ORIGINAL RESEARCH

Perceived quality of health care services among people with osteoarthritis – results from a nationwide survey

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Objective: To assess the perceived quality of care received by people with osteoarthritis (OA) in Norway and explore factors associated with the quality of care.

Methods: A national survey in which members of the Norwegian Rheumatism Association with OA registered as their main diagnosis completed a questionnaire. The perceived quality of care was reported on a 17-item OsteoArthritis Quality Indicator questionnaire, covering both pharmacological and non-pharmacological aspects of OA care. In addition, the four-page questionnaire covered areas related to demographic characteristics, the location and impact of the OA, and utilization and satisfaction with health care services. The quality of care is calculated as pass rates, where the numerator represents the number of indicators passed and the denominator represents the number of eligible persons.

Results: In total, 1,247 participants (response rate 57%) completed the questionnaire. Mean age was 68 years (standard deviation 32) and 1,142 (92%) were women. Respondents reported OA in hand only (12.4%), hip only (7.3%), knee only (10.4%), in two locations (42%) or all three locations (27%). The overall OsteoArthritis Quality Indicator pass rate was 47% (95% confidence interval [CI] 46%–48%), and it was higher for pharmacological aspects (53% [51%–54%]) than for non-pharmacological aspects of care (44% [43%–46%]). The pass rate for the individual quality indicators ranged from 8% for "referral for weight reduction" to 81% for "receiving advice about exercises". Satisfaction with care was strongly associated with perceived quality. The pass rate for those who were "very satisfied" was 33% (25%–40%) higher than those who were "very unsatisfied" with care.

Conclusion: While the OA patient seems to be rather satisfied with the perceived OA care, there is still room for improvement in the quality of care. Although the quality of care in the present study is somewhat higher than in other studies, less than 50% of the recommended care has been provided.

Keywords: quality indicator, physiotherapy, general practitioner, pass rate

Introduction

Osteoarthritis (OA) is one of the most common chronic diseases[1] causing immobility and lower quality of life in the adult population.[2,3] Although the hand joints are assumed to be the joint sites most commonly affected by OA, hip and knee OA seem to be somewhat more disabling.[4,5] Because OA is more prevalent among elderly and obese people, the prevalence is expected to increase due to the fact that our population is getting older and heavier.[4] Since the average life expectancy has increased, patients also live with OA for a prolonged period of time. OA patients also seem to struggle significantly with comorbidities.[5] Hence, OA patients utilize available health services

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to a greater extent than others.[6] This makes OA a great burden to the individual and expensive for society.[7–9]

Although OA is a highly prevalent disease, little is known about the quality of health services for people with OA.[10] There are, however, a few studies assessing the process of treatment, revealing that OA care is not in line with available recommendations.[11,12]

Improving the quality of care is a major issue in health care systems worldwide. Measuring performance is essential for the planning and evaluation of quality improvement strategies.[13] Measuring quality of care often means comparing actual clinical practice to desired clinical practice. Patients' perspectives of care can also be included in quality measurements.

By involving patients in health care assessments, researchers may get more valid information on the most demanding tasks in everyday life for the patients. Patient involvement can be seen as a part of democratizing the health services.[14] Assessing the patient's view on provided health care is a sensitive and reliable method for assessing heath care quality.[15] Recruiting patients to research is always challenging in terms of who should be requested to participate and how to find and recruit the right patients. A suggested way to overcome these recruitment problems is to collaborate with disease advocacy organizations (DAOs) and ask their members as frontline patients to participate.[16] Recruiting patients via DAOs is a secure, effective way of including relevant patients in a study. Such collaborations between DAOs and researchers are widely used and increasing.[17]

In this study, the researchers collaborated closely with the Norwegian Rheumatism Association to invite frontline patients from across the country. The main objective was to measure the quality of OA care in Norway. In addition, we wanted to explore the factors associated with the quality of OA care.

Methods

The study was designed as a cross-sectional survey in which all members of the Norwegian Rheumatism Association with OA registered as their main diagnosis were asked to complete a questionnaire.

Data collection

In March 2012, approximately half of the participants received a postal questionnaire, while those registered with an email address received an email with a link to a web survey. All those who received the web link to the survey were informed that they could choose to receive the survey in a printed version.

Variables

The four-paged questionnaire covered areas related to the respondents' demographic and lifestyle characteristics, location and impact of OA, utilization of health care services, and quality of OA care.

Demographic characteristics

The respondents reported their age, sex, body mass index (calculated from height/weight), occupational status (working full time, working part-time, age pensioner, disability pensioner, sick leave), education (lower secondary school, upper secondary school, university), and comorbidities.

