Role of the physiotherapist in the initial management of osteoarthritis in primary care

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Abstract

Introduction: Early access to a physical therapist is safe and effective for patients with musculoskeletal disorders.

Objective: To examine the differences in HRQOL for patients with OA with TF assessment versus medical assessment in primary care.

Methods: A pragmatic, randomized, multicenter, pragmatic, controlled study comparing treatment by a physical therapist or a primary care physician was conducted.

Results: HRQoL improved 12 months after evaluation for all patients ("Time" variable: EQ-5D-3L index, $p < 0.001$; EQ-5D-3L VAS, $p = 0.0049$).

Conclusions: The study found no differences in HRQOL, adjusted for pain and physical function, when the care process was initiated by TF versus physician assessment.

Keywords: osteoarthritis, primary care, quality of life, physical therapy.

source: DeCS

Resumen

Introducción: Se ha demostrado que el acceso temprano a un fisioterapeuta es seguro y eficaz para pacientes con trastornos musculoesqueléticos

Objetivo: Examinar las diferencias en la CVRS, para pacientes con OA con valoración del FT frente a valoración médica en atención primaria.

Método: Se realizó un estudio pragmático controlado aleatorizado, multicéntrico, que compara el tratamiento por un fisioterapeuta o un médico de atención primaria.

Resultados: la CVRS mejoró 12 meses después de la evaluación para todos los pacientes, (variable "Tiempo": índice EQ-5D-3L, $p < 0{,}001$; EQ-5D-3L EVA, $p = 0{,}0049$).

Conclusiones: no encontramos diferencias en la CVRS, ajustada por dolor y función física, cuando el proceso asistencial se inició por FT frente a valoración a un médico.

Palabras clave: osteoartritis, atención primaria, calidad de vida, fisioterapia, fuente: DeCS

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Introduction

Osteoarthritis (OA) is one of the most common joint diseases and a leading cause of chronic musculoskeletal pain and disability in workers and older adults[1]. Common symptoms of OA are pain, morning stiffness, reduced range of motion, joint instability, swelling, muscle weakness and fatigue. This directly affects patients' social interactions, mental functioning and sleep quality, and patients with OA report lower health-related quality of life (HRQoL) compared to patients with other chronic diseases[2]. This group of patients has twice the risk of sick leave, and the diagnosis implies a 40-50% higher risk of disability pension. Patients with OA are less active and have more comorbidities than the general population OA causes activity limitations, especially walking. Walking disability is associated with an increased risk of mortality, which is largely explained by a lack of physical activity[3].

Early access to a physical therapist (PT) is safe and effective for patients with musculoskeletal disorders[4]. A pilot study showed that most patients first evaluated by a rehabilitation professional (physiotherapist, occupational therapist, psychologist, or counselor) did not need to see a physician later. Physical therapists, as primary consultants, reduce referrals, sick leave, and analgesic prescriptions for most musculoskeletal conditions. Previous studies of back and neck pain have shown that the most common expectation when consulting a physician (physical therapist or physician) is not recovery but confirmation of diagnosis, which is similar to what has been seen in patients with OA[5].

Imaging is not required to diagnose a typical presentation of OA (i.e., use-related pain, morning stiffness of short duration, age > 40 years, symptoms affecting one or more joints). Detectable radiographic changes are not always present in early OA[6]. Physicians and physical therapists can act as primary evaluators when imaging is not required to diagnose typical symptomatic OA. The European League Against Rheumatism (EULAR) guidelines do not recommend any particular healthcare provider for initial evaluation, as evidence of the effectiveness of various evaluation forms is lacking. The initial assessment should use a biopsychosocial approach that includes physical status, activities of daily living, participation in work, leisure or education, mood and health education needs, health beliefs and motivation for self-management[7].

This study aimed to examine differences in HRQOL, adjusted for pain and physical function, for patients with OA when initiating the care process with TF assessment versus physician assessment in primary care. The hypothesis is that all patients with suspected OA could be initially assessed by a FT in primary care and then referred to a physician if necessary.

