

Physical Activity in Women With Arthritis: Examining Perceived Barriers and Self-Regulatory Efficacy to Cope

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Objective. To examine whether the theory-based social cognitions of perceived barrier frequency, barrier limitation, and self-regulatory efficacy to cope were predictors of planned physical activity among adult women with arthritis. A secondary purpose was to identify and provide a phenomenologic description of the relevant barriers and coping strategies reported by study participants.

Methods. Eighty adult women (mean \pm SD age 49.09 \pm 12.89 years) with self-reported doctor-diagnosed arthritis participated in this observational study. Participants completed online survey measures of barriers to physical activity and, for each barrier, reported the frequency of occurrence and the extent of limitation. Measures of coping strategies for each barrier, efficacy to cope, and physical activity were also obtained.

Results. A multiple hierarchical regression analysis resulted in a model that significantly predicted physical activity ($F[9,70] = 6.80, P < 0.01, \text{adjusted } R^2 = 0.40$). Barrier limitation (standardized $\beta = -0.56$) and efficacy (standardized $\beta = 0.20$) were significant independent predictors. Phenomenologic findings indicated that arthritis-specific personal barriers (e.g., pain and fatigue due to arthritis) and arthritis-specific coping strategies (e.g., activity modification) were more commonly reported than generic barriers and coping strategies.

Conclusion. Self-regulatory efficacy to cope and relevant perceived physical activity barriers, which were primarily arthritis-specific and moderately or more limiting to planned physical activity, were important social cognitive predictors of physical activity, a key nonpharmacologic arthritis treatment, among women with arthritis. Future research direction should examine potential moderators of the relationship between these predictors and physical activity, such as pain acceptance.

INTRODUCTION

Arthritis negatively affects the health of nearly 1 in 6 adults (1–4). Participating in physical activity is a recommended strategy for improving disease management and health outcomes (5,6). Minimum recommendations are to accumulate ≥ 30 minutes of moderate physical activity on 3 days each week (6,7). However, most adults with arthri-

tis are not sufficiently active, with insufficient activity impacting more women than men (8–11).

Identification of theory-based correlates of activity, with a particular focus on groups with arthritis at high risk for inactivity including women, is needed (9,12–15). Self-efficacy beliefs may be one such correlate (13). According to self-efficacy theory (16), self-efficacy beliefs revolve around people's confidence to organize and execute specific actions needed to produce a given attainment. When the attainment is regularly doing planned physical activity, efficacy in capabilities to self-regulate is a key predictor (13,16–19).

Self-regulation involves individuals exercising control over themselves in order to regularly achieve a desired outcome, such as physical activity (20). To do regular activity, individuals may need to self-regulate across the setting of activity goals, the self-monitoring of goal progress, the scheduling in of activity, and problem solving to cope with barriers (21,22). Individuals who are efficacious in their abilities to self-regulate will expend considerable effort and persistence in such skills, resulting

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in a greater likelihood of meeting their desired activity outcomes (16,19,21,23).

Although associations between self-regulatory efficacy to perform arthritis management behaviors, such as arthritis self-efficacy or self-efficacy for arthritis self-management (24,25), and physical activity have been examined, the findings are inconsistent (26–28). This inconsistency may be partially due to the minimal correspondence between using more general measures of efficacy beliefs about disease management behaviors and the specific behavior of physical activity. Measures of efficacy beliefs more specific to the self-regulatory skills needed to engage in regular physical activity should exhibit stronger and more consistent relationships with activity (16,23). Therefore, examination of self-regulatory efficacy is one means to delve more deeply and identify specific efficacy beliefs that may be very important for doing regular activity as a way to better manage arthritis.

The efficacy of women with arthritis to self-regulate their physical activity by using strategies to cope with perceived barriers was of interest in this study. As Bandura (29) noted, we should be examining individuals who have been successful in their efforts to alter their lifestyle because we can learn from them, as opposed to only studying individuals who have not been successful. Therefore, we examined women with arthritis attempting to engage in moderate activity (i.e., both successful and attempting to be successful). Such women would have some mastery experience in coping with their disease and barriers to activity. Our focus was on the self-regulatory efficacy beliefs these women had about using their own cognitive and behavioral strategies to cope with perceived barriers and be active as planned (30). These self-regulatory beliefs are termed “efficacy to cope” in the remainder of the paper for clarity and brevity.

