Effects of Depression and Anxiety on Quality of Life of Patients with Rheumatoid Arthritis, Knee Osteoarthritis and Fibromyalgia Syndrome

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ABSTRACT

Objective: *To measure the effects of depression and anxiety on quality of life (QoL) in patients with rheumatoid arthritis (RA), knee osteoarthritis (OA) and fibromyalgia syndrome (FMS).*

Methods: *One hundred and fifty-four patients with RA, knee OA, and FMS who presented to the physical medicine and rehabilitation department were studied. For evaluation of the patients, Beck depression scale, Beck anxiety scale, and Short Form-36 were used.*

Results: *Twenty-two per cent of patients (n = 34) were diagnosed with of RA, 52.6% (n = 81) knee OA and 25.3% (n = 39) FMS. Except for the subscales, of physical and emotional role, there were statistically significant differences among diagnostic groups in the rest of the SF-36 subscales. In the physical functioning subscale, the highest score was obtained in the fibromyalgia group and the lowest in the RA group (*$p < 0.001$*). However, in the bodily pain subscale, the lowest score was recorded in the fibromyalgia group (*$p = 0.019$*). In all diagnostic groups, the scores of SF-36 subscales were significantly low in patients who scored above the threshold value of Beck depression scale (*$p < 0.001$*). A strong negative correlation was detected between scores of Beck anxiety scale and the scores of all SF-36 subscales in patients with RA and knee OA. On the other hand, in patients with FMS, anxiety scores correlated negatively with only physical and somatic function scores of SF-36.*

Conclusion: *Quality of life is significantly low in patients with RA, knee OA and FMS, whose depression and/or anxiety scores are high. Therefore, these patients should be managed using a multidisciplinary approach including psychiatric support.*

Efectos de la Depresión y la Ansiedad Sobre la Calidad de los Pacientes con Artritis Reumatoide, Osteoartritis de la Rodilla y Síndrome de Fibromialgia

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RESUMEN

Objetivo: *Medir los efectos de la depresión y la ansiedad sobre la calidad de vida (CdV) en pacientes con artritis reumatoide (AR), osteoartritis de la rodilla (OA) y síndrome de fibromialgia (SFM).*

Métodos: *Se estudiaron ciento cincuenta y cuatro pacientes con RA, OA de la rodilla, y, que acudieron al departamento de medicina física y rehabilitación. Para la evaluación de los pacientes se utilizaron la escala de depresión de Beck, la escala de ansiedad de Beck, y el cuestionario de salud SF-3.*

Resultados: *Al veintidós por ciento de los pacientes (n = 34) se les diagnosticó RA, al 52.6% (n = 81) OA de la rodilla, y al 25.3% (n = 39) SFM. Excepto para las subescalas del rol físico y emocional, hubo diferencias estadísticamente significativas entre los grupos diagnósticos en el resto de las subescalas del cuestionario SF-36. En la subescala del funcionamiento físico, la puntuación más alta se obtuvo en el grupo de fibromialgia y la más baja en el de RA (*$p < 0.001$*). Sin embargo, en la subescala de dolor corporal, la puntuación más baja se registró en el grupo de fibromialgia (*$p = 0.019$*). En todos los grupos diagnósticos, las puntuaciones de las subescalas del cuestionario fueron significativamente más bajas en los pacientes que obtuvieron puntos por encima del valor umbral de la escala de depresión de Beck (*$p < 0.001$*). Una fuerte correlación negativa fue detectada entre las puntuaciones de la escala de ansiedad de Beck y las puntuaciones de todas las subescalas del cuestionario SF-36 en pacientes con RA y OA de la rodilla. Por otro lado, en pacientes con SF, las puntuaciones de ansiedad tuvieron una correlación negativa con solo puntuaciones de función física y somática de SF-36.*

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Conclusión: *La calidad de vida es significativamente mas baja en pacientes con RAD, OA de la rodilla y SFM, cuyas puntuaciones de depresión y/o ansiedad son elevadas. Por lo tanto, estos pacientes deben de ser tratados haciendo uso de enfoques multidisciplinarios, incluyendo apoyo psiquiátrico.*

West Indian Med J 2007; 56 (2): 123

INTRODUCTION

Rheumatoid arthritis (RA) is a chronic systemic inflammatory disorder that may affect many tissues and organs but particularly the joints, often progressing to destruction of the articular cartilage and ankylosis of the joints (1, 2). Due to its physical, social and psychological burden, patients' experience many difficulties in various aspects of their lives. The main cause of functional disability in RA is synovitis which leads to erosive joint damage (3). Many variables such as age, (4) gender, (5) duration of illness, (6) number of affected joints, (6) education, psychological factors (7) and certain laboratory values (8) can contribute to the sequela of functional disability.

