

functional outcomes. During the first four months post-surgery participants from group A had consecutive physiotherapy sessions and they indicated significant physical and physiological improvements. Even though the functional status of the individuals from group B did not significantly change over time, it seems that their decision to undergo surgery depended on how these individuals viewed themselves in terms of disability and whether they have high or low expectations during their daily activities.

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IMPACT OF PHYSICIAN SPECIALTY ON CLASSIFICATION OF PHYSICIAN-PERCEIVED PATIENT SEVERITY FOR PATIENTS WITH OSTEOARTHRITIS

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Purpose: To identify physician and patient characteristics that lead to a patient being perceived as having more severe OA.

Methods: All data were analyzed from the Osteoarthritis IX Disease Specific Programme, a large cross-sectional non-hypothesis driven survey conducted in Germany, UK, and USA, collecting robust real-world data. Physicians recruited up to 10 consecutive consulting patients presenting with OA from September 2011 to January 2012. An ordinal logistic regression, controlling for physician clustering, was performed using a backward stepwise approach on preselected physician-reported patient attributes identified in the initial univariate selection process. This process produced an initial model identifying which attributes significantly affected physicians' rating of OA severity. Refinement to the model included physician specialty and physician attributes (gender, qualification date) and use of diagnostic tools or techniques. McFadden's pseudo R-squared values were used to compare the fit of each model.

Results: 363 physicians (220 primary care physicians (PCPs), 95 Rheumatologists (Rheums), 48 orthopedic surgeons (ORURGS)) recruited 3,561 patients 24.9% of whom were assessed as mild, 52.0% moderate, and 23.1% severe; of these, 3332 (93.6%) had completed data for analysis. All physician-reported patient characteristics (demographics, pain rating, functionality rating, number of joints, analgesia level, symptoms ever suffered, concomitant condition), with the exception of patient gender, loss of movement, and number of autoimmune diseases, differed significantly between severity groups ($p < .0001$) at a univariate level. The multivariate model indicated that OSURGs (odds ratio 1.6, 95% Confidence interval 1.2 to 2.2) were more likely to perceive patients as more severe compared to PCPs and RHEUMs combined. The model also indicated that a greater age, body mass index (BMI), use of diagnostics [joint space narrowing based on X-ray, severity of pain symptom(s), impairment in the ability to function (e.g. walk, activities of daily living), severity of joint deterioration], and ever suffering from one or more of the symptoms (pain on movement, pain at rest, nocturnal wakening, loss of movement), are associated with greater severity. McFadden's R-squared increased from 0.35 to 0.37.

Conclusions: Patient age, BMI, reported symptoms, disability and radiographic grade influenced physicians' assessment of OA severity. Controlling for patient factors, OSURGs rated patient's severity as worse compared to RHEUMs and PCPs. Our results suggest that this effect could in part be due to a greater influence of radiographic findings on OA severity rating (potentially deemed more important by OSURGs in severity assessment). Further research is needed to understand other potential explanations for this difference.

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KINETIC AND KINEMATIC CHARACTERISTICS OF STAIR NEGOTIATION IN PATIENTS WITH MEDIAL KNEE OSTEOARTHRITIS

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Purpose: Subjects with knee osteoarthritis have demonstrated an impaired ability to ascend and descend stairs, movements that load the knee joint more forcefully than gait. The knee joint kinetics and kinematics during stair negotiation in knee osteoarthritic subjects have

however received little attention so far. The aim of this study was therefore to evaluate stair climbing in women with medial knee osteoarthritis.

Methods: Eight subjects with symptomatic mild unilateral knee OA (Kellgren-Lawrence score 1) and 8 persons with symptomatic moderate knee osteoarthritis (Kellgren-Lawrence scores 2-3) were compared with 8 healthy control subjects (mean age: 64.29 years). Stair negotiation was performed bare feet on a 20 cm single stair without support. Subjects performed 3 trials of stair ascent and 3 of stair descent at their self-selected speed. A 3D motion analysis system (Krypton) combined with force plates (Berotec) were used to capture the movements. Kinematic and kinetic data were processed using Opensim. The data were normalized over time and joint moments were further normalized with body weight. Results on knee kinematics and kinetics of the affected leg during single leg support phase were the main focus. All parameters assessed were compared between mild and moderate OA patients and control subjects using Kruskal-Wallis one-way analysis of variance.

Results: In stair ascent, patients with moderate OA showed a decreased external knee flexion moment during initial contact (IC) ($p < 0.05$) and an increased peak and average knee external adduction moment (KAM) during single leg stance compared to healthy controls ($p < 0.05$).

In stair descent, patients with moderate OA showed an increased maximum knee adduction angle during single leg stance ($p < 0.01$) and an increased peak external knee adduction moment (KAM) compared to healthy controls ($p < 0.05$).

