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Characteristics of yoga and meditation users among older Australian women – results from the 45 and up study

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ABSTRACT

Background and purpose: Yoga and meditation are predominantly utilised by healthy well-educated young women, but little is known about utilisation by older chronically ill women. Therefore, the purpose of this study was to investigate the characteristics of yoga and meditation use among middle-to-higher aged Australian women with chronic conditions.

Materials and methods: This is a sub-study of the 45 and Up Study including 1925 Australian women aged 53–95 years diagnosed with chronic conditions (asthma, depression, diabetes, osteoarthritis, and osteoporosis). Information on yoga and meditation use frequencies (categories: 'no yoga', 'at least once daily', 'at least once weekly', and 'at least once monthly'), self-perceived effectiveness and communication with health care providers were assessed via self-report. Logistic regression analyses were conducted to identify independent predictors of yoga and meditation use, using SPSS 24.0.

Results: Overall 6.8% and 10.7% of women reported the use of yoga and meditation respectively. Meditation was rarely practiced supervised (11.7%), compared to significant higher rates in yoga (53.2%). Predictors for yoga and meditation use were marital status (married/in relationship > not married/in relationship), higher health related hardiness, and higher education, whereas obesity, and diabetes decreased likelihood of use. While the majority found yoga and meditation helpful for their condition, the use was rarely monitored by or discussed with health care practitioners.

Conclusion: This study finds that yoga and meditation are used by middle-to-higher aged Australian women with chronic illnesses. The lack of communication with health care providers is concerning and might hinder co-ordinated and effective health care around chronic illness. Further research is necessary to help understand possible concurrent health care use and thereby help inform safe, effective and coordinate health seeking amongst those with chronic illness.

1. Introduction

Latest reports from the National Health Interview Survey (NHIS) show that yoga and meditation were among the most popular complementary health care approaches in the USA in 2017, with one-in-seven adults reporting practicing yoga and meditation each [1]. The rising interest in these complimentary health care approaches over the last decades has been mirrored by increasing research into the benefits of yoga and meditation for healthy adults, as well as adults with medical conditions. Yoga for example has been shown to improve symptoms of asthma [2], depression [3], diabetes [4], and osteoarthritis [5]. Likewise, clinical research indicated positive effects of meditation, especially on depression [6], but also on chronic pain [7] and mental health issues associated with chronic somatic conditions such as chronic fatigue or rheumatoid arthritis [8]. Efficacy and safety of yoga and meditation have further been demonstrated for use in older adult populations, for example, to prevent falls [9], manage frailty [10], or improve mobility [11], sleep quality [12] or quality of life [13]. Yoga and meditation might be easily integrated into self-care, and as such, might contribute to a reduction in the socioeconomic impacts of chronic illnesses at low-cost [14]. Despite their potential therapeutic benefit however, both practices are predominantly utilised by healthy, well-educated young women and the prevalence of use is significantly lower in older adults [14] a population known to have substantially higher

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likelihood of experiencing chronic health conditions compared to younger adults [15]. In order to estimate the value (and appropriateness) of yoga and meditation utilisation as part of the wider health care utilisation of older adults, it is of utmost importance to identify patterns of use and characteristics associated with use in older populations with chronic illnesses. This knowledge may help to identify factors promoting or preventing the use of yoga and meditation in older, chronically-ill individuals and provide a foundation for informed and coordinated health care.

Therefore, the aim of this study was to investigate the prevalence of yoga and meditation use and its associations with sociodemographic and health-related factors among middle-to-older aged Australian women with chronic conditions using cross-sectional data from the 45 and Up Study.

2. Materials and methods

This study reports results of a sub-study of the Sax Institute's 45 and Up Study [16]. The Sax Institute is a not-for-profit organisation and national leader in promoting the use of research evidence in health policy. The 45 and Up Study is managed by the Sax Institute in collaboration with Cancer Council of New South Wales (NSW) as their major partner, as well as other partners: National Heart Foundation of Australia (NSW Division), NSW Ministry of Health, NSW Government Family & Community Services – Ageing, Carers and the Disability Council NSW, and the Australian Red Cross Blood Service. The 45 and Up Study is based in the population of the state of New South Wales (NSW), Australia. Prospective participants for the 45 and Up Study were randomly sampled from the Department of Human Services (formerly Medicare Australia) enrolment database, which provides near complete coverage of the population. People 80 + years of age and residents of rural and remote areas were oversampled. A total of 267,153 participants joined the study by completing a baseline questionnaire (between January 2006 and December 2009) and giving signed consent for follow-up as well as linkage of their information to routine health databases. About 18% of those invited participated and participants included about 11% of the NSW population aged 45 years and over.

