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People getting a grip on arthritis: A knowledge transfer strategy to empower patients with rheumatoid arthritis and osteoarthritis

Lucie Brosseau[a,e], Sydney Lineker[b], Mary Bell[c], George Wells[d], Lynn Casimiro[e,j], Mary Egan[e], Ann Cranney[f], Peter Tugwell[g], Keith G Wilson[h] and Gino De Angelis[i]

[a]Montfort Hospital Research Institute, Ottawa (Ontario), Canada
[b]The Arthritis Society, Ontario Division, Arthritis Rehabilitation and Education Program (AREP), Toronto (Ontario), Canada
[c]Canadian Rheumatology Association & Sunnybrooks and Women College of Health Sciences Center, Toronto (Ontario), Canada
[d]Department of Epidemiology and Community Medicine, University of Ottawa, Canada
[e]School of Rehabilitation Sciences, University of Ottawa, Canada
[f]Clinical Epidemiology Program, Ottawa Health Research Unit, Ottawa Hospital, Civic Campus, Ottawa, Canada
[g]Centre for Global Health, Institute of Population Health, University of Ottawa, Ottawa, Canada
[h]Psychology Discipline, The Ottawa Hospital Rehabilitation Centre, Ottawa, Canada
[i]University of Ottawa, Canada
[j]Department of Academic Affairs, Montfort Hospital, Ottawa (Ontario), Canada.

Abstract

Objective: The purpose of this study was twofold. First, to help people with arthritis become aware of and utilize Rheumatoid Arthritis (RA) and Osteoarthritis (OA) Clinical Practice Guidelines (CPGs) as they relate to self-management strategies. Second, to evaluate the impact of specific Knowledge Translation (KT) activities on CPG uptake. More specifically, investigators were interested in: (1) participant acquisition of knowledge, skills, and self-efficacy regarding the uptake of CPGs; (2) participant intention and actual use of CPGs; (3) whether participants trained to become educators shared new CPG knowledge with other people who have RA or OA; and (4) the effect of press media in promoting CPGs to the general public.

Methods: Workshop 1 (WS1) was delivered by a multidisciplinary faculty. Selected participants from WS1 were then trained to become educators of pertinent CPGs and deliver the same content to a second group of patients in Workshop 2 (WS2). Questionnaires to measure the four aforementioned interests in KT were administered pre- and post- workshop as well as three months post-workshop.

Results: Acquisition of new knowledge by workshop participants (n = 49) was found for Transcutaneous Electrical Nerve Stimulation (TENS), Tai Chi, and insoles and footwear, although not for weight management, aerobic walking, and strengthening exercises. Immediately post-workshop, participants in WS1 (M = 7.96, SD = 1.89) and WS2 (M = 7.16, SD = 1.46) had comparatively similar self-efficacy levels regarding symptom management. No statistically-significant changes were found for online general public participants.

Conclusion: An intensive evidence-based educational programme focused on training CPG educators appears to be an effective method of KT for patients with RA and OA. Similar KT activities would be employed again but with greater attention to use of media strategies.

Corresponding author:
Lucie Brosseau, School of Rehabilitation Sciences, Faculty of Health Sciences, University of Ottawa, 451 Smyth Road, Ottawa, Ontario, Canada. K1H 8M5
Email: Lucie.Brosseau@uottawa.ca

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Introduction

As baby boomers enter adulthood and the life expectancy of populations in industrialized countries is extended, the prevalence of Rheumatoid Arthritis (RA) and Osteoarthritis (OA) will increase dramatically[1]. In 2007-2008, nearly 4.2 million Canadians reported they had arthritis[2] and this number expected to increase to 6 million by 2016[3]. Today three out of five Canadians diagnosed with arthritis are less than 65 years old[2]. Arthritis is the main cause of deformity and long-term disability in Canada[3] with billions of dollars[3] expended annually on direct and indirect costs, such as hospitalization fees and work absenteeism[1].