OA location and symptoms

Respondents were also asked to register which joint site or sites were affected with OA (knee right/left, hip right/left, hand right/left) and whether OA was their most prominent health problem.

Use of health services

Respondents were asked about their use of health care services during the last year, including who they had visited (general practitioner [GP], medical specialist, physiotherapist, chiropractor, occupational therapist, home nurse or alternative treatment practitioner) and how many consultations they had had during the last year, using six categorical response options (never, one to three, four to six, seven to nine, ten to 12, more than 12). Respondents were also asked how satisfied they were with the OA treatment in general on a five-point scale from very unsatisfied to very satisfied.

Quality of OA care

Finally, we used the OsteoArthritis Quality Indicator questionnaire (OA-QI) to further investigate what type of treatment the respondents had obtained.[11] The OA-QI assesses 17 different aspects of OA care, relating it to patient education and other information, regular provider assessments, referrals, and pharmacological treatment, using three response options (yes, no, do not remember/not relevant [Supplementary material]). The items were scored using a "Yes"/"No" format with a third option for "Not applicable" items (ie, "Not overweight" for items on weight management) or for items where participants did not remember the answer. Each QI was considered eligible if the participant had checked "Yes" or "No" and achieved if the participant had checked "Yes" to the indicator. Content validity of OA-QI was confirmed by two patient research partners and two expert panels. Test–retest

Kappa coefficients ranged from 0.20 to 0.80 and the percent of exact agreement from 62% to 90%.[11]

Statistical analyses

Group comparisons were performed using chi-square for categorical data and independent sample Student's *t*-tests for continuous data. QI pass rates were calculated for each QI separately throughout the study, where the numerator represents the number of indicators passed (those reporting "Yes"), and the denominator represents the number of eligible persons (those reporting "Yes" or "No"). Correspondingly, summary pass rates for each person were calculated as their total number of QIs passed divided by their total number of QIs eligible. Additionally, summary pass rates for pharmacological (QIs 13–16) and non-pharmacological (QIs 1–11) treatments were calculated.

Finally, we explored sources for variation in QI pass rates in bivariate and multiple regression analyses. The following types of independent variables were deployed: demographic (age, sex, education), disease related (site of OA, physical functioning), health care utilization (number of visits to GP/medical specialist/physiotherapist), and overall satisfaction with care.

The level of significance was set to 0.05 (5%).

Ethics

The potential participants received written information about the study. The study was evaluated by the Norwegian Regional Committee for Medical and Health Research Ethics, reference nr 2012/259.

Results

The Norwegian rheumatology association had 2,190 members registered with OA as their main diagnosis in 2012. Of these, 1,156 (52.8%) received a postal questionnaire and 1,034 (47.2%) received an email with a link to an electronic web survey. Because of invalid email addresses, 47 members received a printed version. Of the members who received an email, five asked for a printed version. In total, 1,247 participants (57%) returned a completed questionnaire. There was a small difference in the response rate from the postal survey 59.5% (n=719) and the web survey (53.8% n=528).

The participants' characteristics are presented in Table 1 and some disease characteristics in Table 2. Regarding comorbidities, 22% suffered from other rheumatic diseases and 50% suffered from other chronic diseases. Regarding health care utilization, 80% had seen their GP at least once last year, 40% had seen a medical specialist at least once the

Table 1 Participant characteristics

Age, years, mean (SD)	68 (10.3)
BMI, mean (SD)	27.1 (4.6)
Females, n (%)	1,192 (92)
Occupational status, n (%)	
Working	251 (20.4)
Age retired	688 (55.2)
Disability pensioner	230 (18.4)
Other non-working (receiving governmental benefits, students, sick leave)	78 (6.3)
Education, n (%)	
Lower secondary school	200 (16)
Upper secondary school	636 (51)
University	399 (32)
Comorbidity, n (%)	
None	349 (28)
Other rheumatic diseases	254 (22)
Other chronic diseases	603 (50)

Abbreviations: SD, standard deviation; BMI, body mass index.

last year, 59% had visited a physiotherapist at least once, and almost 40% had seen a physiotherapist at least ten times during the last year (Table 3).

Overall OA-QI pass rate of the 17 quality indicators was 47% (95% confidence interval [CI] 46–48) (Figure 1). However, there was substantial variation in pass rates for the individual quality indicators, ranging from 8% for "referral for weight reduction" to 81% for "receiving advice about exercises".

Pass rates for pharmacological and non-pharmacological treatment modalities was 53% (95% CI 51–54) and 44% (95% CI 43–46), respectively.