Osteoarthritis (OA) is characterized by derangement and loss of joint cartilage, subchondral sclerosis, osteophyte formation, synovial inflammation and disorder of other parts that support the joint (9). It is a common disorder and its morbidity increases with ageing in both genders especially if it is affecting the knee joint (10–12). The most common causes of physical disability are those due to locomotor function derangement such as walking, ascending or descending stairs, sitting and standing, which are essential for the maintenance of daily activities (13). Apart from the pain, the functional decline of the patient causes other health-related problems. A more sedentary lifestyle contributes to increased incidence of cardiovascular problems, osteoporosis, obesity, and psychological problems.

Fibromyalgia syndrome (FMS) is a musculoskeletal disease characterized by extensive musculoskeletal pain, tender points in certain parts of the body, weakness, sleep disturbances, morning stiffness, headache, irritable bowel syndrome, anxiety, depression, tachycardia and dyspnoea. Fibromyalgia syndrome can cause a high level of functional disability and have a significantly negative impact on "quality of life" (QOL). The severity of self-assessed disability in FM is similar to that of rheumatoid arthritis and osteoarthritis (14–17) Pain, fatigue, and weakness are most often reported to affect working capacity (12). Fibromyalgia syndrome is one of the most debilitating diseases that affects the daily life and, hence, QoL of patients. Considering syndromes producing chronic pain and disability, FMS is a leading condition that causes loss of production, increased drug and other therapeutic expenditures (18). Fatigue is among the most common symptoms of FMS. Due to increasing weakness these patients eventually become unable to perform daily activities. In addition, exercise intolerance, which is the most prominent sign of FMS, is the leading cause of disability. These patients are unable to perform repeated dynamic or sustained static tasks (19).

Quality of life is not an old term and a substantial amount of study has been done, in the area of consultation-liaison. Scales to assess QoL have been used extensively in recent years with an increasing interest in order to follow various disorders. Assessment of QoL is important since it demonstrates the impact of chronic diseases on patients. Quality of life should be measured so as to evaluate personal and public health and assess the benefits of health_services. Husted and colleagues have evaluated the QoL of patients with psoriatic arthritis and found that they reported higher levels of vitality than patients with RA (20). It is known that chronic pain and psychological disturbances usually accompany many disorders such as RA, FMS and knee OA and, this accompaniment leads to substantial loss of productivity and economic loss (21, 22). It is known that chronic pain and psychological disturbances usually accompany many disorders such as RA, FMS and knee OA and, this accompaniment leads to an important loss in productivity and causes economic detriment (21, 22). In order to determine the strategies of treatment of these disorders, the functional, psychological and social aspects of disease activity will have to be assessed.

The objective of this study was to measure the effects of depression, anxiety, sociodemographic and disease variables on QoL in patients with RA, knee OA and FMS.

SUBJECTS AND METHODS

In this study, 154 patients with RA, knee OA and FMS, who presented to the outpatient department of Physical Medicine and Rehabilitation Unit of Duzce Medical Faculty for the first time between October 2001 and March 2002 were included. Data gathered in this study were evaluated to determine the consultation-liaison service requirements. Patients with coexisting rheumatological disease other than RA, knee OA and FMS, and psychiatric disease other than depression and anxiety were excluded from the study. None of the patients with RA and knee OA had joint replacement therapy. The diagnosis of RA was made according to the diagnostic criteria of American Rheumatism Association 1987 (ARA) and clinical radiology. The diagnoses of knee OA and FMS were made according to diagnostic criteria of American College of Rheumatology (ACR). The patients were evaluated for depression and anxiety according to DSM-IV. Beck depression scale and Beck anxiety scale were used in order to obtain numerical data. Short form-36 (SF-36) was administered for QoL assessment. Informed consent was obtained from each patient and the protocol was approved by the Ethical Committee of Duzce Medical Faculty.

