COSTS AND QUALITY OF LIFE ASSOCIATED WITH OSTEOPOROSIS RELATED FRACTURES – RESULTS FROM A SWEDISH SURVEY

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Abstract

There are few studies investigating the consequences of osteoporotic (low bone density) fractures in terms of costs and health outcomes. The purpose of this Swedish pilot study is to assess the costs and quality of life related to fractures of the hip, spine, wrist and shoulder and further to identify important cost items that should be included in future studies in this area. Data were collected using a questionnaire administered by a nurse at Malmö University Hospital. The costs are collected based on a societal perspective and include both direct and indirect costs. Health effects were measured by the EuroQol questionnaire, rating scale method and the SF-36. The total costs varied between SEK 23 000 for a wrist fracture and SEK 63 000 for a hip fracture. Although that the response rate is low the cost and quality of life related to hip fracture are close to the results presented in other studies. The major new finding is that spine fractures are associated with higher costs and lower quality of life than previously assumed. Future studies must include a sufficient number of patients in order to obtain reliable cost and health effect estimates after osteoporotic fractures in general and after spine fractures in particular. Such studies will provide important inputs for health economic evaluations assessing the cost-effectiveness of the treatment and prevention of osteoporosis.

Keywords: costs, fracture, osteoporosis, quality of life

JEL-classification: D61, I10, I12.

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1. Introduction

There are few empirical studies investigating the consequences of osteoporosis related fractures in terms of costs and reduction in quality of life. There is a need for prospective naturalistic studies where individual cost and health effect data are collected related to fractures. In particular the consequences of fractures of the wrist, spine and shoulder are poorly investigated. The cost and health effect data are of great importance in health economic studies assessing the cost-effectiveness of the prevention and treatment of osteoporosis. To state the cost-effectiveness of different treatment alternatives in the osteoporosis field clinical studies must be complemented with modelling (Zethraeus et al. 2002). The data used in the models are of variable quality and usually the epidemiological data are better referenced to empirical studies than data on costs and quality of life. More accurate estimates of the cost and health consequences of osteoporotic fractures are needed in order to arrive at valid estimates of the cost-effectiveness of different prevention and treatment alternatives in the osteoporosis field.

The purpose of this study is to estimate the costs and quality of life consequences during one year after an osteoporotic fracture. The purpose is further to assess the method of data collection and to identify relevant cost items that should be included in future studies estimating the costs related to a fracture. Cost and health outcome data are collected in the south of Sweden (Malmö General Hospital) and include hip, spine, wrist and shoulder fractures.

2. Method

The data were collected by using a questionnaire that was administrated by a research nurse at the orthopaedic department in Malmö University Hospital in the south of Sweden. Cost data were collected for one year after the fracture by investigating patient records and by interviewing the patient by phone. The costs were collected from a societal perspective including direct and indirect costs and are reported in the prices of 2000. Direct costs include inpatient care, X-ray examinations, operations performed on an outpatient basis, cost for different kind of visits, and costs for elderly care in the municipality. Indirect costs refer to the value of the production foregone due to sick leave or early retirement.

All fracture patients were recruited at the orthopaedic department at Malmö University hospital. Included fractures were hip, spine, wrist and shoulder fractures. A quality of life questionnaire was sent out to the patient at the time for the first admission to the orthopaedic department. The quality of life questionnaire included the EuroQol-5D questionnaire and the SF-36 questionnaire. The patient filled in the five dimensions in the EuroQol-5D questionnaire and also the enclosed visual analogue scale. Each patient was asked to fill in the EuroQol-5D questionnaire based on the health status he/she experienced at the time for the interview. The interview was carried out 2 weeks, 6 months, 9 months and 12 months after the fracture event. The EuroQol-5D questionnaire is a general quality of life instrument that divide health status into five dimensions: mobility, self-care, usual activities, pain/discomfort, and anxiety/depression (Brooks 1996). Each dimension is divided into three degrees of severity: no problem, some problems, major problems. The five health dimensions divide health status into 243 (3^5) possible health states. Recently a social tariff was presented by Dolan et al. (1997) that generates population based TTO utility values for the EuroQol health states. The social tariff was then used to estimate the utility values after the fracture. Further we have used the SF-36 instrument which is aggregated into 8 dimensions defined as physical functioning, role-physical, bodily pain, general health, vitality, social functioning, role emotional, and mental health. Each dimension is scored between 0 and 100 and values represent the percentage of the highest possible score achieved (Sullivan et al. 1994).

