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Review

Pain and quality of life among older people with rheumatoid arthritis and/or osteoarthritis: a literature review

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Summary

- The aim of this study was to review the research literature on pain and quality of life (QoL) and the relationship between these variables among people aged 75 years and above with rheumatoid arthritis and/or osteoarthritis.
- A Medline and CINAHL search was carried out using MeSH terms rheumatoid arthritis, osteoarthritis, QoL and pain in various combinations.
- Seventeen articles were identified that met the requirements for methodological quality and inclusion criteria. No study focused only on respondents aged 75 years or over. The studies had varying representation of this age group. Pain was common in both groups and was found to increase with age and disease duration among those with rheumatoid arthritis but not among those with osteoarthritis. Increased pain could lead to depression. Pain, functional limitation and increased age were found to decrease QoL among those with rheumatoid arthritis and osteoarthritis alike. Social support was found to buffer against negative effects on QoL among those with osteoarthritis while no moderating effects were found in rheumatoid arthritis.
- Increased age was found to relate to pain (rheumatoid arthritis) and decrease QoL (both rheumatoid arthritis and osteoarthritis). It is, however, hard to draw any firm conclusions about older people's pain and QoL because of the lack of studies including respondents aged 75 years or over. Thus, research about pain and QoL, especially focusing on the old and the very elderly with rheumatoid arthritis/osteoarthritis, is needed. It also seems justified to say that nursing care should especially focus on older people and that these people should be assessed for their level of pain, functional limitations and QoL especially in the case of having rheumatoid arthritis and/or osteoarthritis.

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Keywords: older adults, osteoarthritis, pain, quality of life, review, rheumatoid arthritis.

Background

There is an increasing risk with age of being affected by rheumatoid arthritis (RA) and/or osteoarthritis (OA) and thus also increased pain and decreased quality of life (QoL) (Altman, 1990; Marino & McDonald, 1991; Borman & Celiker, 1999). Knowledge about older people's life situation, including that of the very elderly, is increasingly important especially because of the rising number of older people, especially the very elderly (young old 65–74, old 75–84, very old 85+); Given & Given, 1989). Research is needed to address factors (e.g. symptoms and illnesses) that influence people's lives and their QoL because cures may not be available but relieved suffering may be possible. A review of the literature reveals the current level of knowledge important for outlining nursing care and also gives ideas for the direction of research focusing on older people.

Rheumatoid arthritis and OA often start around 40 years of age and by the age of 75 at least 85% of the population have either clinical and/or radiographic evidence of OA (Sack, 1995). The prevalence of RA among adults in Sweden is 0.51% (Simonsson *et al.*, 1999) and about 1% world-wide (Alarcon, 1995). Both RA and OA affect connective tissue and joints and may appear separately or together. It is important to have this in mind when studying RA and/or OA, especially among older people, because the risk of being affected by both diseases increases with age. The symptoms in RA and OA are often the same but the intensity and appearance may differ. It is also important to differentiate between the diseases because of the different treatments, although in both cases this is mainly symptomatic in older people (Altman, 1990; Marino & McDonald, 1991). Osteoarthritis is mostly limited to one set of joints and typically affects large weight-bearing joints (e.g. hips, knees) while RA most often affects multiple joints anywhere in the body (Altman, 1990; Marino & McDonald, 1991). With the major physical changes that appear in RA and OA, the risk of decreased QoL, often caused by factors like pain, increases.

Pain is an important issue in the care of older people, and perhaps the most important problem in their daily lives. It may, alone or together with other factors, negatively affect these people's QoL and thus daily care is important. The results from various studies about how pain (non-disease-related) develops with age show inconsistency (Gagliese & Melzack, 1997). Both Brattberg *et al.*

(1996) and Magni *et al.* (1993) found that musculoskeletal pain was more common among older than younger people. Previous studies also show gender differences. A study in Sweden showed that musculoskeletal pain was more common among older men than among older women (age 76+) (Brattberg *et al.*, 1996). Magni *et al.* (1993), in contrast, found when studying musculoskeletal pain in the USA that this type of pain was more common among old women than among old men. Pain was found to be common among people with RA/OA and many with RA and OA face a life with chronic pain to various degrees (Mattson & Broström, 1991; Mackinnon *et al.*, 1994; Rojkovich & Gibson, 1998). Joint pain and stiffness are generally most severe in the earlier part of the day, with improvement as the day progresses in both RA and OA (Altman, 1990). Pain among those with OA is often associated with joint activity and relieved by rest, while pain in RA is not significantly relieved by rest. Pain can lead to functional limitation and/or cause people with RA/OA to avoid various movements. That pain is a central problem in both RA and OA is well known from studies of younger people, as is the fact that pain is common among older people. Being older and having RA/OA may mean even higher levels of pain and hence perhaps also lower QoL. These people cannot be cured but can have varying levels of QoL for most of their lifetime. Thus, nurses need to be informed about factors that affect older people's lives. Improving QoL is perhaps the most important goal of nursing care and therefore an important outcome variable in studies focusing on older people.

