ORIGINAL ARTICLE

Consultations with complementary and alternative medicine practitioners amongst wider care options for back pain: a study of a nationally representative sample of 1,310 Australian women aged 60–65 years

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Abstract Back pain is a significant health service issue in Australia and internationally. Back pain sufferers can draw upon a range of health care providers including complementary and alternative medicine (CAM) practitioners. Women are higher users of health services than men and tend to use CAM frequently for musculoskeletal conditions. However, there remain important gaps in our understanding of women's consultation patterns with CAM practitioners for back pain. The objective of this study is to examine the prevalence of use and characteristics of women who use CAM practitioners for back pain. The method used was a survey of a nationally representative sample of women aged 60–65 years from the Australian Longitudinal Study on Women's Health. Women consulted a massage therapist (44.1 %, $n=578$) and a chiropractor (37.3 %, $n=488$) more than other CAM practitioners for their back pain. Consultations with a chiropractor for back pain were lower for women who consulted a General Practitioner (GP) (OR, 0.56; 95 % CI 0.41, 0.76) or a physiotherapist (OR, 0.53; 95 % CI 0.39, 0.72) than for those who did not consult a GP or a physiotherapist. CAM practitioner consultations for back pain were greater for women who visited a pharmacist (OR, 1.99; 95 % CI 1.23, 3.32) than for women who did not visit a pharmacist. There is substantial use of

CAM practitioners alongside conventional practitioners amongst women for back pain, and there is a need to provide detailed examination of the communication between patients and their providers as well as across the diverse range of health professionals involved in back pain care.

Keywords Back pain · Complementary and alternative medicine · Health care utilization · Women

Introduction

Back pain burden and the use of CAM amongst a range of treatment options

Back pain is a significant health service issue [1, 2] affecting adult populations in Australia, the US, and the UK [3, 4]. Back pain is the second most common complaint in general practice [5] and presents a major economic burden in Australia with both direct and indirect costs exceeding AUD 8 billion per annum [1, 6, 7]. Surveys report ageing and being female as predictors of debilitating back pain [4, 8], and research has identified 55 % of women aged 56–61 years reporting back pain [9].

CAM use across a range of treatment options for back pain

Use of complementary and alternative medicine (CAM) is common for musculoskeletal conditions [10–12], and women are known to use CAM for back pain [10, 11, 13]. Back pain sufferers can draw upon a range of possible practitioners who comprise three broad provider categories. Conventional medical practitioners core to the biomedical model and medical curriculum (General Practitioners (GPs), orthopedic

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specialists, neurologists, rheumatologists) [11–17], allied health care practitioners, associated with the biomedical model and who traditionally closely assist the conventional medical profession in service provision (physiotherapists, nurses, pharmacists) [13–16, 18], and CAM practitioners not traditionally associated with biomedicine or the medical curriculum (acupuncturists, chiropractors, herbalists or naturopaths, massage therapists, osteopaths, yoga and meditation practitioners, aromatherapists, reflexologists, reiki therapists, traditional Chinese medicine practitioners, craniosacral therapists) [10–21].

Back pain sufferers who use CAM do so alongside seeking care from conventional medical and allied health care providers [12–16], with the occasional exception of exclusive CAM use [13]. US research (n=808) on women reported that 41 % of participants suffered back pain, and 34 % of these had used CAM to treat their condition [11]. Back pain sufferers who consult a medical practitioner are more likely to consult a chiropractor or acupuncturist [12] when compared with those who do not consult a medical practitioner. While there is cultural and political variation influencing CAM use across countries, chiropractic, massage, acupuncture, and osteopathy appear to be the most commonly used CAM modalities for treating back pain [12, 14–16].

A US national survey of adults using acupuncture (n=31,044) showed 34 % had acupuncture treatments for back pain [19]. Surveys from Europe with comparable population samples report chiropractic as amongst the most common treatments for back pain with prevalence rates around 12–14 % [10, 15]. As for other treatment providers, a survey from a US nationally representative sample found 12 % of back pain sufferers had used conventional health care [22]. An Australian study indicated that 35 % of women aged 56–61 years with back pain consulted a conventional medical practitioner [9]. Another Australian study of adults with back pain reported 25 % as consulting a GP, 13 % as consulting a physiotherapist, 10 % as consulting a pharmacist, and 1 % as consulting a nurse [2].

A lack of clinical base to guide patient decision-making

Studies on the efficacy of treatments for back pain (conventional, allied, and CAM) remain inconclusive [23–29]. The challenge facing back pain sufferers in choosing between the many practitioners available appears exacerbated by the confusion amongst different provider groups regarding each other's respective practices and approaches to back pain care [30]—a confusion which may be due to different practitioner groups holding different beliefs and attitudes towards back pain and its management [3, 15, 18, 22, 31]. As such, there is a lack of clear evidence base to guide patients' decision-making and health-seeking behavior around back pain.

Inter-professional relations across back pain care

Very little is known about the attitudes of conventional medical and allied health care practitioners towards CAM practitioners with regards to back pain care. However, there is research on the general attitude of GPs towards CAM. Australian research suggests GPs perceive acupuncture, massage, and yoga as generally effective and safe [32, 33], and either encourage use or refer patients to these therapies. In contrast, GPs appear to perceive naturopathy, chiropractic, and osteopathy as less effective and potentially more harmful [34] with GPs actively discouraging naturopathy [32]. It is not known whether this is the case with regards to back pain.

