

Effectiveness of Client-Centered Occupational Therapy in Patients With Rheumatoid Arthritis: Exploratory Randomized Controlled Trial

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ABSTRACT

Objectives: This study aims to examine the effectiveness of client-centered occupational therapy in patients with rheumatoid arthritis (RA).

Patients and methods: The study included 40 patients (2 males, 38 females; range 39 to 60 years) with RA. Patients were divided into two groups as intervention group (n=20) and control group (n=20) by random sampling method. Each group was given 10 sessions of physical therapy program. In addition, the intervention group received client-centered occupational therapy. Patients were evaluated with Turkish versions of Short-Form McGill Pain Questionnaire, Health Assessment Questionnaire, The Arthritis Impact Measurement Scales 2, RA Quality of Life Questionnaire, and Canadian Occupational Performance Measurement.

Results: Pain, activity limitation, and participation restriction scores decreased significantly more in the intervention group compared to the control group. Also, quality of life increased significantly in the intervention group ($p<0.05$).

Conclusion: Our findings suggest that occupational therapy intervention reduces activity limitation and participation restrictions in patients with RA. Therefore, such interventions may be generalized for this patient group.

Keywords: Client-centered approach; occupational therapy; rheumatoid arthritis.

Client-centered occupational therapy is a kind of partnership between the client/patient and the therapist, which allows empowerment of the patient to engage in functional performance to fulfill his/her occupational roles in a variety of environments.¹ Philosophy of client-centered therapy includes empowerment and guiding of patients to achieve a cure by means of a balance of power between the therapist and patient. In this approach, the therapist acts as an educator. Thus, sufficient information and communication skills are needed to scrutinize the treatment. Expectations and targets are achieved together with the patient.²⁻⁴ When a client-centered approach can be administered completely, the

patient makes decisions alone based on his/her targets. In addition, the power is transferred from the therapist to the patient. In such a case, the therapist supports the decision-making period of the patient and accepts his/her decisions.^{3,5}

The Canadian Occupational Performance Measure (COPM) is a client-centered outcome measure that allows patients to evaluate their occupational performance and satisfaction with the performance in the areas of self-care, productivity, and leisure activities.^{6,7} However, majority of the studies have been designed to analyze the application of client-centered occupational therapy and/or COPM from

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therapists' perspectives, while few studies have focused on patients' views. Hammel^{3,8} asserted that the medical profession does not adopt client-centered principles in all practices.

Rheumatoid arthritis (RA) is a chronic, disabling disease characterized by chronic inflammation of joints that, in most patients, results in progressive joint destruction with deformities and various degrees of limitation in daily activities.⁹ Disease severity can vary considerably even from day one to the next. The unpredictable and painful course of the disease cause a lot of stress on patients and greatly impact their quality of life.^{10,11} People with RA can play an important role in the management of their disease. A wide variety of educational programs is available as a well-established part of RA treatment. These therapeutic activities are prescribed, taught, or recommended with the aim of reducing deformities and maintaining or improving function. Symptoms including pain, fatigue, stiffness and decreased muscle strength cause significant difficulties in daily activities such as grooming and dressing, cooking, cleaning, shopping, working, and leisure activities.^{12,13} The physical, personal, familial, social, and vocational consequences of RA are extensive. The most important interventions in occupational therapy for RA are training of skills, counseling, education about joint protection, prescription of assistive devices, and the provision of splints. Advice or instructions on the use of assistive devices and training in self-care and productivity activities are the leading interventions for RA patients preferred by occupational therapists.¹³⁻¹⁸ However, the effect of occupational therapy on the functional performance and social participation of RA patients has not been reviewed systematically. There are several studies emphasizing that effectiveness of randomized controlled comprehensive occupational therapy interventions in patients with RA should be investigated.¹⁰⁻¹² To our knowledge, there is no study that has investigated the client-centered occupational therapy in patients with RA. In our country, patients with rheumatic diseases consult physiotherapy clinics to reduce pain and overcome activity limitations. Occupational therapy is a new profession in Turkey; therefore, awareness about it is limited among healthcare

professionals. We hope that this study draws attention to the importance of client-centered occupational therapy in rheumatic diseases in Turkey. Thus, in this study, we aimed to examine the effectiveness of client-centered occupational therapy in patients with RA.