Sociodemographic data sheet: A data sheet was used in order to document data gathered from the study by the investigators.

Beck depression inventory (Bdi): Bdi was used to measure depression risk and variations in the signs and level of severity in a specified subject. It is a self-administered Likert type questionnaire consisting of 21 items and scored as 0–3. The score range is 0–63 and the cut-off point has been reported as 17 (23).

Beck anxiety inventory (Bai): This inventory was constructed by Beck, Ebstein, Brown and Steer and published in 1988. It is used to detect the frequency of anxiety signs of subjects. It is a Likert type scale consisting of 21 items and scored as 0–3. Score range is 0–63 (24).

Short form-36 (SF-36): SF-36 was been constructed by Rand Corporation (25). It is a self-administered tool with generic standards. It has 36 items and eight subscales consisting of physical functioning, role-physical, bodily pain, general health perceptions, vitality, social function, role-emotional and mental health. Evaluation is made with a Likert type questionnaire except for some items and the last four weeks are considered. Subscales evaluate health from poor (0) to excellent (100). The total score was not used. It has been reported that it can also be administered for the evaluation of life quality in bodily handicapped people.

In the statistical analysis, independent sample t-test and one-way ANOVA were used for parametric values in evaluating the difference among groups. In the multiple comparison of two groups, Scheffe test was used as Post Hoc test. Pearson correlation was used for the evaluation of relations between groups**.** From factors affecting SF-36 subscale results, diagnosis, gender, occupation, marital status, education, duration of disease, depression score, age group and beck anxiety score were evaluated in regression curve estimation by using logistic model. Regression values were stated as "R". SPSS version 10.0 was used in the statistical analysis.

RESULTS

The mean age of the patients was 51.94 ± 8.61 years and ranged from 25 to 69 years. Of 154 patients, 109 (70.8%) were women and 45 were men (29.2%). Thirty-six (80%) men had the diagnosis of OA; 44.2% (n = 46) of women were in the range of 50–59 years and 40% (n = 18) of men were in the range of 50–59 years. A total of 22.8% (n = 34) of patients were diagnosed with RA, 52.60% (n = 81) knee OA, and 25.32% (n = 39) FMS. The mean age was 50.41 ± 8.25 years in patients with RA, 52.73 ± 8.60 in patients with knee OA, and 51.64 ± 8.95 in patients with FMS. Married individuals represented 95.5%, 3.9% were single. There was no significant difference between the diagnostic groups with regard to marital status. The level of education was divided into three groups consisting of analphabets, primary school graduates and high school graduates. Of the whole group 67.6% belonged to the group of primary school graduates. There was no difference between groups with regard to educational status. No college-university graduate was noted. The mean number of children was 2.81 ± 0.97 and no statistically significant difference was noted between patients grouped according to diagnosis.

The mean duration of illness was 5.23 ± 4.16 years in all patients as a whole. The shortest mean duration was noted in FMS (3.41 ± 2.40) and the longest in knee OA (6.33 ± 4.80) and this difference was found to be significant ($p < 0.001$). The occupational distribution is shown in Table 1. Housewives were examined as a separate group because they outnumbered the working group and had lower mean scores in SF-36. There was no statistically significant difference with regard to mean age between housewives and working group. The mean age of the non-working group (retired and unemployed) was 56.89 ± 7.50 years and it was significantly higher than the other two groups (working: 48.21 ± 7.86, housewife: 52.31 ± 8.57) ($p < 0.001$).

SF-36 results

SF-36 subscales were examined statistically with respect to mean scores according to the diagnostic groups. Statistically significant differences were found in five subscales. There were no differences in physical role, emotional role and mental health subscales. The highest score related to physical functioning was in FMS and the lowest in RA ($p < 0.001$). In the pain subscale, the lowest score was in FMS ($p = 0.016$). In the vitality subscale, difference between the three diagnostic groups was significant ($p = 0.017$). In the social functioning subscale the difference was less significant ($p = 0.023$) (Table 2). There was no statistically significant difference between groups related to physical role but lowest mean score was received compared to the other seven subscales. For all groups in physical role, the mean score was 28.6 ± 42.7. The lowest mean score in the other seven subscales was 41.6 ± 24.8 and belonged to bodily pain and there was a significant difference. The highest mean score was 65 ± 17.8 and belonged to mental health subscale.