Quality of life is different from health status because when rating QoL patients often place greater emphasis on mental health than physical functioning, and when measuring health status it is the reverse (Smith *et al.*, 1999). Quality of life can be divided into global, health-related and disease-specific QoL. Studies show inconsistency as to whether QoL increases or decreases with age but there are studies showing that patients (age: mean = 44.5, SD: 8.03) with RA have lower QoL than those who do not (Borman & Celiker, 1999). Less is known about whether increased age leads to even lower QoL for older people with RA and/or OA. Lower QoL in RA/OA patients could be explained by the various symptoms producing lower QoL. RA and OA affect all areas of daily life because of pain, stiffness and functional limitations (Altman, 1990; Wolfe & Cathey, 1991; Rojkovich & Gibson, 1998; Hawthorn & Redmond, 1999).

Wirnsberger *et al.* (1999), when studying RA patients (age: mean = 54.3, range = 29–70), found decreased QoL, especially physical health, and that pain and mobility problems caused the lower QoL. However, these studies did not take age into consideration or focus on very old people.

Factors such as social network/support seem to have effects on QoL. Bowling & Browne (1991) found when studying well-being among older people (85+), that having a social network increased their well-being. Similar findings were reported by Kendig *et al.* (2000) when studying older people (65+). Lambert *et al.* (1989) also found, when studying women (age: mean = 57), with RA that social support was an important predictor for well-being. This indicates that not only negatively influencing factors but also possible moderating factors need to be considered in nursing care, as well as when studying QoL in older people.

Pain is likely to be the most troublesome symptom of RA/OA, and both pain and RA/OA have an increased prevalence and incidence with age (Marino & McDonald, 1991; Alarcon, 1995; Uhlig *et al.*, 1998) suggesting that older people with RA/OA will have even more decreased QoL. Whether studies confirm this suggestion is not known. It is therefore important to have more knowledge specifically about factors that affect people's life situation and QoL in cases of RA/OA. A literature review specifically focusing on the 'old' and 'very elderly' and would provide a summary of available literature and thereby create a platform for outlining nursing care interventions and also for further research about the areas of importance for QoL among 'old' people (75+) with RA and/or OA.

Aim

The aim of this study was to review the empirical research literature on pain and QoL and the relationship between these variables among older people (75 years and above) with RA and/or OA.

Method

The literature search was carried out on Medline and CINAHL in June 2000. The following MeSH terms were used on Medline: rheumatoid arthritis, osteoarthritis, pain, and QoL as well as life quality. The search was limited by age (65+) and publication year (1980–2000). The search had to focus on age 65+ as there is no differentiation for ages above 65 years. Rheumatoid arthritis and OA were combined with pain and QoL/life

quality. The search on Medline gave 124 articles (OA 61, RA 63). On CINAHL the same MeSH terms were used. The search was limited by publication year (1980–2000). The result was 247 articles (OA 89, RA 158). Additional articles were identified through a manual search.

A manual search of abstracts and articles was done (in all 371). The exclusion criteria applied were editorials, letters, debate, review, surgical interventions, economy, focus on caregivers. All articles had to be published in English and the study population had to include people with RA and/or OA aged 75+. The outcome measures had to include either one of the following: pain and/or QoL. In the literature the terms well-being and QoL were often used interchangeably. Because of this and because no clear distinction between the two terms was made, QoL was used as an overarching term in this review. No distinction between different types of QoL (global, health-related and disease-specific QoL) was made. Some of the studies assessed QoL and/or pain, for example, before and after total hip replacement (e.g. Chan & Villar, 1996; Norman-Taylor *et al.*, 1996; Fortin *et al.*, 1999) or knee replacement (e.g. Norman-Taylor *et al.*, 1996; Fortin *et al.*, 1999; Laskin, 1999). These studies were excluded because they focused on the outcome of the medical intervention and not on the usual condition of the individual. The final number of eligible articles in relation to the search results is explained by the fact that the review was performed manually and many articles were initially located ($n = 355$) that did not then meet the inclusion criteria (Table 1). Most articles were excluded because they did not include people aged 75 years or over.

The articles were evaluated according to their methodological quality with regard to internal validity, external validity, reliability and critical discussion (Goodman, 1996). The evaluation was carried out by using a scoring list (Appendix 1) with a three-grade scale. The criteria were based on Goodman (1996) and Kazdin (1998). The score was graded from 1 = high quality to 3 = low quality. The maximum score was thus 12 and the minimum was 4. Articles which scored 9 or more were excluded. The articles were evaluated by the first author. The final sample was 17 articles, which formed the basis for this review.