The first interview was carried out about two weeks after the first visit to the hospital. Patients included in the study had a fracture in the year of 1999 and 2000 and was 50 years of age or older. The first questionnaire was sent out in the beginning of 1999 (January/February) and the study was completed in 2000 (March). 533 questionnaires were sent out to hip fracture patients, 210 to shoulder fracture patients, 334 to wrist fracture patients and 172 to spine fracture patients. After 6 months a new quality of life questionnaire was sent out to those who returned the first questionnaire. After 9 months a new questionnaire was sent out to all patients that returned the questionnaire that was sent out after 6 months. Finally a last quality of life questionnaire was sent out after 1 year to patients that had returned the questionnaire sent out after 9 months. For patients who returned the quality of life questionnaire sent out after 1 year, costs for the last year were collected. The number of questionnaires that was returned for week 2 amounted to 95 (hip), 52 (shoulder), 139 (wrist), and 43 (spine). This corresponds to a response rate of 18, 25, 42 and 25% respectively. At 6 months the number of returned questionnaires amounted to 71 (hip), 40 (shoulder), 117 (wrist), and 29 (spine). At 9

months they amounted to 61 (hip), 38 (shoulder), 100 (wrist), and 22 (spine). Finally the number of questionnaires that was returned at 12 months amounted to 49 (hip), 33 (shoulder), 87 (wrist), and 14 (spine). The costs were collected by a research nurse at the department of orthopaedics who investigated the patient records and phoned the patient for some follow up questions[7].

3. Results

Costs

Table 1 below summarises the patient characteristics of the patients for whom cost data are collected. The mean age in the four fracture groups is 73 years (range between 51-92 years) and the majority of patients come from a private residence. The proportion women exceed 60% in all the four groups. All the hip fracture patients are admitted to the hospital after the emergency department visit, while no more than 60% of the patients in the spine, wrist and shoulder fracture groups are admitted.

Table 1. Patient characteristics.

	Hip	Spine	Wrist	Shoulder
Sample size	42	16	50	34
Mean age (range)	75 (51-90)	75 (56-90)	72 (54-92)	72 (54-88)
Fraction private residence (%)	95	100	96	100
Proportion women	62	94	88	79
Proportion admitted the first day	100	38	12	24

Table 2 shows the mean value of the quantities of e.g. visits and hospital days that are related to the different fracture groups. Table 2 shows that the mean number of admissions is lowest for wrist fracture patients and highest for hip fracture patients. The most frequent visit for an average hip and shoulder fracture patient is a visit to the physiotherapist. For a wrist and spine fracture patient the most common visit is a hospital and primary care physician visit respectively.

[7] Due to a reclassification of some of the fractures, the number of spine and shoulder fractures in the cost estimation exceed the number of returned questionnaires one year after the fracture.

Table 2. Included cost items and mean values of different resource quantities for different types of fractures for 12 months following fracture.

Cost items	Hip	Spine	Wrist	Shoulder
Admissions orthopaedics	1.0	0.4	0.2	0.4
Hospital days other departments	1.0	2.9	0.5	1.0
Operations fracture, outpatient care	0	0	0.2	0
X-ray examinations, fracture	3.4	3.7	2.3	2.3
Visits orthopaedics				
-Physician	1.4	1.4	2.9	2.1
-Physiotherapist	4.5	0.6	1.8	11.6
-Nurse	0.2	0.3	0.5	0.1
-Occupational therapist	0.6	0.1	2.0	0.3
-Plaster assistant	0	0.1	0.6	0.1
Physician visits primary care	1.4	1.7	0.9	1.1
Other hospital visits	2.6	0.8	0.8	1.0
Phone contact nurse	0.2	0	0	1.0
Home visits:				
-Physician	0	0	0	0
-Nurse	0	0.1	0	0
-Occupational therapist	0.3	0.1	0	0
-Physiotherapist	0.4	0	0	0
Hours elderly care	22.3	22.8	7.3	64.6
Indirect costs (hours sickleave)	0	172.5	18.4	26.8

Table 3 below specifies the unit costs that are multiplied with the quantities (in Table 2) to obtain the costs presented in Table 4.