Method

Study design

A pragmatic, randomized controlled, evaluator-blinded, multicenter, pragmatic randomized controlled study comparing primary assessment, diagnosis, and treatment by a physical therapist or primary care physician was conducted. The study comprised a healthcare process initiated by a TF or physician evaluation. Measurements were taken before randomization (baseline) and at 3-, 6-, and 12-month follow-ups. Participants were recruited from primary care centers and primary care rehabilitation centers in Ambato from April 2018 to November 2020. This study was approved by the Universidad Regional Autónoma de Los Andes (UNIANDES).

American College of Rheumatology (ACR) clinical criteria were used, which were: age ≥ 38 years, knee pain most days in the last month, morning stiffness ≤ 30 min, and crepitus during active movement. Exclusion criteria were knee pain due to trauma (i.e., not insidious debut), other diseases that could affect outcome measures (rheumatic or systemic diseases, severe somatic or mental illness such as depression), pregnancy, or if already diagnosed or evaluated by another health care provider.

Patients were assigned to a TF or physician for initial evaluation, diagnosis, and treatment. Evaluations or treatments performed by the physical therapist or physician were performed according to treatment guidelines and may vary according to the patient's symptoms. TF treatment could involve individual and group treatment. Individual treatment could include an exercise regimen (FT-directed or home exercises), education, pain relief, or walking aids, while group treatment included patient education and an individualized exercise regimen, according to the program.

The primary outcome measure was HRQoL, using EQ-5D-3L[8]. The questionnaire contains five dimensions: mobility, self-care, usual activities, pain/discomfort, and anxiety/depression. For each dimension, the patient can choose between three levels that best describe how they experience their health status on the day of measurement (no problems = level 1, some problems = level 2, or extreme problems = level 3. In addition, the EQ-5D-3L includes a visual analog scale (EQ-5D-3L VAS), where the patient marks on a scale describing his or her health status on the day of measurement. The scale ranges from 0 to 100, where 0 is the worst imaginable state of health and 100 is the best imaginable state of health.

Demographic data were collected at baseline, including age, sex, social status, education level, employment, pain duration, and height and weight to calculate body mass index (BMI). Pain intensity over the past month was measured using a visual analog scale (VAS) ranging from 0 to 100; endpoints 0 and 100 were anchored by no pain and worst pain imaginable, respectively, 1 to 20 were anchored by mild pain, 21 to 40 moderate pain, 41 to 60 moderately severe pain, 61 to 80 severe pain, and 81 to 99 excruciating pain. Physical function was measured using the 30-s chair stand test (30CST). The score was the total number of correctly executed supports sitting in a chair within 30 s (more than half at the end of 30 s was considered full support).

Statistical analysis

Demographic data were analyzed descriptively and presented as numbers and percentages, mean and standard deviation, median and 25th to 75th percentiles. Mixed-effects model analyses were used to compare repeated measures of HRQoL between groups (EQ-5D-3L index and EQ-5D-3L VAS). Database and statistical processing of the data were performed and analyzed in SPSS 26 statistical software (SPSS Inc., Chicago, IL, USA). Descriptive statistics were used for the results collection, presentation and interpretation.

Results

To establish whether HRQoL differed between the effects of being evaluated by a TF or a physician for suspected OA, 69 patients were randomized to a TF or a physician as the primary evaluator. Most patients, 79%, participated in the 6-month follow-up, and 64% completed the 12-month follow-up.

Demographic data and clinical characteristics are presented in Table 1. All 69 patients were included in the mixed-effects model analyses. We found that HRQoL improved significantly 12 months after assessment for all patients, regardless of the assessor ("Time" variable: EQ-5D-3L index, $p < 0.001$; EQ-5D-3L EVA, $p = 0.0049$). There were no significant differences in HRQoL between FTs and physicians as primary raters ("Time*Group" variable: EQ-5D-3 L index, $p = 0.18$; EQ-5D-3 L EVA, $p = 0.49$). The final model of the EQ-5D-3L index was adjusted for sex, educational level, pain intensity and confounder physical function.

