Published in final edited form as:

J Aging Health. 2012 June ; 24(4): 569–597. doi:10.1177/0898264311428168.

Older Adults' Self-Management of Daily Symptoms: Complementary Therapies, Self-Care, and Medical Care

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Abstract

Objectives—To describe older adults' use of complementary therapies, self-care practices, and medical care to treat daily symptoms and to delineate gender, ethnic, age, and education differences.

Method—A total of 200 African American and White participants (age 65+) selected using a site-based procedure complete a baseline interview and up to six sets of three daily follow-up interviews at monthly intervals. The percent of older adults using a therapy and the frequency with which therapies are used are considered.

Results—The use of complementary therapies to treat daily symptoms, though important, is substantially less than the use of self-care practices and medical care. Participants differed by age, ethnicity, and education in the use of therapies.

Discussion—In considering the percentage of individuals who use a therapy and the frequency with which therapies are used, this analysis adds a new dimension to understanding how older adults manage daily symptoms. Older adults are selective in their use of health self-management.

Keywords

health self-management; complementary therapies; rural aging

Introduction

Over the past two decades the use of complementary therapies has garnered substantial attention as this use affects the use of conventional health care (Eisenberg et al., 1998). Prevalence data for complementary therapy utilization indicate that many of these therapies

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Declaration of Conflicting Interests The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

are widely used in the general adult population. For example, results from the 2002 and 2007 National Health Interview Surveys (NHIS) indicate that about 38% of adults use complementary therapies (excluding prayer) over the preceding year (Barnes, Bloom, & Nahin, 2008; Barnes, Powell-Griner, McFann, & Nahin, 2004).

The use of complementary therapies by older adults is of special interest because of the increasing prevalence of illnesses and chronic conditions associated with aging and the cost of health care. The use of complementary therapies is prevalent among older adults (Arcury et al., 2006; Astin, Pelletier, Marie, & Haskell, 2000). An analysis of the 2002 NHIS found that 27.7% of older adults use any complementary therapy (excluding prayer), with 15.6% using a biological-based therapy, 7.6% using a body-based or manipulative therapy, 11.7% using a mind-body therapy, and 0.3% using an energy therapy (Arcury et al., 2006). The use of complementary therapies among older adults varies by gender, ethnicity, age, and education. More women than men use complementary therapies (Arcury, Grzywacz et al., 2007; Arcury et al., 2006). Asian and Latino elders use most forms of complementary therapies more than African American and White older adults (Arcury, Grzywacz et al., 2007; Loera, Black, Markides, Espino, & Goodwin, 2001; Najm, Reinsch, Hoehler, & Tobis, 2003). More African American than White older adults use home remedies (Grzywacz et al., 2006). Complementary therapy use is associated with increasing education (Astin et al., 2000; Najm et al., 2003). Although a decline in use of complementary therapies is often reported for older adults compared to middle-aged adults (Astin, 1998; Bausell, Lee, & Berman, 2001; Ni, Simile, & Hardy, 2002), closer analysis has shown that the decline in use is among those 75 and older (Arcury et al., 2006).

Measurement of complementary therapy use prevalence among community-dwelling older adults is a complex challenge (Arcury et al., 2011). Many studies of complementary therapy utilization rely on clinical samples—often focusing on the use of complementary therapies for a specific condition that is sufficiently severe to require specialist care, for example, in treating arthritis (Callahan, Freburger, Mielenz, & Wiley-Exley, 2008) or cancer (Davis et al., 2010). Observational studies of the community-dwelling older adults often rely on gross measures of complementary therapy use, such as lifetime use of general modalities, or use of modalities in the past year or 3 months.

Conceptually, utilization of complementary therapies is a component of health self-management (Arcury et al., 2009; Arcury, Quandt, McDonald, & Bell, 2000; Grzywacz et al., 2005; Thorne, Paterson, Russell, & Schultz, 2002; Votova & Wister, 2007). The conceptual basis of health self-management is that individuals have agency in taking care of their health; they make decisions of what to do or not to do about their health, any chronic conditions that they may have, and any symptoms that they may experience (Clark, 2003; Clark et al., 2008; Ory, DeFries, & Duncker, 1998; World Health Organization, 1983). Some individuals may decide to do nothing or to maintain behaviors that are detrimental to their health; for example, they choose not to be physically active although they are able to be physically active. Decisions that older adults make about including complementary therapies within their self-management practices are influenced by the place of complementary therapies within their explanatory models or commonsense models of health and illness (Kleinman, 1980; Leventhal, Halm, Horowitz, Leventhal, & Ozakinci, 2004).

Research regarding the ways in which older adults include complementary therapies in their health self-management has been very general, due in part to the difficulty in measuring actual use. Stoller and colleagues (Stoller & Forster, 1992; Stoller, Forster, & Portugal, 1993) provide a foundation for research on this topic. These investigators found that older adults largely managed symptoms themselves. For many symptoms, the older adults took no action for treatment. When they took an action, the older adults most frequently reported

using over-the-counter and prescription medicines and activity limitation. However, the studies by Stoller and colleagues did not address use of complementary therapies. Evidence from the 2002 NHIS indicates that older adults' use of manipulative and body-based methods (e.g., chiropractic) and mind-body methods complements rather than replaces use of conventional treatments (Grzywacz et al., 2008), but this research offers little insight into the therapies and practices used by older adults to respond to specific health problems.

