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Daily Symptom Management Practices for Arthritis Used by Older Adults

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Abstract

Objective—This article describes the daily self-management practices of older adults with arthritis and examines the association of symptom experience with the use of self-management behaviors.

Method—197 African American and White participants completed a baseline interview and six sets of three follow-up daily-diary interviews at monthly intervals.

Results—Arthritis was reported by 63.5%. Arthritis self-management reported included complementary therapies, over-the-counter (OTC) and prescription medications, foods or beverages, and home remedies. Odds of implementing these self-care practices were greater on days with joint pain, swelling, and stiffness. Although, 78.0% and 72.4% of all participants reported staying in bed or cutting back on activities in response to joint symptoms, these self-management activities were not associated with having arthritis.

Conclusions—Focusing on daily responses to symptoms demonstrates that older adults actively manage arthritis symptoms using a wide variety of measures, including complementary therapies.

Keywords

self-care; rural; complementary and alternative medicine; daily diary method

Introduction

Arthritis is a leading cause of disability in the United States; with the aging of the population, it is expected to affect 67 million adults by 2030 (Centers for Disease Control and Prevention [CDC], 2007b). The prevalence of doctor-diagnosed arthritis is 50% among persons 65 years and older (CDC, 2010). Medical expenditures for arthritis exceed US\$80 billion, with another US\$47 billion in indirect costs such as lost earnings (CDC, 2007a). Treatments of arthritis symptoms range from medications and exercise to total joint replacements. However, cost, access, adherence, and questions about product safety result in arthritis continuing to cause diminished quality of life for many older adults (CDC, 2009; Fitzgerald, 2004; Juni et al., 2004; Pisters et al., 2010).

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To manage pain, stiffness, and accompanying difficulty in carrying out activities of daily living, persons with arthritis use a variety of measures to reduce symptoms and maintain function. These activities include seeking advice and treatment from biomedical and complementary and alternative medical practitioners; taking prescription and OTC medications; using complementary remedies, including both commercially-available and home remedies; and making behavioral changes, such as altering physical activity levels. These activities, together, make up the self-management strategy of an individual. The content of self-management strategies varies according to the age, gender, socioeconomic status, and other characteristics of persons with arthritis (Keefe et al., 2000). Follow-up of individuals diagnosed with arthritis indicates they rapidly adopt medical and lifestyle modifications in attempts to self-manage symptoms and improve quality of life (Grindrod et al., 2010).

Existing U. S. national data have shown that 41% of people aged 45 years and older with arthritis use some form of complementary therapy for arthritis, with consumption of natural products and use of relaxation techniques being the most frequently reported complementary therapy (Quandt et al., 2005). Similar rates have been found elsewhere (Marsh et al., 2009). A recent survey of rheumatologists in the United States found that most were willing to recommend some form of complementary therapy with body work (e.g., massage) and acupuncture perceived as most beneficial (Manek et al., 2010).

Research on arthritis self-management has several limitations. First, it frequently focuses on a narrow set of self-management modalities. Self-management can include the broad categories of remediation (e.g., medication to reduce pain, exercise to reduce stiffness) and accommodation (e.g., rest or activity reduction to accommodate joint pain). However, studies of arthritis self-management frequently focus on only a few modalities without comparing the use of multiple modalities in the same population (Callahan et al., 2009; Quandt et al., 2005; Rao, Kroenke, Mihaliak, Grambow, & Weinberger, 2003). Second, the research literature often fails to distinguish modalities being used for arthritis from those being used for other conditions or for general health promotion and disease prevention. For example, some studies enumerate the complementary modalities used by persons with arthritis (Callahan et al., 2009). Although such data may be important for some purposes, they do little to explicate self-management for arthritis when no information on the relationship of complementary therapy use to arthritis is presented. Third, the research literature addresses self-management as a fairly static set of practices undertaken for arthritis rather than viewing persons with arthritis as active participants in their disease self-management. This runs counter to the view of self-management that recognizes the daily self-care decision making that takes place for all chronic illnesses in which people use or develop self-management strategies grounded in the context of their lives (Arcury et al., 2010; Garro, 1998).