To lessen the burden of RA and OA, patients need to be more informed of arthritis care and, consequently, be better able to self-manage their arthritis. Typically, patients who are actively involved in their treatment and diagnostic investigation choices, and who collaborate with their healthcare providers, ultimately experience better health outcomes[4]. The Ottawa Panel has published clinical practice guidelines (CPGs) on interventions proven to be effective in the overall management of RA and OA[5-7]. CPGs are systematically developed statements that assist practitioners and patients in selecting the most appropriate healthcare regimen for specific clinical indications and have been shown to improve patient health outcomes[8]. Increasing patient awareness and utilization of CPGs has the potential to reduce healthcare costs, help patients self-manage their arthritis, and indirectly encourage health professionals to become more aware of, as well as employ, the most effective evidence-based strategies.

Despite these potential benefits, patients often have difficulties implementing CPGs into their everyday activities[9]. There are several barriers to CPG uptake and the most successful means to overcome such barriers have yet to be determined. Examples include a lack of CPG awareness, limited accessibility, time constraints, and inadequate knowledge and training in implementing recommendations correctly[10,11].

This project was designed to help overcome such barriers and facilitate CPG uptake by implementing and evaluating seven Knowledge Translation (KT) strategies. KT is the 'exchange, synthesis, and ethically-sound application of research findings within a complex set of interactions among researchers and knowledge users'[12]. The following KT activities were employed: tool development; interactive evidence-based educational workshops; peer education; paper and online educational materials; feedback; reminder 'hands-on' activities; and press media. Tool development researchers developed facilitator resources, press releases, and updated and translated Ottawa Panel CPGs into lay language for the workshop and the website. Interactive workshops, with or without didactic presentations, lead to improvements in the transfer of knowledge to participants, as compared to didactic sessions-only[13]. Peer education is provided by patients who are trained to be CPG educators. These educators are patients with arthritis deemed to have strong leadership qualities by members of their arthritis organizations (influential patients). Patient education has been shown to have measurable clinical benefits to those affected by arthritis, independent of whether the education was presented by healthcare professionals or lay persons or carried out in an individual or group setting[14-16]. Lay leaders in the community without professional or paraprofessional diplomas or tertiary education, but who are properly trained, have also become a promising resource for promoting effective strategies and improving outcomes in community health care[17]. Lastly, the use of press media in direct-to-consumer advertising (e.g. pharmaceutical commercials) has also shown to be an efficient means to influence patient and physician behaviour[18-20].

The purpose of this study was twofold. First, to help people with arthritis become aware of and utilize rheumatoid arthritis (RA) and osteoarthritis (OA) CPGs as they relate to self-management strategies; and second, to evaluate the impact of specific KT activities on CPG uptake. More specifically, investigators were interested in: (1) participant acquisition of knowledge, skills, and self-efficacy regarding the uptake of CPGs; (2) participant intention and actual use of CPGs; (3) whether participants trained to become educators shared new CPG knowledge with other people with RA or OA; and (4) the effect of press media in promoting CPGs to the general public.

Materials and methods

Previously published Ottawa Panel CPGs on RA and OA[5-7] were updated using a rigorous methodology developed by the Philadelphia Panel (2001)[21]. From the CPGs, 11 self-management effective strategies for RA and OA were chosen by the Ottawa Panel and presented to a focus group of six patients with OA and RA. The focus group then selected six self-management strategies of interest by consensus: weight management for OA, aerobic walking for OA, Transcutaneous Electrical Nerve Stimulation (TENS) for OA, strengthening exercises for RA, Tai Chi for RA and OA, and insoles and footwear for RA. The chosen Ottawa Panel CPGs[5-7] were then written in lay language and were administered in: (1) the first workshop (WS1) facilitated by multidisciplinary healthcare practitioners who presented the CPGs to patient educators with arthritis identified by Canadian arthritis associations; (2) the second workshop (WS2) facilitated by selected patient educators who attended WS1 and delivered the material with more pedagogical training to people with arthritis from the community; and (3) the press media.

