

Investigating Care Provided by Physical Therapists Treating People with Rheumatoid Arthritis: Pilot Study

Sydney C. Lineker, Laurie Hurley, Annette Wilkins, Gordon J.G. Asmundsen

ABSTRACT

Purpose: To describe the management of rheumatoid arthritis by physical therapists (PTs) in Ontario and to explore factors that influence the delivery of client-centred care.

Method: PTs working in rheumatology asked consecutive, nonsurgical patients to complete standardized assessments at baseline and discharge. PT interventions were compared with those recommended by published clinical practice guidelines. After discharge, patients were mailed the WASCANA Client-Centred Care Survey (WCCS).

Results: Twenty-six PTs recruited 53 patients. The mean number of hours of treatment was 7.6 over a mean time frame of 68 days. The most frequent interventions were exercise (100%), education, and physical modalities (both 94.6%). There were important clinical improvements in several outcome measures (effect sizes > 0.3). The Numerical Pain Rating Scale and the Arthritis Impact Measurement Scales-2 (AIMS2) pain score improved the most, with effect sizes of > 0.6. Forty-five patients (80%) returned WCCS questionnaires. Mean scores were good (< 2) for five of the six WCCS domain scores and borderline (2.1) for one domain, community integration.

Conclusion: Patients reported improved outcomes, especially less pain, suggesting that a pain measure would be useful in evaluating PT interventions for persons with rheumatoid arthritis. In general, PTs provided evidence-based and client-centred care; however, there may be potential to improve care by helping patients more fully integrate into the community.

Key Words: arthritis, best practice, client-centred care, health professional education, physical therapy, quality assurance

RÉSUMÉ

Objectif: Décrire le traitement de la polyarthrite rhumatoïde administré par des physiothérapeutes en Ontario et explorer les facteurs qui influent sur l'administration de soins centrés sur le client.

Méthodologie: Des physiothérapeutes travaillant en rhumatologie ont demandé à des patients consécutifs non chirurgicaux de remplir des questionnaires d'évaluation standardisés lors de leur admission et de leur sortie. Les interventions de physiothérapie ont été comparées à celles recommandées dans les lignes directrices de pratique clinique publiées. Après leur sortie, les patients ont reçu par courrier l'enquête WCCS (*WASCANA Client-Centred Care Survey*).

Résultats: Vingt six physiothérapeutes ont recruté 53 patients. Le nombre moyen d'heures de traitement était de 7.6 pendant une période moyenne de 68 jours. Les interventions les plus fréquentes étaient les exercices (100%), l'éducation, et les modalités physiques (toutes deux 94.6%). On a noté une amélioration clinique importante de plusieurs mesures des résultats (importance de l'effet > 0.3). Le score de la douleur mesurée sur l'échelle numérique d'évaluation de la douleur et avec le questionnaire AIMS2 (*Arthritis Impact Measurement Scales-2*) s'est amélioré dans la plus grande mesure, l'importance de l'effet étant > 0.6. Quarante cinq patients (80%) ont renvoyé le questionnaire WCCS. Les scores moyens étaient bons (< 2) pour cinq des six domaines WCCS et limites (2.1) pour un domaine, à savoir l'intégration communautaire.

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Research was supported by the College of Physiotherapists of Ontario and the Ontario Ministry of Health and Long-term Care through its Health System Linked Research Unit Grant to the Arthritis Community Research and Evaluation Unit.

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DOI 10.2310/6640.2006.00001

Conclusion: Les patients ont signalé des améliorations, en particulier une diminution de la douleur, ce qui suggère qu'une mesure de la douleur serait utile dans l'évaluation des interventions de physiothérapie pour les personnes atteintes de polyarthrite rhumatoïde. En général, les physiothérapeutes ont administré des soins fondés sur des preuves scientifiques et centrés sur le client, mais ceux-ci peuvent être potentiellement améliorés en aidant les patients à mieux s'intégrer à la communauté.

Mots clés: arthrite, assurance de la qualité, éducation par les professionnels de la santé, meilleure pratique, soins centrés sur le client, thérapie physique

Lineker SC, Hurley L, Wilkins A, Asmundsen GJG. Investigating Care Provided by Physical Therapists Treating People with Rheumatoid Arthritis: Pilot Study. *Physiother Can* 2006;58:53-60.