Results

Of the 17 articles, seven focused on RA (Table 2), six on OA (Table 3) and four on arthritis or both RA and OA (Table 4). The studies included had a low representation

Table 1 Search revision

MEDLINE		CINAHL	
Search strategy	Result	Search strategy	Result
Rheumatoid arthritis AND pain AND quality of life OR life quality	RA: 159	Rheumatoid arthritis AND pain AND quality of life OR life quality	RA: 177
Osteoarthritis AND pain AND quality of life OR life quality	OA: 114	Osteoarthritis AND pain AND quality of life OR life quality	OA: 103
Limits: Age 65+, publication from 1980 to 2000, English	RA: 63/OA: 61	Limits: Age 65 +, publication from 1980 to 2000, English	RA: 158/OA: 89
NOT review NOT letter NOT debate NOT editorial	RA: 57/OA: 53	NOT review NOT letter NOT debate NOT editorial	RA: 76/OA: 40

of people aged 75+ and no study focused only on this age group. Nine studies were from the USA, four were from Scandinavian countries (Norway, two and Sweden, two) and one from each of the following countries: Australia, Ireland, The Netherlands and Germany. Different instruments were used in the studies (Appendix 2) to measure, variables such as QoL, health and pain (SF-36, HAQ, MHAQ, MPQ, AIMS, NHP, VAS-scale). Instruments that were used most frequently were the VAS-scale for pain measurement (five studies), AIMS (five studies), MPQ (five studies), SF-36 (four studies) and HAQ (four studies).

RHEUMATOID ARTHRITIS

Uhlig *et al.* (1998) found that after only 5 years of disease duration major changes had appeared that had a clinically significant effect on people's health condition. The functional limitation increased with disease duration (Uhlig *et al.*, 1998). Well-known instruments (AIMS2 and MHAQ) were used and also retrospective register data, hindering causal conclusions. Wolfe *et al.* (1991) reported similar results in that functional limitation developed early and continued to worsen with disease duration. In this study, similar instruments (AIMS and HAQ) were used and thus confirmed the results from the previous study. Wolfe *et al.* (1991) also found that anxiety seemed to increase with the duration of the RA. Wolfe's study was longitudinal (accelerated cohort) and thus allowed causal inferences.

The studies located had different aims and methods to investigate QoL, pain and other variables under study. Pain was found to be common and one of the most troublesome problems among those with RA, and it tended to increase with disease duration (Lambert, 1985;

Wolfe *et al.*, 1991; Van Lankveld *et al.*, 1993; Uhlig *et al.*, 1998). Van Lankveld *et al.* (1993) initially identified, through interviews, the most troublesome variables for people with RA. The study was replicated with a larger sample and the same variables (pain, functional limitation and dependence on others) were again found to be the most troublesome. Some studies pointed out that other variables (e.g. age and depression) could increase pain. Lambert (1985) found that age was positively correlated with pain, indicating that increasing age made the situation worse, while Waltz *et al.* (1998) found that depression was moderately correlated with pain and that negative spouse behaviour, such as avoidance and critical remarks, increased pain among those with RA. Thus, older people seemed to have an increasing risk of being affected by pain, and if they also were depressed and had no supportive social network the risk of pain increased.

Pain, together with functional limitations and dependence on others, was found to be related to low QoL (Lambert, 1985; Van Lankveld *et al.*, 1993). The correlation between well-being (measured with BMS) and pain was small but significant (Lambert, 1985), as was the correlation between well-being and functional limitation. This may have been the result of measurement error (Lambert, 1985). However, Van Lankveld *et al.* (1993) reported similar results when analysing the correlation between well-being (measured with EPLS) and pain and well-being and functional limitation. In a multiple regression analysis, Lambert (1985) showed that pain was the strongest predictor ($r^2 = 0.08$) for decreased well-being among women with RA. Also, Strombeck *et al.* (2000) found that women in Sweden with RA had lower QoL scores (measured with SF-36), in all subscales, compared with normative data, while Bendtsen & Hörnquist (1992)