Table 2 Localization of OA, number of OA sites, OA as perceived health problem, overall satisfaction with OA treatment

Localization of the osteoarthritis, n (%)	
Hand	873 (70)
Knee	848 (68)
Hip	61 (53)
Number of sites	
One site	387 (31)
Two sites	524 (42)
Three sites	337 (27)
OA as the most prominent health problem	
Yes	773 (62)
Yes, sometimes	387 (31)
No	87 (7)
Satisfaction with overall treatment	
Very pleased	112 (9)
Pleased	374 (30)
Neutral	499 (40)
Unsatisfied	187 (15)
Very unsatisfied	62 (5)

Abbreviation: OA, osteoarthritis.

Table 3 Health care utilization in the last 12 months, n (%)

Number of visits due to OA in the last 12 months	0	1–3	4–6	7–9	10–12	More than 12
General practitioner	246 (20.1)	595 (48.7)	235 (19.2)	80 (6.6)	37 (3)	28 (2.3)
Hospital doctor	732 (60)	407 (33.3)	62 (5.1)	12 (1)	5 (0.4)	3 (0.2)
Physiotherapist	499 (40.9)	123 (9.9)	61 (5)	40 (3.3)	79 (6.5)	419 (34.3)

Abbreviation: OA, osteoarthritis.

In the bivariate regression analyses, we found that overall pass rate was significantly associated with age and satisfaction with care ($P<0.001$). Also, presence of other chronic conditions and other rheumatic diseases was statistically significantly associated with lower pass rates in the bivariate analyses, with 0.08 units ($P=0.03$) and 0.13 units ($P=0.01$), respectively. In the multiple regression analyses only the dose-dependent relationship between age and satisfaction with treatment and the OA-QI pass rate remained statistically significant (Table 4).

Discussion

In the present study, we found that the overall summary pass rate for the OA-QI was 47%. This is similar to two previous studies from Norway that also deployed the OA-QI. In a survey covering six general practices in one county, patients with radiologically diagnosed hip or knee OA reported 47% sum score on OA-QI.[5,18] In a population based study by Østerås et al,[11] respondents with a confirmed diagnosis of hip, knee,

or hand OA reported 42% sum score on OA-QI. In other words, there were minor differences in the total summary pass rates, and all studies share the same pattern of fulfillments of the QIs; referral to weight reduction has the lowest pass rate, and information on the importance of physical activity is the QI that has the highest pass rate. This difference in pass rates possibly reflects the overall availability of services regarding weight reduction and physical activity. Whereas services helping people with weight reduction are scarcely developed in the public health system in Norway, training facilities on the other hand, are easy to find.

We further explored factors related to variation in QI pass rates in bivariate and multiple regression analyses. The OA patients in Norway seem to be rather pleased with the overall OA treatment perceived with 44% reporting either "very satisfied" or "satisfied", and the ones most pleased are also the ones with the highest OA-QI sum score. Age has an effect on the fulfillment of the QIs; 10 years added results in a 2.6% lower
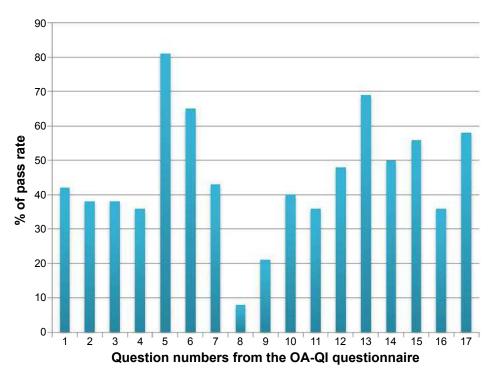

Figure 1 OsteoArthritis Quality Indicator questionnaire (OA-QI) 1–17 mean pass rates (%) reported individually.
Notes: 1: disease development, 2: treatment, 3: self-management, 4: lifestyle, 5: physical activity, 6: referral physical activity, 7: weight reduction, 8: referral weight reduction, 9: functional assessment, 10: walking aid assessment, 11: other aids assessment, 12: pain assessment, 13: paracetamol, 14: stronger pain killers, 15: NSAIDs, 16: cortisone, 17: referral orthopedic surgeon.
Abbreviation: NSAIDs, nonsteroidal anti-inflammatory drugs.

Table 4 Influence of participants' age and satisfaction with treatment on overall OA-QI pass rate analyzed with multiple regression analysis

Variable	Estimate	95% CI
Intercept	46	37–56
Age (1 additional year)	−0.26	−0.13—−0.38
Satisfaction with treatment		
Very unsatisfied	Reference	
Unsatisfied	8	2–14
Neutral	18	12–24
Satisfied	25	19–31
Very satisfied	33	25–40

Abbreviations: OA-QI, OsteoArthritis Quality Indicator questionnaire; CI, confidence interval.

score in total. Why the effect of age is so influential on the fulfillment of the QIs is unclear. It may be that elderly people suffer from more comorbidities, making it more difficult for the health care providers to sort out which diseases to address. We further explored the impact of education and the presence of comorbidities. Both factors were highly significant, but clinically irrelevant due to small differences in fulfillment of the OA-QI. The present study has some limitations.