The study described here was undertaken to address these shortcomings. It used a repeated-measures design to document the use of self-management practices by older adults with arthritis for specific symptoms of arthritis, with particular attention to days when the symptoms occurred. Symptom management modalities included those used for active remediation as well as accommodation. The goals of the paper are to (a) summarize the self-management practices reported by older adults with arthritis; (b) compare self-management practices reported for arthritis by gender, ethnicity, income, education, and access to care; and (c) examine the association of symptom experience with the use of self-management behaviors.

Method

Data were collected from adults aged 65 years and older who lived in three rural counties in south-central North Carolina. A repeated-measures design was used in which each participant completed a baseline interview and then completed daily interviews that elicited their use of complementary therapies on three consecutive days at 1-month intervals for 6 months. The design is described in greater detail elsewhere (Arcury et al., 2010). Interview content for complementary therapies and other health behaviors drew on a variety of sources, including formative research conducted prior to the survey (Arcury et al., 2009), existing surveys (e.g., the National Health Interview Survey [NHIS]), and previous research on health self-management conducted by the study team in the study area (Arcury et al., 1996, 2006). All participant recruitment and data collection procedures were approved by the Wake Forest School of Medicine IRB. All participants gave signed informed consent.

Study counties were selected because they included large minority populations, ranging from 50% to 65%. The counties had higher rates of poverty than the state or nation with two of the three counties having poverty rates that exceeded 25%.

The sample included community-dwelling adults who self-identified as African American or White, spoke English and were in sufficiently good health to give informed consent and to complete the series of interviews. The sample design called for the sample to be stratified by ethnicity (African American and White) and sex so that approximately 50 participants were recruited into each ethnic-sex group. The number of Hispanic older adults in these counties is very small, but those who self-identified as White or African American and spoke English were eligible. A site-based procedure (Paterson, Russell, & Thorne, 2001) was used to recruit representative participants. Participants were recruited from 34 sites, including county recreation departments (3 different sites), county social service departments (3), county government meetings (2), senior center and congregate meal sites (3), senior housing complexes (3), social and support clubs (7), churches (6), businesses (5), and polling sites (2). In addition, recruitment included individuals who had participated in previous research studies, who were referred by other participants, and who were referred by community interviewers.

A total of 200 adults completed baseline interviews. Participants included 52 African American women, 48 African American men, 50 White women, and 50 White men. Twelve individuals asked to participate refused, for a participation rate of 94.4%. Because individuals at specific sites could avoid being asked to participate, the actual participation rate may be lower. Nearly 70% (139) of the participants completed each of six sets of the follow-up interviews. Of the 61 (30.5%) participants who completed fewer than the six sets of follow-up interviews, 23 (11.5% of total sample) completed five sets, 5 (2.5%) completed four sets, 5 (2.5%) completed three sets, 12 (6.0%) completed two sets, 11 (5.5%) completed one set, and 5 (2.5%) completed only the baseline interview. The reasons for participants not completing all six sets of follow-up interviews varied. Three participants died, and nine became too ill to continue. Twenty-two participants changed addresses and phone numbers and could not be located. Fifteen participants decided that they did not want to continue.

Data collection was completed by interviewers who had received extensive training. Training was designed to ensure that the interviewers asked the questions as written and accurately recorded the responses provided by the respondent. All participated in an initial training, which included question-by-question review of the questionnaires, practice interviews, and review of practice interviews by study investigators. A sample of baseline interviews in the field were recorded and reviewed by study staff. A sample of telephone interviews were conducted on speaker phone (with respondent's consent) so that study staff