Educational workshops

The investigators constructed an educational training programme of two successive workshops (led by healthcare professionals and patient educators) directly modelled on the national 'Getting a Grip on Arthritis' workshop[22]. The 'People Getting a Grip on Arthritis' workshops (WS1 and WS2) began with an overview of arthritis, a summary of the patient baseline questionnaire results (i.e. needs assessments), and an introduction to the Ottawa Panel CPGs[5,6,7]. Participants were then placed into small interactive groups to engage in 'hands-on' activities and to discuss how RA and OA self-management strategies could be implemented into their daily activities. Participants also conversed on how to share their new knowledge with peers.

Two one-day workshops took place in Ottawa during the last week of October 2006 (www.arthritis.ca/peoplegettingagrip)[23]. Facilitators for WS1 were six multidisciplinary healthcare professionals. Seven organizations (Patient Partners in Arthritis; Canadian Arthritis Patient Alliance [CAPA]; Arthrite Montreal Arthritis; Canadian Alliance of Community Health Centre Associations [CACHCA]; The Arthritis Society, Ontario, New Brunswick and Nova Scotia divisions) sent 23 influential participants (women: 96%) with RA or OA to WS1. Six participants from WS1 were trained by the researchers of this study to deliver the workshop content to 27 participants (women: 78%; the second cohort) with RA and OA in WS2. Participants from WS2 lived in Ottawa, were members of Ottawa-based arthritis organizations, and had a confirmed diagnosis of RA or OA.

Press media

Two plans were devised to include the media (e.g. press, TV, radio) in the workshops. Plan A entailed inviting the media from metropolitan Ottawa by telephone to attend WS1 and WS2 and publish lay summaries on the Ottawa Panel CPGs in their respective media. As an incentive, free

transportation, parking, and refreshments were provided. A press release was prepared by the Communications Coordinator for media representatives who were unable to attend.

In Plan B, the Communications Coordinator prepared an advertisement for press media that included the website address (www.arthritis.ca/peoplegettingagrip)[23] from which the public could access workshop content and fill out a web-based questionnaire (please note that the KT questionnaire has been removed from the website). The questionnaires concerned patient characteristics and intention to use Ottawa Panel CPGs[5-7]. Plans A and B were implemented; however, only press media responded to the workshop invitation.

Data collection for WS1 and WS2

The primary outcomes – acquisition of new knowledge, skills, self-efficacy, and peer influencing potential – were measured using a web-based coded questionnaire pre- and post-workshop. Workshop participants were asked to rate their self-efficacy or confidence in their ability to manage their arthritis symptoms on a scale of 1 to 10, with 1 meaning 'Not at all confident' and 10 meaning 'Extremely confident'. Secondary outcomes, the agreement between the intention to use CPGs post-workshop (measured immediately post-workshop) and actual use of CPGs (measured three months post-workshop) were also evaluated with an online questionnaire. Computers were available at workshop sites for patient use and assistance from staff was readily available.

Data collection for press media

Patients recruited through press media were asked to complete a web-based questionnaire before and after viewing the online module. The pre-website questionnaire pertained to patient characteristics and contained a section on demographics and diagnosis in an attempt to avoid diagnostic misclassification. The post-website questionnaire inquired about the intention to use CPGs.

Researchers conducted three telephone interviews with journalists from press media (i.e. one magazine and two web-based media outlets; Plan A). The website (www.arthritis.ca/peoplegettingagrip)[23] was advertised in a national newspaper (Plan B).

Follow-up questionnaires for WS1 and WS2 participants

Workshop participants received an email reminder to complete the three-month post-workshop questionnaire on actual use of CPGs[5-7]. Those without computer access were sent the questionnaire via regular mail.

Data analysis

Participants who attended the workshops were assessed at baseline, immediately post-workshop, and three months post-workshop. Participants who completed the online questionnaire were assessed before and after viewing the online module. Outcomes included: (1) knowledge; (2) self-efficacy; (3) intention to use and actual use of self-management strategies; and (4) participant KT influential activities.