The College of Physiotherapists of Ontario (the College) is the regulatory body for physical therapists (PTs) in the province and is committed to improving the practice of PTs. Regulatory bodies use various tools to audit the practice of health care professionals, including on-site peer review processes and chart reviews. Weaknesses associated with these processes include incompleteness of charts and lack of outcome-oriented data that can be retrieved in peer review.¹ Another approach to practice review has been the use of standardized cases, which are used to canvass information about practice preferences directly from health care professionals.² Standardized cases are typically based on evidence and/or consensus-based clinical practice guidelines (CPGs). The guidelines are used to develop cases and serve as a baseline against which practice data are compared. For many areas of practice, the lack of strong scientific evidence limits the use of standardized cases. Yet another approach to monitor and evaluate practice in high-volume and high-cost areas is through prospective collection of practice data at the initiation of service.³ Data requirements typically include client and clinician profiles, service use data, information about treatment content, and standardized outcome measures.

Using this last approach, the College implemented a pilot project to (1) describe the management of rheumatoid arthritis (RA) by PTs in Ontario and (2) explore factors that influence the delivery of client-centred care in this population. RA was selected as the area of practice review because of its high burden of disability in Ontario,⁴ because CPGs had been established for this population,⁵⁻¹⁰ and because evidence has suggested that physical therapy (PT) improves outcomes in this population.^{11,12} In a systematic review, Glazier reported evidence from randomized controlled trials (RCTs) to support the short-term benefits of aerobic exercise, education, home PT, and rehabilitation programs for clients with RA.¹² As well, recent treatment guidelines recommend patient education, exercise, and referral to PTs, occupational therapists, and social workers⁸ for patients with RA, as well as early referral to rheumatologists.^{7,8}

"Client-centredness" is an important underlying principle in delivery of health and rehabilitation services.¹³ Client-centred rehabilitation has been defined as "a philosophy or approach to the delivery of rehabilitation

services that reflects the needs of individuals and groups of clients."¹³ At the individual level, client-centred care refers to patients being actively involved in managing their health care and their rehabilitation in partnership with service providers. We describe the care provided to patients with RA by PTs in Ontario and examine factors that influence patients' perceptions of their care.

METHODS

In 1996, PTs were invited to participate in a pilot study through the College newsletter, *Communiqué*, and through a letter to all PTs who had indicated rheumatology in the College registration database as their primary focus of practice ($n = 60$). Once they consented to participate in the study, they were asked to complete demographic information on their practices.

Patients were included in the project if they were new adult patients with a confirmed or suspected diagnosis of RA and had been referred in September or October 1997 primarily for nonsurgical management. Patients had to be available for the length of the study period and able to read and write English. Patients were excluded if they were referred primarily for pre- or post-operative management (eg, joint replacement surgery) or a single-visit consultation (eg, adjustment of a splint, providing equipment).

Standardized data collection tools were field-tested prior to project implementation. Training was provided in data collection to all therapists participating in the study. Therapists were asked to identify consecutive patients who met inclusion criteria; those who provided informed consent were entered into the study. At both assessment and discharge, therapists completed a patient record that collected referral, patient demographic, and disease status information. Workload measurement (number of treatment visits, total hours of treatment) and intervention tracking (type of treatment, referrals made) were done at each visit by the therapist.

Patients completed questionnaires at assessment and at discharge. Questionnaires included four self-administered outcome measures that had demonstrated changes in this patient population in a previous study,¹¹ two of which are recommended by the American College of Rheumatology (ACR) as core outcome measures

(Arthritis Impact Measurement Scales-2 [AIMS2] and a pain measure).¹⁴ These included the following:

- The AIMS2¹⁵ is an arthritis-specific questionnaire that assesses physical, emotional, and social well-being using 12 domain scales. Seven subscales were chosen for inclusion in this study: mobility, walking and bending, hand function, arm function, household tasks, self-care, and pain. Scores for each subscale were normalized according to formulae in the AIMS2 user's manual so that all scores were expressed out of 10 (0 = good health status, 10 = poor health status).¹⁶ A decrease in score indicates improvement. The questionnaire also collects data about arthritis impact, health perception, other significant illnesses, and medication use. In study populations with arthritis, internal consistency coefficients for the 12 scales have values from 0.72 to 0.91 in RA and test-retest reliabilities of 0.78 to 0.94 in RA and osteoarthritis over a 3-week time frame.¹⁵
- The Stanford Self-Efficacy Scale (SES)¹⁷ was developed to measure changes in self-efficacy that could be attributable to a layperson-led, group self-management program, the Arthritis Self-Management Program (ASMP). PT interventions typically incorporate several components of the ASMP, including education to increase patient knowledge of the condition, the frequency and practice of energy conservation and joint protection techniques, and education to decrease the amount of perceived pain.¹¹ The original version of the SES was used in this study. In this version, responses are recorded on a numerical rating scale with scores ranging from 10, "very uncertain," to 100, "very certain." A higher score indicates greater self-efficacy. Internal consistency coefficients have been reported as 0.87 for the "other symptoms" and 0.75 for the "pain" subscale.¹⁶ Test-retest reliability has not been reported.
- The Arthritis Community Research and Evaluation Unit (ACREU) Rheumatoid Arthritis (RA) Knowledge Questionnaire¹⁸ has 31 items and was developed using focus group methodology for people with RA of varying severity and duration. Scores can vary from 0 to 31, with a higher score indicating more knowledge of self-management strategies. The questionnaire covers the domains of prognosis, pain management, medications, joint protection, energy conservation, exercise, and coping strategies (psychosocial issues). Internal consistency has been reported to be 0.76, and test-retest reliability over 1 week was 0.91. The ACREU RA Knowledge Questionnaire has shown sensitivity to change in patients with moderate to severe RA in an RCT evaluating a 6-week home-based PT intervention.¹¹
- The Numerical Pain Rating Scale (NPRS)¹⁹⁻²¹ asks patients to circle a number from 10 (no pain) to 100

(worst possible pain) that best indicates their average level of pain over a 1-week period. The NPRS has been shown to correlate with the visual analogue scale (VAS) for pain ($r = .79-.95$),^{16,19} has good same-day test-retest reliability (0.67–0.96),²¹ and is easier to complete than the VAS for some patients.^{19,20}

Disease status measures included disease duration (years), ACR functional class, therapist assessment of number of active (tender or swollen) joints, and the duration of morning stiffness in minutes. Patients were also asked to record the number of tender joints on a homunculus. Several studies now support the use of self-administered joint assessments.²²⁻²⁷ Comorbidity was assessed by asking patients to list medications for any other condition. Work status information was also collected, including whether the patient was on disability owing to arthritis.

After discharge, patients were mailed the WASCANA Client-Centred Care Survey (WCCS).²⁸

Developed to evaluate the multidimensional concept of client-centred care, WCCS items were generated through discussions and feedback from patients and health care providers in a rehabilitation setting. Used primarily as part of an ongoing program evaluation protocol in a clinical setting, the WCCS asks patients to respond to 40 questions scored from 1 (strongly agree) to 5 (strongly disagree). Questions relate to six domains: personal comfort, involvement in care, community integration, respect, information received, and emotional support. Scores for questions in each domain are totalled to provide a domain score.¹⁶ Internal consistency for four of the scales varied from 0.76 to 0.88. A score of 2 or greater may represent a target for service quality management initiatives.

Sample Size

Our intent was to recruit 150 patients in the time frame available, that is, a sample of convenience. Given the objectives of this pilot study, we made no attempt to calculate or rationalize the sample size. The results of the study will inform future sampling strategies.

Analysis

Data were analyzed using *SPSS for Windows*, version 6.0 (SPSS Inc., Chicago, IL). Descriptive statistics (proportions, means) were used to describe patient characteristics, the interventions provided, and the intensity of the intervention (eg, number of visits, total time spent). Interventions were summarized according to current CPGs for the nonpharmacologic management of RA. Means and 95% confidence intervals were calculated for outcome and disease status measures at baseline and discharge or study completion.