could review and critique the performance of the interviewers. Participants completed baseline, in-person interviews, usually in their homes, between April 2008 and May 2009. Following the baseline, they completed a series of daily-diary follow-up interviews on three consecutive days at intervals of at least 1 month. Participants generally completed follow-up interviews on the telephone. However, follow-up interviews were completed in-person with 33 participants who did not have a telephone ($N = 10$), had poor hearing or other physical limitations ($N = 14$), or who disliked speaking on the telephone ($N = 9$). Follow-up data collection was completed in January 2010. Baseline interviews ranged from 45 to 120 min in length. Follow-up interviews generally took 20 min to complete but ranged in length from 15 to 90 min. Participants were given an incentive valued at US\$10 for completing the baseline interview and each of the first two sets of follow-up interviews. They were given incentives valued at US\$15 for completing each of the third and fourth sets of follow-up interviews and US\$20 for completing each of the fifth and sixth sets of follow-up interviews. The maximum total incentive received by any participant was US\$100.

The baseline survey included demographic and health measures. The latter included the question, “Has a doctor ever told you that you have arthritis?” that was used to classify respondents as having arthritis or not.

For each of the follow-up interviews participants were asked, “In the past 24 hours, did you _____ for your arthritis?” The therapies included pray, take an over-the-counter medicine, eat or drink something special, use some other type of home remedy, use some type of herb or supplement, take a medicine prescribed by a doctor for this condition, take a medicine not prescribed by a doctor, visit a medical doctor, and visit another health professional. The participants were asked to specify the over-the-counter medicine, what they had eaten or drunk, the home remedy, the herb or supplement, and type of other health professional.

Participants were also presented with a list of symptoms on each of the 3 days of the follow-up interviews and asked if they had experienced the symptom in the past 24 hours. These symptoms included three that were considered potential symptoms of arthritis: joint pain, joint swelling, and stiffness. For each of these symptoms that they reported, they were asked “Did you stay in bed or rest for [symptom]?” and “Did you cut back on your usual activities for [symptom]?”

Personal characteristics used to describe the sample include sex, ethnicity (African American, white), age, marital status (currently married, not currently married), educational attainment (less than high school, high school, more than high school), and migration status (always lived in the South, lived outside the South). Measures of health care characteristics included the presence of any of 17 physician-diagnosed chronic conditions. The list of conditions was based on those included in the Charlson Index (Charlson, Pompei, Ales, & MacKenzie, 1987), supplemented with other conditions commonly occurring in older adults (e.g., osteoporosis, urinary or bladder problems). Conventional health care characteristics included usual source of medical care (doctor’s office, hospital emergency department, hospital outpatient department, community health center, public clinic, other).

Statistical Analysis

All analyses were performed using SAS v9.2 (SAS Institute, Cary, NC). Descriptive statistics of baseline characteristics and use of types of self-care for arthritis at any point in follow-up are presented as frequency and percentage for categorical variables. Unadjusted odds of use of a therapy for arthritis or an arthritis-related symptom at any point in follow-up in relation to personal characteristics, specific chronic conditions, and usual source of medical care were compared using a Chi-square test and determined in PROC GENMOD, the SAS procedure for generalized linear models. Days with an arthritis-related symptom

and frequency and percentage of daily interviews where a specific type of care was used to treat arthritis are summarized along with number and percentage of participants who had an arthritis-related symptom and cutback on activities or stayed in bed or rested in response to that symptom.

Ensuing analyses for repeated measures outcomes from interviews on three consecutive days at 1 month intervals for 6 months were conducted using the Generalized Estimating Equation (GEE) approach implemented in PROC GLIMMIX to adjust for correlation between repeated measurements on the same participant. Days nested within a month were specified as a random effect in all the models. Type I error rate was fixed at 0.05.

For participants with arthritis, the four dichotomous repeated measures outcomes indicating the daily use of prayer, OTCs, eat or drink something or use of a home remedy, and use of any prescription in response to arthritis were modeled separately to determine the odds of presence or absence of an arthritis-related symptom on that day when the therapy was used for arthritis after adjusting for sex, age, race, education, and marital and migration status. Types of care that very few participants used (taking herbs or supplements and consulting a doctor) were not modeled due to small cell sizes. Autoregressive (1) was specified as the dependent structure for the variance-covariance matrix.