Data analysis was performed using SPSS 18. Descriptive statistics were carried out to summarize results from baseline and post-workshop questionnaires. Intention to use and actual use of CPGs was calculated using a McNemar test ($p > 0.05$) and the Pearson Correlation Coefficient ($p > 0.05$). A two-way within-subjects ANOVA was conducted to examine the effect of topic depth (introductory, in-depth, and combined total) and time (baseline and post-workshop) on the

questionnaire scores of WS1 and WS2 participants. Regarding topic depth, introductory topics were an overview of 11 effective strategies for RA and OA: bed rest, balneotherapy, acupuncture, assistive devices, massage, manual therapy, low level laser therapy, yoga, working splints, therapeutic ultrasound, and electrical muscle stimulation. In contrast, an in-depth presentation was given of six 'hands-on' topics: weight management for OA, aerobic walking for OA, TENS for OA, strengthening exercises for RA, Tai Chi for RA and OA, and insoles and footwear for RA (www.arthritis.ca/peoplegettingagrip)[23].

Results

Characteristics of workshop participants

All workshop participants completed pre- and post-workshop questionnaires ($n = 49$). In total, 27 (55%) participants had OA, 14 (29%) participants had RA, and 7 (14%) participants had a dual diagnosis of OA and RA (Table 1). One participant was not sure of his/her condition. The majority (96%) of participants had been diagnosed with arthritis for more than two years. Most participants of WS1 and WS2 were: (1) women (80%); (2) between 50 and 64 years of age (45%); (3) married or in a common-law relationship (61%); (4) born in Canada (76%); (5) living with family or friends in a house or apartment (61%) (Results not shown); 6) educated at post secondary level or its equivalent (61%); and (7) retired (43%) (Table 1).

Table 1. Workshop participant characteristics ($N = 49$)

	Baseline *f* (%)
Area of residence	
BC	1 (2%)
AB/SK/MB	7 (14%)
Ontario	15 (31%)
Quebec	5 (10%)
Maritime	7 (14%)
Undeclared	14 (29%)
Mean age in years (*SD*)	59.77 (13.32)
Sex	
Female	39 (80%)
Male	10 (20%)
Married / common law	30 (61%)
Completed post secondary education	30 (61%)
Employed	18 (37%)
Retired	21 (43%)
Born in Canada	37 (76%)
Type of joint problem	
Osteoarthritis	27 (55%)
Rheumatoid Arthritis	14 (29%)
OA + RA	7 (14%)
Not sure	1 (2%)
Length of diagnosis	
Within past 2 years	1 (2%)
More than 2 years ago	47 (96%)
Not known	1 (2%)

Thirty-three (67%) participants had been told by a health professional to perform specific exercises or participate in an exercise programme to better manage their arthritis. Twenty-eight (57%) participants had discussed healthy body weight and nutrition with a health professional and were asked how they coped with arthritis and whether they needed additional support. Just over half (53%) of participants were provided with information (e.g. pamphlets, books, or videos) on their type of arthritis.

Acquisition of new knowledge for workshop participants

At baseline no significant difference was found between participant level of knowledge on numerous self-management strategies discussed in varying depths, i.e. in the overview or in-depth topics, $t(43) = -0.13$, $p = 0.90$. However, the differences in scores between baseline and post-workshops were significant for: in-depth topics, $t(47) = 6.52$, $p < 0.01$, overview topics, $t(38) = 5.96$, $p < 0.01$, and overall questionnaire scores, $t(38) = 7.45$, $p < 0.01$ (Table 2).

Post-workshop participants from WS1 scored equally well on topics covered in the overview to topics covered in-depth, $t(19) = 1.99$, $p = 0.67$. In contrast, participants from WS2 scored significantly better on topics covered in-depth to topics taught in the overview, $t(22) = 4.35$, $p < 0.01$ (Table 2).