PATIENTS AND METHODS

This randomized controlled trial included 40 patients (2 males, 38 females; range 39 to 60 years) with RA according to American College of Rheumatology who were enrolled between January 2010 and November 2011. The trial design was based on Consolidated Standards of Reporting Trials statement.¹³ Patients were divided into two groups with random sampling method as the intervention group and control group. The minimum number of patients was statistically determined as 20 for each group by a blinded statistician using power analysis. After randomization, the principal researcher informed the participants about the group allocation. Figure 1 shows recruitment process and randomization. University Committee on Ethics granted approval for the study. Written informed consents were obtained from all participants. Inclusion criteria included RA diagnosis by a rheumatologist, being aged between 18 and 65 years, not being prescribed any change in drug therapy during the six months before the trial, being at stage 2 or 3 according to American College of Rheumatology criteria, and not being in the inflammatory stage of the disease. Exclusion criteria included having cognitive impairment affecting ability to understand and complete the study questionnaire; cardiopulmonary, neurological or orthopedic procedure in the last one year; or any other health condition(s), not related to RA, which moderately to severely limit participation in activities and/or hand function. Health conditions secondary to RA (e.g., osteoarthritis, fibromyalgia, heart conditions, and carpal tunnel syndrome) were not included in the exclusion criteria.

Ten sessions of physical therapy program were implemented on the control group. Physiotherapy took approximately 45 minutes every day and consisted of pain management (hot-packs,

cold-packs, and electrotherapy); exercises for stretching and strengthening; and educational therapy approaches (joint protection techniques, energy conservation techniques, splint and assistive devices use, etc.)

The same physical therapy was implemented to the intervention group. In addition, a client-centered occupational therapy was performed. Occupational therapy was arranged as four or more sessions according to individual needs according to the "Guidelines for Client-Centered Occupational Therapy".^{8,14} In our study, the therapist planned therapy with the patient as a decision-maker and implemented it based on the goals and priorities identified by the patients themselves to deal with various deficit occupational performance components.² Patients were also assigned an activity schedule, which included activities to enhance the occupational performance components that were identified by the subjects as 'important' according to the COPM. The various occupational performance components addressed were personal care, functional mobility, community management, household management, work, passive recreation, active recreation, and socialization. The participants completed the COPM with the principal investigator by identifying and rating performance and satisfaction in four to five tasks which they wished to improve by the therapy sessions. Direct intervention was provided and recorded by two collaborating therapists with clinical experience ranging from two to five years. The treatment program was designed according to the patients' needs and expectations. Each session was approximately 60 to 90 minutes long, specifically designed to meet the identified goals of the patients.

All of the assessment tools used in this study were administered by assistant researchers who were trained to use the respective tools. Assessment instruments were administered before (baseline) and after treatments during one month follow-up. The data collection took approximately one hour.

Sociodemographic characteristics were recorded at baseline including age, sex, employment status, and education level categorized as low (primary school or intermediate school), intermediate (secondary school) and high

(university). Disease duration and length of the treatment were also noted.

Pain was evaluated with the Turkish version of Short-Form McGill Pain Index (MPI).¹⁵ The main component of the MPI consisted of 15 descriptive adjectives for pain sensation (11 sensory and four affective), which were self-rated by patients according to intensity level on a point-rating scale (0= none, 1= mild, 2= moderate, 3= severe). The three pain scores were derived from the sum of the intensity rank values of the words chosen for sensory, affective, and total descriptors. The sensory and affective scores were calculated by adding the sensory and affective intensity values. The total score was sum of the intensity values. The MPI also included a pain intensity measure shown by the visual analog scale and the evaluative total pain intensity index of the standard MPI.