Table 2 Rheumatoid arthritis

Author	Purpose	Design	Sample	Instrument	Results
Wolfe <i>et al.</i> (1991), USA	To investigate whether health status measures (HAQ) change over time among people with RA	Longitudinal (accelerated cohort)	Rheumatoid arthritis $n = 561$ In the oldest age group $n = 30$, age: mean = 62.5 SD 8.63, 80% women	AIMS HAQ	Functional disability developed early and continued to worsen with time. Anxiety and pain scores increased with time
Van Lankveld <i>et al.</i> (1993), Netherlands	To determine and examine the chronic stressors specific to rheumatoid arthritis	Correlational	Rheumatoid arthritis $n = 415$ 67% women *Age: mean = 57 (22–82)	VAS MPQ_EPLS IRGL	QoL was related to pain, limitations and dependence and these factors were assessed as most troublesome
Waltz <i>et al.</i> (1998), Germany	To examine prospectively relations between a wide array of measures of social functioning and pain, while controlling for disease duration and activity and functional grade	Longitudinal 1-year follow-up	Rheumatoid arthritis Total $n = 234$ ($n = 136 + 98$). 68% & 73% women *Age: mean = 56.4 SD 12.2, mean = 57.6 SD 12.8	MPQ_AIMS NHP NRS CES-D RSE AHI SOM MAC ABS	Depression was moderate correlated with pain. Negative spouse behaviour and baseline depression predicted worse pain outcome
Strombeck <i>et al.</i> (2000), Sweden	To investigate the health-related QoL in women with primary Sjögren's syndrome and compare with normative data and health-related QoL in women with RA and women with fibromyalgia	Comparative cross-sectional	Rheumatoid arthritis $n = 145$ 100% women *Age: 30–80 $n = 59$ with RA Age (RA): mean = 55.1 SD 10.5	SF-36 VAS	All three patient groups had decreased QoL in all SF-36 subscales compared with normative data. The primary Sjögren's syndrome patients experienced a higher QoL level with regard to physical functioning than the women with RA and fibromyalgia
Uhlrig <i>et al.</i> (1998), Norway	To examine the incidence of RA in the community of Oslo, Norway; and link the incidence to measures of disease severity	Retrospective (register data, postal questionnaire)	Rheumatoid arthritis Total $n = 550$ (RA) 68% response rate: $n = 375$ 74.4% women *Age: mean = 62.6 SD 15.8 range 20–79	MHAQ AIMS2	The RA incidence was 25.7/100 000 and increased with age. For the age group 70–79 the incidence were 61.0/100 000. Higher RA incidence was found among female than among males. After 5 years 40–50% had important clinical changes in their health condition. Pain increased with disease duration. A slight tendency towards increasing disability with increasing disease duration (MHAQ)

Lambert (1985), USA	To investigate correlation between social support, severity of illness (e.g. pain and dependence), demographic characteristics and well-being and predictors for well-being	Cross-sectional (interviews)	Rheumatoid arthritis $n = 92$ 100% women *Age: mean = 55 (21–80)	BMS FSI SSQ	The results showed correlations between – Age & pain – Pain & duration – Well-being & pain – Well-being & disability Social support showed no correlation with well-being
Bendtsen & Hörnquist (1992), Sweden	To explore the quality of life in individuals with RA, how they cope with the disease and their satisfaction with treatment and care provided to them by the health care system	Cross-sectional correlational (postal survey)	Rheumatoid arthritis $n = 222$ 76% women *Age: mean (men): 60.7 and (women): 63.8 Range: 29–88	QL _{sc}	QoL was rated mostly as being 'rather' good or good. Higher age and longer disease duration were significantly correlated to lower QoL. Good correlation between patients and their significant other when rating the patients' QoL

* No information about the number of respondents 75+.

found that when both men and women in Sweden were studied the patients rated QoL (measured with QL_{sc}) mostly as being 'rather' good or good. In the study, spouses/confidants were asked to rate patients' life situation in a shortened parallel questionnaire. The results showed good ($r = 0.47$ – 0.63) agreement between spouses' and patients' ratings (Bendtsen & Hörnquist, 1992). Physical factors such as fatigue and deformity caused by the disease and depression (reported in interviews) also affected respondents' QoL (Van Lankveld *et al.*, 1993). Disease duration and age were found to be significantly correlated to lower QoL (Bendtsen & Hörnquist, 1992). The only study found to include social support as a moderating factor was by Lambert (1985), and no correlation between social support and well-being was found in that study.

OSTEOARTHRITIS

Both OA and RA cause pain, therefore influencing patients' lives (Laborde & Powers, 1985; Blixen & Kippes, 1999; Briggs *et al.*, 1999; Creamer *et al.*, 1999). Clark *et al.* (1998) found when studying men that 85% reported pain and stiffness most of the day (measured with a modified version of WOMAC). Women reported significantly more pain (higher pain scores measured with VAS) than men (Creamer *et al.*, 1999). Briggs *et al.* (1999) found, using linear multiple regression, that people with OA had more pain than those with no chronic illness and that more severe pain reduced vitality and social functioning (using SF-36). As in RA patients, there were factors that were related to pain in different ways. Creamer *et al.* (1999) found that helplessness, depression, anxiety and fatigue were significantly related to pain. Unlike in RA, they also found, using multiple regression, that age and disease duration were not related to pain (Creamer *et al.*, 1999). Pain, together with obesity (BMI > 30), helplessness and anxiety, was the most important determinant of disability among people with OA (Creamer *et al.*, 1999, 2000) but disability was found not to be related to radiographic changes (Creamer *et al.*, 2000).