For the sub-study reported in this paper, we included a total of 4000 women who indicated in the baseline survey that they had been diagnosed with one of the following chronic illnesses: asthma, depression, diabetes, osteoarthritis, or osteoporosis. The primary aim of the sub-study was to examine the use of health services by older Australian women with chronic conditions. Eligible women were approached and mailed a questionnaire. Sub-study recruitment was conducted between September and December 2016 and a total of 1932 (48.3%) women participated in the sub-study (asthma N = 376, depression N = 362, diabetes N = 394, osteoarthritis N = 406, osteoporosis N = 394). The sub-study was initiated by the authors, but conducted entirely by the Sax Institute, from whom the authors were provided with the data.

2.1. Variables

Yoga and meditation use: Yoga and meditation use were examined using the following two variables, respectively: (1) women were asked how often in the past 12 months they had consulted with yoga or meditation instructors (categories '1–2 times', '3–6 times', or '7 times or more'), and (2), how often they had used yoga or meditation without instructors (categories: 'at least once daily', at least once weekly', or 'at least once monthly').

Depression: Depression was measured using the 10-item Center for Epidemiologic Studies Depression Scale (CES-D-10), one of the most commonly used self-report depression screening scales [17]. Responses were coded on 4-point Likert scales scored 0–3, and a total score was calculated as the sum of all items, resulting in possible scores between 0 and 30 with higher scores indicating a higher intensity of depressive symptoms.

Physical activity: Women were asked to report the number of times and the time in hours and minutes that they had spent in the last week walking briskly, in moderate intensity leisure activities (e.g. social tennis, recreational swimming), in vigorous leisure activity (e.g. competitive sport, running), and performing vigorous household chores (i.e. that make you breathe harder or puff and pant), based on the Active Australia physical activity survey [18]. The following physical activity level categories were applied: sedentary (0 min), low insufficient (1–149 min), and sufficient (≥150 min) [19].

Sleep disturbances: Sleep disturbances were measured using the Medical Outcomes Study Sleep Scale (MOS-Sleep) [20,21], a 12-item instrument assessing sleep disturbance, sleep adequacy, somnolence, quantity of sleep, snoring, and awakening short of breath or with a headache. A comprehensive sleep problem index was calculated based on 9 items, resulting in a total sleep disturbance score between 0 and 100 with higher scores indicating more sleep disturbances.

Health hardiness: Health hardiness was measured using the 14-item Health-Related Hardiness Scale (HRHS) [22], with statements being scored on a 6-point Likert scale regarding agreement or disagreement. For this analysis, the sub-scale 'control' was used only, resulting in total scores between 7 and 42 points with higher scores indicating a higher level of perceived control over one's health.

Quality of life: Quality of life was measured using the questionnaire of the European Quality of life group (EuroQol), the European Quality of life - five Dimensions Questionnaire (EQ-5D). The descriptive system requires participants to indicate their health status on five dimensions: mobility, self-care, usual activities, pain/discomfort and anxiety/depression, using the rating options 'no problems', 'slight problems', 'moderate problems', 'severe problems', and 'extreme problems'. Based on national normative data (population norms) [23] the EQ-5D scores are then inverted into absolute scores between 0 and 1, with 1 indicating perfect health.

Health conditions: Participants were also asked to indicate whether they had been diagnosed or treated for a number of conditions in the past 12 months, including anxiety/nervous disorder, asthma, depression, diabetes, hypertension, heart disease, osteoarthritis, osteoporosis on a yes/no basis.

2.2. Statistical analysis

Descriptive results were reported as mean and standard deviation (SD), median and range for continuous variables (depending on the data distribution), or absolute and relative frequencies for dichotomous data.