To explore factors that influenced the delivery of client-centred care in this population, parametric and nonparametric correlation coefficients were used to examine relationships between changes in outcome measures and WCCS domain scores with patient, practice, and intervention characteristics. A *p* value of < .05 was considered significant. Effect sizes (ESs) were calculated to examine clinically important changes for each outcome measure.¹⁶ An ES of 0.3 or greater was considered clinically important.²⁹

Ethics approval for this study was received from the Wellesley Hospital Research Institute, Toronto. Participation by PTs and patients was voluntary, and all material was field-tested prior to implementation. Each therapist and patient completed a consent form that indicated that their participation was voluntary, that all data would remain confidential, and that therapists and patients would not be identified in any report. A full report of this study is available on request from the College.³⁰

RESULTS

Sixty PTs in the College registration database indicated that their primary focus of practice was rheumatology. Fifty-three (88%) volunteered to take part in the study,

Table 1 Practice and Therapist Characteristics (*n* = 26)

<i>Type of Practice</i>	<i>n (%)</i>
Ambulatory care clinic, private	2 (7.7)
Ambulatory care clinic, public	2 (7.7)
Home care	2 (7.7)
Independent practice	3 (11.5)
Rheumatic disease unit	3 (11.5)
The Arthritis Society	10 (38.5)
Missing	4 (15.4)

<i>Therapist Characteristics</i>	
Staff therapist	19 (73.1)
Manager	2 (7.7)
Administrator	1 (3.8)
Missing	4 (15.4)

<i>Therapist Experience</i>	<i>Mean (Median); [Minimum, Maximum]</i>
Years since graduation	22.5 (22.0); [4, 37]
Years treating persons with RA	15.9 (13.5); [3, 34]
Clients with RA per month	9.5 (6.5); [1, 25]

RA = rheumatoid arthritis.

Table 2 Patient and Disease Characteristics (*n* = 56*)

<i>Characteristics</i>	<i>n (%)</i>
Patient	
Female	45 (80.4)
Lives alone	11 (19.6)
Paid employment	19 (33.9)
On disability owing to arthritis	5 (8.9)
Unemployed owing to arthritis	2 (3.6)
High school graduate	39 (69.6)
Mean age in years (SD); minimum, maximum	59.2 (13.8); 24.5, 87.3
Disease	
Rheumatoid arthritis, confirmed	49 (87.5)
ACR functional class	
I	13 (23.2)
II	16 (28.6)
III	14 (25.0)
IV	11 (19.6)
Missing	2 (3.6)
Daily medications for other problem	29 (52.7)
Median disease duration, yr (minimum, maximum)	4.5 (0.25, 53.0)
Mean self-reported joint count (homunculus) (SD)	11 (4.5)
Mean active joint count (SD)	17 (8.4)
Mean swollen joint count (SD)	7 (10.2)
Mean duration of morning stiffness, (min) (SD)	63 (61.8)

ACR = American College of Rheumatology.

*Three missing.

and of those, 26 (49%) were able to recruit at least one eligible and consenting patient for the study. Table 1 includes the professional and practice characteristics of the participating PTs. Generally, therapists worked in a variety of inpatient and ambulatory care settings, had been practicing for a number of years (mean = 22.5 years; SD = 9.7), and had many years' experience treating patients with RA (mean = 15.9 years; SD = 9.3). On average, therapists treated 10 patients with RA per month (minimum = 1; maximum = 25).

Over a 6-month period, 59 patients with confirmed or suspected RA were identified as eligible for the study. Fifty-six patients (95%) provided consent, 53 (95%) with complete data. Patient characteristics are presented in Table 2. Patients were mainly older females; the mean age was 59.2 years (SD = 13.8). The median disease duration was 4.5 years. Patients had active disease, with a mean

Table 3 Interventions Recorded by Therapists and Those Supported by Clinical Practice Guidelines for Rheumatoid Arthritis

Interventions	n (%)
Education ⁵⁻¹⁰	53 (94.6)
Exercise (any) ⁵⁻¹⁰	56 (100.0)
Resisted/strengthening	48 (85.7)
Range of motion	56 (100.0)
Endurance/aerobic	23 (41.1)
Social support (patient or family/friend) ⁸	36 (64.3)
Physical modalities ¹⁰	53 (94.6)
Manual therapy (joint mobilization, massage) ⁹	16 (28.6)
Assistive devices ⁹	35 (62.5)
Splinting/orthoses ¹⁰	30 (53.6)
Referral to rheumatology ^{8,9}	6 (10.7)
Referral to The Arthritis Society ⁸	11 (19.6)

References link each intervention with the guideline that supports it.

active joint count of 17 (SD = 8.4) and a mean duration of morning stiffness of 63 (SD = 61.8) minutes. Comorbidity was high, with approximately half of the patients (53%) taking daily medications for problems other than arthritis.