This article uses repeated-measures data of daily symptoms and treatment collected from a multiethnic sample of rural older adults to address two specific aims. First, it describes older adults' use of complementary therapies, other self-care practices, and medical care use in response to daily symptoms. In doing so, two perspectives are taken: The first describes the percentage of older adults using each strategy, and the second describes the frequency of use among users of discrete therapies. Second, it determines differences among rural older adults in the use of complementary therapies, other self-care practices, and medical care practices to treat daily symptoms by gender, ethnicity, age, and educational attainment.

Method

Sampling and data collection have been documented in detail elsewhere (Arcury et al., 2011), and are summarized here. Data collection focused on older adults (aged 65 and older) who lived in three rural counties in south-central North Carolina. Participant recruitment and data collection procedures were approved by the Wake Forest School of Medicine Institutional Review Board, and all participants gave signed informed consent.

Locale

The study counties were selected because they included large minority populations (50%–65% minority) and have higher rates of poverty, with two of the counties having poverty rates that exceed one quarter of the county's population. These counties also represent variation on the urban-rural continuum (http://www.ers.usda.gov/Data/RuralUrban_Continuum_Codes/2003/), such that one is in a metropolitan area with an urban population of 2,500 to 19,999, one is a nonmetropolitan county with an urban population of 20,000 or more, and one is a nonmetropolitan county with an urban population of 2,500 to 19,999.

Sample

The sample included community-dwelling older adults who self-identified as African American or White, spoke English, could give informed consent, and could complete the series of interviews. There were no exclusion criteria. The sample was stratified by ethnicity (African American and White) and sex so that approximately 50 participants were recruited into each ethnic-sex group. A site-based procedure (Arcury & Quandt, 1999) was used to recruit representative participants. Sites are places, organizations, or services used by members of the population of interest. Participants were recruited from 34 sites. The types of sites at which older adults were recruited to this study included 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. Lists of potential participants were developed from these sites and stratified by gender and ethnicity. Interviewers contacted potential participants in the order in which they were listed.

A total of 200 adults completed baseline interviews. Determination of statistical power for a sample of this size is based on the general estimating equations (GEE) approach for analyzing correlated binary data collected over a 6-month period. For each outcome measure, the comparison of interest is the mean level of response rates between two groups, defined either by gender or ethnicity. Using the formulas derived by Pan (2001), with 5% Type 1 error rate and 80% power, a sample size of 100 for each group provides sufficient power to detect a moderate effect size of 0.2 between the two proportions for a small-to-moderate correlation as well as power to detect a smaller effect size of 0.15 for a low correlation of 0.2.

Participants included 52 African American women, 48 African American men, 50 White women, and 50 White men. Twelve individuals asked to participate refused, and this led to 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 6 sets of the follow-up interviews. Of the 61 (30.5%) participants who completed fewer than the 6 sets of follow-up interviews, 23 (11.5% of total sample) completed 5 sets, 5 (2.5%) completed 5 sets, 5 (2.5%) completed 3 sets, 12 (6.0%) completed 2 sets, 11 (5.5%) completed 1 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

Data collection was completed by interviewers who had received extensive training. 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.

Measures

The baseline survey included demographic and health measures, including gender, ethnicity, age, and educational attainment. At each follow-up interview, participants were asked whether they had experienced each of 40 symptoms. For this analysis, symptoms were grouped into eight categories: (1) general symptoms (fever, headache, weakness, feeling tired), (2) upper respiratory symptoms (runny nose, sore throat, cough), (3) cardiorespiratory symptoms (shortness of breath, heart palpitations, chest pain), (4) gastrointestinal symptoms (trouble swallowing, stomach pain, constipation, diarrhea, heartburn, indigestion-gas-bloating, nausea-vomiting, rectal bleeding-blood in stool), (5) musculoskeletal symptoms (neck-back pain, joint pain, joint swelling, stiffness), (6) nervous system symptoms (numbness, dizziness, fainting-blackening out, lightheadedness, altered speech, loss of vision), (7) mental health symptoms (difficulty sleeping, nervousness-anxiety, feeling sad-depressed,

low energy, poor appetite), and (8) genitourinary symptoms (painful urination, difficulty urinating, incontinence, blood in urine). Finally, participants were categorized as to whether they experienced any symptom. Measures for these nine categories include whether a participant reported experiencing one or more symptoms within a category on at least 1 day of the follow-up interviews and the number of days (0 to 18) the participant reported experiencing a symptom in the category.

Participants were asked which of 11 therapies they used for each symptom they reported. Questions for each type of therapy were open ended, and interviewers used probing questions to ensure eliciting all therapies that were used. Three therapy types were included: (1) Complementary therapies included home remedies, herbs or supplements (excluding vitamins), other health professionals (e.g., chiropractor), and prayer; (2) self-care practices included ignoring symptoms, over-the-counter medicines, food or beverage, rest, and nonprescribed medicines (not prescribed for this symptom); and (3) medical care included visiting a physician and taking prescribed medicine. Measures included whether the participant ever used a specific therapy for each symptom group experienced and the number of days (0 to 18) they used a specific therapy for each symptom group experienced.