Regression analyses were conducted using backwards likelihood ratio statistics, using a p-value of ≤0.05, to identify characteristics associated with at least once weekly use of yoga, and meditation independently. Odd's ratio and 95% confidence intervals were reported for each significant independent variable. All analyses were conducted using the Statistical Package for Social Sciences (SPSS) (IBM SPSS Statistics for Windows, release 24.0. Armonk, New York: IBM Corp.).

3. Results

The study included 1925 women aged 53–95 years (median 68) diagnosed with one of five chronic conditions (asthma, depression, diabetes, osteoarthritis, or osteoporosis), of which, several cases could not be analysed due to missing data (N = 91 missing cases for questions related to yoga and meditation use). The vast majority of women reported living in major cities (48.2%), and inner regional areas (39.7%), followed by outer regional (11.3%) and remote (0.9%). The majority of women were married or in a relationship (de facto) (61.2%), widowed (17.3%), divorced or separated (13.7%), or single (7.9%). Educational qualification was mixed, with approximately one-in-three women having completed school only (32.8%), trade/apprentice/diploma (30.0%), or university or higher degree (29.4%) qualifications.

Table 1
Details of use of yoga and meditation.

	Yoga N (%)	Meditation N (%)
1. Consulted with instructors	N = 1746	N = 1746
Never	1680 (96.2)	1723 (98.7)
1–2 times	21	8
3–6 times	7	5
7 or more times	38	10
2. Used it without instructor	N = 1583	N = 1583
Never	1489 (94.1)	1390 (87.8)
At least once daily	32	60
At least once weekly	45	90
At least once monthly	17	43
Used intervention at all	94	196
3. Effectiveness of intervention (by yourself)		
Effective	36	72
Somewhat/not at all	20	53
4. Use of intervention (by yourself) was communicated to		
Medical practitioners	18	48
Allied or Complementary health practitioners	14	26
5. Intervention (by yourself) was recommended		
Medical practitioners	13	27
Allied or Complementary health practitioners	18	22
6. Private health insurance rebate for classes	57	31

Note: The number of respondents for questions 3–6 was smaller than the number of yoga or meditation users, indicating incomplete data.

3.1. Yoga and meditation use

A total of 124 out of 1834 women (6.8%) reported the use of yoga (30 with an instructor only, 58 without an instructor only, and 36 with and without an instructor), and a total of 196 out of 1834 women (10.7%) reported the use of meditation (173 without an instructor only, 23 with and without an instructor). There was only little overlap between yoga and meditation practice, i.e. only 54 women reported the use of both meditation and yoga. While half of yoga practitioners used yoga with or without practitioners, the majority of meditation users reported use without practitioners (88.3%), and with high frequency (81.9% used yoga, and 77.7% used meditation at least once weekly). More details on the use of yoga and meditation can be found in Table 1.

Regression analyses revealed that women who used *yoga* at least once weekly were more likely to be married/in relationship compared to those not married/in relationship (including single, divorced, widowed and separated), and report higher health hardiness levels, but the likelihood decreased with higher age, a diagnosis of diabetes, and an obese BMI compared to a normal BMI, see Fig. 1.

Regression analyses further revealed that women who used *meditation* at least once weekly were more likely to report higher education (trade, apprentice, diploma, university or higher degree as compared to no formal school), higher health hardiness levels, and at least moderate physical activity levels (as compared to sedentary levels). Women who used meditation at least once weekly were also more likely to be married/in relationship (as compared to those not married/in relationship) and report higher quality of life (EQ-5D), see Fig. 1.

Only 18 women out of 124 yoga users communicated the use of yoga to their medical practitioners, and yoga was recommended by medical practitioners in 13 cases. The majority of respondents (64.3%) rated the effectiveness of yoga as beneficial with two thirds of respondents rating yoga as ‘effective’ for their chronic condition.

The use of meditation was communicated to medical practitioners by 48 of 196 meditation users and recommended by medical practitioners in 27 cases. Meditation was rated as ‘effective’ for their chronic condition by 57.6% of respondents.