Table 1. Demographic characteristics of the groups at the initial evaluation.

	Physical therapy evaluation (n = 35)	Physician evaluation (n = 34)
	Mean (SD); median [25th to 75th percentile] or % (n)	Mean (SD); median [25th to 75th percentile] or % (n)
Years of age)	62 (11,6); 63 [52-71]	59 (11,5); 57 [48-68]
Sex (female)	60% (21/35)	68% (23/34)
Social status		
Couple/Married	89% (31/35)	77% (26/34)
Education level		
Elementary School	23% (8/35)	12% (4/34)
High School	43% (15/35)	59% (20/34)
Tertiary school	34% (12/35)	29% (10/34)

Current employment		
employee/working	54% (19/35)	50% (17/34)
Labor rate (%)	88 (4,7); 100 [81-100]	93 (4,2); 100 [100-100]
Unemployed	0% (0/35)	3% (1/34)
Retired/early retirement	43% (15/35)	38% (13/34)
Sick leave	3% (1/35)	6% (2/34)
Duration of pain (months)	14 (22); 9 [3-12]	10 (16); 4 [2-11]
BMI (kg/m2)	30 (4,4); 29 [26-31]	29 (6,7); 27 [25-31]
BMI: normal weight (18,5-24,9)	9% (3/35)	29% (10/34)
BMI: overweight (25-29,9)	54% (19/35)	38% (13/34)
BMI: obese (> 30)	37% (13/35)	32% (11/34)
HRQoL b (EQ-5D-3L)		
Index	0,73 (0,121); 0,73 [0,69-0,80]	0,62 (0,222); 0,73 [0,62-0,73]
EVA (0-100)	73 (17,5); 80 [68-90]	68 (21.1), 70 [54-89]
Pain intensity (VAS 0-100)	45 (15,9); 47 [35-55]	52 (16,4); 51 [40-69]
Physical function (30CST)	12 (4,6); 12 [9-14]	11 (3,3); 11 [8-13]

Source: Statistical analysis, $p \leq 0.05$, BMI: body mass index; Health-related quality of life. Higher values indicate the better health-related quality of life, 30CST: 30 s chair stand test. Higher values indicate better function.

The model means that the EQ-5D-3L index increased for both groups. However, the physician group had a greater increase from baseline to 12-month follow-up (FT = + 0.084, physician = + 0.181). On the other hand, for the EQ-5D-3L VAS, the total increase from baseline to 12-month follow-up in model means was similar between groups (FT = + 9, physician = + 8).

The model means showed an increase in the EQ-5D-3L index for the physician group only between baseline and 3-month follow-up. Therefore, additional mixed-effects model analyses were performed only for the first three months. The final model showed no significant changes in HRQoL for both groups ("Time" variable: EQ-5D-3L index, $p = 0.42$; EQ-5D-3L EVA, $p = 0.99$), nor significant differences between FTs and physicians as primary raters ("Time*Group" variable: EQ-5D-3L index $p = 0.24$; EQ-5D-3L EVA, $p = 0.55$).

Discussion

The findings of this study imply that FTs may be the first evaluator when patients with suspected OA first seek primary care. The results are similar to previous findings showing that FTs are appropriate primary evaluators for patients with musculoskeletal disorders[9]. The FT as a primary evaluator is suggested as a model that utilizes health care resources more efficiently where the most appropriate health care professional assesses the patient's needs[10]. Several studies reported that patients experienced as much or even greater satisfaction with the TF's assessment than with the physician's assessment. Therefore, the use of this model of care may require hiring more FTs, which could mean increased costs. Future research is needed to explore how OA patients experience FTs as primary assessors and the cost-effectiveness of this task-shifting model[11].