When the diseases were compared with each other, according to scores from SF-36 subscales, in physical functioning, knee OA obtained a significantly higher score than RA ($p = 0.013$) and FMS a higher score than RA ($p < 0.001$) and knee OA ($p = 0.001$) as seen in Table 3. In the bodily pain subscale, both RA ($p = 0.032$) and knee OA ($p = 0.047$) obtained significantly higher scores than FMS. Knee OA obtained significantly higher scores than FMS in general health ($p = 0.022$), vitality ($p = 0.020$) and social functioning ($p = 0.028$) subscales.

When the mean values of SF-36 subscales according to employment subgroups of diagnostic groups, were evaluated the most significant statistical difference was in the physical function of working knee OA group. (F: 3.866, $p = 0.025$). Likewise, there was a less significant statistical difference in SF-36 subscales of vitality and general health in working and emotional role in housewife RA group. There was not a

Table 1: Rates of sociodemographic variables of diagnostic groups and average values

	Whole Group (n =154, %100)	Rheumatoid Arthritis (n = 34, % 22.08)	Knee Osteoarthritis (n = 81, % 52.60)	Fibromyalgia Syndrome (n = 39, % 25.32)
	Mean ± Sd	**Mean ± Sd**	**Mean ± Sd**	**Mean ± Sd**
Average age	51.94 ± 8.61	50.41 ± 8.25	52.73 ± 8.60	51.64 ± 8.95
Duration of illness (year)	5.23 ± 4.16 (0.5–25)	4.72 ± 3.18 (0.5–13)	6.33 ± 4.80 (0.5–25)	3.41 ± 2.40 (0.5–11)
Number of children	2.83 ± 0.94 (1–5)	2.62 ± 0.74 (2–5)	2.98 ± 1.02 (1–5)	2.69 ± 0.88 (1–5)
	Number (%)	**Number (%)**	**Number (%)**	**Number (%)**
Gender				
Female	109 (70.80)	26 (76.50)	36 (55.60)	38 (97.40)
Male	45 (29.20)	8 (23.50)	45 (44.40)	1 (2.60)
Marital status				
Married	147 (95.50)	32 (94.20)	79 (97.50)	36 (92.30)
Single	6 (3.90)	1 (2.90)	2 (2.50)	3 (7.70)
Widowed	1 (0.60)	1 (2.90)	–	–
Occupation				
Housewife	102 (66.20)	23 (67.60)	48 (59.30)	31 (79.50)
Working	34 (22.10)	11 (32.40)	15 (18.50)	8 (20.50)
Retired*	18 (11.70)	–	18 (22.20)	–
Education				
Analphabet†	25 (16.20)	1 (2.90)	18 (22.25)	6 (15.40)
Primary	104 (67.60)	25 (73.60)	56 (69.15)	23 (59.00)
High school	25 (16.20)	8 (23.50)	7 (8.60)	10 (25.60)

*: One unemployed patient is included in this group.
†: One literate patient is included in this group.

Table 2: Distribution and statistical results of SF-36 subscales according to the diagnostic groups

	SF-36 Mean ± sd							
	Physical functioning	**Physical role**	**Bodily pain**	**General health**	**Vitality**	**Social functioning**	**Emotional role**	**Mental health**
Rheumatoid Arthritis	40.58 ± 30.39	28.67 ± 45.28	47.24 ± 27.40	47.12 ± 19.76	60.00 ± 16.51	58.09 ± 23.81	62.7 5 ± 48.38	66.12 ± 15.82
Knee Osteoarthritis	57.47 ± 29.86	30.3 7± 43.54	43.95 ± 20.92	53.35 ± 22.93	61.48 ± 18.10	59.26 ± 24.82	56.38 ± 47.62	67.11± 18.89
Fibromyalgia Syndrome	78.33 ± 18.33	25.00 ± 39.73	32.10 ± 27.78	41.97 ± 16.72	51.79 ± 16.96	46.47 ± 23.46	52.14 ± 48.24	59.82 ± 16.65
$F^{\dagger}$	17.32	0.21	4.27	4.12	4.16	3.85	0.45	2.31
P	$p < 0.001$	$p = 0.815$	$p = 0.016$	$p = 0.018$	$p = 0.017$	$p = 0.023$	$p = 0.639$	$p = 0.103$

(†) One-way ANOVA

significant statistical difference among other groups (Table 4).