A statistically-significant difference was found on the learning outcome for participants of both workshops ($n = 49$) for the in-depth topics TENS, Tai Chi, and shoe insoles and footwear (Table 3). Weight management, aerobic walking, and strengthening exercises did not reach significance ($p \geq 0.05$). For the topics covered in the overview, significant improvement in knowledge was found for bed rest, balneotherapy, acupuncture, assistive devices, and massage ($p \leq 0.01$) but not manual therapy, low level laser therapy, yoga, working splints, therapeutic ultra sound, and electrical muscle stimulation ($p \geq 0.05$).

Acquisition of new knowledge for online participants

In total, 197 individuals logged onto the website (www.arthritis.ca/peoplegettingagrip)[23]. Only twenty-eight (14%) participants completed the questionnaire immediately after accessing the

Table 2. Analysis of variance for knowledge acquisition

	In-depth topics		Introductory topics		Combined topics (questionnaire score)	
	Baseline	Post-W	Baseline	Post-W	Baseline	Post-W
Workshop 1 $n = 23$	4.70 (± 1.58)	5.70 (± 1.11)	4.91 (± 2.78)	6.60 (± 2.68)	9.59 (± 3.89)	12.25 (± 3.55)
Workshop 2 $n = 26$	4.28 (± 1.46)	5.50 (± 1.17)	3.82 (± 2.17)	6.91 (± 1.53)	7.95 (± 3.02)	12.57 (± 2.00)
ALL participants $N = 49$	4.48 (± 1.52)	5.59 (± 1.14)	4.36 (± 2.53)	6.77 (± 2.13)	8.77 (± 3.54)	12.42 (± 2.80)

Note. Post-W = immediately post workshop. At baseline, there was no significant difference between participants' level of knowledge about different arthritis self-management strategies (in-depth or overview topics), $t(43) = -0.13$, $p = 0.90$. *$t(47) = 6.52$, $p < 0.01$, **$t(38) = 5.96$, $p < 0.01$, *** $t(38) = 7.45$, $p < 0.01$. Participants from Workshop 1 obtained significantly better scores on topics covered in depth than topics touched upon more superficially, $t(22) = 4.35$, $p < 0.01$.

Table 3. Participants knowledge of effective self-management strategies before and after workshop ($n = 49$)

In-depth topic	Baseline	Post-W	Difference Post-Baseline	Introductory topic	Baseline	Post-W	Difference post-baseline
TENS	0.48	0.88	0.40**	Bed rest	0.25	0.81	0.56**
Tai Chi	0.63	0.88	0.25**	Balneotherapy	0.26	0.74	0.48**
Insoles & footwear	0.69	0.92	0.23**	Acupuncture	0.31	0.67	0.36**
Weight management	0.92	0.98	0.6	Assistive devices	0.8	0.42	0.34**
Aerobic walking	0.90	0.94	0.4	Massage	0.62	0.78	0.16*
Strengthening Exercises	0.88	0.92	0.4	Manual therapy	0.60	0.79	0.19
				Low level laser therapy	0.38	0.53	0.15
				Yoga	0.52	0.65	0.13
				Working splints	0.74	0.87	0.13
				Therapeutic ultrasound	0.49	0.42	−0.7
				Electrical muscle Stimulation	0.4	0	−0.4

Note. Post-W = immediately post workshop. McNemar test used. TENS = transcutaneous electrical nerve stimulation.
[1]Effectiveness as yet unproven. *$p \leq 0.05$; **$p \leq 0.01$.

online educational material. No improvement in knowledge acquisition was found for online participants: in-depth topics, $t(10) = 1.05$, $p = 0.32$, overview topics, $t(10) = 1.85$, $p = 0.09$, and overall questionnaire scores, $t(10) = 1.79$, $p = 0.10$. No improvement was found on the learning outcomes for any of the self-management strategies (Results not shown).