This study found no statistically significant differences in HRQoL between groups 12 months after assessment. Although the physician group had an increase of 0.097 in the model means for the EQ-5D-3L index 12 months after assessment, this does not exceed the minimum clinical difference of 0.121. The large improvement in HRQoL in the physician group during the first three months could be related to the initial mean value of the EQ-5D-3L index, which was much lower for the physician group than the FT group. Patients assigned to a FT as the primary evaluator were somewhat older and had a slightly higher BMI at baseline. These patients also had longer pain duration but rated lower pain intensity and had a better physical function, which may also explain why patients in the FT group rated a higher HRQoL[12]. The pragmatic study design could have contributed to greater variation in patient characteristics within groups. A larger sample size and the use of a questionnaire with more levels, such as EQ-5D-5L, could probably provide a better distribution of EQ-5D index values at baseline[13].

Both groups improved in HRQoL 12 months after the assessment. TF treatment in this study was individualized and comprised of patient education and an exercise regimen to increase patients' self-management skills[14]. Participation in the program decreases pain and increases HRQoL and self-efficacy. Combined or not with other treatments, exercise therapy is an effective intervention to improve HRQoL in patients with OA[15]. It is possible that most patients in the present study received treatment with FT, either by randomization to a FT as the primary evaluator or because a physician referred them to a FT.

Most patients were recruited from primary care centers, implying that they sought a physician consultation for their knee pain. It is possible that patients in the physician group were positively affected by meeting a physician, which they expected from the outset. In addition, patients expect investigations such as X-rays or MRI scans to provide evidence of their experienced problem. The lack of these investigations could be experienced as a possible barrier to being understood and helped[16]. This study could have led to higher satisfaction in the physician group for regular examinations and treatments, which could have affected the outcomes with higher HRQoL, less pain and better physical function due to decreased anxiety about their problems.

Changing the inclusion criteria is one of the methodological limitations of this study. With two criteria removed, only age > 38 years and knee pain without traumatic onset were used to screen for suspected OA. Wesseling et al. have been using knee pain and age > 45 years as the only inclusion criteria when screening for early detection of OA. None of the participants in their study had radiographic signs of OA, and 76 % met the ACR clinical criteria for OA[17,21].

The diagnostic accuracy of the ACR clinical criteria for patients with early mild OA may have been too low. The ACR clinical criteria appear to reflect later signs in advanced disease. Future research would certainly benefit from specific criteria to detect early OA to improve knowledge of early diagnosis and treatment at this stage of the disease[18,22].

Compared to pragmatic trials, the generalizability of traditional randomized controlled trials is lower, as treatment outcomes would likely be affected by heterogeneous patient groups, placebo and extraneous effects in the real clinic[19,20]. However, the pragmatic design is a strength of this study, and the results have good external validity as the interventions have already been tested in a real clinical setting.

Conclusions

The study found no differences in HRQOL, adjusted for pain and physical function, in patients with OA when the care process was initiated with TF assessment versus primary care physician assessment. However, both assessments resulted in significantly higher HRQOL at 12-month follow-up. The results imply that TFs and primary care physicians are equally qualified as primary evaluators.

References

1. Hubertsson J, Petersson IF, Thorstensson CA, Englund M. Risk of sick leave and disability pension in working-age women and men with knee osteoarthritis. Ann Rheum Dis [Internet]. marzo de 2013 [citado 21 de agosto de 2022];72(3):401-5. Disponible en: https://pubmed.ncbi.nlm.nih.gov/22679305/
2. Picavet HSJ, Hoeymans N. Health related quality of life in multiple musculoskeletal diseases: SF-36 and EQ-5D in the DMC3 study. Ann Rheum Dis [Internet]. junio de 2004 [citado 27 de agosto de 2022];63(6):723-9. Disponible en: https://pubmed.ncbi.nlm.nih.gov/15140781/
3. Hoeven TA, Leening MJG, Bindels PJ, Castaño-Betancourt M, van Meurs JB, Franco OH, et al.