The extent to which individuals perceive the frequency of barrier occurrence, and the extent to which they limit participation in planned activity, varies. Some barriers may make it hard to do activity, but with the use of effective self-regulatory coping strategies will not totally prevent activity over time. Other barriers might totally prevent participation (31,32). Active and insufficiently active individuals with arthritis perceive general personal barriers (e.g., lack of motivation) and situational barriers (e.g., lack of support) similar to other adult populations (27,33–37). Arthritis-specific personal and situational barriers, such as arthritis pain and a lack of arthritis-specific activity programs, have also been reported (36,37). Unfortunately, quantitative barriers research in samples with arthritis is characterized by some of the same conceptualization and measurement problems that occur in research with other populations (31,32,38).

The main problem is the use of generic barrier lists, which typically include only general types of barriers and require participants to respond to every barrier (27,33,35). Thus, individuals are forced to respond to both relevant and irrelevant barriers. Providing a one-size-fits-all list of general barriers does not adequately measure arthritis-relevant barriers, which have been reported in qualitative research as posing self-regulatory difficulties in deterring

or preventing planned physical activity participation (31,36,37).

Open-ended elicitation procedures may better identify personally relevant barriers that pose frequent self-regulatory difficulties to respondents (31,39). The frequency of barrier occurrence, the extent to which relevant barriers limit participation, and the efficacy to cope with barriers should all be assessed (31,38). Among asymptomatic adult populations, as barriers were experienced with a higher frequency and/or became more limiting and as efficacy to cope with barriers decreased, physical activity declined (39,40).

To our knowledge, the recommended barrier assessment protocols have not been used among the population with arthritis (31). However, the relationship between efficacy to cope with investigator-provided lists of general barriers and physical activity has been examined. Study results have been inconsistent (27,34). This type of approach assesses efficacy to be active if individuals were to experience a barrier, but does not provide any information on how individuals attempt to self-regulate and cope with barriers. In other words, previously used self-regulatory efficacy measures do not capture the ability/coping actions that respondents use to overcome barriers.

Individuals report more accurate efficacy beliefs when considering their confidence to perform specific self-regulatory coping actions (16). The method we suggest and that we used in our study required participants to state their personal strategies and respond about their efficacy for making these strategies successful. Obtaining this type of information may inform theory and provide potentially valuable information for interventions targeting the use of specific, effective coping actions and related improvements in efficacy.

The primary study purpose was to examine whether barrier frequency, barrier limitation, and efficacy to cope were predictors of planned physical activity among adult women with arthritis, who are at particular risk for inactivity (8–15). Based on past research and theory, all variables were expected to predict activity (16,39,40). A secondary study purpose was to provide a phenomenologic description of the self-identified barriers and coping strategies reported by study participants.

PARTICIPANTS AND METHODS

Procedures and design. After study approval by the University Behavioral Research Ethics Board, participants for this observational, cross-sectional study were recruited via study announcements e-mailed to arthritis-specific Web-based chat groups, site visits to arthritis-specific exercise programs, and pamphlets placed in local rheumatologists' offices. Announcements included the study purpose, participant inclusion criteria, the link to the Web-based survey, and encouragement for individuals to forward the Internet address to others.

The survey began with informed consent information. Individuals who provided consent by entering the Web-based survey completed participant inclusion criteria questions, which included 1) having self-reported doctor-

Table 1. Example survey items for barriers and coping

Variable	Survey questions	Response scale
Barriers	Can you think of a barrier that made it hard for you to decide to be active as planned in the last 2 weeks?	Yes or no
Barrier	If 'Yes', please type your barrier. Be very specific when typing your barrier.	Open-ended
Frequency	On average, how often did this barrier come up each week and make it hard for you to decide to be active as planned?	Open-ended
Limitation	On average, how much did this barrier limit you from deciding to do your planned activity?	0–10 (where 0 = did not limit me and 10 = fully limited me)
Coping strategy and efficacy Strategy	What did you try to do or think about in order to try to cope with this barrier?	Open-ended
Efficacy	On average, how sure are you that you could regularly use this strategy to cope?	0–10 (where 0 = not at all sure and 10 = completely sure)

diagnosed arthritis, a credible measure of arthritis prevalence (3), 2) being an adult woman, age ≥ 18 years, and 3) residing in Canada. Individuals satisfying the criteria then completed the survey, which took ~ 20 minutes. The survey was available for 3 months.