The remaining two dichotomous repeated-measures outcomes for daily use of staying in bed/resting and cutting back on usual activities in response to an arthritis-related symptom used the entire sample of interviews. Participants with and without arthritis were compared after adjusting for sex, age, race, education, and marital and migration status as well as baseline depression. Compound symmetry was specified as the dependent structure for the variance-covariance matrix.

Results

Of the 200 participants recruited for the parent study with at least one follow-up interview, 127 reported at baseline that a doctor had told them they had arthritis. Slightly more than half of the persons with arthritis were female (54.3%) and White (53.5%). They ranged in age from 64 to 91, with 59.1% less than 75 years of age. Most (59.8%) were currently not married, had a high school or less education (52.8%), and reported having always lived in the South (59.1%). A large proportion reported other comorbidities typical of an older population. Heart disease was reported by 40.9%, high blood pressure by 82.7%, diabetes by 33.9%, and depression or other mental condition by 22.0%. Most (87.4%) reported usually visiting a doctor's office for medical care.

Reviewing all 2,010 days of follow-up among the participants with arthritis, the self-care practice for arthritis most commonly reported by participants was prayer, reported by 87.4% of the participants at some time during follow-up. OTC medications were reported by 80.3% of the sample. Most of those reporting OTC medications reported OTC pain pills (71.7%), but 29.9% of the sample reported using some type of OTC that was applied topically as a rub. Prescription pain medications were reported by 79.5%. Foods or beverages (e.g., honey, tea, raisins, vinegar) were reported by 15.0%. Home remedies (e.g., soap, peroxide, Epsom salts) were reported by 27.6%. Only 20.5% reported taking herbs or other supplements. Glucosamine or chondroitin was the most commonly reported supplement (8.7%). Less than one in five (18.1%) reported consulting a doctor or other health professional for arthritis on any day; medical doctors were consulted by 14.2% and other health professionals by 6.3%. Staying in bed or cutting back on usual activities were reported by 78.0% and 72.4%, respectively, in response to joint pain, joint swelling, or stiffness.

In bivariate analyses of those who reported a self-care practice for arthritis on any day of follow-up, those who were African Americans, had a high school or lower education, and had always lived in the South had significantly higher odds of using prayer for arthritis (Table 1). Using an OTC medication was not associated with any participant characteristic, nor was using a food or beverage remedy or a home remedy. Those who were currently married had significantly lower odds of using prescription medications; those with a high school education or less and with heart disease had significantly higher odds of using prescription medications. No data are shown for any herbs or other supplements or for any health consultation because the numbers of days with reported use were so small. The only significant association of either with personal characteristics was less use of herbs or supplements by those with high school education or less ($OR = 0.2$; $CI [0.07, 0.53]$).

In bivariate analyses of the total sample of 195 participants (including both those with and without arthritis), those with less than high school education and depression or other mental condition had significantly higher odds of staying in bed or resting and cutting back on activities in response to their arthritis-related symptoms (Table 2). Notably, participants with arthritis had significantly lower odds both of staying in bed or resting and of cutting back on activities in response to one of the four arthritis-related symptoms.

Out of a total of 2,010 person-days of follow-up interviews among the 127 participants with arthritis, joint pain was reported on 815 days (40.5%, see Table 3), and joint swelling on 319 (15.9%) days. Stiffness was reported on 531 days (26.4%). Prayer was the most commonly reported self-care measure used for any of the symptoms, with use ranging from about two-thirds to three-quarters of the sample, depending on the symptom. Use of OTC medications and prescription medications were the next most common responses to symptoms, followed by use of food or beverage or home remedy which were used on fewer than one-fifth of follow-up days. Herbs or other supplements were used on less than one-tenth of symptoms days, and health consultation was reported on less than 2% of symptoms days (results not shown). In general, joint swelling was the symptom that seemed to produce the most implementation of self-care.