First, the recruitment of respondents was performed in collaboration with a DAO. This may limit the generalizability of the findings in the present study, since members of a DAO is a selected group and not necessarily representative of the rest of the population. Comparing pass rates with studies using other quality indicators should be done carefully. However, Ascari et al[19] reviewed the use of the Assessing Care Of Vulnerable Elders Quality Indicators (ACOVE QIs) used in 17 studies and found that the interquartile range score of 29%–41% of OA treatment was the lowest score among the diseases reviewed.[19]

Second, the vast majority (92%) of the respondents were women. It is possible that women register in DAOs more frequently than men, and that females respond more frequently to surveys.[20] However, the fact that OA is more prevalent among women should also be taken into consideration.[21] Although the female bias can make the results less generalizable, the results of the present study are, as stated earlier, comparable to those of former studies using the OA-QI with more evenly distributed respondents.

Third, there may be a problem with recall bias, illness perception, treatment beliefs, or other patient self-related biases that may influence the perception of perceived OA care. The self-reported questionnaire did not contain any open-ended questions. Therefore, we do not know if the respondents had any further information or viewpoints on the topics in the questionnaire.

Finally, the OA-QI has not been validated against medical records. It has been suggested that self-reported assessment tools tend to produce the same or higher scores than medical records and QI assessment made by care providers.[22] If this overestimation of received care has influenced the results in this study, it may have caused overrated OA-QI pass rates.

One strength of the study is that the OA-QI reflects the quality as perceived by the patients. Assessing care directly from the patient's viewpoint makes it possible to assess the care received and/or perceived, although this is not necessarily the same as what the GP or other health professionals have intended or what is stated in the medical records. We will argue that assessing what the patient remembers or perceived of the care given is vital due to the compliance of the care.

Conclusion

While OA patients seem to be rather satisfied with the perceived OA care, there is still room for improvement. Although the QI pass rate in the present study is somewhat higher than what others have reported, less than 50% of recommended care has been provided.

Disclosure

The authors report no conflicts of interest in this article.

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Supplementary material

Questions on the treatment of your osteoarthritis

There are several different treatment alternatives for osteoarthritis. We would like to know what treatment, information or advice you have been given for your osteoarthritis. For each question, please cross off one of the boxes provided.

	Yes	No	Do not remember
1 Have you been given information about how the disease usually develops over time?	☐	☐	☐
2 Have you been given information about different treatment alternatives?	☐	☐	☐
3 Have you been given information about how you can live with the disease?	☐	☐	☐
4 Have you been given information about how you can change your lifestyle?	☐	☐	☐
5 Have you been given information about the importance of physical activity and exercise?	☐	☐	☐
6 Have you been referred to someone who can advise you about physical activity and exercise? (eg, a physiotherapist)	☐	☐	☐

	Yes	No	Not overweight
7 If you are overweight, have you been advised to lose weight?	☐	☐	☐
8 If you are overweight, have you been referred to someone who can help you to lose weight?	☐	☐	☐

	Yes	No	No such problems
9 If you have had problems related to daily activities, have these problems been assessed by health personnel in the past year?	☐	☐	☐
10 If you have problems with walking, has your need for a walking aid been assessed? (eg, stick, crutch, or walker)	☐	☐	☐
11 If you have problems related to other daily activities, has your need for different appliances and aids been assessed? (eg, splints, assistive technology for cooking or personal hygiene, a special chair)	☐	☐	☐

	Yes	No	No pain/discomfort
12 If you have pain, has it been assessed in the past year?	☐	☐	☐
13 If you have pain, was paracetamol the first medicine that was recommended for your osteoarthritic pain?	☐	☐	☐
14 If you have prolonged severe pain, which is not relieved sufficiently by paracetamol, have you been offered stronger pain killers? (eg, Co-proxamol, Co-dydramol, Tramadol, Co-codamol, Dihydrocodeine, Codeine)	☐	☐	☐
15 If you are taking anti-inflammatory drugs, have you been given information about the effects and possible side-effects of this medicine? (eg, Ibuprofen, Nurofen, Brufen, Diclofenac, Voltarol, Naproxen, Naprosyn, Celebrex)	☐	☐	☐
16 If you have experienced an acute deterioration of your symptoms, has a corticosteroid injection been considered?	☐	☐	☐

	Yes	No	Not severely troubled
17 If you are severely troubled by your osteoarthritis, and exercise and medicine do not help, have you been referred and assessed for an operation (eg, joint replacement)?	☐	☐	☐