Table 3. Unit costs for the cost items identified

Cost items	Price/unit	Source
Admission hip fracture	44 132	Centre for patient classification 1998
Admission spine fracture	24 044	Centre for patient classification 1998
Admission wrist fracture	20 150	Centre for patient classification 1998
Admission shoulder fracture	27 493	Centre for patient classification 1998
Hospital days other departments	3 933	Hospital list region south of Sweden
Operations wrist fracture, outpatient care	27 078	Price list Linköping University Hospital
X-ray examinations, fracture		
-Hip	615	Hospital list region south of Sweden
-Spine	625	Hospital list region south of Sweden
-Wrist	607	Hospital list region south of Sweden
-Shoulder	610	Hospital list region south of Sweden
Visits orthopaedics:		
-Physician	1 091	Hospital list region south of Sweden
-Physiotherapist	316	Henriksson et al. 2000
-Nurse	450	Henriksson et al. 2000
-Occupational therapist	500	Henriksson et al. 2000
-Plaster assistant	500	Assumption based on the cost of a occupational therapist
Physician visit primary care	910	Henriksson et al. 2000
Other hospital visits	1 264	Hospital list region south of Sweden
Phone contact nurse	30	Assumption based on half the cost of a GP phone contact (Henriksson et al. 2000)
Home visits:		
-Physician	1 638	Henriksson et al. 2000
-Nurse	810	Henriksson et al. 2000
-Occupational therapist	900	Henriksson et al. 2000
-Physiotherapist	569	Henriksson et al. 2000
Hours elderly care	130	Henriksson et al. 2000
Average number of hours sick leave	180	The average cost of labour in Sweden in 1998

The total costs varies between SEK 23 000 for a wrist fracture and SEK 63 000 for a hip fracture, which is close to the total cost for a spine fracture. The hip fracture is associated with the highest direct costs, which is explained by the relatively higher costs for inpatient care in the orthopaedic department. The higher direct costs for hip fracture compared with spine fracture is offset by lower indirect costs, which implies that the mean total costs are almost the same for hip and spine fractures.

Table 4. Mean costs in the different fracture groups.

Cost items	Hip	Spine	Wrist	Shoulder
Admissions orthopaedics	46 233	9 016	3 627	9 704
Hospital days other departments	3 839	11 553	2 045	3 817
Operations fracture, in outpatient care	0	0	4 332	0
X-ray examinations, fracture	2 094	2 305	1 372	1 417
Visits orthopaedics:				
-Physician	1 520	1 500	3 142	2 342
-Physiotherapist	1 407	178	556	3 657
-Nurse	86	141	225	53
-Occupational therapist	286	31	1 020	162
-Plaster assistant	0	63	300	29
Physician visit primary care	1 278	1 536	783	964
Other hospital visits	3 280	1 027	1 011	1 264
Phone contact nurse	5	0	0	31
Home visits:				
-Physician	39	0	0	0
-Nurse	0	51	0	0
-Occupational therapist	236	113	0	0
-Physiotherapist	217	0	0	0
Hours elderly care	2 900	2 958	949	8 404
Direct costs	63 420	30 470	19 362	31 845
Indirect costs	0	31 050	3 312	4 823
Total Costs	63 420	61 520	22 674	36 667

Quality of life and general health

Table 5. Rating scale and social tariff values at the four measurement occasions after fracture. Standard deviations within parenthesis.

	Social tariff values				RS-values			
	2 weeks	6 months	9 months	12 months	2 weeks	6 months	9 months	12 months
Hip fracture	0.42 (0.32)	0.64 (0.27)	0.60 (0.31)	0.58 (0.31)	0.54 (0.20)	0.64 (0.21)	0.62 (0.23)	0.64 (0.23)
N	86	65	58	46	82	66	55	44
Spine fracture	0.21 (0.30)	0.49 (0.28)	0.51 (0.35)	0.57 (0.35)	0.44 (0.20)	0.55 (0.21)	0.59 (0.23)	0.59 (0.27)
N	40	28	20	12	37	28	21	12
Shoulder fracture	0.36 (0.30)	0.69 (0.25)	0.66 (0.26)	0.65 (0.29)	0.50 (0.23)	0.71(0.18)	0.67 (0.21)	0.70 (0.22)
N	46	40	37	30	49	39	37	31
Wrist fracture	0.54 (0.27)	0.76 (0.22)	0.81 (0.21)	0.82 (0.20)	0.64 (0.22)	0.73 (0.20)	0.76 (0.18)	0.76 (0.20)
N	126	103	92	80	132	114	95	83

Table 5 shows the TTO and RS values after a fracture. Spine fractures are associated with the lowest quality of life at each measurement occasion measured either by the rating scale or the EuroQol questionnaire (see also Figure 1 and 2). This result is confirmed by the SF-36 instrument (Figure 3), which shows that the score on the general health dimension is lowest for spine fractures at all the measurement occasions (see also the Appendix Tables A1-A4). Wrist fracture is associated with the highest quality of life, which is also seen for the general health dimension in the SF-36.

