporters found that the waiting time was either much too long or too long. The dissatisfaction with information to the relative was rather low, around 15%.

Very small differences are seen between the strata of reporters concerning communication, care, diagnostics and treatment. The oldest, the females, and the nurses, were those most dissatisfied with one or more of these items (not shown).

Treatment complications with a close relative as patient were reported by approximately 30%, most frequently by nurses, and the complications were reported to cause long lasting illness in approximately 12% of relatives, permanent injury in approximately 5%, and death in about 6% of patients.

Approximately 14% of the reporters believed that their relative had been erroneously treated, and that this error had caused long lasting illness in approximately 8%, permanent injury in approximately 4%, and death in approximately 3%. All groups reported high expectations with respect to care, diagnostics and treatment of their close relative. The most positive were the oldest reporters.

Table 4. With a close relative as patient: Quality of communication, care, and treatment for a close relative. Results are stratified according to relative group: all, mother, father, spouse/cohabitant, child (boy), child (girl).

	All n=1048	Mother n=362	Father n=268	Spouse/ cohabitant n=204	Boy n=85	Girl n=129
Visited the admitted daily/several times/week, %	84	80	78	95	96	88
Age of the admitted, years, mean	58 median=66	74 median=76	74 median=74	55 median=55	11 median=6	18 median=17
Year of admittance	2003	2003	2003	2003	2003	2003
Duration of admittance if discharged (no. of days), mean	13 median=7	16 median=9	15 median=8	9 median=5	12 median=4	7 median=5
Acute admittance, %	73	74	74	58	86	78
Waiting time before admission (no. of days), mean	49 median=21	52 median=21	29 median=21	67 median=30	43 median=7	44 median=14
Waiting time much too long/too long, %	40	40	35	49	20	35
Was informed about treatment plan, %	75	69	74	81	82	84
Treatment complications, %	29	29	38	24	24	22
Complications caused						
Long lasting illness, %	12	14	13	9	9	13
Permanent injury, %	5	8	5	3	4	3
Death, %	6	7	10	3	2	1
Neither of the above, %	12	11	13	14	8	12
Believes the admitted has experienced treatment error, %	14	16	16	9	10	16
Treatment error caused						
Long lasting illness, %	7	8	6	4	6	10
Permanent injury, %	4	4	3	3	2	3
Death, %	3	4	4	1	0	2
Neither of the above, %	6	7	6	3	6	7
Expectations to care of the admitted before admission						
Positive, %	56	57	47	62	52	60
Neutral, %	42	41	51	36	47	36
Negative, %	2	1	2	2	1	4
Expectations to doctors' diagnostics and treatment of the admitted before the admission						
Positive, %	64	63	57	71	61	74
Neutral, %	34	35	41	29	39	22
Negative, %	2	2	3	0	0	3
Was the care of the admitted as you expected?						
Better than expected, %	14	12	12	13	19	17
As expected, %	65	61	68	69	57	71
Worse than expected, %	22	26	20	18	25	12
Doctors' diagnostics and treatment of the admitted as you expected						
Better than expected, %	12	12	10	14	12	14
As expected, %	67	66	67	71	64	62
Worse than expected, %	22	23	24	14	24	24
Kind of treatment received by the admitted						
Operation, %	45	47	42	57	37	33
Medicine, %	62	66	70	55	60	48
X-ray, %	3	3	2	4	2	2
Training, %	17	24	17	18	2	7
None of the above, %	6	4	5	7	7	14
Other, %	14	12	11	10	21	26
The disease of the admitted has caused death, %	16	19	29	9	4	1

Approximately one fifth of all reporters, found that the care was worse than expected. Around 12% found the care better than expected.

Around 20% found that diagnostics and treatment of doctors were worse than expected, and around 12% better than expected. The table also shows which kind of treatment was received and dissatisfaction with information at the time of discharge. Around one fourth of reporters were dissatisfied with the oral information, around 12% with the written information. Complications after discharge were reported by 20-25%. Approximately 16% of relatives had died from the disease for which they were admitted.

Table 4 shows quality of communication, care and treatment for a close relative, stratified according to relative group: all, mother, father, spouse/cohabitant, child (boy), child (girl). In this table a high degree of consistency in the distribution of answers is observed, independent of relative group. Applying our previously used pragmatic level of relevant dissatisfaction (>15%), waiting time was found too long for about 20 to 50% of relatives. A fair level of satisfaction with nurses' communication with the relative was found, but not with the care, where approximately 20% were dissatisfied. Around 25% were dissatisfied with the doctors' communication with the admitted, and between 16 and 26% were dissatisfied with the diagnostics and treatment performed by the doctors.