The impact of OA on patients' QoL showed inconsistency between the studies. Briggs *et al.* (1999) found that patients with OA had significantly lower values in all subscales (SF-36) compared with those with no chronic illnesses, and comorbidity meant an even poorer QoL. Clark *et al.* (1998) also found that men with OA had low QoL (SF-36), especially regarding physical health, compared with those without OA. Low physical health was consistent with high levels of comorbidity. In contrast,

Table 3 Osteoarthritis

Author	Purpose	Design	Sample	Instrument	Results
Blixen & Kippes (1999), USA	Study QoL among old people with OA with varying levels of depression and social support as a basis for nursing interventions	Cross-sectional (Interviews)	Osteoarthritis <i>n</i> = 50 50% women *Age: <i>m</i> = 70.5 SD 6.3	QOLS AIMS2 CES-D SSQ	QoL was high despite co-morbidity, pain and functional limitation. Social support had an important role in moderating the effects of pain, functional limitation and depression on the subjects, QoL
Clark <i>et al.</i> (1998), USA	To develop a patient-based measure of the severity of OA of the knee, to monitor health status	Cross-sectional (Interviews)	Osteoarthritis <i>n</i> = 415 100% male Age: <i>m</i> = 66 (22–90) 5% age > 80	SF-36 (WOMAC)	85% reported pain and stiffness most days. Age ($P < 0.05$) OA-severity ($P < 0.001$) and comorbidity ($P < 0.001$) in a multiple regression showed a negative impact on QoL (PCS). PCS tended to be quite low. This is consistent with their high level of comorbidity
Briggs <i>et al.</i> (1999), Ireland	To determine the QoL of elderly patients with OA compared with that of their peers with no chronic illnesses and to investigate the association between analgesic use and QoL	Comparative and correlational	Osteoarthritis <i>n</i> = 96 56.5% women *Age: <i>m</i> = 73.4 SD 5.4	SF-36 VAS	Patients with OA had significantly lower QoL in all sub scales. Sleep disturbances did not influence the SF-36 significantly. Increased pain leads to reduced vitality and reduced social functioning
Creamer <i>et al.</i> (1999), USA	To examine the relationship between 3 different measures of pain severity among patients with knee OA and to examine variables that predict the severity of pain in this patient group	Correlational	Osteoarthritis <i>n</i> = 68 69.1% women *Age: <i>m</i> = 65.8 SD 10.4 Range: 40–86 years	WOMAC MPQ VAS FSS CES-D STAI RAI SELF PQOL	Age and duration were not related to pain. Helplessness was strongly related to pain severity. Women tended to report higher pain scores than men (VAS). Depression, anxiety and fatigue correlated ($P < 0.05$) positively with pain severity (MPQ)
Creamer <i>et al.</i> (2000), USA	To assess the impact of clinical and psychosocial variables on function in knee OA and to develop models to account for observed variance in self-reported disability	Cross-sectional	Osteoarthritis <i>n</i> = 69 69.6% women *Age: 65.8 SD 10.4	WOMAC MPQ CES-D FSS STAI RAI SELF PQOL	Pain severity, obesity and helplessness were the most important determinants of disability. Anxiety was also a determinant of disability in some models. Disability was unrelated to radiographic change
Laborde & Powers (1985), USA	To examine levels of life satisfaction and explore relationships between perceived satisfaction with life and, e.g. illness-related factors on OA	Correlational	Osteoarthritis <i>n</i> = 160 77% women *Age: <i>m</i> = 70.8 SD 9.7 Range: 40–93 years	MPQ HLC	Pain significantly affected the present life situation. Pain was common among those with OA but was not the worst problem

* No information about the number of respondents aged 75+.