Figure 1. Quality of life during a year after fracture (Social tariff)

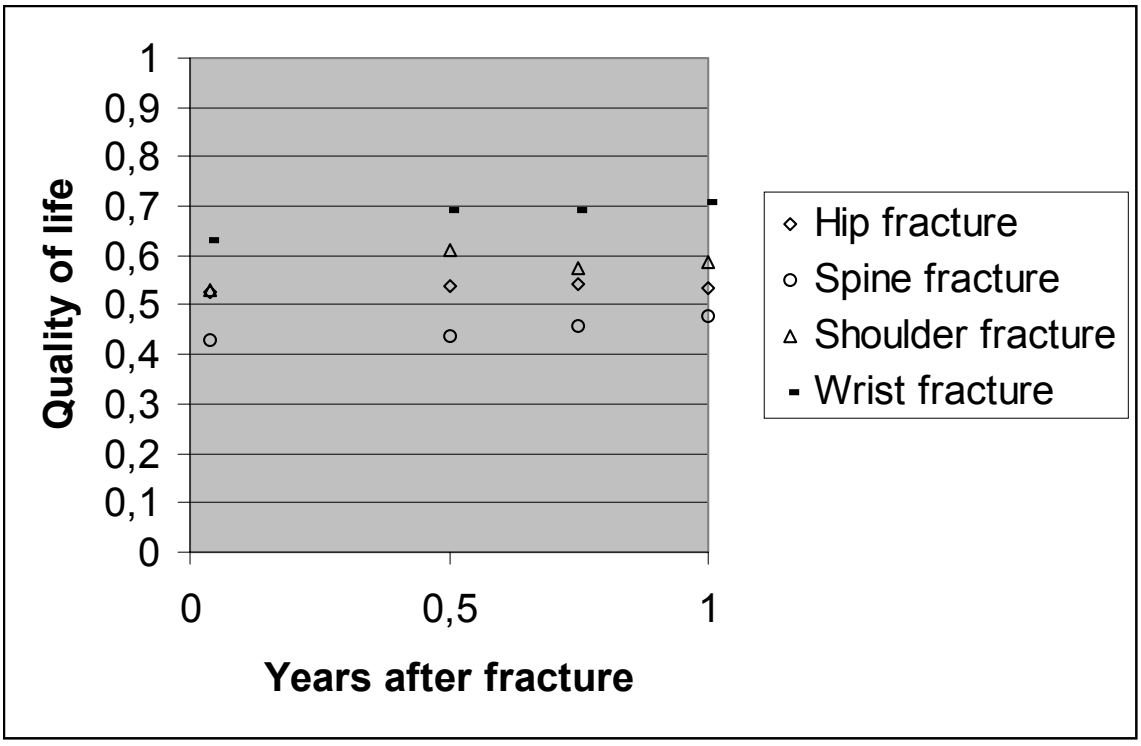


Figure 2. Quality of life during a year after fracture (Rating scale).