In multivariate analyses, examining the association of odds of implementing self-care measures on days when symptoms occurred, prayer and OTC were significantly associated with joint pain and stiffness (Table 4). Any food or beverage or home remedy as well as prescription use were significantly associated with joint pain, joint swelling and stiffness.

Table 5 shows the percentage of participants with and without arthritis who stayed in bed or cut back on activities on days when they reported the three arthritis-related symptoms. Both activity modifications were reported less frequently in response to joint pain by those with arthritis. Both activity modifications were reported more frequently in response to joint swelling and stiffness by those with arthritis. In multivariate analyses, neither staying in bed nor resting and cutting back on usual activities for an arthritis-related symptom was associated with having arthritis after adjusting for demographic variables. In analyses (not shown) that included adjusting for depression, results were not significantly different.

Discussion

An estimated 50 million persons in the U. S. report having doctor-diagnosed arthritis, including at least half of those 65 years of age and older (CDC, 2010). Although arthritis diagnosis is more common in Whites than minorities, the latter report greater activity limitation (CDC, 2010). The chronic pain and reduced functional status associated with arthritis make patients with arthritis likely to practice a range of self-care behaviors, including the use of complementary therapies. Previous analyses of clinical samples have

shown arthritis patients reporting using complementary therapies (Arcury & Quandt, 1999; Marsh et al., 2009; Vecchio, 1994), though only a few studies (e.g., Callahan et al., 2009) have attempted to directly link the use of such therapies to arthritis symptoms. Population-based samples, such as the NHIS, have shown that, although persons with arthritis use more complementary therapies than those without arthritis, most of their complementary therapy use is not specifically for arthritis (Quandt et al., 2005). In the 2002 NHIS data, 29% of adults 45 years or older with arthritis reported any complementary therapy use in the past year. This is somewhat higher than the current study, which may be accounted for by the inclusion of younger persons and use of a retrospective one year recall period in the NHIS.

Existing reports of self-management in persons with arthritis have not considered complementary therapies as part of the wide range of practices likely used to deal with arthritis symptoms, including OTC and prescription pain relievers and activity modifications. The current study was designed to do so. It found that practices typically considered complementary or alternative (e.g., use of herbs and supplements) were reported by one in five for the treatment of arthritis or arthritis symptoms. However, other self-care practices were more frequently used. Some of these—food or beverages as remedies and home remedies—would fall under many definitions of complementary therapies. In contrast to the recommendations of rheumatologists for use of body work and acupuncture, there were no reports of either therapy in this sample. However, the common use of topical treatments, OTCs as well as home remedies, suggests that these older adults could be using massage as they apply the remedies. Failure to use acupuncture and bodywork may be due, in part, to low numbers of such practitioners in the rural communities in which the research was conducted. A review of acupuncturists licensed by the state of North Carolina shows that most are located in the largest cities or in areas of the state with high concentrations of wealthy in-migrants (e.g., Asheville). Although the state licensing board for massage and bodywork therapy does not publish a list of licensees, board-approved schools, with very few exceptions, are located in the same urban and high income areas as acupuncturists.

These results shed light on the decision-making process older adults with arthritis likely use in responding to symptoms. On days with symptoms, they are more likely to take prescription medications as well as use OTCs, prayer, and remedies. This supports the notion that people with chronic illnesses are active problem solvers and that they respond to symptoms with a broad array of responses. These responses include those based on information and resources from the conventional health care system (e.g., prescription medications). These findings also show the role of life experiences and cultural context on self-management of symptoms. These older adults choose symptom management practices from resources that develop over their life history and from experience in the cultural milieu of which they are a part: they use food and beverage remedies that are common in the area (Arcury, Bernard, Jordan, & Cook, 1996; Rao et al., 1999) and use prayer, also a common feature of daily life in this population (Arcury, Gesler, & Cook, 1999). Leventhal and colleagues propose that people with chronic disease develop “common sense models” of the disease, which they use to decide how to manage their condition (Arcury, Quandt, McDonald, & Bell, 2000; Cameron & Leventhal, 2003; Leventhal, Halm, Horowitz, Leventhal, & Ozakinci, 2004). Such common sense models have their origin in personal experience and cultural context. Paterson and colleagues (2001) argue that such an approach to self-care for chronic disease is preferable to a more static view of chronic disease patients as being compliant or noncompliant with direction from conventional medicine.