Measures. Demographics, physical activity, barrier frequency and limitation, and efficacy to cope were assessed. Because frequency of planned physical activity was the focus of the study, a definition of activity was provided to serve as a reference for participants' responses to the primary study measures. Physical activity was defined as "any type of activity that causes small to large increases in breathing and heart rate, done for at least 10 minutes at a time. Examples of physical activity include, but are not limited to, walking, bicycling, weight training, basketball, running, and doing cardio machines" (41).

Demographics. General and arthritis-specific demographic information was obtained, such as age, income, race, self-reported height and weight, years since being diagnosed by a doctor, limitations in daily activities due to arthritis (i.e., yes, no, or do not know), and pain due to arthritis (i.e., on a scale from 0–10, where 0 = no pain on a typical day and 10 = pain as bad as it can be on a typical day) (42).

Physical activity. Similar to prior research (43), frequency of planned physical activity over the prior 2 weeks was assessed immediately after the control definition. Participants were asked, "On average, how many days each week in the last 2 weeks did you actually do planned physical activity?" Responses ranged from 0–7 days each week.

Barrier frequency and limitation. Similar to previous research (39,43) and based upon recommendations (31,38), a definition of barriers was provided to ensure clarity and common respondent interpretation and perception. Barriers were defined as factors causing indecision about completing planned physical activity (43). After reading the definition, participants indicated whether they could think of ≥ 1 barrier that occurred in the prior 2 weeks and, if so, they could list up to 3 barriers. Barrier frequency was assessed as the average number of times each week that each barrier occurred during the last 2 weeks. Barrier limitation was assessed as the extent to which each barrier limited the participant from engaging in physical activity in the same timeframe. Responses ranged from 0–10 (where 0 = did not limit me and 10 = fully limited me). Examples of the barrier items are provided in Table 1. All participants ($n = 80$) reported at least 1 barrier, with fewer participants reporting multiple barriers (2 barriers, $n = 49$; 3 barriers, $n = 16$). Mean values for barrier frequency and limitation were used in the analyses.

Efficacy to cope. Similar to methods used in prior research (39,43) and based upon recommendations (44), participants listed a cognitive and/or behavioral strategy that they used in attempts to cope with each reported barrier in the prior 2 weeks. Cognitive strategies were defined as what they tried to think about and behavioral strategies were defined as what they tried to do to cope with the reported barrier (39). After providing a strategy, efficacy in capabilities to regularly use the strategy to successfully cope with the corresponding barrier and be active as planned was assessed on a scale from 0–10 (where 0 = not at all sure and 10 = completely sure). For an example of

the coping items, see Table 1. A mean efficacy value was used in the analyses.

Statistical analyses. Means and SDs of the primary study variables (i.e., physical activity, barrier frequency and limitation, and efficacy to cope) were calculated. A hierarchical multiple regression analysis involving 3 steps to predict activity was conducted. The first 2 steps controlled for potential covariates, namely general and arthritis-specific demographic variables, which have been found to be associated with engagement in physical activity (15,45). On step 1, the general demographic variables of age, income, race, and body mass index (BMI) were entered. On step 2, the arthritis-specific demographic variables of limitation in daily activities and pain due to arthritis were entered. On step 3, barrier frequency, barrier limitation, and efficacy to cope were entered.

The phenomenology of the types of barriers and coping strategies reported by the participants were then presented. Three researchers independently categorized each barrier as personal, situational, or unclassifiable (16,43). Personal and situational barriers were also categorized as being general (i.e., common across adult populations) or arthritis-specific (i.e., common to only individuals with arthritis) (38,40). Barriers not similarly categorized were discussed until agreement was reached. Interrater agreement in the initial categorization was 83%.

A similar procedure was followed to categorize the coping strategies. Using definitions outlined in coping theory (46) and similar to prior research (43), 3 researchers independently coded each coping strategy as cognitive, behavioral, a combination of cognitive and behavioral, emotion-focused, or no coping strategy. Strategies were also categorized as general or arthritis-specific. Cognitive coping strategies involved thinking positively in an attempt to cope. Behavioral coping strategies involved the performance of an actual behavior in an attempt to cope. Combination strategies involved using both cognitive and behavioral strategies. Emotion-focused coping involved using strategies that did not directly change the actual situation but rather helped to assign new meaning to the situation. Researchers discussed all coping strategies that were not similarly categorized until agreement was reached. Interrater agreement in the initial categorization was 78%.