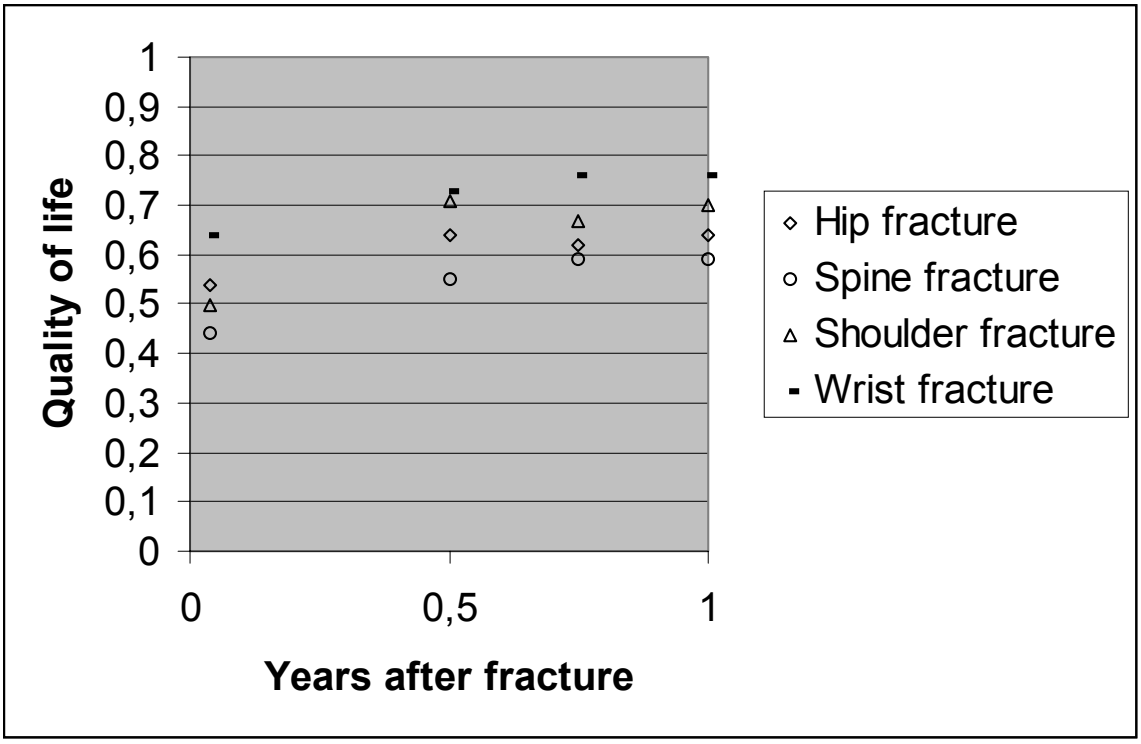
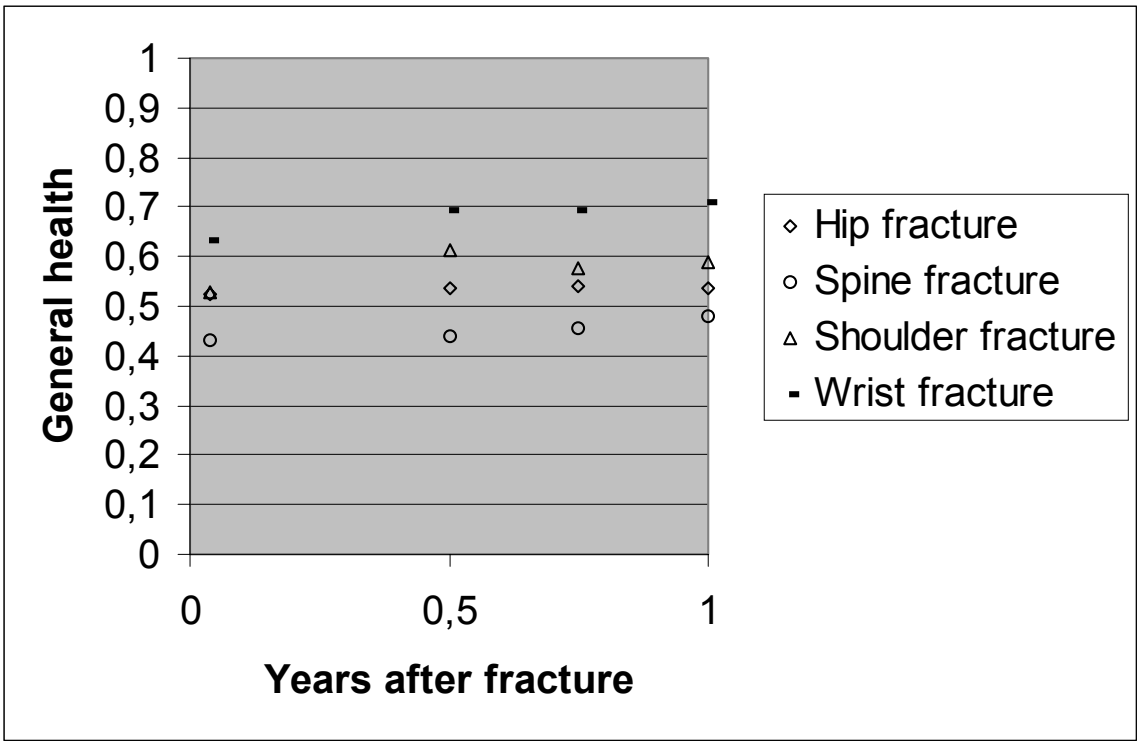


Figure 3. General health after fracture according to the SF-36.



4. Discussion

The above calculations are based on a small patient sample and the findings should be interpreted with caution. The results according to above however give valuable information on which costs that are important to include in future questionnaires intended for cost data collection. Further it shows that health effects can be assessed by the use of the EuroQol-5D questionnaire and the rating scale method.

The response rate in the study was relatively low and varied two weeks after the fracture between 18 and 42% in the hip and wrist fracture group respectively. The relatively low response rate is due to that no remainder was sent out to the patients and that the patients' quality of life were negatively affected after the fracture. The latter is confirmed by the fact that the response rate and quality of life in the wrist fracture group was highest compared with the other fracture groups.