Analysis

All analyses were performed using SAS v9.2 (SAS Institute, Cary, NC). Descriptive statistics of baseline characteristics of participants (Table 1) are presented as frequency and percentage for categorical variables. Use of therapies when participants experienced symptoms is reported in two ways in Table 2: (1) number of participants who used each therapy and as a percentage of those reporting the symptom, and (2) mean percentage and standard deviation of days the therapy was used. Bivariate analyses examining the relationship between the use of therapies and demographic characteristics were restricted to participants who experienced any symptoms during 6-month follow-up. Percentages of participants who used various therapies are reported with *p* values from the chi-square test. Mean percentage of days with symptom are reported with *p* values from weighted regression analysis. The weight and proportion of total interview days are calculated as the number of interview days over the 6-month follow-up divided by the total number of interview days for the whole sample so that the sum of individual weights equals to 1. Type 1 error rate was fixed at 0.05. For exploratory analysis, borderline significance was noted with *p* value < .10.

Results

Participant Characteristics

By design, participants were about evenly divided between women (51.0%) and men (49.0%) and African American (48.5%) and White (51.5%) older adults (Table 1). Most were aged 65 to 74 years (59.5%), with 40.5% aged 75 years and older. About half (47.0%) had a high school education or less, and 53.0% had education beyond high school.

Therapy Use

Most (99.0%) of the participants reported at least one symptom during the follow-up interviews (Table 2). Most (80.0%) reported general symptoms, 77.9% reported upper respiratory symptoms, 39.5% reported cardiorespiratory symptoms, 74.4% reported gastrointestinal symptoms, 90.8% reported musculoskeletal symptoms, 55.4% reported nervous system symptoms, 77.9% reported mental health symptoms, and 31.8% reported genitourinary symptoms. Therapy use for these symptoms is described from two perspectives. First, the table reports the percentage of older adults who experienced a symptom and used a therapy to treat that symptom at least once. Second, the table reports the mean number of days the older adults used a therapy if they used it at all. A substantial

percentage of those experiencing symptoms used complementary therapies in treating those symptoms at some time over the 6-month period. However, with the exception of prayer, far fewer older adults used complementary therapies, preferring them over other self-care practices or medical care to treat these daily symptoms. About a third (32.6%) of the participants who experienced any symptom used a home remedy to treat that symptom, and they used home remedies to treat these symptoms for an average 24.2% of the days they had a symptom. The most common symptoms for which older adults used home remedies were upper respiratory symptoms. Home remedies were used by 13.2% of the older adults for an average of 32.7% of the days they had upper respiratory symptoms, 8.9% of the older adults for an average of 35.4% of the days they had gastrointestinal symptoms, and 23.2% of the older adults for an average of 32.9% of the days they had musculoskeletal symptoms. About one quarter (25.9%) of those who experienced any symptom used an herb or supplement for treatment, and they used the herb or supplement for an average 21.7% of the days they had a symptom. Herbs or supplements were used mostly for general symptoms (12.8% for 33.3% of general symptom days), musculoskeletal symptoms (13.6% for 23.2% of musculoskeletal symptom days), and mental health symptoms (14.5% for 37.9% of mental health symptom days). Almost one tenth (9.3%) of those who experienced any symptom used another health professional for treatment, and they used the other health professional for an average 8.6% of the days they had a symptom. Other health professionals were most often used to treat musculoskeletal symptoms (7.3% for 12.5% of musculoskeletal symptom days).

Prayer was used by a majority of the participants on a majority of the days on which they experienced each symptom category. Of those who experienced any symptom, 82.4% used prayer, and they used prayer on 58.7% of the days on which they experienced a symptom.

Each of the self-care practices, except for nonprescribed medicines, was used by a large majority of participants who experienced a symptom. Almost all of the older adults (96.4%) ignored the symptom or waited for some time for occurrence of any symptom, and they did so on 63.2% of the days on which they experienced a symptom. Ignoring the symptom was used by the majority of older adults for each symptom group and for most days they experienced these symptoms. The majority of older adults used an over-the-counter medicine for any symptom (88.6% for 47.7% of the days), general symptoms (57.1% for 51.5% of the days), upper respiratory symptoms (63.8% for 53.0% of the days), and musculoskeletal symptoms (68.4% for 51.7% of the days), with many using these for gastrointestinal symptoms (44.1% for 57.7% of the days). Fewer used an over-the-counter medicine for cardiorespiratory symptoms (16.9% for 32.5% of the days), nervous system symptoms (17.6% for 29.9% of the days), mental health symptoms (21.7% for 30.1% of the days), and almost none for genitourinary symptoms (1.6% for 1.0% of the days).

Most older adults used food or beverage for any symptom (72.0% for 32.3% of the days) and gastrointestinal symptoms (54.5% for 48.2% of the days). Many used food or beverage for general symptoms (48.7% for 39.0% of the days), upper respiratory symptoms (36.8% for 41.2% of the days), mental health symptoms (42.1% for 42.0% of the days), and genitourinary symptoms (22.6% for 45.3% of the days). Fewer used food and beverage for cardiorespiratory symptoms (14.3% for 47.0% of the days), musculoskeletal symptoms (14.1% for 19.8% of the days), and nervous system symptoms (19.4% for 51.1% of the days).

Rest was used by the majority of those experiencing most of the symptom groups, and for a majority of the days they experienced the symptom. For example, 86.5% of those experiencing any symptom used rest on 46.5% of the days they experienced a symptom. Rest was used by 84.0% of those experiencing a general symptom on 73.0% of days they experienced the symptom, by 79.2% of those who experienced a cardiorespiratory symptom

on 72.0% of the days they experienced that symptom, and by 77.0% of those who experienced a mental health symptom on 58.6% of the days they experienced a mental health symptom. Only those experiencing genitourinary symptoms seldom used rest (17.7% for 26.1% of the days). Similar to rest, most older adults who experienced a symptom reduced activities and did so for many of the days they experienced the symptom. Most of those experienced any symptom (73.1%) reduced activities and did so on 41.7% of the days they experienced the symptom. Reducing activities was used by 71.8% of those with a musculoskeletal symptom for 41.7% of the days they experienced the symptom, by 67.3% of those who experienced a general symptom for 56.7% of the days, and by 64.9% of those reporting a cardiorespiratory symptom for 61.7% of the days on which they experienced the symptom. The exception is those experiencing genitourinary symptoms; 9.7% reduced activities.