disability and not osteoarthritis predicts cardiovascular disease: a prospective population-based cohort study. Ann Rheum Dis [Internet]. abril de 2015 [citado 24 de agosto de 2022];74(4):752-6. Disponible en: https://pubmed.ncbi.nlm.nih.gov/24385204/

4. Ludvigsson ML, Enthoven P. Evaluation of physiotherapists as primary assessors of patients with musculoskeletal disorders seeking primary health care. Physiotherapy [Internet]. junio de 2012 [citado 21 de agosto de 2022];98(2):131-7. Disponible en: https://pubmed.ncbi.nlm.nih.gov/22507363/
5. Ho-Henriksson CM, Svensson M, Thorstensson CA, Nordeman L. Physiotherapist or physician as primary assessor for patients with suspected knee osteoarthritis in primary care - a cost-effectiveness analysis of a pragmatic trial. BMC Musculoskelet Disord [Internet]. 17 de marzo de 2022 [citado 22 de agosto de 2022];23(1):260. Disponible en: https://pubmed.ncbi.nlm.nih.gov/35300671/
6. Thorstensson CA, Andersson MLE, Jönsson H, Saxne T, Petersson IF. Natural course of knee osteoarthritis in middle-aged subjects with knee pain: 12-year follow-up using clinical and radiographic criteria. Ann Rheum Dis [Internet]. diciembre de 2009 [citado 27 de agosto de 2022];68(12):1890-3. Disponible en: https://pubmed.ncbi.nlm.nih.gov/19054828/
7. Hinman RS, Kimp AJ, Campbell PK, Russell T, Foster NE, Kasza J, et al. Technology versus tradition: a non-inferiority trial comparing video to face-to-face consultations with a physiotherapist for people with knee osteoarthritis. Protocol for the PEAK randomised controlled trial. BMC Musculoskelet Disord [Internet]. 7 de agosto de 2020 [citado 22 de agosto de 2022];21(1):522. Disponible en: https://pubmed.ncbi.nlm.nih.gov/32767989/
8. Walters SJ, Brazier JE. Comparison of the minimally important difference for two health state utility measures: EQ-5D and SF-6D. Qual Life Res [Internet]. agosto de 2005 [citado 26 de agosto de 2022];14(6):1523-32. Disponible en: https://pubmed.ncbi.nlm.nih.gov/16110932/
9. Samsson KS, Larsson MEH. Physiotherapy triage assessment of patients referred for orthopaedic consultation - Long-term follow-up of health-related quality of life, pain-related disability and sick leave. Man Ther [Internet]. febrero de 2015 [citado 23 de agosto de 2022];20(1):38-45. Disponible en: https://pubmed.ncbi.nlm.nih.gov/25088308/
10. Desmeules F, Roy JS, MacDermid JC, Champagne F, Hinse O, Woodhouse LJ. Advanced practice physiotherapy in patients with musculoskeletal disorders: a systematic review. BMC Musculoskelet Disord [Internet]. 21 de junio de 2012 [citado 23 de agosto de 2022];13:107. Disponible en: https://pubmed.ncbi.nlm.nih.gov/22716771/
11. Samsson KS, Bernhardsson S, Larsson MEH. Perceived quality of physiotherapist-led orthopaedic triage compared with standard practice in primary care: a randomised controlled trial. BMC Musculoskelet Disord [Internet]. 10 de junio de 2016 [citado 27 de agosto de 2022];17:257. Disponible en: https://pubmed.ncbi.nlm.nih.gov/27286829/
12. Krueger C, Tian L. A comparison of the general linear mixed model and repeated measures ANOVA using a dataset with multiple missing data points. Biol Res Nurs [Internet]. octubre de 2004 [citado 27 de agosto de 2022];6(2):151-7. Disponible en: https://pubmed.ncbi.nlm.nih.gov/15388912/
13. Zuidgeest MGP, Goetz I, Groenwold RHH, Irving E, van Thiel GJMW, Grobbee DE, et al. Series: Pragmatic trials and real world evidence: Paper 1. Introduction. J Clin Epidemiol [Internet]. agosto de 2017 [citado 27 de agosto de 2022];88:7-13. Disponible en: https://pubmed.ncbi.nlm.nih.gov/28549929/
14. N'Goran AA, Déruaz-Luyet A, Haller DM, Zeller A, Rosemann T, Streit S, et al.