The cost estimations for spine fracture are close to costs presented in Jönsson et al. (1995). Multiplying the quantities assumed in that paper with the prices from the year 2000 gives a cost of a spine fracture of SEK 33 000 which can be compared with the direct cost estimates in this study of SEK 30 000. The costs for wrist fracture (19 000) are somewhat higher than the updated costs for wrist fracture estimated at SEK 6 400, which is explained by costs for other visits and inpatient care. The direct costs the first year after hip fractures amount to about SEK 63 000, which is below estimates found in Zethraeus et al. 1997 (SEK 150 000) and in Zethraeus and Gerdtham (1998) who estimated the mean costs at SEK 210 000. One explanation is that these studies include older patients and that they also include other costs that arise in the municipality such as costs for group living, home for the elderly and nursing home. The lack of estimated drug costs were due to that the costs for pharmaceuticals were poorly registered in the patient records. Usually it was only indicated which drug that was prescribed, not the dose or the period for the prescription. Drugs for pain control was the most common drug type prescribed (54% of all the patients). 50% of the shoulder fracture patients, 75% of the spine fracture patients, 26% of the wrist fractures and 83% of the hip fracture patients received a prescription including a drug for pain control. Only 2 (spine fracture patients) out of 142 patients (1.4%) received an osteoporosis prescription (12.5% of the spine fracture patients). The low share of osteoporosis prescriptions may be surprising in the light of

the treatment recommendations presented in the osteoporosis area by for example the Swedish Medical Product Agency (Information från Läkemedelsverket 2001).

In the pilot study we have also collected data on indirect costs. The majority of patients in the study were found outside the working force due to retirement. The share of patients being outside the working force was 100% in the hip fracture group, 92% in the wrist, 88% in the spine, and 85% in the shoulder fracture group. Although the share of patients being part of the working force is small the indirect costs can be significant. For example in the spine fracture group, the indirect costs constituted 50% of the total costs the first year after.

The quality of life estimated in this study after hip fracture is similar to estimates found in other studies (Tidermark et al. 2002a, and Tidermark et al. 2002b). In Tidermark et al (2002b) the quality of life measured by the EuroQol-5D was 0.44 one week after, and 0.55 four months after, and 0.51 at 17 months after the fracture. This is rather close to the estimates obtained in this study: 0.42 two weeks after, 0.64 six months after fracture, 0.60 nine months after and 0.58 twelve months after the fracture. In both studies the quality of life weight increases up to 4-6 months after hip fracture and then decreases slightly. In a US-study Tosteson et al. (2001) measured the quality of life by using the time trade-off method for women with a previous fracture. The mean quality of life weight for spine fracture patients, on average 2.3 years after the fracture, was 0.82, while the corresponding value for hip fracture patients, on average 5.3 years after the fracture, was 0.63. The mean quality of life value for women without a previous fracture was 0.91.

There is a need for further studies investigating the cost and health consequences of osteoporosis related fractures in the long run including also the episode after the first year after fracture. The studies should include a sufficient number of patients to be able to obtain reliable estimates of the costs and health outcomes after fractures. Particularly there is a need for further studies investigating the costs and health consequences after a spine fracture which in this study is similar to a hip fracture in terms of costs and health consequences, which is not assumed in previous studies (Jönsson et al. 1995). The number of spine fractures are few in this study compared to the other fracture types included. One reason is that many of the spine fractures do not relate to any obvious symptoms and may be unreported, which is confirmed by the fact that only about one third of new spine fractures come to clinical attention, e.g. to the emergency department or primary care (Nevitt et al. 1998).

Based on the experiences found in this pilot study a large prospective study in Sweden is started. The purpose of the study is to collect individual cost and health effect data and to estimate costs and health effects related to osteoporosis related fractures of the hip, wrist and spine. Totally 2 000 patients will be included in the study, 500 hip and wrist fracture patients and 1 000 spine fracture patients. The patients are recruited from different hospitals in Sweden and for each patient cost and health effect data will be collected for a period of 18 months. Health-related quality of life is assessed at four points in time (just after fracture, 4, 12 and 18 months after the fracture). The study will be conducted on men and women subject to an osteoporosis-related fracture, i.e. the fracture should not be caused by high-energy trauma. For vertebral fracture patients the fracture will be confirmed by an X-ray examination. Only patients over the age of 50 will be included in the study. The patients must be able to fill out the questionnaires and patients with dementia will be excluded from the study. The physician will make the decision to exclude patients on this criterion.

