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Original Article

Quality of life in fibromyalgia, osteoarthritis and rheumatoid arthritis patients: Comparison of different scales

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ABSTRACT

Aim of the work: To compare fibromyalgia syndrome (FMS), osteoarthritis (OA) and rheumatoid arthritis (RA) patients in terms of their measured quality of life (QoL).

Patients and methods: Fifty-nine FMS patients, 165 OA and 57 with RA were assessed. QoL Short Form (SF) scales, World Health Organization QoL (WHOQoL) Brief and Quick-Dash scales were measured. Covariance analysis was used for group comparisons.

Results: The mean age of FMS patients was 40.4 ± 10.9 years; OA was 54.5 ± 15.7 years and RA 46.9 ± 15 years ($p < 0.001$) mostly were females. The disease duration in FMS was 4 ± 3.6 years; in OA was 6 ± 4.8 years and 5.1 ± 4.3 years in RA. After effects of age, gender and educational level on scores were eliminated, at least one SF scale was found to be significantly higher in FMS and OA in terms of Physical and Role function, General health, Vitality, Social function, Emotional role, mean of Mental health subscale in addition to the physical (PCS) and mental (MCS) summary scales. The Quick-Dash score was higher in the RA group. Physical sub-dimension scores of WHOQoL Brief scale were significantly lower in RA group. In addition, social relations sub-dimension score was found to be higher in OA than RA group. MCS scores of SF-36, SF-12 and SF-6D were found higher than PCS scores in the three diseases. PCS score was found significantly higher only in FMS group.

Conclusions: RA patients had worse QoL than FMS and OA according to PCS and MCS. SF-12 and SF-6D can be used instead of SF-36 or WHOQoL Brief scales for faster results.

1. Introduction

Quality of life (QoL) is the emotional and personal response to the difference between the activities that a patient can and should normally do and since it is a quality that is experienced subjectively, it is determined with a wide variety of scales [1]. QoL is predictive of morbidity and mortality [2] and its consideration has become increasingly important in decisions regarding resource allocation, intervention design, and treatment of individuals with rheumatic diseases [3].

Rheumatic diseases are the most common diseases all over the world. They cause pain, functional impairment, work disability, and affect individuals' QoL [4,5]. Disorders such as fibromyalgia syndrome (FMS), rheumatoid arthritis (RA) and osteoarthritis (OA) constitute a large portion of these conditions. FMS is a complex clinical disease that can be accompanied by several symptoms and bodily pain [6]. It does not have any specific symptoms, radiological or laboratory findings yet negatively affects the QoL. OA which is characterized by the damage of joint cartilage and subchondral bone is the most common joint disease and causes a considerable disability [7,8]. RA is a chronic systemic inflammatory disease that primarily affects joints. The progressive damage in cartilage and bones causes severe functional restrictions [4,5,9,10]. RA, OA and FMS patients experience limitations in their daily activities and participation restrictions and as a result of these they become physically inactive. This causes gradual decrease in their life quality [11].

There are several scales that measure the QoL. The QoL short form (SF-36*v2*) scale which is made up of 36 items and 8 sub-dimensions is widely used to measure the QoL and evaluates health in positive and negative aspects [12,13]. This form also has other versions; a shorter version called SF-12 scale [14] composed of 8 sub-dimensions and 12

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items, another scale called SF-8 scale [15] that excludes mental health and is composed of 7 dimensions and 8 questions and the last one called SF-6D [16] scale excluding 2 dimensions and including 6 dimensions and 11 questions. WHOQoL brief scale [17] which is developed by World Health Organization (WHO) and composed of 27 questions and 4 sub dimensions and Quick-Dash Scale [18] that gives quick results, composes of 11 questions but evaluates only one dimension are also used for this purpose. In Turkey, the use of SF-12, SF-8 and SF-6D scales to measure and compare the QoL of OA, RA and FMS patients has not been encountered. No information about the simultaneous use of these scales on rheumatologic diseases has been reported.

The purpose of this study is to compare common rheumatologic diseases namely, FMS, OA and RA in terms of QoL that is an important patient-reported outcome measure useful for the evaluation of treatment and patient follow up. In addition, to analyze whether the comparison results of the 3 diseases change in regard to various scales. According to the results to be obtained, we aim to show in what dimension the QoL of rheumatic patients differ and to determine the most useful scale hoping to fill a gap in the present literature.

1.1. Patients and methods

In this cross-sectional study, patients diagnosed with FMS [20], OA (shoulder, hand, knee or hip) [21,22] and RA [23] according to American College of Rheumatology (ACR) criteria were recruited from the Physical Medicine and Rehabilitation clinic. The 281 patients included 59 with FMS, 165 with OA and 57 with RA. Before starting the study, the ethical approval was obtained from the non-invasive clinical research ethics committee of Düzce University in April 2016 (2016/29). Patients provided their informed consent before being enrolled in the study.