Table 4 Arthritis and RA/OA

Author	Purpose	Design	Sample	Instrument	Results
Mann <i>et al.</i> (1999), USA	To study the change over time regarding health, functional and psychosocial status of elderly persons with arthritis	Longitudinal 3 years follow-up (Interviews)	Arthritis $n = 61$ 80.3% women *Age: $m = 75.1$ SD 7.3	(CAS-IB) MMSE FIM SIP	Pain increased significantly ($P < 0.01$) over time. The functional status decreased (FIM) significantly ($P < 0.001$) over time. Physical disability (SIP) increased significantly ($P < 0.001$) over time
Wolfe & Hawley (1997), USA	To investigate the properties of the EuroQoL by a postal survey	Correlational	Total $n = 1372$ $n = 537$ RA $n = 319$ OA $n = 516$ fibromyalgia 83.1% women *Age: $m = 61.1$ SD 13.8	EuroQoL CLINHAQ (VAS, HAQ, AIMS)	QoL was similar in RA and OA measured with all instruments. 60.5% had moderate or severe pain (HAQ). 32.7% had moderate or severe depression (HAQ). 70.6% had some or more mobility problems (EuroQoL)
Hill <i>et al.</i> (1999), Australia	To determine the prevalence and health-related QoL of a community sample of people with arthritis and compare it with other chronic diseases and the healthy population in South Australia	Comparative	Rheumatoid arthritis and osteoarthritis Total $n = 3001$ 50.8% women $n = 666$ (RA, OA & unspecified arthritis) OA 8.6%, RA 4.0% Age: 15 + (11.6% > 70)	SF-36	Those with arthritis (RA, OA & unspecified arthritis) had a significantly lower scores in all sub-scales in the SF-36 compared with the nonarthritic ($P < 0.01$)
Hagen <i>et al.</i> (1997), Norway	To establish the prevalence of different types of non inflammatory musculo-skeletal pain and determine sociodemographic characteristics of this patient group. To compare this patient group with a RA group	Comparative (postal survey)	Rheumatoid arthritis & non infl. m-s pain $n = 11780$ 52.2% women Age: 20–79 $n = 1863$ (15.8%) were between 65 and 79 $n = 35$ with RA	MHAQ SCL-5	Disability levels were highest in the RA group. Insomnia and general dissatisfaction with life were more common among the RA patients. 97.1% of the RA patients had moderate to severe pain. 40.0% of the RA patients had severe or very severe pain. The mean QoL scores (MHAQ) were highest among the patients with RA

* No information about the number of respondents 75+.

Blixen & Kippes (1999) found that, despite pain, depression, comorbidity and functional limitations, patients' QoL (measured with QOLS) scores were high. They also found that social support had a moderating effect (Blixen & Kippes, 1999). The moderating effect of social support may explain high QoL scores. Laborde & Powers (1985) found using multiple regression analysis that pain significantly ($P < 0.01$) influenced present life satisfaction ($r^2 = 0.32$) among those with OA. Those with OA rated present life satisfaction and health as relatively good but they also reported that high life satisfaction was related to less joint pain. The study by Laborde & Powers (1985) measured life satisfaction (present, past and future) with three questions. It may therefore not fully reflect all dimensions of QoL. Clark *et al.* (1998) found that QoL, especially with regard to physical health, was also affected negatively by other variables such as age, comorbidity and OA-severity.

ARTHRITIS

Some of the studies focused on RA as well as on OA (Table 4). In some of these there was a clear distinction between the two patient groups and these were compared with each other. In other studies, however, there was no specification of the diseases, e.g. arthritis in general was studied.

Hill *et al.* (1999) found (age 15+, 11.6% >70 years old) that those with arthritis (RA, OA and unspecified arthritis) were more likely to be female, older and of lower socioeconomic status, but the result may not be representative of the age group (75+) because of the low number of these people included. Studies showed that pain influenced the life situation of both RA and OA patients. Wolfe & Hawley (1997) studied patients with RA, OA and fibromyalgia and found a high prevalence of pain among those with RA and OA. Among those with RA/OA, 60.5% had moderate or worse pain measured with HAQ and 96.3% had moderate or worse pain measured with EuroQol (Wolfe & Hawley, 1997). The authors (Wolfe & Hawley, 1997) suggested that the EuroQoL may not fulfil the requirement for measuring QoL among those with rheumatic diseases because of low internal validity, especially face validity, of the questions included. Hagen *et al.* (1997) also found a high level of pain (measured with one question with five response categories) among those with RA: 97.1% of the RA patients had moderate or severe pain and 40.0% had severe or worse pain. Mann *et al.* (1999) studied older people (age: mean = 75.1, SD: 7.3) with arthritis and found that pain increased with disease duration. As the sample is reported as patients

with arthritis, no firm conclusions about people with RA and/or OA can be drawn.

Inconsistency was found with regard to QoL among people with RA and OA. Hill *et al.* (1999) compared those with arthritis (RA, OA and unspecified arthritis) and the non-arthritic regarding their QoL and found that those with arthritis had a significantly lower QoL on all subscales (measured with SF-36). Hagen *et al.* (1997) compared RA with other non-inflammatory musculoskeletal diseases and found that patients with RA had a higher QoL (measured with MHAQ) than those with non-inflammatory musculoskeletal diseases. Wolfe & Hawley (1997) found when comparing RA and OA patients that QoL was similar in both groups when measured with two different instruments (EuroQol & CLINHAQ).

Other common problems among those with RA/OA/arthritis were mobility problems and depression. There were 32.7% who reported moderate or severe depression (RA and OA) measured with HAQ, and when measured with EuroQol 54.8% had moderate or severe depression/anxiety (Wolfe & Hawley, 1997). The study also showed that 70.6% had some or frequent mobility problems measured with EuroQol (Wolfe & Hawley, 1997). Mann *et al.* (1999) also found that functional status decreased (measured with FIM) with increased physical disability (measured with SIP) in arthritic (not specified) patients. Hagen *et al.* (1997) compared RA patients with those with non-inflammatory pain and found that RA patients had the highest disability levels and that insomnia and general dissatisfaction with life was more common among RA patients.