Depression and anxiety results

In Beck depression inventory (Bdi), the cut-off point was accepted as 17 and 29.87% (n = 46) of patients equal to or were above 17. Depression scores above the cut-off point in RA, in knee OA and in FMS were 26.50% (n = 9), 26.30% (n = 21) and 41% (n =16) respectively. The SF-36 subscale scores of the diagnostic groups were compared after dividing each group into two subgroups of above and below the threshold value according to depression scores. All the scores of SF-36 subscales in all diagnostic groups except for physical functioning in FMS were significantly low in the subgroup which was above the threshold (Table 5).

For scores of Bdi and Bai, Pearson correlation was 0.647 ($p < 0.001$). Mean Bdi score was highest in FMS (14.56 ± 12.41) and lowest (10.98 ± 11.16) in knee OA. Mean Bai score was lowest (10.26 ± 7.48) in FMS and highest (11.88 ± 10.84) in RA.

Pearson's correlation test was used to evaluate anxiety scores and scores of SF-36 subscales for each diagnostic groups. Among patients with RA, there was a strong negative correlation ($p < 0.001$) in scores of all subscales except

Table 3: Comparison of diagnoses with each other one by one according to SF-36 subscales

Dependent Variable(* †)	(I) Diagnosis	(J) Diagnosis	Mean Difference (I–J)	Std. Error	*P*	95% Confidence interval	
						Lower Bound	Upper Bound
Physical functioning	Knee Osteoarthritis – Rheumatoid Arthritis		16.88	5.63	0.013	2.96	30.80
	Fibromyalgia Syndrome – Rheumatoid Arthritis		37.74	6.46	< 0.001	21.76	53.73
	Fibromyalgia Syndrome – Knee Osteoarthritis		20.86	5.37	0.001	7.59	34.14
Bodily pain	Rheumatoid Arthritis – Fibromyalgia Syndrome		15.13	5.70	0.032	1.04	29.23
	Knee Osteoarthritis – Fibromyalgia Syndrome		11.85	4.73	0.047	0.14	23.56
General health	Knee Osteoarthritis – Fibromyalgia Syndrome		11.38	4.06	0.022	1.34	21.42
Vitality	Knee Osteoarthritis – Fibromyalgia Syndrome		9.69	3.41	0.020	1.26	18.11
Social functioning	Knee Osteoarthritis – Fibromyalgia Syndrome		12.78	4.73	0.028	1.09	24.48

Post Hoc Test (Scheffe)
(*) SF-36 subscales
(†) Disease groups with significant differences were shown.

Table 4: Distribution and statistical result of SF-36 subscales according to the employment categories of diagnostic subgroups.