Nonprescribed medicine was frequently used by the older adults if they experienced a symptom; 46.1% who experienced any symptom used a nonprescribed medicine, and they did so for 20.9% of the days on which they reported any symptom. Nonprescribed medicine was used by 30.5% of those reporting a musculoskeletal symptom for 20.5% of the days on which they experienced the symptom and by 22.1% of those reporting a cardiorespiratory symptom for 45.1% of the days on which they experienced the symptom. Those reporting genitourinary symptoms (8.1% for 24.0% of days) and nervous system symptoms (9.3% for 35.8% of days) least used nonprescribed medicine.

About one quarter (26.4%) of participants visited a physician on the day they experienced a symptom, with few for any symptom group. However, 16.4% of those experiencing a musculoskeletal symptom did visit a physician on an average 9.8% of the days that the symptom was experienced, with 10.4% of those experiencing a cardiorespiratory symptom on an average of 35.2% of the days, 10.2% of those experiencing a nervous system symptoms for 27.2% of the days, and 9.0% of those experiencing a gastrointestinal symptom visiting a physician.

The majority (76.2%) of these older adults used a prescribed medicine for any symptom, and they used it for 55.6% of the days they experienced the symptom. However, a majority (65.5% for 56.1% of the days) of the participants only used a prescribed medicine to treat a musculoskeletal symptom. Many of the participants used a prescribed medicine to treat a general symptom (24.4% for 28.3% of the days), an upper respiratory symptom (25.0% for 48.7% of the days), a cardiorespiratory symptom (40.3% for 69.4% of the days), a gastrointestinal symptom (38.6% for 56.6% of the days), a nervous system symptom (28.7% for 47.1% of the days), a mental health symptom (38.2% for 46.0% of the days), and a genitourinary symptom (35.5% for 67.6% of the days).

Variation in Therapy Use of Gender, Ethnicity, Age, and Education

Table 3 provides two perspectives on differences by gender, ethnicity, age, and educational attainment in the use of complementary therapies, other self-care practices, and medical care practices to treat daily symptoms by rural older adults. First, the table reports the percentage of older adults in each demographic group who experienced a symptom and used a therapy to treat that symptom at least once. Second, the table reports differences in the mean percentage of days older adults in each demographic group used a therapy if they used it at all; the means are weighted in proportion to number of total interview days.

Few gender differences were present among these old adults in their therapy use. Although the same percentage of women and men used other health professionals, women used these other health professionals on more days (10.1% vs. 7.0%, $p = .04$). A smaller percentage of women used nonprescribed medicine, and a smaller percentage of women tended to use

prescribed medicine than did men (37.1% vs. 55.2%, $p = .01$; 70.1% vs. 82.3%, $p = .06$). However, among women and men who used nonprescribed medicine and prescribed medicine, they used these for the same percentage of days.

Several differences were present by ethnicity in therapies used. More than twice as many African American than White older adults (46.7% vs. 22.8%, $p < .01$) used a home remedy to treat a symptom. African American older adults tended to use home remedies on a greater percentage of days to treat a symptom (27.9% vs. 17.7%, $p = .07$). More African American than White older adults tended to pray when they experienced a symptom (88.0% vs. 77.2%, $p = .06$), and African American older adults prayed about a symptom on more days than did White older adults (67.6% vs. 48.9%, $p < .01$). A somewhat smaller percentage of African American reported ignoring a symptom (92.4% vs. 100.0%) compared to White older adults, but among White and African American older adults who reported ignoring a symptom, they did so on the same percentage of days. African American older adults tended to rest on more days when they experienced a symptom than did White older adults (50.4% vs. 43.0%, $p = .07$).

No age differences were present in the percentage of older adults who used a therapy to treat a symptom, but a few age differences in therapy use were apparent in the percentage of days a therapy was used. Those aged 65 to 74 years tended to use home remedies on fewer days than did those aged 75 years and older (19.1% vs. 29.5%, $p = .06$). Those aged 65 to 74 years used prayer on fewer days than did those aged 75 years and older (52.8% vs. 65.2%, $p < .01$). Those aged 65 to 74 years used food or beverages to treat a symptom on fewer days than did those aged 75 years and older (27.1% vs. 35.2%, $p = .02$). Those aged 65 to 74 years tended to rest on fewer days than did those aged 75 years and older (42.3% vs. 52.6%, $p = .01$).

Several differences were present by education in therapy used. A greater percentage of those with a high school education or less used prayer more than those with greater than a high school education (91.2% vs. 74.5%, $p < .01$), and they did so on more days (67.1% vs. 47.3%, $p < .01$). A greater percentage of those with a high school education or less tended to rest on more days (91.2% vs. 82.4%, $p = .09$), and they did so on more days (51.8% vs. 41.0%, $p < .01$). A greater percentage of those with a high school education or less tended to reduce activities (79.1% vs. 67.5%, $p = .07$), and they tended to do so on more days (43.4% vs. 36.5%, $p = .08$). Those with a high school education or less used nonprescribed medicine on more days (23.9% vs. 15.9%, $p = .003$) and used prescribe medicine on more days (61.5% vs. 49.6%, $p = .01$).