Discussion

A major problem that occurred in this review was that there was no study focusing only on respondents aged 75 and over. The studies which were included in the analysis had, however, varying representation of this age group, mostly a smaller part of the samples. This means that no conclusion about pain and QoL can be drawn for the age group of people 75 or over. Thus, this is an important area for further research. The results from studies focusing on younger people could not be generalized to the care of old people and therefore they cannot satisfactorily serve as a knowledge base to outline nursing care. The sparse representation of people from this age group can be explained by the fact that older persons often have several different diseases (co-morbidity) compared with younger people. The impact of these other diseases means that no conclusions can be drawn about a specific disease and

therefore older people may be less interesting to include in studies focusing on specific diseases (Grimley Evans & Bond, 1997). Another reason for the sparse results of RA/OA studies including older people (75+) could be that this group has a higher mortality than younger people (Pincus *et al.*, 1994; Wolfe *et al.*, 1994; Kvalvik *et al.*, 2000) and thus may not have survived that long. However, taking demographic developments into consideration, it seems important to focus on people aged 75 years and over. From a clinical perspective it tends to be more common for older people to have several diseases rather than one.

A scoring list (Appendix 1) was used for evaluating the quality of the articles and this may have decreased the risk of bias. In the evaluation of the articles, it was commonly found that they lacked a description of drop-out handling and about whether the included instruments were tested for reliability, as well as the handling of validity and reliability. Another problem was that different scales/instruments were used in the studies. These scales/instruments probably measure different facets of the phenomenon and therefore cannot be interpreted interchangeably. This emphasizes the need to find out which of the pain and QoL measures are most sensitive in revealing the situation of RA/OA patients. With these limitations in mind, some comparisons can be made between the studies regarding differences in QoL, health and pain and also in some cases direct comparisons between studies can be made, e.g. those using SF-36 and MHAQ (Ruta *et al.*, 1998; Kosinski *et al.*, 2000). Information about instrument validation and tests for reliability were often sparse in the studies, as was a clear description of how the phenomena were measured and how the instruments were used (e.g. distribution, or using only parts of an instrument). This makes it harder to evaluate the studies included and to compare different studies regarding the variables assessed. However, the findings give directions for further research and can form the basis for generating hypotheses. The findings may also provide some information about what to focus on in providing nursing care for these people.

The findings pointed out that RA and OA often lead to major changes with regard to health and QoL. Functional limitation develops early on and increases with disease duration in both RA and OA. Pain was found to be highly common among people with RA and OA alike and, as expected, it was one of the most troublesome problems (together with functional limitation) for these people. Pain, depression and mobility problems were common among those with RA and OA alike and thus it is important to include these variables when studying people

with these diseases. These areas are also of outmost importance in nursing care and should be included in assessment to inform care planning.

Inconsistency was found regarding whether QoL decreased with the impact of the disease, especially regarding OA, and whether there were differences between QoL in RA and OA. In general, the studies showed that people with RA and OA have low QoL, especially with regard to physical health, but only one study showed that people with RA and OA had similar QoL scores. Inconsistency in the results of the various studies could be explained by the fact that different scales/instruments were used when measuring pain and QoL and/or sample characteristics differed, such as age, gender, disease duration and functional health status.

No study focused on people aged 75+, although the results showed that those with RA and/or OA were more likely to be female and older. Variables under investigation were found to be related to age and gender. Pain increased with increased age among those with RA, and QoL was found to decrease with increasing age in both RA and OA. Women were found to rate pain significantly higher than men. This indicates that it is important to focus further research on the 'old' and 'very elderly' because of the increasing risk of RA/OA and pain and thereby lowered QoL, and also because of the increasing number of older people in the community. The findings also indicated that further research should include and analyse both men and women because of the differences found in both pain and QoL with regard to gender.

Quality of life among people with OA and the level of decreased QoL tended to be moderated by social support. No moderating effect like that from social network/support was found among those with RA. The results of this review as well as of previous studies (Lambert *et al.*, 1989; Bowling & Browne, 1991; Kendig *et al.*, 2000) show that it is important to include variables like social network/support when studying pain and QoL because of their moderating effect. This is because a phenomenon cannot be fully studied without including other variables known to affect or to be affected by the variable under study. This is especially so when studying factors that are known to have a major impact on people's lives. These moderating factors could be the reason why these people can tolerate their situation, for instance, handle the pain. From a clinical perspective this indicates that it might be important to assess a patient's available social network and to involve social networks/supporters in nursing care to moderate the negative effects on QoL.