The study is divided in 4 phases. The purpose of phase I is to estimate the health status just after and before fracture by the use of the visual analogue scale and the EuroQol questionnaire. In phase II, the purpose is to estimate the mean fracture related costs during the period 4 months after the fracture and the average health status level at 4 months after fracture. The purpose of phase III is to estimate mean fracture related costs during the period 5–12 months after the fracture and health status at 12 months after fracture. Finally the purpose of phase IV is to estimate mean costs during the period 13-18 months after fracture and health status at 18 months after fracture. A research nurse at each clinical centre is responsible for the data collection which are carried out by the help of a questionnaire, which is filled in by the use of patient records, register sources and by asking the patient. Each patient will be interviewed by phone at 4, 12 and 18 months after the fracture. The questionnaire is computer-based which means that all the data are saved on a file in a database, which facilitates the monitoring of the data collection.

The following fracture related cost and health effect items are collected: 1. Inpatient care - The number of admissions. 2. Outpatient care – The number of outpatient based operations and X-ray examinations. The number of visits in hospital, primary care, and other-place (e.g. occupational therapist, physiotherapist and home visits). 3. Social services - The number of days in different kind of livings related to the fracture are collected e.g. number of days in

home for the elderly, group living and nursing home, and the number of hours per week that patients receive home care from the community service. 4. Informal care - The number of hours per week that the patient receives help from family or friends. 5. Transportation – The number of times per week patients use taxi or the community transportation service. 6. Pharmaceuticals - The pharmaceutical consumption is examined from patient records and focus on a few groups of pharmaceuticals that are especially important for this group of patients, e.g. drugs for pain control and drugs used on the indication osteoporosis (the cost items above (1-6) can be referred to as direct costs). 7. Indirect costs – Information is collected on the working status and the number of days of absence from the work that are related to the fracture. 8. Quality of life - Quality of life estimates are obtained by the EuroQol-5D method.

This study has provided valuable information on how to design and construct future prospective studies in the osteoporosis area. The results for hip fracture are similar to previous studies. The major new finding is that spine fractures are associated with higher costs and lower quality of life than previously assumed. The quality of life result is also consistent between the different measures used in the study. Future studies must include a sufficient number of patients in order to obtain reliable cost and health effect estimates after osteoporotic fractures. In particular the studies should be aimed at investigating the health and cost consequences related to spine fracture. Such studies provide important inputs for health economic evaluations assessing the cost-effectiveness of the treatment and prevention of osteoporosis.

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APPENDIX

Table A1. Mean, median and standard deviation of the SF-36 questionnaire aggregated in the 8 dimensions at the four measurement occasions. Wrist fractures.

Wrist fracture

	Mean value	***Median***	***Standard deviation***
2 weeks (n=97)			
Physical Functioning	54,2	60	24,1
Role-Physical	13,9	0	30,2
Bodily Pain	37,6	41	22,3
General Health	63,2	65	23,2
Vitality	49,2	50	26,0
Social functioning	70,0	75	25,9
Role-emotional	37,1	0	44,6
Mental health	65,9	68	25,1
6 months (n=85)			
Physical Functioning	70,6	75	24,9
Role-Physical	62,6	75	43,1
Bodily Pain	66,2	72	26,3
General Health	69,4	72	23,6
Vitality	68,3	70	22,3
Social functioning	86,8	100	22,5
Role-emotional	76,1	100	39,4
Mental health	80,5	84	19,2
9 months (n=78)			
Physical Functioning	76,3	82,5	20,5
Role-Physical	60,6	100	44,8
Bodily Pain	65,7	62	25,8
General Health	69,4	74,5	22,6
Vitality	68,5	72,5	24,7
Social functioning	84,9	100	25,4
Role-emotional	67,9	100	42,5
Mental health	80,8	84	20,4
12 months (n=64)			
Physical Functioning	75,5	80	20,0
Role-Physical	62,1	75	43,0
Bodily Pain	71,3	74	25,0
General Health	71,0	77	22,1
Vitality	74,3	75	31,9
Social functioning	88,7	100	23,5
Role-emotional	74,0	100	41,3
Mental health	81,9	88	20,8

Table A2. Mean, median and standard deviation of the SF-36 questionnaire aggregated in the 8 dimensions at the four measurement occasions. Spine fractures.