Most previous studies of arthritis self-management have not included activity modification as a symptom management process. These results show that people who report having arthritis are actually less likely to report reduced activity when suffering from arthritis symptoms than are those who do not have arthritis. This adds further support for the picture

of people with arthritis managing symptoms in the context of their daily lives and with experience built up over previous symptom episodes. The results suggest that persons with arthritis may have access to other resources (e.g., medications, home remedies) that relieve symptoms. Alternatively, they may appraise these symptoms differently and maintain their activity level despite experiencing pain, swelling, or stiffness. This could be due to different expectations for relief, based on having been diagnosed with arthritis, or on different expectations of themselves for normal activity levels.

These results suggest that clinicians should work with patients to maximize their activity and quality of life through a variety of strategies to control arthritis symptoms. Although groups such as the Arthritis Foundation and the American College of Rheumatologists recommend acupuncture, massage and other therapies for managing arthritis symptoms, these may not be available, familiar, and acceptable to all patients. Patients may choose to complement standard medical treatments with home remedies, prayer, and other traditional therapies instead.

These results should be interpreted in light of study limitations. The study was conducted among older adults in the rural southeastern United States. Findings might differ in samples of younger persons or those with a different cultural background. Although the sampling and recruitment strategy were designed to recruit a sample broadly representative of the study counties, the sample was not a random sample from the population. Nevertheless, this study has several strengths. It was composed of members of two ethnic groups and both men and women to allow exploration of within population variability. The study design produced a large body of prospectively collected data on self-management behaviors to minimize problems of respondent recall. Perhaps most importantly, the sample was from the general population. Thus, it avoided the problems inherent in trying to understand the behavior of older adults from the subset who seeks medical care or from those whose self-care focuses on complementary therapies.

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Table 1
Bivariate Comparisons of Daily Reported Use of Self-Care for Arthritis by Older Adults With Arthritis in Three Rural North Carolina Counties, 2008–2009