The intensity of the intervention was summarized in three ways: the total number of visits (mean = 8.2; SD = 5.6; minimum = 2; maximum = 31), the total number of hours of treatment (mean = 7.6; SD = 4; minimum = 1; maximum = 20), and the time frame of treatment (mean = 67.5 days; SD = 40; minimum = 9; maximum = 162).

Table 3 presents the interventions provided by therapists compared with those supported by CPGs for the nonpharmacologic management of RA. The majority of patients received evidence-based interventions: education (94.6%) and exercise (100%). The most frequently reported types of exercise were range of motion and strengthening exercises (100% and 86%, respectively); 41.1% of patients received endurance or aerobic exercises. PTs referred six patients (10.7%) to The Arthritis Society and facilitated six referrals to a rheumatologist (10.7%). In addition, many patients received equipment or assistive devices (62.5%) or physical treatment modalities (94.6%).

Table 4 presents the baseline and discharge scores for outcome measures and disease status indicators. ESs varied, with the AIMS2 pain scale and the NPRS being the highest (ES = 0.71 and 0.88, respectively). Important clinical improvements were also seen for the AIMS2 walking and hand and arm function subscales; AIMS2 arthritis impact; knowledge of self-management strategies; and self-efficacy (ES \geq 0.3). There were no significant correlations between these study outcomes and intervention intensity (hours, number of visits, or study time frame) ($p > .05$).

Clinically important improvements were noted in all disease status indicators. ESs were low to moderate, with

self-reported joint count being the highest (ES = 0.6). There was also a 23% decrease in the number of patients taking daily over-the-counter pain medications.

We examined associations among changes in outcome measures, therapist and patient characteristics, and the intensity of the PTs' interventions (data not shown). Improvement in patient knowledge correlated positively with several therapist characteristics, including more years since graduation ($r = .34$, $p = .045$), more experience treating RA ($r = .39$, $p = .027$), and treating more patients with RA per month ($r = .50$, $p = .006$). Seeing more patients per month with RA also correlated positively with improved patient self-efficacy scores ($r = .43$, $p = .012$).

Forty-five patients (80%) returned WCCS surveys. Scores were good (< 2) for five of the six WCCS domain scores and borderline (2.1) for one domain (community integration) (Table 5).

Associations between WCCS domain scores and the changes in outcome measures and the intensity of the intervention indicated that improvements in self-efficacy were correlated with better WCCS scores for information, community integration, and involvement ($r = -.34$, $p = .040$; $r = -.42$, $p = .014$; $r = -.33$, $p = .050$, respectively). Better WCCS scores for the respect domain correlated with improved health perception measured by the AIMS2 ($r = -.38$, $p = .023$). Better WCCS community integration scores correlated with patients having improved knowledge of their condition ($r = -.61$, $p = .001$).

To address the borderline WCCS results for the community integration domain, PTs were sent an educational package that included Arthritis Society materials on RA, a laminated summary of the key findings of the study and a laminated patient education sheet with a list of educational and community resources on arthritis, and a sample NPRS and a homunculus for clinical use. PTs were encouraged to allow the patients to assess their painful joints using the homunculus. This was marketed as a means to save time and improve efficiency in a busy clinical practice.

Thirty-five PTs (66%) returned questionnaires evaluating the educational materials. The therapists rated the most useful information to be the laminated information sheets and the educational materials from The Arthritis Society. Forty percent indicated that they found the outcome measures useful. Thirty-nine percent (13 of 33) indicated that they were likely to change practice as a result of the information received, and 82% (28 of 34) indicated that they would photocopy the laminated sheets for use with their patients.