Comparing the self-perceived quality of life of multimorbid patients and the general population using the EQ-5D-3L. PLoS One [Internet]. 2017 [citado 23 de agosto de 2022];12(12):e0188499. Disponible en: https://pubmed.ncbi.nlm.nih.gov/29261695/

15. Briani RV, Ferreira AS, Pazzinatto MF, Pappas E, De Oliveira Silva D, Azevedo FM de. What interventions can improve quality of life or psychosocial factors of individuals with knee osteoarthritis? A systematic review with meta-analysis of primary outcomes from randomised controlled trials. Br J Sports Med [Internet]. agosto de 2018 [citado 28 de agosto de 2022];52(16):1031-8. Disponible en: https://pubmed.ncbi.nlm.nih.gov/29549150/
16. Samsson KS, Bernhardsson S, Larsson ME. «Take me seriously and do something!» - a qualitative study exploring patients' perceptions and expectations of an upcoming orthopaedic consultation. BMC Musculoskelet Disord [Internet]. 24 de agosto de 2017 [citado 27 de agosto de 2022];18(1):367. Disponible en: https://pubmed.ncbi.nlm.nih.gov/28838326/
17. Wesseling J, Boers M, Viergever MA, Hilberdink WKHA, Lafeber FPJG, Dekker J, et al. Cohort Profile: Cohort Hip and Cohort Knee (CHECK) study. Int J Epidemiol [Internet]. febrero de 2016 [citado 27 de agosto de 2022];45(1):36-44. Disponible en: https://pubmed.ncbi.nlm.nih.gov/25172137/
18. Whiting P, Rutjes AWS, Reitsma JB, Glas AS, Bossuyt PMM, Kleijnen J. Sources of variation and bias in studies of diagnostic accuracy: a systematic review. Ann Intern Med [Internet]. 3 de febrero de 2004 [citado 26 de agosto de 2022];140(3):189-202. Disponible en: https://pubmed.ncbi.nlm.nih.gov/14757617/
19. Bornhöft L, Larsson ME, Nordeman L, Eggertsen R, Thorn J. Health effects of direct triaging to physiotherapists in primary care for patients with musculoskeletal disorders: a pragmatic randomized controlled trial. Ther Adv Musculoskelet Dis [Internet]. 2019 [citado 21 de agosto de 2022];11:1759720X19827504. Disponible en: https://pubmed.ncbi.nlm.nih.gov/30800175/
20. Bornhöft L, Thorn J, Svensson M, Nordeman L, Eggertsen R, Larsson MEH. More cost-effective management of patients with musculoskeletal disorders in primary care after direct triaging to physiotherapists for initial assessment compared to initial general practitioner assessment. BMC Musculoskelet Disord [Internet]. 1 de mayo de 2019 [citado 21 de agosto de 2022];20(1):186. Disponible en: https://pubmed.ncbi.nlm.nih.gov/31043169/
21. Carrera JEJ, Guamán AAM. Efluvio telógeno como secuela de Covid-19. Universidad y Sociedad [Internet]. 2022 [cited 2022 Oct 6];14(S2):465–70. Available from: https://rus.ucf.edu.cu/index.php/rus/article/view/2814
22. Giler SAM, Giler LAM. Tipos de normas que regulan la sociedad. Universidad y Sociedad [Internet]. 2022 [cited 2022 Oct 6];14(S2):471–8. Available from: https://rus.ucf.edu.cu/index.php/rus/article/view/2815