Conclusions: The results of this study showed that altered knee joint loading is present both during stair ascent and descent in subjects with moderate knee OA but not in subjects with mild symptomatic OA. On one hand, the decreased external knee flexion moment during stair ascent shows that subjects with moderate OA show the intent to minimize knee joint loading and decrease the demand on the quadriceps muscles. On the other hand, the increased KAM during stair ascent and descent points towards a remaining increased load on the medial compartment of tibia and must be seen as a risk factor for further progression of knee OA. Further study of the alterations and compensations that OA patients use during stair negotiation might be useful to determine target points for rehabilitation.

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MINDFULNESS IS ASSOCIATED WITH PSYCHOLOGICAL SYMPTOMS, SELF-EFFICACY, AND QUALITY OF LIFE AMONG PATIENTS WITH SYMPTOMATIC KNEE OSTEOARTHRITIS

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Purpose: Mindfulness is a type of awareness that arises through accepting, open, and non-judgmental observation of moment-to-moment experiences. Patients with fibromyalgia, rheumatoid arthritis, or other chronic pain conditions who report higher levels of mindfulness tend to report reduced pain, stress, anxiety, and depression, as well as improved self-efficacy and quality of life; however, no studies have evaluated if mindfulness is associated with these self-reported outcomes among patients with symptomatic knee osteoarthritis (KOA). We conducted the first study to evaluate if mindfulness is associated with pain, function, psychological symptoms, self-efficacy, and quality of life among patients with symptomatic KOA.

Methods: We conducted a secondary analysis of baseline data from our randomized controlled trial comparing Tai Chi and physical therapy among patients with symptomatic KOA as defined by the American College of Rheumatology criteria. Patients enrolled in the trial completed the Five Facet Mindfulness Questionnaire (FFMQ), a 39-item, 5-point Likert-based, self-report questionnaire measuring mindfulness. Total FFMQ scores range from 39-195 with higher scores indicating higher levels of mindfulness. Patients also completed well-validated measures commonly used to assess patients with KOA (Western Ontario and McMaster Universities Arthritis Index [WOMAC], Medical Outcomes Short Form-36 [SF-36], Beck Depression Inventory Second Edition [BDI-II], Perceived Stress Scale [PSS], and Chronic Pain Self-Efficacy Scale [CPSS]) and performed two physical function tests (6-minute walk test and 20-meter walk test) that were administered by investigators following a standardized protocol. We calculated Spearman's correlation coefficients to evaluate associations between mindfulness and measures of pain, function, psychological symptoms, self-efficacy, and quality of life according to a priori hypotheses.

Correlation coefficients > 0.50 or < -0.50 were interpreted as strong associations.

Results: Our analyses included data from 37 patients with an average age of 61.7 (SD = 10.6) years and body mass index of 33.0 (SD = 7.7) kg/m². The sample was 68% female and 86% had a Kellgren/Lawrence grade \geq 2. All correlations were in the hypothesized direction and can be viewed in Table 1. Mindfulness scores demonstrated strong inverse correlations with psychological symptoms as measured by the BDI-II and the PSS. In contrast, mindfulness scores had moderate-strong positive correlations with quality of life as measured by the SF-36 Mental Component Summary and Physical Component Summary. A moderate to strong positive correlation was also seen between mindfulness scores and the CPSS. We found no significant correlations between mindfulness scores and measures of pain and function.

Conclusions: Our results suggest that mindfulness is associated with psychological symptoms, self-efficacy, and quality of life among patients with symptomatic KOA. As patients reported higher levels of mindfulness they tended to report less depression and stress as well as greater self efficacy and quality of life. Future studies should evaluate the efficacy of mind-body therapies aimed at increasing mindfulness in this patient population.

Table 1
Descriptive Statistics and Spearman Correlation Coefficients

Measure	Mean (SD)	Correlation with Mindfulness Scores (r)	P-Value
FFMQ (39-195)*	138.41 (15.36)	1.00	-
WOMAC Pain (0-500)	257.14 (99.85)	-0.05	0.78
WOMAC Function (0-1700)	898.28 (356.40)	-0.02	0.91
6-Minute Walk Test (meters)*	403.84 (81.10)	0.19	0.29
20-Meter Walk Test (minutes)	18.12 (3.55)	-0.19	0.27
BDI-II (0-63)	8.61 (10.49)	-0.58	<0.0001
PSS (0-40)	13.11 (7.06)	-0.57	<0.0001
CPSS (1-10)*	6.33 (2.12)	0.44	0.007
SF-36 MCS (0-100)*	52.05 (9.94)	0.64	<0.0001
SF-36 PCS (0-100)*	37.88 (7.92)	0.44	0.007

FFMQ=Five Facet Mindfulness Questionnaire; WOMAC=Western Ontario and McMaster Universities Arthritis Index; CPSS=Chronic Pain Self Efficacy Scale; PSS=Perceived Stress Scale; SF-36 MCS and PCS = Medical Outcomes Short Form-36 Mental and Physical Component Summary