The categorized barriers and coping strategies are presented in the Results section. The number of participants reporting each barrier and coping strategy, along with the corresponding average frequency and limitation value for each barrier and corresponding efficacy for each coping strategy, are also reported. These values are reported to aid in interpreting the phenomenologic data.

Participants. Eighty adult women, age 21–75 years (mean \pm SD age 49.09 ± 12.89 years), participated in the study. Participants reported having doctor-diagnosed arthritis for a median of 6–10 years, with most ($n = 77$) reporting daily activity limitations due to arthritis and a moderate level of pain due to arthritis on a typical day (mean \pm SD 5.00 ± 2.00 limitations). Participants were

Table 2. Prediction of physical activity

Predictors	Adjusted R ²	ΔR^2	Standardized β
Step 1	0.02	0.07	
Age			0.21
Income			0.13
Race			-0.00
Body mass index			-0.08
Step 2	0.01	0.01	
Age			0.21
Income			0.12
Race			-0.00
Body mass index			-0.08
Limitation in daily activities			-0.12
Pain due to arthritis			-0.01
Step 3	0.40*	0.39*	
Age			0.10
Income			0.10
Race			-0.05
Body mass index			-0.05
Limitation in daily activities			-0.08
Pain due to arthritis			0.12
Barrier frequency			-0.08
Barrier limitation			-0.56*
Efficacy to cope			0.20†

* $P < 0.01$.
† $P < 0.05$.

mostly white ($n = 69$), married ($n = 40$), and had either a high school degree ($n = 19$) or were university educated ($n = 36$). Median income was \$40,000–49,999/year, and most participants were employed full time ($n = 18$), on disability ($n = 17$), retired ($n = 10$), employed part time ($n = 6$), or self-employed ($n = 5$), had another employment status (n for each status ≤ 3 ; e.g., homemaker, student), or did not report their status ($n = 18$). Participants were overweight, with a mean \pm SD BMI of 28.31 ± 7.56 kg/m².

RESULTS

Primary study variables. Participants engaged in planned physical activity on slightly >3 days in a week (mean \pm SD 3.24 ± 2.12 days). Barriers occurred 3 times each week (mean \pm SD barrier frequency 3.05 ± 2.01) and were moderately limiting to physical activity participation (mean \pm SD barrier limitation 4.40 ± 3.13). Participants were confident in their skills and abilities to use their strategies to successfully cope with barriers and be physically active as planned (mean \pm SD efficacy to cope 6.63 ± 2.66).

Hierarchical multiple regression predicting physical activity. The general demographic variables (i.e., age, income, race, and BMI) entered in step 1 did not significantly contribute to predicting physical activity ($F[4,75] = 1.37$, $P < 0.25$, adjusted $R^2 = 0.02$) (Table 2). Similarly, including arthritis-specific demographic variables in step 2 did

Table 3. Barriers reported by participants (n = 80)*

Barriers	No. (%)	Frequency	Limitation
Personal: arthritis-specific			
Pain/soreness	41 (51)	4.04 ± 1.91	5.43 ± 2.52
Fatigue	30 (38)	3.57 ± 2.22	5.79 ± 3.47
Fear of a flare-up	5 (6)	10 ± 10.40	4.17 ± 3.82
Joint swelling/stiffness	4 (5)	7 ± 8.23	6.00 ± 2.18
Personal: general			
Other commitments	10 (13)	2.07 ± 0.86	5.07 ± 1.43
Lack of time	9 (11)	2.31 ± 1.17	4.92 ± 2.03
Lack of motivation	9 (11)	1.42 ± 0.56	1.92 ± 2.78
Stress	5 (6)	4.25 ± 2.79	5.50 ± 1.05
Physical illness, not arthritis	5 (6)	2.59 ± 1.88	7.63 ± 3.73
Situational: general			
Bad weather	11 (14)	1.43 ± 0.50	3.38 ± 1.03
Icy conditions of sidewalks	7 (9)	1.83 ± 0.81	3.00 ± 0.58
Employment	3 (4)	2.67 ± 1.53	4 ± 1.73
Family commitments	2 (1)	2.75 ± 1.77	3.50 ± 0

* Values are the mean ± SD unless otherwise indicated. Barriers cited by ≥2 participants are presented. Frequency was assessed as the average number of times each week that the barrier occurred over a 2-week period. Limitation was measured on a scale of 0–10 (where 0 = did not limit me and 10 = fully limited me).

not significantly improve the prediction of physical activity ($F[6,73] = 1.08$, $P < 0.39$, R^2 change = 0.01). However, with the addition of barrier frequency, barrier limitation, and efficacy to cope (step 3), the overall model predicting physical activity was significant ($F[9,70] = 6.80$, $P < 0.01$), accounting for 40% of the variance ($P < 0.01$). Barrier limitation and efficacy were the only significant independent predictors in the overall model.