DISCUSSION

This pilot study provided a description of the care provided by PTs treating patients with RA in Ontario. PTs treated patients in all stages of the disease (mild to very severe, early and long-standing disease). Exercises and

Table 4 Outcome Measures and Disease Status Indicators at Baseline and Discharge or Study Completion

<i>Outcome Measure</i>	<i>n</i>	<i>Intake Mean (95% CI)</i>	<i>Study Completion Mean (95% CI)</i>	<i>Effect Sizes</i>
AIMS2				
Mobility	46	2.5 (1.7, 3.2)	2.1 (1.4, 2.8)	0.2
Walking	49	5.6 (4.9, 6.4)	4.5 (3.8, 5.3)	0.4
Hand	49	3.8 (3.0, 4.6)	2.6 (2.0, 3.3)	0.4
Arm	49	2.8 (2.0, 3.5)	2.0 (1.3, 2.6)	0.3
Self-care	52	1.0 (0.5, 1.4)	0.8 (0.3, 1.3)	0.1
Household	52	2.6 (1.8, 3.5)	2.4 (1.6, 3.2)	0.6
Pain	52	6.0 (5.4, 6.6)	4.6 (4.0, 5.2)	0.7
Impact	51	4.9 (4.1, 5.7)	4.0 (3.3, 4.7)	0.3
Perception	51	5.2 (4.5, 5.9)	4.8 (4.1, 5.4)	0.2
ACREU Knowledge	40	17.5 (15.5, 19.4)	20.2 (18.5, 21.9)	0.4
Self-Efficacy Scale	46	59.6 (53.6, 65.5)	70.1 (64.9, 75.4)	0.5
NPRS	51	62.0 (56.9, 67.0)	46.7 (40.9, 52.5)	0.9
Disease status indicators				
Self-report joint count (homunculus)	52	10.6 (9.4, 11.9)	7.9 (6.5, 9.2)	0.6
Active joint count	47	17.0 (12.8, 21.3)	9.1 (6.1, 11.5)	0.5
Swollen joint count	45	7.3 (4.2, 10.5)	3.2 (2.0, 4.4)	0.4
Duration of morning stiffness (min)	39	63.0 (42.8, 83.1)	30.4 (18.3, 42.5)	0.5
Taking daily over-the-counter pain medications, <i>n</i> (%)		22 (42)	10 (19)	

ACREU Knowledge = Arthritis Community Research and Evaluation Unit Rheumatoid Arthritis Knowledge Questionnaire; AIMS2 = Arthritis Impact Measurement Scales-2; NPRS = Numeric Pain Rating Scale.

education were major components of the intervention in this study, reflecting current best practices for RA.¹⁰ However, aerobic exercises, recommended for this population,^{9,10} may have been underused, with only 41.1% of therapists indicating that they recommended or provided aerobic or endurance exercises. The low number of referrals to The Arthritis Society likely reflects the fact that many of the participating therapists worked for The Arthritis Society (*n* = 10). Low referrals to rheumatologists might reflect the inability of therapists to refer directly to specialists.

We explored patients' perceptions of the care they received using the WASCANA questionnaire, a measure of client-centred care, and investigated several factors that might influence perceptions of care in this population. Patients rated the client-centredness of their care favourably on the WASCANA except for the area of community integration. This suggests that PTs could improve care by helping patients become more fully integrated into

the community. This is consistent with findings indicating that health care providers need to do a better job linking patients with appropriate resources in their

Table 5 WASCANA Client-Centred Care Survey Domain Scores (*n* = 45)

<i>WCCS Domain</i>	<i>n</i>	<i>Domain Score Mean (SD)</i>
Information	43	1.4 (0.5)
Involvement	38	1.8 (0.8)
Respect	38	1.3 (0.5)
Community integration	37	2.1 (1.0)
Physical comfort	44	1.5 (0.5)
Emotional support	37	1.5 (0.8)

WCCS = WASCANA Client-Centred Care Survey.

Scores > 2 indicate areas that may be appropriate for quality improvement initiatives.

communities.^{13,28} Therapists participating in this study received educational material to help address this issue.