1.2. Quality of life scales

Six short forms (SF) of the QoL scales were used in the present study; SF-36v2 [13], SF-12 [14], SF-8 [15], SF-6D [16], WHOQoL Brief [17] and Quick-Dash [18]. Both SF-8 and SF6D were not previously used for any disease in Turkey while only SF-36 was used for rheumatic diseases. Accordingly translated forms of SF-36, SF-12, WHOQoL Brief and Quick-Dash scales were used while original forms of SF-8 and SF6D were considered.

SF-36*v2*, SF-12, SF-6D, WHOQoL Brief and Quick-Dash scale forms were filled on a face to face session. Each patient filled out all short forms simultaneously. SF-36*v2* and SF-12 scales have 8 sub-dimensions. SF-8 has 7 and SF-6D has 6 sub-dimensions. All SF scales include physical (PCS) and mental (MCS) summary scales. PCS dimension is composed of Physical Functioning (PF), Role Physical (RP), Bodily Pain (BP) and General Health (GH). MCS is composed of Role Emotional (RE), Social Functioning (SF), Mental Health (MH) and Vitality (VT) [19,20,24]. In accordance with the second version of SF-36, scale sub dimension scores and summary measure scores were calculated. The second item in the scale was not calculated. In this version of the scale, responses to the second question were used to identify the GH changes over the last year. In the other short forms, the second item is absent. In calculating SF-12, SF-8 and SF-6D scale scores, score calculation of SF-36 scale was considered. Each sub dimension of SF scales was calculated by dividing the (raw score minus the lowest score) by the potential raw score x100. Score values range from 0-100. High scores represent good QoL.

WHOQoL Brief scale consists of four domains: Physical Health, Psychological, Social relationships and Environmental Health. This scale does not have a grand total score. Each section and domain is scored to a maximum of 20 or 100. In this scale, General Health is evaluated by the first and the second questions.

Quick-Dash scale is composed of 11 questions. It does not have any sub dimensions but is represented with a total score. Since this scale measures the QoL arising from upper extremity problems, it is also called arm, shoulder and hand questionnaire. The higher Quick-Dash scores signify a worse QoL on the contrary the lower SF and WHOQoL scores signify a worse QoL. Reliability and validity of these 6 QoL scales have been verified [25,26].

Statistics Analysis: Descriptive statistics of the data obtained were calculated as mean, standard deviation, minimum and maximum values, number and percentage frequencies according to type of variables. Cronbach's alpha coefficient was calculated for internal consistency of the scales. The three patient groups' means were adjusted for age, gender and educational level to eliminate their effect on QoL scores by using covariance analysis (ANCOVA). Age, gender and educational level were accepted as covariate in this model. In determining the significant differences among disease groups after ANCOVA, Turkey post hoc test was used. In addition paired samples *t*-test was used for comparison PCS and MCS scores in each groups. $p < 0.05$ was considered significant. SPSS (ver.18) was used.

2. Results

Regarding the FMS patients, the mean age was 40.4 ± 10.9 years (20–77 years); 49 (90.7%) females and 10 (9.3%) males. The mean age of the OA patients was 54.5 ± 15.7 years (18–97 years); 116 (69.5%) females and 51 (30.5%) males. The RA patients mean age was 46.9 ± 15 years (17–77 years); 40 (70.2%) were females and 17 (29.8%) males. The age was significantly different among the patients of the 3 diseases ($p < 0.001$) being higher in OA. The frequency of females was significantly higher in FMS compared to that in OA and RA ($p < 0.001$). 45% of the FMS patients were illiterate or primary school graduates and the rest were high school or university graduates. In OA and RA patients, 70% were illiterate or primary school graduates and the rest were high school or university graduates. The education level of the FMS patients was higher than that in the OA and RA patients ($p < 0.001$), whereas it was comparable between OA and RA. The disease duration in FMS was 4 ± 3.6 years, in OA it was 6 ± 4.8 years and 5.1 ± 4.3 years in RA. FMS patients had

Table 1
Internal consistency between items and sub-domains of the measured scales in fibromyalgia syndrome, osteoarthritis and rheumatoid arthritis patients groups.

		Internal Consistency (Cronbach's-α)					
Groups		SF-36	SF-12	SF-8	SF-6D	WHOQoL Brief	Quick Dash
FMS (n = 59)	Between items	0.89	0.80	0.86	0.82	0.94	0.94
	Between sub-domains	0.84	0.85	0.86	0.82	–	–
OA (n = 165)	Between items	0.83	0.72	0.81	0.71	0.94	0.94
	Between sub-domains	0.69	0.73	0.78	0.78	–	–
RA (n = 57)	Between items	0.81	0.73	0.85	0.79	0.93	0.92
	Between sub-domains	0.66	0.69	0.81	0.73	–	–

FMS: fibromyalgia syndrome, OA: osteoarthritis, RA: rheumatoid arthritis.