Diagnosis	Employment	SF–36 Mean ± sd Physical functioning	Physical role	Bodily pain	General health	Vitality	Social functioning	Emotional role	Mental health
	Housewife	76.77 ± 19.60	19.35 ± 36.34	30.9 ± 27.98	42.29 ± 14.83	52.25 ± 16.67	45.56 ± 23.17	53.76 ± 48.44	60.13 ± 16.44
	Working	84.37 ± 11.16	46.87 ± 47.13	36.62 ± 28.34	40.75 ± 23.93	50.00 ± 19.08	50.00 ± 25.87	45.83 ± 50.19	58.62 ± 18.55
Fibromyalgia Syndrome	F†	1.09	3.23	0.26	0.05	0.11	0.22	0.17	0.05
	P	*p* = 0.302	*p* = 0.081	*p* = 0.612	*p* = 0.820	*p* = 0.742	*p* = 0.640	*p* = 0.684	*p* = 0.823
	Housewife	34.13 ± 31.75	21.74 ± 42.17	46.13 ± 27.71	42.56 ± 20.77	55.87 ± 17.75	53.80 ± 26.50	73.91 ± 44.90	62.95 ± 16.01
	Working	54.09 ± 23.11	43.18 ± 50.11	49.54 ± 27.94	56.63 ± 13.84	68.63 ± 9.24	67.04 ± 14.00	39.39 ± 49.03	72.72 ± 13.83
Rheumatoid Arthritis	F†	3.45	1.70	0.11	4.13	4.98	2.40	4.15	3.01
	P	*p* = 0.073	*p* = 0.201	*p* = 0.740	*p* = 0.050	*p* = 0.033	*p* = 0.131	*p* = 0.050	*p* = 0.092
	Housewife	54.06 ± 29.56	27.81 ± 42.48	43.96 ± 18.80	53.85 ± 20.73	62.92 ± 17.06	61.46 ± 23.89	59.25 ± 46.52	69.83 ± 15.99
	Working	76.00 ± 22.21	41.66 ± 49.70	48.46 ± 22.49	60.33 ± 27.76	64.00 ± 19.01	62.50 ± 23.14	71.11 ± 45.19	68.80 ± 23.23
	Retired	51.11 ± 31.55	27.78 ± 41.91	40.16 ± 25.16	46.22 ± 23.52	55.55 ± 19.77	50.69 ± 27.94	50.69 ± 48.61	58.44 ± 20.58
Knee Osteoarthritis	F	3.86	0.61	0.64	1.60	1.27	1.40	1.09	2.55
	P	*p* = 0.025	*p* = 0.544	*p* = 0.531	*p* = 0.208	*p* = 0.287	*p* = 0.252	*p* = 0.340	*p* = 0.085

(†) One-way ANOVA

for emotional role. There was a str ong negative correlation between anxiety scores and all scores of SF-36 subscales for knee OA. Among patients with FMS, there was a negative correlation between anxiety scores and scores of physical functioning, physical role, bodily pain and social functioning subscales (Table 6).

Logistic regression analysis

The factors affecting SF-36 subscale results (diagnosis, gender, occupation, marital status, education, duration of disease, depression score, age group and beck anxiety score) were evaluated in regression curve estimation by using logistic model. As a result, it was observed that duration of disease (R = 0.360, $p < 0.001$), diagnosis (R = 0.192, $p < 0.001$), beck depression score (R = 0.118, $p < 0.001$), age (R = 0.068, $p = 0.001$) and education (R = 0.024, $p = 0.057$) had affected the physical functioning subscale. Physical role subscale was affected by beck depression score (R = 0.158, $p < 0.001$), duration of disease (R = 0.056, $p = 0.003$) and marital status (R = 0.045, $p = 0.008$). Bodily pain subscale was affected by depression score (R = 0.317, $p < 0.001$), duration of disease (R = 0.085, $p < 0.001$) and diagnosis (R = 0.034, $p = 0.023$). General health subscale was affected by depression score (R = 0.441, $p < 0.001$), duration of disease (R = 0.078, $p < 0.001$) and gender (R = 0.026, $p = 0.045$). Vitality subscale was affected by beck depression score (R = 0.502, $p < 0.001$) and duration of disease (R = 0.037, $p = 0.018$). Social functioning subscale was affected by beck depression score (R = 0.063, $p = 0.001$) and duration of disease (R = 0.037, $p = 0.018$). Emotional role subscale was

Table 5: Comparison of diagnostic groups with regard to SF-36 subscale scores and Beck depression scale scores after dividing them into above and below the threshold value*,†