The importance of identifying pain, functional limitations and depression, and also factors moderating the effects of the disease, in the care of people with rheumatic diseases (RA and OA) is pointed out in this review. This is because of the covariance of these variables and their impact on QoL. No firm evidence was found that these results could be generalized to the care of old people, although there is an increased prevalence of these diseases among older people. However, the results may in general be the same for older people and could to some extent be adopted in their care. In particular, symptomatic assessment for factors that may lower QoL seems urgent as well as factors that may improve QoL.

Conclusions

Inconsistency was found regarding QoL but it was in general low in both groups studied. It is important to focus on these patients to better understand the factors that contribute to lower QoL and to distinguish the effects of these factors as well as to identify variables that strengthen QoL. The fact that no study focused only on those over 75, or had a satisfactory large sample, caused a major problem. Another problem was that different methods and instruments were used in the studies. This means that no firm conclusions from the different studies can be drawn. Despite this, the review pointed out important variables for further research and to be focused on in nursing care, such as age, pain, depression, functional limitation, QoL and social network/support as a moderating factor. Research as well as nursing care should especially focus on the 'old' and the 'very elderly' because increased age was related to increased pain (RA) and decreased QoL (both RA and OA) and there is a lack of research on these groups. Research should also include both men and women because differences were found in gender regarding people with RA/OA. Knowledge about this group of people is still sparse and further research is needed, focusing on older people with RA and/or OA and taking demographic changes into consideration. In spite of the sparse knowledge it seems justified to state that pain, functional limitations and their impact on QoL should be focused on in everyday care.

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Internal validity

- operational definitions clearly described?
- sample clearly described (inclusion criteria, exclusion criteria)?
- comparability of the groups adequate, matching?
- intervention clearly described?
- use of outcome measures and follow-up appropriate?
- drop-out handling adequate and clearly described?
- presentation of data appropriate?

External validity

- could the outcome be generalized and to what extent?
- replication done and clearly described?

Reliability

- instruments tested for reliability?
- reliability of the instrument presented?

Critical discussion

- critical assessment of the study?
- comparison and discussion of the outcomes compared to equal studies?

The scores in connection with assessment were:

- 1 = high methodological quality/low risk of bias
- 2 = moderate methodological quality/risk of bias
- 3 = low methodological quality/high risk of bias

Appendix 1 The following criteria were used to assess the methodological quality of the studies in the review

Appendix 2 Explanation of the instrument abbreviations

Instrument abbreviation	Instrument	Measurement
ABS	Bradburn Affect Balance Scale	For example, positive affect and emotional well-being
AHI	Arthritis Helplessness Index	Helplessness
AIMS/AIMS2	Arthritis Impact Measurement Scales	Arthritis-specific health status
BMS	Bradburn Morale Scale	Psychological well-being
CAS-IB	Consumer Assessment Study Interview Battery	Contains, e.g. Physical health, IADL, FIM, MMSE, RSE, SIP
CES-D	Center for Epidemiological Studies Depression Scales	Depression
CLINHAQ	–	Contains different instruments (e.g. HAQ, VAS pain)
EPLS	Evaluation of Present Life Scale	Quality of life
EuroQoL	–	Quality of life
FIM	Functional Independence Measurement	Functional status
FSI	Functional Status Index	Severity of illness
FSS	Fatigue Severity Scale	Fatigue
HAQ/MHAQ	(Modified) Health Assessment Questionnaire	Functional disability questionnaire
HLC	Health Locus of Control	Health control orientation
IRGL	–	Self-reported health status
MAC	Mental Adjustment to Cancer	Measurement of cognitive adaptation and acceptance of illness
MMSE	Mini Mental Status Examination	Cognitive/mental status
MPQ	McGill Pain Questionnaire	Pain measurement
NHP	Nottingham Health Profile	Quality of life measurement
NRS	Numerical Rating Scale	Pain severity and fatigue
PQOL	Perceived Quality of Life Index	Quality of life
QLsc	Hörnquist's Quality of Life: Status and Change Questionnaire	Quality of life
QOLS	Quality of Life Survey	Quality of life
RAI	Rheumatology Attitudes Index	For example, helplessness
RSE	Rosenberg Self-Esteem Scale	–

Appendix 2 (Continued)

Instrument abbreviation	Instrument	Measurement
SCL-5	Short version Symptom Checklist	For example, mental distress
SELF	Arthritis Self-Efficacy Scale	For example, pain
SF-36	Short Form – 36	Health-related quality of life
SIP	Sickness Impact Profile	Quality of life
SOM	Perlin Sense of Mastery Scale	–
SSQ	Social Support Questionnaire	Social support
STAI	State-Trait Anxiety Inventory	Anxiety
Pain measured with VAS	Visual Analogue Scale	Pain
WOMAC	Western Ontario McMaster Universities Osteoarthritis Index	Osteoarthritis severity index