*Higher scores indicate better health-related outcomes (for other measures, higher scores indicates worse health-related outcomes)

496 FACTORS PREDICTING THE EFFICACY OF VISCOSUPPLEMENTATION IN KNEE OSTEOARTHRITIS

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a. Purpose: Previous research has demonstrated inconsistent effects of hyaluronic acid supplementation in patients with knee osteoarthritis (OA), and it is not known which patients will have the best clinical response to this therapy. The purpose of the present study is to evaluate some factors that may predict clinical response to a single intra-articular injection of viscosupplementation with Hylan GF-20.

b. Methods: This is an observational pilot study of 100 patients at a large urban Veterans Affairs Medical Center (VAMC) with knee osteoarthritis who are scheduled to receive viscosupplementation with Hylan G-F 20 at either the rheumatology or orthopedics clinics. These patients meet the VAMC formulary guidelines for use of viscosupplementation, which entails failure or intolerance of usual methods for managing a symptomatic knee, including corticosteroid injections. Patients with a history of inflammatory arthritis (i.e., rheumatoid arthritis, gout, or pseudogout) are excluded. At baseline, patients complete a series of questionnaires to obtain the Knee Injury and Osteoarthritis Outcome Score (KOOS), Patient Health Questionnaire (PHQ-9) depression score, the New Zealand Joint Priority score (NZ score), as well as further history concerning demographics and previous

injury, surgery, or other treatment. The KOOS and PHQ-9 are repeated at 3 and 6 months post-injection. A clinical responder is defined as someone with a change in KOOS total or any one subscale score that exceeds the mean minimal detectable change (MDC) values calculated based on test-retest reliability coefficients reported in four prior studies. Statistical analyses include logistic regression to determine which clinical variables predict response to therapy, as well as t-tests and chi square to examine differences in clinical characteristics between "responders" and "non-responders." Hypothesized predictors of clinical response included body mass index (BMI), NZ Score, age, Kellgren score, and PHQ-9 score.

c. Results: Preliminary analyses are completed for the 29 subjects who have completed the 3 month follow-up measures for this ongoing study. There are 16 responders and 13 non-responders. The method for determining therapeutic response is effective as evidenced by statistically significant differences between responders and non-responders for the total and all subscale KOOS scores ($p < .05$) except for the Sport/Recreation subscale. Small sample size precluded multivariate logistic regression. Bivariate analysis revealed no statistically significant differences between responders and non-responders for age, BMI, Kellgren Score, NZ Score, PHQ-9, and baseline visual analogue scale pain rating. However, there is a significant effect of previous narcotic use on treatment response ($\chi^2=12.593$, $p=.001$) with 94% of responders having no history of narcotic use compared to only 31% of non-responders who had no narcotic use.

d. Conclusions: The hypothesized factors, to date, have not been useful to predict response but previous narcotic use has been a strong predictor of non-response. Small effect sizes of some potential predictor variables and the small sample size in this preliminary analysis may explain the lack of other statistically significant predictors. By study completion, it is anticipated that the sample size will provide adequate statistical power to perform multivariate analysis and determine whether there are indeed multiple predictors of response to viscosupplementation.

497 PRE-SURGICAL MANAGEMENT STRATEGIES IN PATIENTS WITH OSTEOARTHRITIS: A QUALITATIVE STUDY

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Purpose: There is a current movement in health care towards self-management of chronic illness. Arthritis, specifically osteoarthritis (OA), is one of the most prominent, disabling and costly chronic diseases. A recent review of self-management for rheumatic diseases found that there were modest improvements in the pain, self-efficacy, function and mood of patients who took part in self-management interventions. The authors recommended that longer-term benefits of self-management programs be investigated, including increased use of qualitative methods. The overall aim of our study was to qualitatively explore the experiences of individuals with hip or knee OA at three time points: prior to joint replacement, 8 months post-surgery and 18 months post-surgery. This work focuses on participants' experiences related to the self-management of their disease prior to surgery.

Methods: 35 participants were recruited from the practices of two orthopaedic surgeons using first a maximum variation and then a theoretical sampling approach based on age, sex and joint replaced (hip or knee). This approach is purposive and requires that enough data are generated to sufficiently explore the issues under investigation. Saturation is reached when no new information or themes are being generated, at which point interviewing stops. A constructivist grounded theory design was utilized through in-depth interviewing. Responses were coded and categorized for simultaneous analysis. An audit trail was maintained to ensure the trustworthiness of the analysis. Summaries were written after each interview and memos were created after each research team meeting. Analysis was reflexive and the research team considered how our own biases might impact our interpretation of the data.

Results: Patients described adopting a wide range of complex strategies to manage their pain including the use of medications, physiotherapy, alternative treatments and everyday modifications to such ordinary