Functional status was evaluated using the Turkish version of Health Assessment Questionnaire (HAQ), which is an original measure (range 0-3) to score difficulty in performing everyday activities during the previous week. HAQ is a 20-item self-administered scale consisting eight subscales (dressing and grooming, arising, eating, walking, hygiene, reach, grip and "other activities"), which evaluate physical functions during the activities of daily living and yield total scores ranging from 0 (no or minimal dysfunction) to 3 (severe dysfunction).¹⁶

The Arthritis Impact Measurement Scale 2 (AIMS2) is the most commonly used measure for evaluation of disability and health status in the previous month in patients with arthritis. The measure considers five subscales (physical function, symptoms, work, psychological dimension, and social interaction), and the individual items are combined to form an aggregate score. After normalizing the score on each subscale, the range of the scores was 0-10, where higher scores indicate more problems. The Turkish version of the AIMS2 was used in this study.¹⁷

In COPM, a semi-structured interview is performed, wherein a patient identifies problems in occupational performance and prioritizes them. Treatment is based on the identified problems, and the goal is to improve performance in the areas most important to the patient. The patient scores performance in the identified problems and

Table 1. Demographic characteristics of groups

	Intervention group		Control group	
	%	Mean±SD	%	Mean±SD
Age (years)		51.35±11.57		55.80±10.33
Height (cm)		160.20±5.27		162.20±6.05
Weight (kg)		70.65±10.03		72.70±11.45
Disease duration (month)		109.80±52.72		99.20±45.98
Education status				
Primary school	20		25	
High school	40		35	
University	40		40	

SD: Standard deviation.

the satisfaction with performance. Evaluations are made twice, at the beginning and after the completion of the treatment period. For scoring the self perceived performance and satisfaction with this performance, a 10-point scale is used, where the score ranges from 1, meaning 'not able to do it' or 'not satisfied at all', to 10, which is 'able to do it extremely well' or 'extremely satisfied'. COPM is designed to evaluate change in patients' perceptions of performance and satisfaction with performance in identified activities. The change between initial evaluation and re-evaluation is a clinically important score. The measure has its theoretical foundation in the Canadian Model of Occupational Performance focused on client-centered praxis and occupational performance.¹⁸

Quality of life was measured using the RA Quality of Life questionnaire.¹⁹ This questionnaire consists of 30 yes/no type questions and other questions having a range from 0 to 30, with a lower score indicating higher quality of life.

Statistical analysis

All statistical analyses were performed using the software SPSS version 10.0 (SPSS Inc., Chicago, IL, USA). Distribution and normality were determined by Shapiro-Wilk test. Comparisons between two independent samples were made by

Mann-Whitney U test. Wilcoxon signed-rank test was performed to determine whether a change occurred. The data are presented in the form of means with standard errors and percentages. A p-value of less than 0.05 was considered statistically significant.

RESULTS

The demographic characteristics of the patients are presented in Table 1. There were no substantial clinical differences between the groups at baseline in terms of demographic factors. The majority of the patients were females. Four patients from the intervention group and two from the control group were employed. There were no losses during the follow-up and progress through the trial. The patients had problems in different joints; four patients from the intervention group and three from the control group had primarily hand joint involvement.

Baseline and follow-up pain levels were reported with MPI. While all pain scores significantly decreased in the intervention group, pain decreased significantly only in sensory score of MPI in the control group. Table 2 presents the results of pain level.

Table 2. Comparison of two groups for pain

	Intervention group		Control group		r	p
	Pre-intervention	Post-intervention	Pre-treatment	Post-treatment		
	Mean±SD	Mean±SD	Mean±SD	Mean±SD		
McGill sensory	7.85±2.81	3.55±1.95	8.85±1.98	7.15±1.66	-4.61	0.00*
McGill affective	0.90±0.71	0.10±0.30	0.90±0.44	0.75±0.55	-3.03	0.002*
McGill visual analog scale	4.20±1.88	2.00±1.25	4.10±1.77	3.15±1.49	-3.14	0.002*

SD: Standard deviation; * p<0.05.

Table 3. Comparison of two groups for Health Assessment Questionnaire scores

	Intervention group		Control group		r	p
	Pre-intervention	Post-intervention	Pre-treatment	Post-treatment		
	Mean±SD	Mean±SD	Mean±SD	Mean±SD		
Dressing and grooming	0.80±0.52	0.30±0.47	0.75±0.78	0.75±0.78	-2.93	0.003*
Rising	0.75±0.71	0.10±0.30	1.10±0.71	0.95±0.68	-4.44	0.00*
Eating	1.80±0.41	1.00±0.32	1.60±0.68	1.55±0.68	-1.86	0.06
Walking	0.75±0.78	0.40±0.50	1.55±0.60	1.45±0.60	-2.19	0.02*
Hygiene	0.70±0.65	0.25±0.44	0.80±0.69	0.70±0.73	-4.80	0.00*
Reach	1.45±0.75	0.65±0.48	1.75±0.63	1.75±0.63	-4.80	0.000*
Grip	2.05±0.39	1.25±0.55	1.65±0.58	1.65±0.58	-5.02	0.00*
Activities	2.05±0.39	1.15±0.58	2.10±0.78	2.10±0.78	-5.53	0.00*
Total	0.81±0.32	0.36±0.19	0.89±0.40	0.87±0.38	-3.36	0.00*

SD: Standard deviation; * p<0.05.