Discussion

This analysis provides a new perspective on older adults' therapy use to treat common symptoms by considering the percentage of older adults who use different therapies and the frequency with which they use these therapies. The results of this study demonstrate the selectivity of older adults in their use of complementary therapies, self-care practices, and medical care. Older adults vary in whether they use different therapies for specific symptoms and the frequency with which they use each therapy (Table 2). The selectivity of older adults in their self-management of symptoms reflects Leventhal's Common Sense Model framework (Cameron & Leventhal, 2003; Leventhal et al., 2004), which posits that people are active in solving health-related problems and they construct self-regulatory or commonsense models for symptoms, states, or illnesses that lead to an evaluation of options for health self-management.

Many older adults who participated in this study integrate complementary therapies, such as home remedies and herbs or supplements, into their self-management of daily symptoms. More than one in ten use complementary therapies to treat such symptom categories as general symptoms, upper respiratory symptoms, musculoskeletal symptoms, and mental health symptoms. However, they use these complementary therapies with limited frequency; for example, they use home remedies for one third of the days they experience upper respiratory symptoms. On the other hand, only two older adults use home remedies for nervous system symptoms, but these two individuals use home remedies on 60% of the days they have these symptoms.

The use of more conventional self-care practices, such as waiting, rest, and over-the-counter medicines, and the use of medical care are far more common for treating daily symptoms than is the use of the complementary therapies, other than prayer. The use of conventional self-care practices and medical care to treat daily symptoms again indicates selective behavior. For example, most of the participants report using over-the-counter medicines to treat general, upper respiratory, and musculoskeletal symptoms when they experience these symptoms, and they use over-the-counter medicines on over half the days they have these symptoms. Far fewer use over-the-counter medicines to treat genitourinary, cardiorespiratory, and nervous system symptoms. Similarly, a substantial number of these older adults visit a physician on the days they experience several specific symptom categories (e.g., cardiorespiratory, musculoskeletal, nervous system, or genitourinary), but they vary in the frequency with which they visit a physician for the symptom categories. For example, although 8.6% of the older adults with a mental health symptom visit a physician, they do so on 10.6% of the days they experience the symptom. However, 10.4% of those experiencing a cardiorespiratory symptom visit a physician, and they do so on 35.2% of the days they experience the symptom, possibly indicating the seriousness with which they perceive such symptoms. The variation in the way older adults respond to symptoms supports the self-regulatory model's core assumption that adults are thoughtful decision makers in managing their health: They consider the symptom and evaluate treatment alternatives, selecting the approach they believe is likely to be most beneficial (Leventhal et al., 2004).

These results are consistent with commonly reported patterns of complementary therapy use in the general and older adult populations. Most of these older adults use prayer to treat all of their symptoms on days on which they experience these symptoms. This reflects the literature on the use of prayer for health among older adults, particularly those living in rural communities (Arcury et al., 2000; Arcury, Stafford et al., 2007; Krause, 2004, 2009; Pargament, Koenig, Tarakeshwar, & Hahn, 2004). The use of prayer for health is quite common in the general U.S. adult population; analysis of the 2002 NHIS shows that 45.2% of all adults used prayer for health (Barnes et al., 2004) and that about 60% of those aged 70 and older used prayer for health (Bell et al., 2005). These older adults use nonprayer complementary therapies on less than 10% of the days included in the follow-up interviews. However, they report using complementary therapies more frequently over the 6-month period than national surveys report their use over the previous year. Based on an analysis of the 2002 NHIS, Arcury and colleagues (2006) report that 27.7% of older adults utilize any complementary therapy (excluding prayer); the NHIS does not include information on the use of home remedies. During the 6 months of follow-up for the current study, 50 (25.9%) of the older adults in this study reported that they used an herb or supplement at least once, whereas 15.6% of the older adults (aged 65 years and older) in the 2002 NHIS reported using a biologically based therapy (which includes herbs or supplements; Arcury et al., 2006). Compared to 9.3% of participants in this study who used another health care provider (all of whom were chiropractors or massage therapists) to treat a symptom in the previous 6 months, 7.6% of older adults in the 2002 NHIS reported using body-based and manipulative

methods (all of which was chiropractic or massage therapy) in the previous 12 months. More detailed data collection may show greater use of complementary therapies than is currently reported in the literature.

Minimal differences are present by gender in the use of complementary therapies, other self-care practices, and medical care for treating any symptom (Table 3). The only differences attaining statistical significance are that more men use nonprescribed medicines than women and that women use other health care professionals on more days than men do. This is unlike the larger literature on complementary therapy use, which generally reports greater use by women (Arcury, Grzywacz et al., 2007; Arcury et al., 2006). However, the lack of gender differences based on these repeated-measures items raises questions about gender differences in retrospective data on therapy use.

Age, ethnicity, and education are related to significant differences in how older adults treat symptoms and indicate how these characteristics may be related to the commonsense models older adults use in treating their daily symptoms. Age differences are not present in the percentage who use therapies, but those 75 years and older use several therapies, including home remedies, prayer, food and beverages, and rest, on more days than those aged 65 to 74 years do. The more frequent use of home remedies and prayer among those 75 and older and the lack of differences in the levels of use for herbs or supplements differ from earlier findings (Arcury et al., 2006; Astin, 1998; Bausell et al., 2002). The lack of differences by age in the types of therapies used and the several differences by age in the frequency with which several therapies are used may reflect generational differences or changes due to aging in commonsense models.