4. Discussion

Some middle-to-older aged Australian women had used yoga or meditation in the past 12 months. In contrast to the general population, where the prevalence of yoga use is generally twice as high as that of meditation use [14], our survey found only 7% of respondents used yoga, and 11% used meditation. This might be explained by an inverse association of yoga and meditation use with increasing age, as others have shown the use of yoga to decline with increasing age in the general population [14,24]. Meditation use however was found to be highest in the general population at age 40 to 64 [25]. Meditation is also primarily used by women on their own without any instructor, while yoga is more often practiced with an instructor present. Therefore, these prevalence rates might also reflect limitations due to availability, suitability and cost of yoga classes.

Another finding that seems to contradict earlier findings is the association of yoga/meditation use with health status. While yoga and meditation are more often used by individuals with a good to excellent health status in the general population [14,26], our results indicate that lower health status in older chronically-ill women is predictive of use. What appears to be a paradox, might be a result of different motivations for utilisation, i.e.in the general population, yoga and meditation are primarily utilised as a method for prevention rather than as a therapeutic means [14,24]. Our sample however, consisted of middle-to-older aged chronically-ill women and it is likely that yoga and meditation were primarily used therapeutically with the aim of increasing quality of life in those women with a lower health status. While it is - hypothetically - possible that yoga and meditation might reduce quality of life in women with chronic conditions, it seems unlikely that women would have continued a practice what is detrimental to their health and well-being. This would also contradict our finding that the majority of chronically-ill women in our study rated yoga and meditation as beneficial in the management of their chronic condition.

This study further found that yoga and meditation use were associated with higher levels of health-related hardiness. The concept of the health related hardiness variable used in this study is very similar to the locus of control concept, i.e. the degree to which people believe that they have control over their health status [27]. As such, our finding is in line with previous studies, e.g. linking high internal locus of control with positive health practices in patients with chronic conditions [28,29], and studies on obesity linking physical activity and active weight management with high internal health locus of control [30]. Similar findings have been reported for sense of coherence [31], i.e. the coping capacity of people to deal with everyday life stressors, which were significantly higher in yoga practitioners [32] compared to control persons. Therefore, the use of yoga and meditation might reflect a way to control severity or impact of chronic illness in middle-to-older aged women.

The negative associations with a sedentary lifestyle, obesity and lifestyle-associated conditions such as diabetes also indicates that yoga and meditation might be associated with a generally healthier lifestyle, and confirms previous findings from the Australian Longitudinal Women's Health Study (ALSWH) showing that women who used yoga and/or meditation were more likely to be sufficiently physically active, and to follow a vegetarian diet than women who do not use those practices [33].

One alarming finding from this study was that the use of yoga and meditation practices are rarely discussed with conventional, as well as allied and complementary, health practitioners. While yoga can be considered relatively safe (for the general and healthy population) based on systematic examinations of the literature, the risk of yoga-associated injuries increases with higher age and chronic conditions [34,35]. The use of yoga by older women with (multiple) chronic illness warrants further attention to prevent any additional illness or injury with potentially severe impact on health and well-being. This also indicates that additional efforts are necessary to inform health care