Several other strategies were identified that might improve outcomes and the patients' perceptions of the care they receive (eg, providing patients with more information about their disease, involving them in the care they receive, treating them with respect). These results are consistent with the work of Cott and colleagues, who summarized the literature on client-centred care and reported that patient education, effective communication, and active patient participation in decision-making are critical elements.¹³ The authors pointed out, however, that client-centred care is dependent on both the care provided by the health care provider and, more broadly, on the system in which care is delivered. Our study did not attempt to address the system issues that might have affected the patients' perceptions of the care they received.

Patients with RA demonstrated clinically important improvements in walking, hand and arm function, household activities, pain, impact of arthritis, knowledge about self-management strategies, self-efficacy, and disease status indicators. The number of patients taking daily over-the-counter pain medications also decreased. The most important clinical change was improvement in pain. These results support the use of a self-reported pain measure when evaluating PT interventions for persons with RA, as recommended by the ACR guidelines for outcome measures in RA clinical trials.¹⁴ However, Bell and colleagues found no short-term improvement in VAS or AIMS pain scale scores following 6 weeks (mean of four visits) of home-based PT in patients with moderate to severe RA.¹¹ Disease severity, length of treatment, and concurrent pharmacologic therapy may affect pain outcomes in practice.

Interestingly, we found no significant relationships between study outcomes and the intensity of the intervention (number of hours, number of visits, or length of treatment). In an RCT comparing home-based PT for people with moderate to severe arthritis with a wait-list control group, Bell and colleagues reported improvements in self-efficacy, disease management knowledge, and morning stiffness following an average of 4 hours of community-based PT over a 6-week time period.¹¹ In our study, the mean duration of treatment was 7.6 hours and the time frame of the study was a mean of 67.5 days (2.3 months). As well, the intervention in Bell and colleagues' study was delivered by therapists with special training in arthritis assessment and management. More research is required to understand how the intensity of the intervention and therapist training might impact outcomes.

Our results suggest that therapist experience is important. Improvements in patient knowledge correlated positively with the number of years since graduation, years of experience treating persons with RA, and volume of RA cases per month. A higher volume of patients with RA per month was also associated with improvements in self-

efficacy scores. Studies of surgical outcomes show relationships with the volume of procedures done for various operations.³¹ Minimum yearly volume per surgeon has been suggested for some types of surgery to provide optimal outcomes of care.^{31,32} Further study is required using a larger, more heterogeneous sample of PTs to examine how the experience of the therapist and the volume of cases relate to outcomes in this population.

Because there was no control group in this study, changes in health and disease status must be interpreted with caution. Although biologic response modifiers (new fast-acting medications for arthritis) were not available at the time of this study, some clinical improvements may still have been the result of changes in arthritis medications. Other study limitations included our inability to control for comorbidity and other cointerventions, which meant that we were unable to make any conclusions about the efficacy of the PTs' interventions. However, this was not the intent of our study. Additionally, patients and therapists were volunteers and therapists recruited their own patients into the study, likely introducing bias. As well, future studies need to confirm the diagnosis of patients taking part in such projects. A newer version of the Arthritis Self-efficacy Scale was published in 1996. This would be the version of choice in future studies.³³

CONCLUSIONS

This pilot study provided a description of PT management for people with RA in Ontario and demonstrated that this management reflected both client-centred care and evidence-based practice (by emphasizing education and exercise). We also demonstrated the potential benefits of PT for patients with RA, particularly in terms of pain relief. Our results support the use of a pain measure when evaluating PT interventions for this population. We identified one area for potentially improving the care delivery, better integration of patients into their communities, and developed educational materials to help address this issue. Further study is required to examine how chronicity of disease, knowledge, and self-efficacy influence a patient's perception of the care received and how the intensity of the intervention and the experience of the therapist relate to outcomes in this population.

ACKNOWLEDGEMENTS

Brenda Ross, MSc(PT), BPE, and HSc, Katherine Badali, MHSc, BSc(PT), Mea Renahan, MBA, BSc(PT), former Director of Professional Services, The Arthritis Society, Ontario Division, and Sylvia Jones, BSc(PT), for support and advice given during this project. Thanks also go to Lisa Cetinic, communications specialist, College of Physiotherapists of Ontario, for her help with the final editing of the manuscript.

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