Differences by ethnicity and education in therapy use and frequencies indicate the potential importance of cultural and structural characteristics in the commonsense models of rural older adults. Similar to earlier studies (Bell et al., 2005; Grzywacz et al., 2006), African American older adults are more likely than are White older adults to use home remedies and prayer to treat symptoms and to use these for more of the days they experience symptoms, whereas more White older adults will ignore a symptom before treating it. The importance placed on “rest” for health among rural older adults (Arcury, Quandt, & Bell, 2001) is reflected in the results of this study, as is the slightly greater emphasis placed on rest among African American than among White older adults. These differences raise the question of whether cultural differences between African Americans and Whites lead to differences in the use of therapies or whether these different behaviors result from past or ongoing structural differences in these communities.

Those with a high school education or less, compared to those with greater than a high school education, are more likely to use prayer and do so on more days. More of those with a high school education or less rest and reduce activities than do those with more than a high school education; those with less education also rest, reduce activities, use nonprescribed medicine, and use prescribed medicine more frequently than those with more education. Several studies report greater prevalence in the use of complementary therapies among those with greater education attainment (Najm et al., 2003). This is not the case for these older adults in their treatment of daily symptoms. Rather, no difference is present in comparing those with a high school education or less with those having more than a high school education in their use of home remedies, herbs or supplements, or other health care professionals. Prayer is more commonly used among those with lower educational attainment. Research on rurality and the commonsense models of health self-management in rural communities is needed to delineate the causes of these differences.

This research expands on the earlier work of Stoller and colleagues (Stoller & Forster, 1992; Stoller et al., 1993) on the management of symptoms among rural older adults. They report that rural older adults often took no immediate action to treat a symptom; rather they waited and observed whether the symptom resolved itself. When taking an action to treat a symptom, the older adults often would rest, reduce activities, and take over-the-counter medicine. These are self-care practices that are extremely prevalent among the older adults in this study. This analysis expands on this earlier work by showing how older adults also integrate complementary therapies in their treatment of daily symptoms. The use of some complementary therapies is common, even if their use is less common than that of conventional over-the-counter and prescribed medicines. It is possible that the use of home remedies was actually prevalent when Stoller and colleagues conducted their research. The use of herbs or supplements by older adults may have increased over the past two decades. Advertizing for herbs and supplements has increased in the electronic media, and the availability of satellite and cable television has also increased. Rural older adults are also using the internet to learn about health self-management, including the use of complementary therapies (Arcury et al., 2009).

The results of this analysis should be interpreted within the limitations of the research. The number of participants was limited, so that the analysis could not focus on specific complementary therapies (i.e., specific home remedies, specific herbs) or self-care practices. The sample selection process was not strictly random, limiting the generalizability of the results. Not all potential symptoms could be included; other common symptoms might yield a different pattern of treatment. Considering the use of 12 therapies by four demographic characteristics resulted in 96 comparisons; by chance alone, at least 5 of these comparisons could have statistically significant result ($p < .05$), and 10 could have a result tending toward significance ($p < .10$). However, the number of comparisons reaching statistical significance and tending to significance, and the pattern of results support the interpretation of the results. Furthermore, the research included a relatively large sample with a high rate of completion across six 3-day follow-ups. The sample was ethnically diverse. The set of common symptoms was relatively large as was the set of remedies. Information on specific remedies used by the participants was collected and checked to ensure proper classification of these remedies.

Older adults integrate complementary therapies along with self-care practices and medical care into their self-management of daily symptoms. This analysis provides two perspectives on the how older adults use different therapies to self-manage their daily symptoms. First, it shows the percentage of older adults who use each type of therapy when they experience a symptom. Second, it shows the frequency with which they use each type of therapy. The use of complementary therapies, though important, is substantially less than the use of self-care practices and medical care. As predicted by Leventhal's commonsense model, older adults are selective in the complementary therapies, self-care practices, and medical care they use for specific symptoms and the frequency with which they use these therapies. Research is needed to delineate how older adults learn about different therapies and their applicability to symptoms. Research is also needed to document how the use of these therapies affects health status and health-related quality of life. Finally, documentation is needed in how older adults use these different therapies for health promotion.

Acknowledgments

Funding This work was supported by the National Center for Complementary and Alternative Medicine (grant number R01 AT003635).

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Table 1

Personal Characteristics of Older Adults in Three Rural North Carolina Counties, 2008–2009

Characteristics	<i>N</i>	%
Personal characteristics		
Sex		
Women	102	51.0
Men	98	49.0
Ethnicity		
African American	97	48.5
White	103	51.5
Age		
65 to 74 years	119	59.5
75 years and older	81	40.5
Educational attainment		
High school or less	94	47.0
More than high school	106	53.0

Table 2

Percentage of Days With Symptom When Therapies Were Used in Past 24 Hours for Symptom Group—Older Adults in Three Rural North Carolina Counties, 2008–2009