Phenomenology of barriers and coping strategies. The specific types of arthritis-specific general, personal general, and personal situational barriers reported are shown in Table 3. All participants reported ≥1 arthritis-specific barrier, with pain and fatigue due to arthritis being frequently reported. Other arthritis-specific personal barriers included fear of a flare-up and joint swelling/stiffness. Such barriers were perceived as being at least moderately or more limiting to planned physical activity. Arthritis-specific situational barriers were also reported, but infrequently. Such barriers included the lack of arthritis-specific activity programs, doctor's appointments during planned activity, and a doctor's recommendation not to engage in activity ($n = 1$ for each barrier; not included in Table 3). Less than 15% of the sample reported a variety of general personal and situational barriers, with the most common personal barrier being other commitments and the most common situational barrier being bad weather. Overall, these barriers were reported as being less than moderately limiting to planned activity.

The specific types of coping strategies reported as well as the associated efficacy for each strategy are shown in Table 4. The arthritis-specific behavioral coping strategy of modifying physical activity (e.g., reducing intensity, duration, and/or changing the type) was the most frequently reported. Examples of other, less frequently reported arthritis-specific strategies included taking prescribed medication (i.e., behavioral), thoughts about the

arthritis-specific health benefits of activity such as reduced pain and joint stiffness, and thoughts of the arthritic body feeling better in general (i.e., cognitive). Participants were efficacious in their abilities to use their arthritis-specific coping strategies to successfully deal with barriers and be active as planned. The most frequently reported general type of coping strategy was the use of positive self-talk (i.e., cognitive). Participants were moderately confident in their abilities to use their general coping strategies. Few participants reported different types of combination and emotion-focused strategies (i.e., combination: use of hot/cold packs, thinking about feeling better; emotion-focused: choosing not to engage in activity). Few participants reported that they had no coping strategy.

DISCUSSION

As hypothesized, barrier limitation and efficacy to cope were significant, independent predictors of planned physical activity. These findings are similar to prior research with asymptomatic adult populations (39,40,47). Contrary to hypotheses, barrier frequency did not predict activity. Self-efficacy theory (16) offers insight regarding a possible explanation for the study findings. Individuals with high self-regulatory efficacy beliefs to cope may have an altered perception of the limiting impacts of relevant barriers on their planned physical activity participation. Indeed, high efficacy helps to motivate individuals' persistence in overcoming impediments (16,19). Therefore, rather than the frequency of relevant barriers deterring physical activity, the perception of relevant barriers posing self-regulatory difficulties may be the deterrent, as captured by lower efficacy beliefs and higher perceived limitation.

All participants reported arthritis-specific personal barriers, which were also perceived as being moderately or more limiting to planned physical activity. Considerably

Table 4. Coping strategies reported by participants (n = 80)*

Types of coping strategies	No. (%)	Efficacy to cope, mean \pm SD
Cognitive: arthritis-specific		
Arthritic body feeling better in general	15 (19)	8.30 \pm 1.83
Arthritis-specific health benefits	6 (8)	8.25 \pm 0.88
Value and prioritize health due to having arthritis	10 (13)	6.79 \pm 1.98
Cognitive: general		
Positive self-talk	21 (26)	5.88 \pm 3.17
Weight management	4 (5)	5.75 \pm 1.19
Behavioral: arthritis-specific		
Modify physical activity	30 (38)	7.19 \pm 2.55
Sleep/rest	7 (9)	5.63 \pm 1.75
Take prescribed arthritis medication	4 (5)	7.25 \pm 1.77
Behavioral: general		
Plan and schedule physical activity	7 (9)	5.55 \pm 2.53
Take direct action	6 (8)	5.67 \pm 3.30
Seek tangible aid	4 (5)	6.25 \pm 2.48

* Coping strategies cited by at least 2 participants are presented. Efficacy was measured on a scale of 0–10 (where 0 = not at all sure and 10 = completely sure).

fewer participants reported general barriers, with most of these barriers perceived as being less than moderately limiting. The reporting of ≥ 1 arthritis-specific barrier by all study participants and, in particular, of pain by 50% of the sample and fatigue by nearly 40% of the sample, is extremely high and in contrast to the lower reporting of various types of population-specific and general barriers in asymptomatic adult populations (39,40). Disease-related barriers may be common in posing self-regulatory difficulties and limiting activity among women with arthritis. Although qualitative research has reported arthritis-specific barriers (36,37), the present disease-specific results would not have been observed if generic barrier lists were used (31,38).