Spine fracture

	Mean value	*Median*	*Standard deviation*
2 weeks (n=26)			
Physical Functioning	33,3	20,0	35,0
Role-Physical	6,7	0,0	21,9
Bodily Pain	15,4	12,0	17,0
General Health	43,1	40,0	23,6
Vitality	25,8	15,0	25,0
Social functioning	35,6	31,3	33,1
Role-emotional	16,7	0,0	34,3
Mental health	45,4	46,0	29,4
6 months (n=18)			
Physical Functioning	32,2	22,5	27,5
Role-Physical	16,7	0,0	35,4
Bodily Pain	43,5	41,0	26,1
General Health	43,9	40,0	24,1
Vitality	37,8	27,5	27,6
Social functioning	61,1	62,5	26,4
Role-emotional	37,0	0,0	45,6
Mental health	60,2	56,0	25,6
9 months (n=16)			
Physical Functioning	37,8	22,5	35,3
Role-Physical	35,9	0,0	48,3
Bodily Pain	44,6	41,0	31,8
General Health	45,6	43,5	27,3
Vitality	39,4	25,0	33,4
Social functioning	65,6	62,5	30,1
Role-emotional	37,5	16,7	45,3
Mental health	63,5	58,0	26,7
12 months (n=10)			
Physical Functioning	34,0	17,5	37,4
Role-Physical	40,0	0,0	51,6
Bodily Pain	56,2	41,0	33,6
General Health	47,9	43,5	31,1
Vitality	44,5	32,5	38,8
Social functioning	57,5	56,3	35,5
Role-emotional	43,3	16,7	49,8
Mental health	60,4	64,0	28,6

Table A3. Mean, median and standard deviation of the SF-36 questionnaire aggregated in the 8 dimensions at the four measurement occasions. Shoulder fractures.

Shoulder fracture

	Mean value	***Median***	***Standard deviation***
2 weeks (n=31)			
Physical Functioning	34,7	35,0	23,6
Role-Physical	9,7	0,0	25,6
Bodily Pain	30,0	22,0	24,3
General Health	53,0	50,0	23,6
Vitality	49,5	50,0	23,1
Social functioning	57,7	62,5	27,7
Role-emotional	28,0	0,0	43,1
Mental health	63,6	68,0	23,4
6 months (n=26)			
Physical Functioning	59,4	62,5	23,5
Role-Physical	42,3	25,0	44,6
Bodily Pain	60,1	57,0	24,6
General Health	61,2	61,0	20,5
Vitality	52,5	52,5	21,4
Social functioning	76,4	75,0	20,7
Role-emotional	55,1	66,7	47,1
Mental health	68,9	66,0	19,6
9 months (n=23)			
Physical Functioning	56,3	55,0	27,6
Role-Physical	47,8	50,0	41,9
Bodily Pain	60,5	52,0	27,0
General Health	57,5	55,0	23,8
Vitality	55,2	50,0	22,0
Social functioning	73,9	75,0	25,8
Role-emotional	60,9	100,0	45,7
Mental health	69,6	68,0	24,0
12 months (n=20)			
Physical Functioning	57,3	62,5	31,6
Role-Physical	41,3	25,0	44,6
Bodily Pain	62,7	62,0	26,6
General Health	58,8	56,0	23,3
Vitality	50,5	50,0	29,7
Social functioning	70,0	62,5	26,4
Role-emotional	50,0	50,0	49,0
Mental health	68,6	66,0	22,0

Table A4. Mean, median and standard deviation of the SF-36 questionnaire aggregated in the 8 dimensions at the four measurement occasions. Hip fractures.

Hip fracture

	Mean value	***Median***	***Standard deviation***
2 weeks (n=49)			
Physical Functioning	23,2	10	27,9
Role-Physical	5,1	0	19,1
Bodily Pain	36,3	31	24,3
General Health	52,6	50	25,2
Vitality	38,5	35	25,4
Social functioning	45,7	37,5	26,7
Role-emotional	29,3	0	42,3
Mental health	57,2	52	25,0
6 months (n=51)			
Physical Functioning	45,9	45	27,6
Role-Physical	23,0	0	37,0
Bodily Pain	55,0	52	25,2
General Health	53,8	50	22,4
Vitality	50,3	50	24,4
Social functioning	64,5	62,5	28,2
Role-emotional	35,3	0	45,4
Mental health	64,6	68	23,3
9 months (n=40)	n=40		
Physical Functioning	46,0	48	29,1
Role-Physical	29,4	0	43,4
Bodily Pain	58,9	62	26,6
General Health	54,2	57	23,0
Vitality	50,6	50	28,0
Social functioning	60,3	63	32,8
Role-emotional	45,0	33	47,5
Mental health	66,5	68	26,3
12 months (n=34)			
Physical Functioning	47,9	42,5	29,2
Role-Physical	31,6	0,0	44,1
Bodily Pain	55,0	46,5	27,9
General Health	53,6	53,5	23,2
Vitality	50,7	50,0	27,2
Social functioning	55,9	56,3	29,4
Role-emotional	40,2	0,0	46,3
Mental health	62,8	60,0	27,2