Therapies	Daily Symptom Groups								
	Any	General	Upper respiratory	Cardiorespiratory	Gastrointestinal	Musculoskeletal	Nervous system	Mental health	Genitourinary
Number of participants reporting the symptom	193	156	152	77	145	177	108	152	62
Complementary therapies									
Home remedy									
Number of users for symptom	63	4	20	2	13	41	2	3	–
Percent of those with symptom	32.6	2.6	13.2	2.6	8.9	23.2	2.0	2.0	
Mean percent (<i>SD</i>) of days used	24.2 (21.7)	15.0 (4.6)	32.7 (24.6)	23.8 (13.5)	35.4 (26.3)	32.9 (23.5)	60.0 (56.6)	7.1 (1)	
Herb or supplement									
Number of users for symptom	50	20	10	1	7	24	3	22	–
Percent of those with symptom	25.9	12.8	6.6	1.3	4.8	13.6	2.8	14.5	
Mean percent (<i>SD</i>) of days used	21.7 (16.7)	33.3 (20.2)	19.8 (10.3)	33.3 (.)	21.9 (14.8)	23.2 (23.8)	47.2 (45.9)	37.9 (21.9)	
Other health professional									
Number of users for symptom	18	4	4	1	3	13	–	6	2
Percent of those with symptom	9.3	2.6	2.63	1.3	2.1	7.3		3.9	3.2
Mean percent (<i>SD</i>) of days used	8.6 (3.1)	10.3 (4.5)	12.5 (8.5)	9.1 (.)	26.4 (12)	12.5 (7.3)		11.6 (4.1)	23.8 (13.5)
Prayer									
Number of users for symptom	159	110	81	46	87	135	71	117	38
Percent of those with symptom	82.4	70.5	53.3	60.0	60.0	76.3	65.7	77.0	61.3
Mean percent (<i>SD</i>) of days used	58.7 (29.7)	70.3 (30)	62.8 (31.5)	78.2 (26.8)	66.6 (28.7)	63.0 (28.9)	73.0 (29.3)	68.9 (28.5)	66.7 (27.7)
Self-care practices Ignore symptom or wait									

Therapies	Daily Symptom Groups								
	Any	General	Upper respiratory	Cardiorespiratory	Gastrointestinal	Musculoskeletal	Nervous system	Mental health	Genitourinary
Number of users for symptom	186	113	125	48	93	150	73	125	48
Percent of those with symptom	96.4	72.4	82.2	62.3	64.1	84.7	67.6	82.2	77.4
Mean percent (<i>SD</i>) of days used	63.2 (24.4)	56.4 (28.3)	63.9 (26.7)	53.6 (30)	55.7 (29)	43.1 (24.7)	64.4 (29.6)	62.3 (26.5)	68.4 (28.6)
Over-the-counter medicine									
Number of users for symptom	171	89	97	13	64	121	19	33	1
Percent of those with symptom	88.6	57.1	63.8	16.9	44.1	68.4	17.6	21.7	1.6
Mean percent (<i>SD</i>) of days used	47.7 (27.8)	51.5 (29.6)	53.0 (29.8)	32.5 (24.7)	57.7 (34)	51.7 (29.5)	29.9 (22.8)	30.1 (29.2)	1.0 (.)
Food or beverage									
Number of users for symptom	139	76	56	11	79	25	21	64	14
Percent of those with symptom	72.0	48.7	36.8	14.3	54.5	14.1	19.4	42.1	22.6
Mean percent (<i>SD</i>) of days used	32.3 (22.8)	39.0 (24.6)	41.2 (25.7)	47.0 (35.3)	48.2 (29.5)	19.8 (16.4)	51.1 (37.7)	42.0 (30.4)	45.3 (30.6)
Rest									
Number of users for symptom	167	131	52	61	50	127	61	117	11
Percent of those with symptom	86.5	84.0	34.2	79.2	34.5	71.8	56.5	77.0	17.7
Mean percent (<i>SD</i>) of days used	46.5 (27.1)	73.0 (28)	34.3 (23.2)	72.0 (27.2)	42.0 (27.7)	44.0 (27.1)	64.8 (32.3)	58.6 (28)	26.1 (27.5)
Reduce activities									
Number of users for symptom	141	105	39	50	50	117	52	92	6
Percent of those with symptom	73.1	67.3	25.7	64.9	34.5	71.8	56.5	60.5	9.7
Mean percent (<i>SD</i>) of days used	41.7 (25.6)	56.7 (27)	28.7 (19.8)	61.7 (28.6)	41.1 (29.5)	41.7 (27.3)	58.2 (33.2)	44.3 (27.9)	27.9 (18.4)
Nonprescribed medicine									
Number of users for symptom	89	25	17	17	20	54	10	21	5

Therapies	Daily Symptom Groups								
	Any	General	Upper respiratory	Cardiorespiratory	Gastrointestinal	Musculoskeletal	Nervous system	Mental health	Genitourinary
Percent of those with symptom	46.1	16.0	11.2	22.1	13.8	30.5	9.3	13.8	8.1
Mean percent (<i>SD</i>) of days used	20.9 (18.2)	17.9 (13.1)	30.3 (29.3)	45.1 (27.2)	24.5 (27.4)	20.5 (19)	35.8 (29)	20.6 (14)	24.0 (17.4)
Medical care									
Visit physician									
Number of users for symptom	51	11	10	8	13	29	11	13	11
Percent of those with symptom	26.4	7.1	6.6	10.4	9.0	16.4	10.2	8.6	17.7
Mean percent (<i>SD</i>) of days used	10.2 (6.9)	12.4 (8.6)	30.5 (28.9)	35.2 (33.9)	17.2 (9.9)	9.8 (4.1)	27.2 (19.8)	10.6 (3.8)	18.7 (11.8)
Prescribed medicine									
Number of users for symptom	147	38	38	31	56	116	31	58	22
Percent of those with symptom	76.2	24.4	25.0	40.3	38.6	65.5	28.7	38.2	35.5
Mean percent (<i>SD</i>) of days used	55.6 (30.2)	28.3 (20.1)	48.7 (28.3)	69.4 (28.6)	56.6 (29.4)	56.1 (30.3)	47.1 (29.3)	46 (30.5)	67.6 (28.4)