Intention to use and actual use of self-management strategies for workshop participants

Almost all (98%) patients with OA intended to use at least one self-management strategy and more than half (68%) intended to use three or more strategies. Similarly, patients with RA intended to use at least one strategy and 76% intended to use three or more strategies. The most popular strategies, irrespective of diagnosis, were aerobic walking, weight management, and Tai Chi.

At three months post-workshop, there was a significant correlation between intention to use and actual use of most self-management strategies ($p < 0.05$). Participants had not, however, followed through on their intention to use Tai Chi or TENS and patients with OA had not participated in an aerobic walking program as planned (Table 4).

Intention to use self-management strategies for online participants

Of the 28 members of the public who filled out the online questionnaire, the majority (61%) intended to use at least one self-management strategy and of these participants, 68% intended to use three or more self-management strategies. The most popular activity chosen was weight management (46%) followed by low intensity strengthening exercise programmes (43%), aerobic walking (36%), shoe insoles and footwear (25%), and TENS (18%; results not shown). None of the online participants expressed interest in Tai Chi. Since online participants were measured only on intention to use and not *actual* use of self-management strategies they did not complete a three month post-workshop questionnaire.

Table 4. Relationship between intention to use and actual use of self-management strategy for workshop participants

	Osteoarthritis			Rheumatoid arthritis		
	Intention post-workshop	Follow-thru at 3 months	Difference	Intention post-workshop	Follow-thru at 3 months	Difference
Strengthening exercises	0.54	0.51	−0.3	0.38	0.44	0.6
Tai Chi	0.34	0.7	−0.27**	0.36	0.8	−0.28**
Weight management	0.59	0.56	−0.3	0.41	0.44	0.3
Insoles & footwear	0.29	0.27	−0.2	0.26	0.33	0.7
TENS	0.24	0.5	−0.19*	0.18	0.26	0.8*
Aerobic walking	0.61	0.41	−0.20*	0.38	0.31	−0.7

*$p \leq 0.05$; **$p \leq 0.01$.

Self-efficacy for workshop participants

Pre-workshop participants in WS1 ($M = 7.77$, $SD = 2.02$) reported greater confidence in their ability to manage arthritis symptoms than participants in WS2 ($M = 6.27$, $SD = 1.87$), $t(46) = 2.68$, $p = 0.01$. Immediately post-workshop, participants in WS1 ($M = 7.96$, $SD = 1.89$) and WS2 ($M = 7.16$, $SD = 1.46$) were found to have comparatively similar amounts of confidence. Yet at three months post-workshop participants from WS2 ($M = 6.71$, $SD = 1.95$) had a diminished sense of self-efficacy regarding their symptom management skills when compared to participants in WS1 ($M = 8.70$, $SD = 1.03$), $t(39) = 4.04$, $p < 0.01$ (Results not shown).

Self-efficacy for online participants

Online participants were found to be moderately confident about their ability to manage their arthritis symptoms. Participants' self-efficacy scores after viewing the online materials ($M = 6.69$, $SD = 2.14$) were not significantly different from baseline scores ($M = 5.92$, $SD = 1.85$; results not shown).

Knowledge translation activities for workshop participants

At three months post-workshop, statistically-significant results ($p < 0.05$) showed that participants ($n = 49$) had shared information from their workshop or website (www.arthritis.ca/peoplegettingagrip)[23] with others, including family members and friends, and had also added this information to their organization's website or newsletter. However, participants from WS1 ($n = 23$) were not able to share information with others to the degree that they had intended whereas participants from WS2 ($n = 26$) conveyed difficulty in following through on their intention to use the 'magnetic memo' (i.e. magnet of a self-management schedule). Participants from both workshops indicated that they had failed to consult the 'People Getting a Grip on Arthritis' website for additional information on self-management strategies (Results not shown).

Knowledge translation activities for online participants

More than half (57%) of online participants stated an interest in obtaining more information on effective self-management strategies through the 'People Getting a Grip on Arthritis' website. In addition, many (46%) intended to share this information with family members and friends.