Twenty-nine percent of all relatives experienced treatment complications, 22% among girls, and 38% among fathers. Complications caused long lasting illness in approximately 11%, permanent injury in from 2.5% in spouses to 7% among mothers, death among 0.8% of girls and 10% among fathers; among one third neither of the above occurred. From 8.7% of spouses up to 16.1% of fathers were believed to have experienced a treatment error. Treatment error caused long lasting illness among 4.4% (among spouses) to 10% (among girls), permanent injury in around 3%, death among 0% (boys) up to 4.4% (among mothers), and neither of the above was experienced by approximately 40%. The figures in this table concerning expectations to care, and doctors' diagnostics and treatment, were very similar to what has been shown in Table 3, and independent of whether the respondent stated that the care was better or worse than expected.

Study respondents found doctors' diagnostics and treatment better or worse on the same level as shown in Table 3. Again, a strong consistency is found in the distribution of answers over subgroup strata, except that the disease of the admitted had caused death depended strongly on which relative the reporting concerned, range 0.9% (girls) and 28.7% (for fathers).

DISCUSSION

The present study gives information about three different aspects associated with hospital admission: the degree of satisfaction with the quality of 1) hospital facilities, 2) care and, 3) treatment. The results based on the nurses' and doctors' answers concerning their own hospital admission, provided information both on the physical standards and qualities of the hospital environment, and on the quality of care and treatment. The results based on the nurses' and doctors' answers concerning their close relatives gave information on care and treatment quality alone.

The level of satisfaction with the hospital environment was quite high with respect to a number of conditions. However, as seen in Table 1, dissatisfaction was found with several important hospital environment facilities, like toilet and bathing facilities, cleaning quality, noise and the quality of sickbeds. Dissatisfaction was also high with the low level of privacy as patient, and where satisfaction with breakfast and lunch was high, the quality of the supper did not achieve much appraisal. Patients who would have preferred to have a single room were more dissatisfied with other facilities. It could be argued that the opinions of doctors and nurses concerning hospital facilities are "worth" no more than patients' opinions in general. In our view, the opinion of professionals has higher value because they have better knowledge of the significance of hospital facilities, including the work environment, for patient treatment and care.

The multivariate analyses in Table 2 showed, that the level of satisfaction was dependent on characteristics of the study participants. The youngest age group (<40 years) seemed to be the most critical about hospital facilities, and women were the most dissatisfied with lack of privacy, noise, cleaning quality, and access to telephone. Nurses were less inclined to criticize the quality of the supper, but more dissatisfied with the quality of cleaning, and the quality of the sickbed. The dissatisfaction with lack of privacy, i.e. private rooms, was strikingly high, overall around 70%, and even higher in several subgroups. Obviously, the level of dissatisfaction with hospital facilities may call for improvements of the Danish hospitals.

With respect to the basic tasks of the hospital system, the overall level of satisfaction was quite high, and in accordance with the results of previous patient satisfaction studies. Around 85% were satisfied with communication items and patient care, although in some subgroups dissatisfaction was stated with the oral communication at the time of discharge from the hospital. Dissatisfaction in this respect was particularly relevant for the group of nurses, among whom almost one in five reported dissatisfaction, and among operation patients where more than one in four was dissatisfied. Both these groups were also more dissatisfied with the quality of patient care.

The prevalence of treatment complications was almost identical for men and women, almost 23%, and much higher for operation patients than for other patient categories, almost one in three reported complications. Within the group reporting treatment complications around 40% felt that the complication(s) could have been avoided. Assuming this level to be correctly estimated, it means that almost 10% of all patients experienced one or more complications, which could have been avoided. These estimates are in almost complete accordance with a previous Danish study using a quite different and more resource demanding method (8). Schiøler et al examined chart reviews from 1097 acute care hospital admissions, sampled from the Danish National Patient Register. Senior and experienced nurses and doctors performed all chart reviews. The investigators identified adverse events in 9% of all admissions, and it was estimated that around 40% of adverse events could have been prevented. As mentioned by the authors, their results were similar to results found in Australia (9), United Kingdom (10), and the United States (11). A major methodological problem in previous international and Danish studies on quality in patient care and treatment is the patient ability to answer questions on quality because of too little insight in a highly complicated professional field. This study is the first to try a new approach as a supplement to the existing literature – asking patients or patient relatives with a professional background. Of course a detailed peer analysis of patient records is an objective measure of quality, but elaborate and expensive. Accordingly, the method presented here may be worthwhile to apply in other countries or geographical areas.