Characteristics	Prayer		Any over-the-counter medication		Any food/beverage or home remedy		Any prescription	
	n (%)	OR (95% CI)	n (%)	OR (95% CI)	n (%)	OR (95% CI)	n (%)	OR (95% CI)
Sex								
Female	61 (88.4)	1.22 [0.43, 3.48]	59 (85.5)	2.06 [0.84, 5.02]	22 (31.9)	1.13 [0.53, 2.41]	57 (82.6)	1.51 [0.64, 3.59]
Male	50 (86.2)	—	43 (74.1)	—	17 (29.3)	—	44 (75.9)	—
Ethnicity								
African American	56 (94.9)	4.41 [1.19, 16.34]	51 (86.4)	2.12 [0.84, 5.36]	19 (32.2)	1.14 [0.54, 2.43]	48 (81.4)	1.23 [0.52, 2.95]
White	55 (80.9)	—	51 (75.0)	—	20 (29.4)	—	53 (77.9)	—
Age								
64 to 74 years	65 (86.7)	0.85 [0.29, 2.50]	58 (77.3)	0.62 [0.25, 1.57]	18 (24.0)	0.47 [0.22, 1.00]	61 (81.3)	1.31 [0.55, 3.11]
75 years and older	46 (88.5)	—	44 (84.6)	—	21 (40.4)	—	40 (76.9)	—
Marital status								
Currently married	44 (86.3)	0.84 [0.29, 2.43]	40 (78.4)	0.82 [0.34, 1.99]	17 (33.3)	1.23 [0.57, 2.64]	36 (70.6)	0.41 [0.17, 0.98]
Not currently married	67 (88.2)	—	62 (81.6)	—	22 (28.9)	—	65 (85.5)	—
Educational attainment								
High school or less	63 (94.0)	3.94 [1.2, 12.97]	56 (83.6)	1.55 [0.64, 3.74]	20 (29.9)	0.92 [0.43, 1.95]	58 (86.6)	2.55 [1.04, 6.26]
More than high school	48 (80.0)	—	46 (76.7)	—	19 (31.7)	—	43 (71.7)	—
Migration status								
Always lived in South	71 (94.7)	5.32 [1.61, 17.61]	62 (82.7)	1.43 [0.59, 3.45]	20 (26.7)	0.63 [0.29, 1.35]	58 (77.3)	0.71 [0.29, 1.75]
Lived outside South	40 (76.9)	—	40 (76.9)	—	19 (36.5)	—	43 (82.7)	—
Specific chronic conditions								
Heart disease	48 (92.3)	2.29 [0.69, 7.53]	41 (78.8)	0.86 [0.35, 2.07]	13 (25.0)	0.63 [0.29, 1.38]	46 (88.5)	2.79 [1.03, 7.52]
High blood pressure	92 (87.6)	1.12 [0.29, 4.31]	83 (79.0)	0.6 [0.16, 2.20]	34 (32.4)	1.63 [0.55, 4.78]	85 (81.0)	1.59 [0.55, 4.59]
Diabetes	37 (86.0)	0.83 [0.28, 2.47]	35 (81.4)	1.11 [0.44, 2.83]	15 (34.9)	1.34 [0.61, 2.94]	33 (76.7)	0.78 [0.32, 1.90]
Depression or other mental condition	24 (85.7)	0.83 [0.24, 2.80]	20 (71.4)	0.52 [0.2, 1.37]	7 (25.0)	0.7 [0.27, 1.81]	24 (85.7)	1.71 [0.54, 5.47]
Usual source medical care								
Doctor's office	97 (87.4)	0.99 [0.2, 4.82]	89 (80.2)	0.93 [0.24, 3.56]	35 (31.5)	1.38 [0.42, 4.59]	88 (79.3)	0.88 [0.23, 3.36]
Other	14 (87.5)	—	13 (81.3)	—	4 (25.0)	—	13 (81.3)	—

Note. n = 127 who report at baseline having arthritis and have at least one follow-up, at any point during follow-up.

Bivariate Comparisons of Daily Reported Use of Self-Care for Arthritis-Related Symptom by Older Adults With Arthritis in Three Rural North Carolina Counties, 2008–2009

Table 2

Characteristics	Stay in bed or rest				Cut back on activities			
	N	%	OR	95% CI	N	%	OR	95% CI
Sex								
Female	65	67.0	1.18	[0.65, 2.13]	64	66	1.65	[0.92, 2.94]
Male	62	63.3	—		53	54.1	—	
Ethnicity								
African American	66	71.0	1.64	[0.90, 2.99]	60	64.5	1.44	[0.81, 2.56]
White	61	59.8	—		57	55.9	—	
Age								
64 to 74 years	77	66.4	1.15	[0.63, 2.08]	69	59.5	0.95	[0.53, 1.70]
75 years and older	50	63.3	—		48	60.8	—	
Marital status								
Currently married	53	66.3	1.09	[0.60, 1.98]	47	58.8	0.92	[0.51, 1.64]
Not currently married	74	64.3	—		70	60.9	—	
Educational attainment								
High school or less	68	73.9	2.11	[1.15, 3.88]	64	69.6	2.16	[1.20, 3.88]
More than high school	59	57.3	—		53	51.5	—	
Migration status								
Always lived in South	77	67.0	1.22	[0.67, 2.21]	74	64.3	1.55	[0.87, 2.78]
Lived outside South	50	62.5	—		43	53.8	—	
Specific chronic conditions								
Arthritis	99	78.0	0.20	[0.10, 0.38]	92	72.4	0.22	[0.12, 0.41]
Heart disease	48	66.7	1.11	[0.60, 2.06]	45	62.5	1.18	[0.65, 2.14]
High blood pressure	104	66.2	1.28	[0.62, 2.65]	96	61.1	1.27	[0.62, 2.61]
Diabetes	43	60.6	0.73	[0.40, 1.34]	40	56.3	0.79	[0.44, 1.43]
Depression or other mental condition	31	88.6	5.17	[1.74, 15.34]	29	82.9	3.95	[1.56, 10.05]
Usual source of medical care								
Doctor's office	114	66.3	1.51	[0.63, 3.66]	107	62.2	2.14	[0.89, 5.16]
Other	13	56.5	—		10	43.5	—	