Table 3

Differences in Therapy Use by Demographic Characteristic Where Any Symptom Was Experienced at Any Point in the Follow-Up Period and Weighted Percentage of Days on Which Therapies Were Used for Any Symptom by Demographic Category—Older Adults in Three Rural North Carolina Counties, 2008–2009

Therapies	Gender					
	Percent who used			Days used		
	Women %	Men %	<i>p</i>	Women LSMEAN ^a	Men LSMEAN	<i>p</i>
Complementary therapies						
Home remedy	29.9	38.5	0.22	20.3	29.6	0.10
Herb or supplement	21.6	30.2	0.19	23.7	18.1	0.23
Other health professional	8.2	9.4	0.80	10.1	7.0	0.04
Prayer	78.4	86.5	0.18	60.0	55.2	0.31
Self-care practices						
Ignore symptom or wait	94.8	97.9	0.44	62.5	67.5	0.15
Over-the-counter medicines	89.7	95.8	0.16	51.2	53.4	0.60
Food or beverage	67.0	77.1	0.14	28.2	33.2	0.15
Rest	84.5	88.5	0.52	46.2	46.4	0.94
Reduce activities	72.2	74.0	0.87	41.1	38.6	0.54
Nonprescribed medicine	37.1	55.2	0.01	19.1	21.5	0.52
Medical care						
Visit physician	21.6	31.3	0.14	9.2	9.1	0.90
Prescribed medicine	70.1	82.3	0.06	56.3	54.1	0.65

Therapies	Ethnicity					
	Percent who used			Days used		
	African American %	White %	<i>p</i>	African American LSMEAN	White LSMEAN	<i>p</i>
Complementary therapies						
Home remedy	46.7	22.8	<0.01	27.9	17.7	0.07
Herb or supplement	26.1	25.7	1.00	20.8	21.9	0.82
Other health professional	6.5	10.9	0.31	7.7	9.3	0.35
Prayer	88.0	77.2	0.06	67.6	48.9	<0.01
Self-care practices						
Ignore symptom or wait	92.4	100.0	<0.01	66.1	63.8	0.51
Over-the-counter medicines	93.5	92.1	0.78	53.7	50.9	0.50
Food or beverage	71.7	72.3	1.00	33.0	28.3	0.19
Rest	85.9	87.1	0.83	50.4	43.0	0.07
Reduce activities	75.0	71.3	0.62	42.0	38.2	0.34
Nonprescribed medicine	43.5	48.5	0.56	19.9	20.2	0.92
Medical care						
Visit physician	26.1	26.7	1.00	8.3	9.9	0.19
Prescribed medicine	73.9	78.2	0.50	58.7	52.7	0.23

	Age					
	Percent who used			Days used		
	65–74 years %	75+ years %	<i>p</i>	65–74 years LSMEAN	75+ years LSMEAN	<i>p</i>
Complementary therapies						
Home remedy	30.4	39.7	0.21	19.1	29.5	0.06
Herb or supplement	26.1	25.6	1.00	19.8	23.7	0.39
Other health professional	8.7	9.0	1.00	9.3	8.0	0.42
Prayer	81.7	83.3	0.84	52.8	65.2	<0.01
Self-care practices						
Ignore symptom or wait	95.7	97.4	0.70	64.5	65.3	0.83
Over-the-counter medicines	93.9	91.0	0.57	49.6	56.4	0.10
Food or beverage	72.2	71.8	1.00	27.1	35.2	0.02
Rest	87.8	84.6	0.52	42.3	52.6	0.01
Reduce activities	75.7	69.2	0.32	38.0	43.1	0.23
Nonprescribed medicine	48.7	42.3	0.46	19.0	22.0	0.43
Medical care						
Visit physician	27.8	24.4	0.62	9.3	8.8	0.69
Prescribed medicine	77.4	74.4	0.73	55.5	55.0	0.91

	Education					
	Percent who used			Days used		
	High school %	>High school %	<i>p</i>	High school LSMEAN	>High school LSMEAN	<i>p</i>
Complementary therapies						
Home remedy	39.6	29.4	0.17	22.6	26.1	0.53
Herb or supplement	22.0	29.4	0.25	18.5	23.3	0.29
Other health professional	5.5	11.8	0.13	8.0	9.1	0.51
Prayer	91.2	74.5	<.01	67.1	47.3	<0.01
Self-care practices						
Ignore symptom or wait	95.6	97.1	0.70	66.1	63.6	0.46
Over-the-counter medicines	95.6	90.2	0.17	54.2	50.3	0.35
Food or beverage	72.5	71.6	1.00	31.5	29.5	0.56
Rest	91.2	82.4	0.09	51.8	41.0	<0.01
Reduce activities	79.1	67.6	0.07	43.4	36.5	0.08
Nonprescribed medicine	50.5	42.2	0.25	23.9	15.9	0.03
Medical care						
Visit physician	26.4	26.5	1.00	8.4	9.9	0.20
Prescribed medicine	78.0	74.5	0.61	61.5	49.6	0.01

^aLeast Square Mean