	Beck Depression Scores*														
	Rheumatoid Arthritis					Knee Osteoarthritis					Fibromyalgia Syndrome				
SF-36	Mean	Std Err	95% Confidence interval Lower	Upper	*p*	Mean	Std Err	95% Confidence interval Lower	Upper	*p*	Mean	Std Err	95% Confidence interval Lower	Upper	*p*
Physical functioning	43.87	9.16	25.21	62.52	< 0.001	36.12	6.45	23.29	48.95	<0.001	-0.19	6.05	-12.43	12.07	0.917
Role-physical	39.00	16.49	5.40	72.60	0.024	37.79	10.26	17.35	58.21	< 0.001	34.44	11.82	10.49	58.40	0.006
Bodily pain	32.81	9.13	14.20	51.41	0.001	25.32	4.52	16.34	34.31	< 0.001	33.56	7.32	18.73	48.38	< 0.001
General health	29.32	5.83	17.45	41.19	< 0.001	32.05	4.60	22.88	41.22	< 0.001	25.60	3.57	18.37	32.83	< 0.001
Vitality	27.95	4.25	19.30	36.61	< 0.001	27.39	3.44	20.54	34.24	< 0.001	25.30	3.74	17.72	32.88	< 0.001
Social functioning	33.67	7.28	18.84	48.49	< 0.001	34.20	5.03	24.18	44.21	< 0.001	27.14	6.32	14.32	39.96	< 0.001
Role-emotional	40.00	17.74	3.86	76.14	0.031	63.25	9.85	43.65	82.86	< 0.001	77.81	9.47	58.62	97.00	< 0.001
Mental health	24.64	4.48	15.52	33.76	< 0.001	28.11	3.64	20.88	35.35	< 0.001	24.60	3.72	17.07	32.13	< 0.001

*: The cut-off point was 17 according to Beck depression scale.
†: independent-samples t-test

Table 6: Correlation between Beck anxiety scores and SF-36 subscale scores of diagnostic groups†

	Beck Anxiety Scores					
	Rheumatoid Arthritis		Knee Osteoarthritis		Fibromyalgia Syndrome	
SF-36 subscales	†	P	†	P	†	P
Physical functioning	-0.672	< 0.001	-0.542	< 0.001	-0.547	< 0.001
Role-physical	-0.451	0.007	-0.414	< 0.001	-0.365	0.022
Bodily pain	-0.583	< 0.001	-0.575	< 0.001	-0.481	0.002
General health	-0.706	< 0.001	-0.740	< 0.001	-0.275	0.900
Vitality	-0.737	< 0.001	-0.759	< 0.001	-0.302	0.602
Social functioning	-0.718	< 0.001	-0.620	< 0.001	-0.518	0.001
Role-emotional	-0.326	0.06	-0.649	< 0.001	-0.184	0.262
Mental health	-0.655	< 0.001	-0.717	< 0.001	-0.179	0.276

(†): Pearson's correlation co-efficient

only affected by beck depression score (R = 0.367, $p < 0.001$). Mental health subscale was also affected by only beck depression score (R = 0.471, $p < 0.001$).

Moreover, duration of disease (R = 0.360, $p < 0.001$), beck depression score (R = 0.122, $p < 0.001$) and age (R = 0.069, $p = 0.007$) were related to the level of anxiety. The factors associated with depression were duration of disease (R = 0.029, $p = 0.036$) and score of anxiety (R = 0.300, $p < 0.001$). It was observed that in the multiple linear modelling of all the subscales the score obtained from beck anxiety scale was significant ($p < 0.001$).

DISCUSSION

In this study, no differences in the physical role and emotional role were found among patient groups when SF-36 subscales were compared. While physical functioning scores were highest, in patients with FMS, physical role, general health, pain, social functioning, emotional role and mental health scores were lowest, making this group the worst. In the physical functioning subscale, patients with RA scored lowest, which was statistically significant. Stavem and colleagues have found that patients with RA scored lowest on the subscale of physical functioning scales similar to our

patients with RA (26). There was no statistical difference between diagnostic groups related to physical role but all groups received the lowest scores.