The primary outcome measure was HAQ. There was a significant decrease in all subparameters and total score of HAQ in intervention group. In the control group, no significant difference was found in subparameters of HAQ, whereas HAQ total score decreased significantly. Moreover, a comparison of groups revealed a significant difference between the groups in all HAQ scores except the eating parameter. Our results showed more significantly decreased activity limitation and participation restriction in intervention group compared to control group (Table 3).

While all AIMS2 scores decreased in the intervention group, there was only a significant difference in AIMS2 score in the control group.

All parameters of AIMS2 decreased more significantly in intervention group than control group (Table 4).

The COPM performance and satisfaction scores increased significantly after the intervention of client-centered occupational therapy; whereas, in the control group, only performance scores increased significantly. Activity performance increased more significantly in intervention group than control group. Table 5 presents the results of the COPM.

A significantly increased quality of life was also noted in the intervention group, but there was no significant increase in the control group. Table 5 shows the results of RA Quality of Life.

Table 4. Comparison of two groups for Arthritis Impact Measurement Scale 2 scores

	Intervention group		Control group		r	p
	Pre-intervention	Post-intervention	Pre-treatment	Post-treatment		
	Mean±SD	Mean±SD	Mean±SD	Mean±SD		
Mobility	2.87±1.62	2.27±1.21	3.27±1.01	3.25±1.03	-2.95	0.003*
Walking and bending	3.60±1.81	3.20±1.48	5.00±1.41	4.95±1.38	-2.55	0.01*
Hand and finger	4.00±1.69	1.90±0.94	2.12±1.49	2.10±1.51	-5.21	0.00*
Arm function	1.22±1.32	0.82±1.10	2.10±1.96	2.05±1.89	-2.34	0.01*
Self care	0.67±1.13	0.16±0.51	1.38±1.80	1.25±1.61	-1.96	0.05*
House hold tasks	2.76±0.93	1.07±1.17	2.92±1.45	2.82±1.37	-4.76	0.00*
Social activity	4.80±1.28	4.37±0.91	5.40±1.38	5.37±1.36	-2.12	0.03*
Support from family	3.31±2.55	2.49±1.88	2.68±2.67	2.68±2.67	-3.09	0.002*
Arthritis pain	5.76±1.46	3.31±1.41	5.82±1.42	5.15±1.13	-4.34	0.00*
Level of tension	6.97±9.02	4.32±1.17	4.95±0.87	4.95±0.87	-3.77	0.00*
Mood	3.76±1.16	3.30±1.08	4.12±1.40	4.12±1.40	-3.33	0.001*
Satisfaction	5.68±1.27	4.09±1.21	5.76±0.86	5.72±0.81	-5.13	0.00*
Health perceptions	6.51±1.70	5.50±1.63	6.68±1.08	6.68±1.08	-2.61	0.009*
Arthritis impact	5.10±1.51	4.60±1.46	4.87±0.55	4.87±0.55	-2.08	0.03*

SD: Standard deviation; * p<0.05.

Table 5. Comparison of two groups for Canadian Occupational Performance Measure and Rheumatoid Arthritis Quality of Life scores

	Intervention group		Control group		r	p
	Pre-intervention	Post-intervention	Pre-treatment	Post-treatment		
	Mean±SD	Mean±SD	Mean±SD	Mean±SD		
COPM performance	4.71±0.93	6.29±0.99	4.31±1.40	4.39±1.39	-5.56	0.00*
COPM satisfaction	2.80±1.42	5.85±1.37	2.48±1.55	2.60±1.59	-5.59	0.00*
Rheumatoid Arthritis Quality of Life	10.40±4.40	7.50±3.73	13.60±5.51	13.60±5.51	-5.57	0.00*

SD: Standard deviation; COPM: Canadian Occupational Performance Measure; * p<0.05.