Table 5. Perceived influence of People Getting a Grip on Arthritis initiative

Where is there improvement?	Workshop1			Workshop 2		
	M (*SD*) after workshop	*M* (*SD*) at 3-months	r	*M* (*SD*) after workshop	*M* (*SD*) at 3-months	r
My attitude towards arthritis care	7.36 (± 1.43)	6.85 (± 2.08)	.62**	7.77 (± 2.12)	7.27 (± 2.43)	.21
My arthritis self-management skills	7.78 (± 1.51)	7.35 (± 2.08)	.57**	8.16 (± 1.70)	7.18 (± 2.34)	.39
My behaviour about my personal health	7.61 (± 1.50)	7.85 (± 1.66)	.45*	7.92 (± 1.70)	7.23 (± 2.53)	.10
My ability to educate patients with arthritis and their families	8.36 (± 1.26)	7.94 (± 1.63)	.56**	8.38 (± 1.09)	6.64 (± 3.08)	.44
My ability to educate the public	8.14 (± 1.58)	7.42 (± 1.77)	.14	7.92 (± 1.56)	6.25 (± 2.67)	.25
My ability to educate my colleagues/students about arthritis	8.10 (± 1.48)	7.78 (± 1.63)	.46	8.47 (± 1.07)	5.80 (± 2.66)	−.032
My ability to access up-to-date resources	8.30 (± 1.66)	7.90 (± 1.86)	.62**	8.91 (± .79)	6.56 (± 2.81)	.56*
I will change the way I educate others	6.81 (± 2.06)	6.89 (± 2.11)	.40	8.06 (± 1.18)	5.78 (± 2.73)	.49
My ability to meet the needs of people with arthritis	7.53 (± 1.81)	7.83 (± 1.62)	.68**	8.40 (± .99)	5.92 (± 2.81)	.82*
My ability to better counsel patients about exercise and nutrition	8.00 (± 1.62)	6.53 (± 2.82)	.53*	8.57 (± .85)	5.50 (± 2.56)	.81
My ability to be an advocate	7.50 (± 1.60)	7.70 (± 1.84)	.81**	8.38 (± 1.32)	6.33 (± 2.71)	.41
My organization will be better able to meet the needs of people with arthritis	7.52 (± 1.86)	5.77 (± 3.19)	.47	6.18 (± 1.94)	4.13 (± 2.03)	−.076

Scale = higher better

Influence of 'People Getting a Grip on Arthritis' initiative

Participants from WS1 reported significant improvements ($p < 0.05$) in eight out of the 12 domains three months post-workshop, including: an improved attitude towards arthritis care, $r(19) = 0.62$, $p < 0.01$, enhanced self-management skills, $r(20) = 0.57$, $p < 0.01$, and an increased ability to meet the needs of people with arthritis, $r(16) = 0.68$, $p < 0.01$, as well as access to up-to-date resources, $r(20) = 0.62$, $p < 0.01$. The impact of the workshop initiative at the three-month follow-up was less substantial for participants in WS2 as significant improvements were found in only two out of the 12 domains: an increased ability to access up to date resources, $r(15) = 0.56$, $p < 0.05$, and meet the needs of people with arthritis, $r(8) = 0.82$, $p < 0.05$ (Table 5).

Discussion

Since the KT activities utilized in this study, with the exception of press media, were implemented simultaneously, it is not possible to determine the influence of each strategy (e.g. feedback, 'hands-on'

activities). Nonetheless, similar to previous research[24,25] these results have shown that implementing a multifaceted approach to KT can be effective in facilitating CPG uptake.