Study participants used arthritis-specific strategies to deal with barriers, such as the cognitive strategy of thinking about the disease-specific health benefits of activity and the frequently reported behavioral strategy of activity modification. The latter strategy has also been reported in previous focus group research with individuals with arthritis (37) and may be characteristic of this population due to disease flare-ups and associated increases in pain/joint soreness and fatigue. Overall, participants were efficacious in their abilities to successfully use their arthritis-specific coping strategies to deal with a perceived barrier and be active as planned. Although participants also used general types of self-regulatory cognitive and behavioral coping strategies (e.g., direct action) similar to asymptomatic adults in other research (30,43), their confidence to use these strategies was only moderate.

Underscoring the phenomenologic data is the importance of the methodologic point raised earlier; the disease-specific coping responses and self-regulatory beliefs observed in the current study would not have been gathered had we used general measures, as has been done in past research with asymptomatic populations and populations with arthritis. The reporting of higher efficacy in arthritis-specific coping strategies illustrated that participants' dis-

tinct, disease-specific self-regulatory skills may have aided them in dealing with barriers and participating in their planned activities.

Taken together, the specificity of measurement in barrier and coping-related constructs and their correspondence with the outcome of planned physical activity are the reasons for the strong predictive relationships. The current study findings suggest that contrary to past research (15,45), general and arthritis-specific demographics were not significant predictors. The low correspondence between the demographics and activity may account for their low correlation. The advantage of identifying more specific, changeable, theory-based correlates of activity is that once consistently observed, the correlates can be used to inform researchers about their potential for change and consequent impact on planned activity (12).

The present, theory-based study (16,17) was the first to our knowledge among adult women with arthritis to investigate the associations between perceived barriers, self-regulatory efficacy to cope, and activity. The present study used an open-ended elicitation approach for participants with arthritis to report their perceived barriers and was the first to assess their frequency of occurrence and extent of limitation on planned activity. This methodologic protocol alleviated some of the conceptual and measurement problems previously identified in physical activity barriers research (31,38). The focus on efficacy to cope through the use of personal strategies was novel. Based on the number of participants who reported limiting arthritis-specific barriers and who were efficacious in their arthritis-specific coping strategies, using generic or borrowed measures of barriers and coping strategies may not capture the variability and specificity in disease-related responses associated with the physical activity context of women with arthritis (31,38). Standard measures of barriers and efficacy to cope through the use of specific strategies may be produced over time if additional research is conducted that demonstrates consistent and relevant barriers and

effective coping strategies among the population with arthritis.

Although our study offers interesting correlational information, study limitations exist. Any theory-driven conclusions about social cognitive variables causing activity cannot be drawn. The sample primarily represented white, middle-income women, many of whom were moderately active. Generalizing findings to women of different races, incomes, activity levels, and/or who are more disabled by arthritis would be inappropriate. Although the sample size was sufficient to detect a medium-to-large effect (48), having additional participants may have been beneficial. The self-report measure of the frequency of planned activity was also a limitation.

Obtaining an objective assessment of activity frequency, which would correspond with some of the independent variables of interest in the present study (i.e., barrier frequency), should be pursued in future research. Other investigations should include a diverse study sample to determine whether the present findings are reproducible (49) and whether disease severity is a moderator. Other potential moderators, such as pain acceptance (50), should be examined. Pain was reported as a barrier by 50% of the study sample. Women with more pain acceptance may have more self-regulatory resources available to cope with their pain and be active (19,20). Finally, prospective research would provide insight about a possible temporal relationship between barrier limitation, self-regulatory efficacy to cope, and planned activity.

AUTHOR CONTRIBUTIONS

All authors were involved in drafting the article or revising it critically for important intellectual content, and all authors approved the final version to be submitted for publication. Dr. Gyurcsik had full access to all of the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis.

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