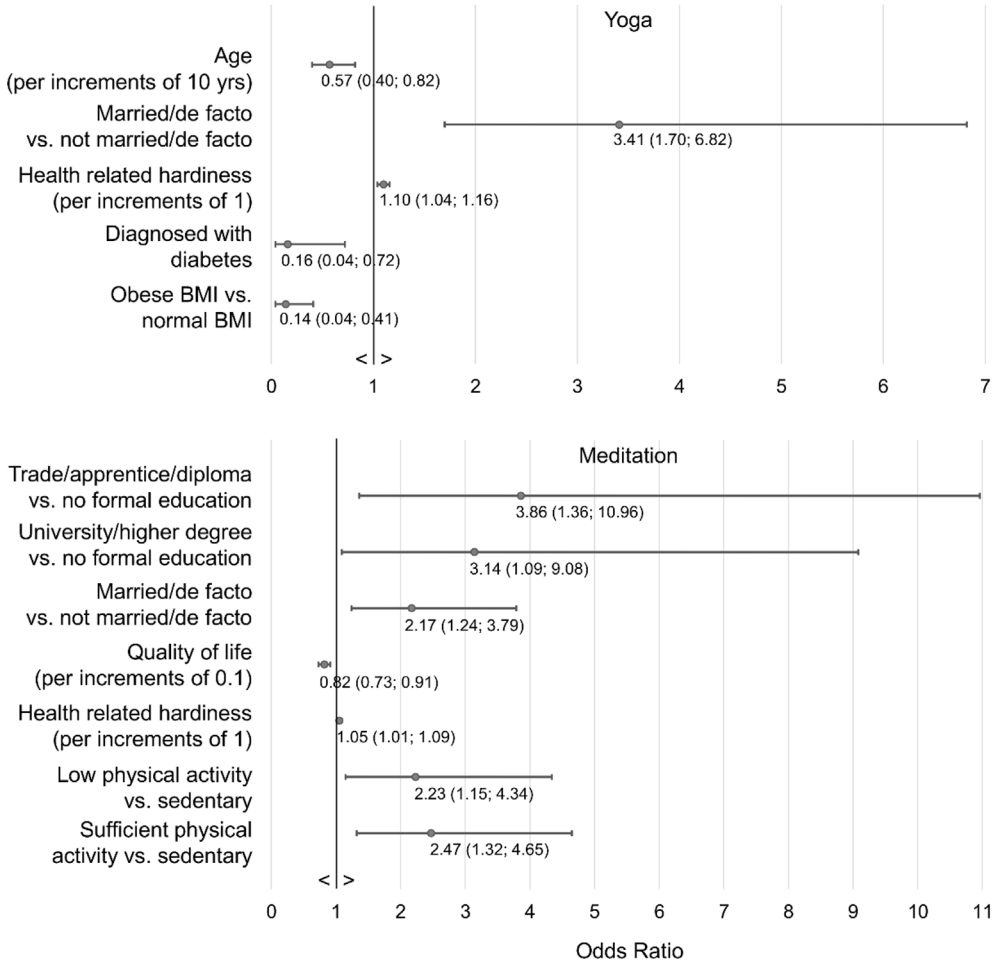

Fig. 1. Odds Ratio (OR) for significant predictors of yoga use (top chart, used at least weekly vs. less than weekly), and meditation use (bottom chart, used at least weekly vs. less than weekly). BMI = Body Mass Index, yrs = years.

practitioners about the current evidence status regarding the efficacy and safety of yoga for chronic conditions, given that yoga and meditation might actually benefit older health care consumers as shown in studies around balance and mobility [10], or for the management of cardiovascular risk factors [36].

The study has several limitations. Firstly, the sample consisted of women aged 53–95 years with a self-reported diagnosis of one of five chronic conditions, and a response bias cannot be ruled out. As such the sample may not be representative for older adults in general. Furthermore, the sample size is very small, and missing responses for individual questions have been identified; as such, no detailed condition-specific analyses could be conducted. Lastly the practice of yoga using modern technology (online instructors, app based yoga interventions) were not captured, and the wording ('consulted') may have been misleading to some participants. On the other hand, this is the first study to examine the use of self-care, including yoga and meditation, in older chronically-ill adults.

5. Conclusion

Overall, this study found that yoga and meditation are used by middle-to-older aged Australian women with chronic illnesses. While the majority of these women find yoga and meditation helpful for their disease, the lack of communication with health care providers is concerning and might result in inadequate coordinated health care for chronic illnesses. Further research is necessary to help understand possible concurrent health care use and thereby help inform safe, effective and coordinate health seeking amongst those with chronic illness.

Ethics statement

The conduct of the 45 and Up Study has been approved by the University of NSW Human Research Ethics Committee, and the University of Technology Sydney Human Research Ethics Committee (approval number 201400059).

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This research was completed using data collected through the 45 and Up Study (www.saxinstitute.org.au). The 45 and Up Study is managed by the Sax Institute in collaboration with major partner Cancer Council NSW; and partners: the National Heart Foundation of Australia (NSW Division); NSW Ministry of Health; NSW Government Family & Community Services – Ageing, Carers and the Disability Council NSW; and the Australian Red Cross Blood Service. We thank the many thousands of people participating in the 45 and Up Study.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.ctcp.2019.03.001.

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