Participants from WS1 scored equally well on overview topics and topics covered in-depth, while participants from WS2 scored well only on topics presented in-depth. Although no significant knowledge differences were shown at baseline, seeing as participants from WS1 are arthritis organization representatives, they may be more knowledgeable on arthritis than WS2 regular patients from the community. WS1 participants may have simply needed a review on self-management strategies. Another possible explanation is that the questions were not sensitive enough to discriminate between levels of knowledge acquisition, especially for in-depth topics. For all participants, greater knowledge acquisition occurred with newer topics, such as TENS, Tai Chi, and insoles and footwear than more familiar topics such as weight management, aerobic walking, and strengthening exercises.

Differences between WS1 and WS2 participants were also found with regards to the influence the workshop had on several factors relating to improved attitudes and behaviours (Table 5) notably, an increased ability to educate and advocate for people with arthritis. WS1 participants may have experienced greater improvement post-workshop due to more opportunities to help people with arthritis (being organization representatives) and as a result, demonstrated greater confidence in their ability to do so. Hence, it supports the use of peer patient educators as facilitators of CPG knowledge in the workshop and in the community.

Research has shown that enhanced self-efficacy correlates strongly with improved health outcomes including decreased pain and depression[26]. WS1 and WS2 participants had comparable amounts of confidence post-workshop in their ability to self-manage their arthritis chronically, but by the three-month follow-up, only WS1 participants had maintained their level of self-efficacy. WS1 participants may receive additional emotional support and encouragement from their respective organizations as well as continuous access to up-to-date arthritis resources for a variety of topics, such as coping skills. To assist participants in sustaining fairly high levels of self-efficacy, future workshops might need to include more self-efficacy enhancing strategies such as goal setting, reinterpreting symptoms, peer support, persuasion, and role modelling[26].

The KT activities effectively presented the Ottawa Panel CPGs in a manner that could be implemented easily by patients. The majority of participants had applied their chosen self-management strategy when asked three months post-workshop, except for TENS and Tai Chi. We suggest that availability, accessibility, and costs associated to such programmes rather than motivation of patients may be the cause. It is also not known why participants with OA had neglected their intention to participate in a walking programme. While the winter season may have been a factor, research suggests that getting patients with arthritis to participate in regular physical activity is a challenge. The Arthritis Foundation reports that in 1998 less than 1% of the arthritis population participated in self-management education or physical activity programmes[26]. Explanations include patients receiving advice not to exercise, misunderstanding the manageability of arthritis, and lacking awareness of beneficial exercise programs[26]. For instance, a recent study showed that only 33.4% of participants with OA were advised to engage in physical activity[27]. Long-term randomized-controlled trials (RCTs) involving aerobic physical activity programs for OA, such as walking programmes, have typically included behavioural intervention components (e.g. patient education, telephone contacts, face-to-face visits, exercise log, social and peer support or positive feedback for a periods of 2–18 months)[28–33]. These studies exhibited lower drop-out rates at follow-up.

The KT press media strategy was not effective, which was inconsistent with previous studies that have shown communication of health-related issues via mass media can produce significant changes in individual health behaviours, healthcare utilization, healthcare practices, and health policy[34–36]. Our advertisement in the national newspaper was possibly too broad. Advertisements

may be more effective if targeted to local fitness centres, walking clubs, retirement homes, and health clinics. Additionally, not all patients have access to or are comfortable using computers to complete a questionnaire. Consequently, results for online participants were inconclusive due to the relatively small sample size and the inability to contact online participants regarding actual use of CPGs. A multifaceted face-to-face KT intervention (e.g. educational workshop) seems a more effective approach since participants are focused and immersed in the topic at hand while having the possibility of receiving immediate answers to their questions and support of peers.

Overall this study demonstrated that participants with arthritis benefited from a selection of KT strategies: tool development, interactive evidence-based educational workshops, paper and online educational materials, and peer patient educators. In future studies the same KT activities should be tested but with greater attention to the construction of the pre- and post-workshop questionnaires, the use of media approaches and the inclusion of self-efficacy enhancing strategies. A better understanding of arthritis sub-groups is also needed, such as level of coping skills, familiarity with arthritis, and feelings of support, as WS1 participants benefited comparatively more from the workshops than WS2 participants.

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