Hidding and colleagues have reported that patients with ankylosing spondilitis, RA and FMS showed marked discordance in their functional disabilities, when they were followed by a video camera, compared to what they self-reported (27). Using SF-36, Walker and colleagues reported that patients with FMS had more deterioration compared with patients with RA as far as their physical and social functioning, emotional role, mental health, bodily pain, vitality and general health were concerned (28). Schlenk and colleagues who used SF-36 for measurement of QoL, compared patients with FMS to patients with Acquired immune deficiency syndrome (AIDS), chronic obstructive pulmonary disease (COPD), prostate cancer, urinary incontinence and hyperlipidaemia. Patients with FMS had greater impairment in vitality and bodily pain compared to other groups (29). In another study which investigated perceived health status in women with FMS and systemic lupus erythematosus (SLE) using SF-36, there was greater impairment in patients with FMS related to physical functioning, physical role, pain and vitality (30). In addition, worse mental health among women with FMS was associated with more hassles, more emotional coping and less satisfaction with social support (30). In the present study, similar to the results of the above mentioned studies of patients with FMS, more impairment in patients with FMS related to physical role, emotional role, pain, general health, mental health, vitality and social functioning was found when compared to patients with RA and knee OA. The greater level of impairment of physical functioning in patients with RA might have been due to greater functional disability and longer duration of their disease. These studies demonstrate that the health status of patients with FMS are impaired considerably and is greater in some specific aspects. Other studies have shown that quality of life of patients with disorders that follow a chronic course and cause physical disability, such as chronic heart failure, (15) RA (16) and COPD (17) deteriorated parallel to their duration of diseases. Likewise, in the three groups of patients, we found similar results related to physical role. Distinctly lower scores were detected in patients with RA related to the physical functioning subscale and FMS related to the vitality subscale. Our findings suggest that quality of life except for emotional role and mental health worsens with increasing duration of disease. As a probable explanation for this finding, it is believed that in this culture, the social support provided by family members and the social environment of the individual with a loss of physical and intellectual faculty, affects the mental status positively.

In this study, general health and vitality subscales of housewives within the RA group was statistically low as well as the emotional role subscale of working RA group. Physical functioning was highest in the working knee OA group while lowest in the non-working counterpart. The other SF-36 subscales were also low in the non-working knee OA group. There was one unemployed and the remainder were retired in the non-working group of patients. This might indicate the deterioration of physical functioning with ageing. Osteoarthritis can be underestimated by both patients and people around them due to the fact that it is often regarded as a natural ageing process and a mild illness. Therefore, most patients use defense mechanisms, such as hiding and ignoring their illnesses in daily life and social interactions. As knee OA follows a more rapid course, both physical and social functioning and mental health of patients with knee OA should be followed-up more closely and treated accordingly.

According to Beck depression scale the highest mean score was seen in the FMS group, and lowest score in the knee OA group. These data indicate the importance of evaluation and treatment of patients with FMS for depression. Beck anxiety scores, in contrast, showed that the lowest scores were in the FMS group and highest in the RA group. Although there was no statistically significant difference, anxiety in RA should not be underestimated but should definitely be remembered and carefully evaluated. Strong correlation of the significance ($p < 0.001$) between Bdi and Bai necessitates the investigation of the other group when a diagnosis of depression or anxiety is put in one group.

Among groups of diagnoses, two subgroups which received scores above and below the threshold value for depression were created. There were highly significant statistical differences in these subgroups when subscales of SF-36 scores were compared. In the subgroups which had scores above the threshold, all of the subscales of SF-36 had lower mean scores. This clearly shows that depression makes QoL worse in patients with these disorders. Hence, psychiatric evaluation and intervention would improve QoL significantly. As for anxiety scores, there was strong negative correlation in all of the scores of subscales of SF-36 in patients with RA and knee OA. In other words, the higher the anxiety scores the lower the QoL. But in patients with FMS, the presence of significant negative correlation between anxiety scores and physical functioning, physical role, bodily pain, and social functioning and lack of correlation with general health, vitality, emotional role and mental health suggest that these patients somatize their anxiety. So FMS patients have less pain but more physical dysfunction than the other categories of patients. This might explain why patients with FMS often have somatic complaints such as subjective joint swelling, paraesthesia and headache.

In conclusion, patients with RA and knee OA whose depression and/or anxiety scores were high and patients with FMS whose depression scores were high had low QoL. Therefore, these patients should be followed and their management plan made using a multidisciplinary approach including psychiatric support. By this way, it would be possible to improve QoL and get a better response to treatment of these patients.

ACKNOWLEDGEMENT

The authors wish to thank Assistant Professor Talat Bahçebaşý, Department of Public Health and Biostatistics, Düzce Medical Faculty, Abant Izzet Baysal University for his kind effort and expert advice on statistical analyses.

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