DISCUSSION

Although the beneficial effects of occupational therapy on function in patients with RA are pointed out in the literature, there are few studies that examine the effectiveness of comprehensive occupational therapy approaches.¹² Studies have mostly focused on the effectiveness of education for joint-protection techniques.²⁰⁻²⁵ In Turkey, patients with RA are generally referred to physiotherapy for reducing pain especially in the symptomatic periods. However, occupational therapy approaches including efforts to reduce activity and participation limitations are insufficient. Our study shows short-term effects of client-centered occupational therapy in RA patients. To our knowledge, there are only two studies in the literature that have investigated effectiveness of occupational therapy in RA patients.^{12,26} Both studies determined that activity participations of RA patients increase more with implementation of occupational therapy (according to the HAQ measurement). When the values before and after therapy for HAQ in these studies^{12,26} are compared with those reported in our study, we see a higher increase in the activity participations in the occupational therapy group. In HAQ, the subtitles of eating, cutting meat and opening a box were the most forceful manipulative skills for our patients. Although they were able to perform these activities after treatment, they stated that difficulties continued. In Turkey, accessibility to hand-assistive devices is limited. Low use of assistive devices for hand may be a reason for ongoing activity limitation in forceful manipulative hand activities.

In terms of AIMS2 score before and after treatment, while there is no difference in the control group, physical functions of patients improved in the intervention group (mobility

levels, walking, arm movements, hand and finger movements, housework, etc.). Also, general pain levels reduced, participation in social activities and the overall satisfaction increased in terms of physical and social functions. Some changes in psychosocial status, such as decreased tension level and improved mental state recovery were also observed. As a result of the client-centered occupational therapy application, knowledge levels of patients about their own diseases increased and patients set targets for the solution of activity problems. Thus they were able to control their status and treatment. Patients, who started finding solutions for their own activity problems, were able to perform activities easily in due time. Their self-confidence and social participations improved while performing the related activities. For example, a patient, who was unable to go to shopping earlier, preferred a day on which he/she was not having pain, used a wheeled market bag, and went for coffee with his/her friends after shopping. In this way, he/she was able to perform both shopping activities and also social participation. In our study, the quality of life of patients with RA increased in intervention group. The reason for this might be that patients were happy when they were able to perform the activities that were important for them and which they were unable to perform earlier. This also affected the life quality in a positive way. In a recent study the COPM was used as the primary measurement method for RA patients aiming to specify the effect of comprehensive application on activity performance development. The researchers demonstrated a significant development in the study group when compared to the control group after six months.¹² In our study, increased activity performance and satisfaction of patients in intervention group were more apparent than the control group. In the control group, a slight

change was recorded in the activity performances since pain caused mobility problems, such as walking, climbing stairs up and leaning, were reduced by physiotherapy. In this study, we took the empowerment theory in a client-centered approach as a basis^{5,27} and showed that all patients were weak in terms of empowerment. Since our patients stated that they had no earlier knowledge about occupational therapy and drug usage except traditional rheumatology care, we provided one session of informative education for patients before referring to the client-centered approach. Thus, their awareness about their own performance problems increased during the assessment stage. When cooperation was sought with the patients during the target planning stage, they gradually got in the client-centered application stage and gained their first strength. We recognized that the decision-making and improving powers of the patients increased day by day.

A limitation of our study is that it does not show long-term effects of client-centered occupational therapy. Therefore, it might be beneficial to evaluate the effects of client-centered occupational therapy application in this patient group during a long-term follow-up period. The effectiveness of occupational therapy applications with client-centered approach should also be assessed in other rheumatic diseases and also in other chronic diseases. Quantitative research plans may be efficient in displaying the effectiveness of client-centered approach. In our country, occupational therapy is newly developing. This study, which is the first clinical occupational therapy intervention for rheumatologic diseases in Turkey, may lead to the development of occupational therapy in rheumatology in Turkey.

In conclusion, client-centered occupational therapy may reduce the activity limitation and participation restrictions and increase the quality of life in patients with RA. Nevertheless, further studies are necessary to investigate the long-term effects of client-centered occupational therapy in patients with RA.

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