Note. $n = 195$ with at least one follow-up.

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Table 3

Association of Daily Arthritis Symptoms and Use of Self-Care for Arthritis by Older Adults With Arthritis in Three Rural North Carolina Counties, 2008–2009

Symptoms	Days ^a with symptom		Prayer		Any over-the-counter medication		Any food/beverage or home remedy		Any prescription	
	N		N (%) ^b		N (%)		N (%)		N (%)	
Joint pain	815		543 (66.6)		426 (52.3)		95 (11.7)		419 (51.4)	
Joint swelling	319		231 (72.4)		185 (58.0)		55 (17.2)		178 (55.8)	
Stiffness	531		396 (74.6)		270 (50.9)		75 (14.1)		279 (52.5)	

Note. *n* = 127 who report at baseline having arthritis and have at least one follow-up.

^aFrom a total of 2,010 person-days of interviews.

^bN for each type of self-care represents number of person-days where care was used. Each participant can have up to 18 person-days of interviews.

Table 4

Association of Presence of Arthritis-Related Symptom on Day Type of Care Used in Response to Arthritis by Older Adults in Three Rural North Carolina Counties, 2008–2009

	<u>Prayer</u>	<u>Any over-the-counter medication</u>	<u>Any food/beverage or home remedy</u>	<u>Any prescription</u>
Symptoms ^a	<i>OR</i> (95% CI) ^b	<i>OR</i> (95% CI) ^b	<i>OR</i> (95% CI) ^b	<i>OR</i> (95% CI) ^b
Joint pain	1.33 [1.09, 1.64]	1.70 [1.40, 2.07]	1.62 [1.08, 2.45]	1.56 [1.27, 1.91]
Joint swelling	1.17 [0.85, 1.62]	1.26 [0.95, 1.66]	2.45 [1.38, 4.36]	1.46 [1.10, 1.93]
Stiffness	1.55 [1.19, 2.03]	1.46 [1.15, 1.86]	2.30 [1.56, 3.39]	1.35 [1.10, 1.66]

Note. *n* = 127 who report at baseline having arthritis and have at least one follow-up.

^aFrom a total of 2,010 person-days of interviews.

^bModel adjusted for baseline age category, race, gender, education, and migration and marital status.

Association of Baseline Arthritis and Type of Care Used in Response to Daily Arthritis-Related Symptoms by Older Adults in Three Rural North Carolina Counties, 2008–2009

Table 5

Symptom	Days ^a with symptom	Stay in bed			Cut back on activities		
		Without arthritis N (%)	With arthritis N (%)	OR (95% CI) ^b of having arthritis	Without arthritis N (%)	With arthritis N (%)	OR (95% CI) ^b of having arthritis
Joint pain	945	59 (45.4)	300 (36.8)	0.95 [0.50, 1.80]	46 (35.4)	239 (29.3)	0.91 [0.48, 1.75]
Joint swelling	407	38 (43.2)	147 (46.1)	1.36 [0.56, 3.34]	27 (30.7)	108 (33.9)	1.40 [0.53, 3.68]
Stiffness	652	19 (15.7)	102 (19.2)	1.08 [0.49, 2.40]	14 (11.6)	110 (20.7)	2.02 [0.77, 5.28]

Note. n = 197 with at least one follow-up.

^aFrom a total of 3,070 person-days of interviews.

^bModel adjusted for baseline age category, race, gender, education, and migration and marital status.