Many of the questions asked about the quality of the hospitalization for a close relative were identical with the ones posed to study participants reporting on behalf of themselves. We did however omit questions which due to their inherent subjectivity could only have been answered by the patients themselves, such as questions on food quality, sickbed quality, noise conditions in the sickroom and the like. Where the questions asked concern both parts of the study, answers are quite comparable for most issues. This was particularly pronounced for questions on communication and expectations to the quality of treatment, diagnostics and care. Also the prevalence of complications among close relatives, approximately 25%, was comparable to that of the study participants when reporting on behalf of themselves. Among close relative patients a relatively larger group experienced complications due to medication errors than among the study participants; one reason for this could be that nurses and doctors as patients are more capable of detecting medication errors.

Among close relatives the prevalence of treatment complications and treatment errors was not insignificant. It is however an open question, as was the case when the study participants were the patients, whether the level of errors is acceptable - in the sense: unavoidable. Nevertheless, an improvement potential seems to exist. In two recent reports (3, 12) referring to all of Denmark and from the Copenhagen Hospital Corporation (HS) about evaluation of conditions associated with being a hospitalized patient, around 15% reported that they had experienced, or had been informed about, an error of treatment made during their hospital stay, a level comparable to that of the study presented here. It is furthermore interesting, that the proportion of patients in the HS study reported to have experienced operation complications with serious consequences was around 15 to 20%, a result quite consistent with the results of the present study, supporting that the reporting quality even from non health professionals may be quite satisfactory.

The results presented in this study indicate that in several respects there seems to be room for improvement in Danish hospital care: Better physical facilities, improved patient information, and a continuous quality surveillance to prevent treatment errors.

ACKNOWLEDGEMENT

The authors would like to thank the Ministry of the Interior and Health for giving financial support to the present study.

REFERENCES

1. Hendriks, AA, Oort, FJ, Vrieling MR, Smets EM. Reliability and validity of satisfaction with Hospital care Questionnaire. Int J Qual in Health Care 2002;14:471-82.
2. Zastowny TR, Stratmann WC, Adams EH, Fox ML. Patient satisfaction and experience with Health services and quality of care. Quality Management in Health Care 1995;3:50-61.
3. Den landsdækkende undersøgelse af patientoplevelser. Patienters oplevelser på landets sygehuse 2004. København: Enheden for Brugerundersøgelser, 2005. [In Danish].
4. Bruster S, Jarman B, Bosanquet N, Weston D, Erens R, Delbanco TL. National survey of hospital patients. BMJ 1994;309:1542-6.
5. Arnetz JE, Arnetz BB. The development and application of a patient satisfaction measurement system for hospital-wide quality improvement. Int J Qual Health Care 1996;8:555-66.
6. Thompson AGH, Suñol. Expectations as determinants of patient satisfaction: Concepts, theory and evidence. Int J Qual in Health care 1995; 7:127-41.
7. Rekruttering, Fastholdelse og Faggrænser i sundhedssektoren – En analyse af arbejdsmarkedet for læger og sygeplejersker. Rapport. København: Sundhedsministeriet, 2001: Kapitel 5. [In Danish].
8. Schiøler T, Lipczak H, Pedersen BL, Mogensen TS, Bech KB, Stockmarr A et al. Incidence of adverse events in hospitals. A retrospective study of medical records. Ugeskr Læger 2001;163:5370-8. [In Danish].
9. Wilson RM, Runciman WB, Gibberd RW, Harrison BT, Newby L, Hamilton JD. The quality in Australian health care study. Med J Aust 2001;163: 458-71.
10. Brennan TA, Leape LL, Laird NM, Hebert L, Localio AR, Lawthers AG et al. Incidence of adverse events and neglicence in hospitalized patients. Results of the Harvard Medical Practice Study I. N Engl J Med 1991;324:370-6.
11. Thomas EJ, Studdert DM, Burstein HR, Orav EJ, Zeena T, Williams EJ. Incidence and types of adverse events and negligent care in Utah and Colorado. Med Care 2000;38:261-71.
12. Patienters vurdering af hospitalsafdelinger i Hovedstadens Sygehusfællesskab. Spørgeskemaundersøgelse blandt 14.600 patienter. København: Enheden for Brugerundersøgelser på vegne af H:S, 2004. [In Danish].