A survey of UK GPs identified substantial referrals to CAM practitioners [35] with GPs more likely to refer patients to acupuncturists, homeopaths, and massage therapists, most commonly for musculoskeletal conditions [35] in response to patient requests, when conventional treatments had failed or when certain CAM were seen as effective [35]. A US study identified that GPs did not formally refer patients to chiropractors (despite being generally positive towards chiropractic) [36]. An Australian study identified pharmacists as supportive of CAM and as recommending herbal medicines and supplements frequently for back pain [37]. Other studies highlight the central role of pharmacists in counseling customers on CAM use [38–41] and show nurses as supporting and recommending CAM to their patients [42]. However, it is not known if these results hold for back pain care.

A need for research on CAM use for back pain

Much is known about broader CAM use [15, 43]. For example, women are higher conventional and CAM treatment users than men [10–13, 16, 19], and women using CAM tend to be more educated and have higher income than those who do not use CAM [5, 9, 10, 19, 44]. Whilst in general CAM use by women is higher in urban than rural areas [44], the contrary has been shown in a large study reporting higher use of CAM amongst rural women [45]. However, few studies have investigated CAM use specific to back pain care [10, 15, 18] or differentiated CAM practitioner consultations [10, 15] from self-prescribed CAM treatments for back pain. In response, this paper examines women's consultations with a range of CAM practitioners for back pain in Australia.

Methods

Sample

This research was a sub-study of the Australian Longitudinal Study on Women's Health (ALSWH). The ALSWH was designed to investigate multiple factors affecting the health

and well-being of women over a 20-year period. Relevant ethical approval was gained from the Human ethics Committee at the University of Queensland and University of Newcastle, Australia. Women in three age groups were randomly selected from the national Medicare database and invited by mail to participate. The focus of this study is women from the 1946–1951 cohort aged 60–65 years in the sub-study survey conducted during 2011/2012. At the sixth ALSWH survey, 10,011 women consented to participate, and the respondents were shown to be broadly representative of the national population of women in the target age group. For this sub-study, 1,851 women who had indicated in the sixth ALSWH survey (2010) that they had experienced back pain were mailed a questionnaire. Of these women, 1,620 were deemed eligible, and 1,310 (80.9 %) returned completed sub-study questionnaires.

Demographic characteristics

The marital status, urban or rural residence, highest educational qualification the participants had completed, and their spending ability with regard to CAM therapies as reported in the sixth ALSWH survey during 2010 were utilized to extrapolate the demographic characteristics in this sub-study.

Consultations with CAM practitioners

The women were asked if they had consulted CAM practitioners for back pain in the previous 12 months and questioned about the frequency of consultations and the forms of CAM practice they had used (i.e., acupuncturist, aromatherapist, craniosacral therapist, chiropractor, herbalist/naturopath, massage therapist, meditation, yoga, osteopath, reflexologist, reiki therapist, traditional Chinese medicine practitioner, and any other forms of CAM). The women were also asked about their consultations with CAM practitioners for symptoms and conditions relating to back pain.

Conventional medical and allied health care utilization

Women were asked about their visits to conventional medical practitioners including GPs, specialists, and allied health care professionals (physiotherapists, occupational therapists, nurses, pharmacists).

Statistical analyses

Descriptive statistics were employed including frequencies and percentages. Pearson's chi-square tests were used to compare categorical variables. For multivariate analyses, we used logistic regression by using a technique of backward elimination model building. All analyses were conducted using the statistical software package STATA 11.2.

Results

There were 1,310 women who responded to the survey, constituting a response rate of 80.9 %. Of these women, 76.4 % ($n = 1,001$) had consulted one or more types of CAM practitioner for back pain in the previous 12 months. Table 1 reports CAM consultations by women for back pain and lists consultations with six specific forms of CAM. From a total of 1,928 consultations with a CAM practitioner, the highest number was with a massage therapist ($n = 578$, 41.4 %), followed by a chiropractor ($n = 488$, 37.3 %), acupuncturist ($n = 174$, 13.3 %), herbalist or naturopath ($n = 125$, 9.5 %), meditation or yoga practitioner ($n = 124$, 9.5 %), and osteopath ($n = 115$, 8.8 %). Women had consulted other forms of CAM practitioner such as reiki therapist, reflexologist, traditional Chinese medicine practitioner, aromatherapist, and craniosacral therapist less frequently ($n = 324$, 24.8 %).

Women with no formal education were less likely to consult an acupuncturist for back pain ($p < 0.05$). Women residing in urban areas were more likely to use a massage therapist and yoga and meditation practitioner than those in non-urban areas ($p < 0.05$) while women who were married or in a de facto relationship were more likely to consult with an osteopath ($p < 0.05$) (Table 1).

A comparison of women's consultations with CAM practitioners and their consultations with other health care providers for back pain is presented in Table 2. There were significant, positive associations between consultations with most CAM practitioners and consultations with most conventional health care practitioners. However, the likelihood of consulting with a chiropractor decreased for women who consulted with a GP or a physiotherapist ($p < 0.05$).

The women's use of specific CAM modalities for symptoms relating to back pain is provided in Table 3. With the exception of nausea, there were significant, positive associations between experiencing all other symptoms and consultations with most CAM practitioners.

Table 4 shows the results of the multiple logistic regression modeling, identifying the factors associated with CAM practitioner consultations. Women were more likely to consult an acupuncturist if they: consulted with a physiotherapist three or more times in a year (OR=2.12.95 % CI 1.49, 3.02), compared with women who did not consult with a physiotherapist, experienced headaches (OR=1.53; 95 % CI 1.09, 2.14), compared with women who did not experience headaches; or experienced leg pain (OR=1.52; 95 % CI 1.07, 2.15), compared with women who did not experience leg pain. Women were more likely to consult a chiropractor if they: experienced headaches (OR=1.42; 95 % CI 1.07, 1.89); neck pain (OR=3.12; 95 % CI 2.36, 4.14) or leg pain (OR=1.33; 95 % CI 1.02, 1.73). Women were less likely to consult with a chiropractor if they: consulted a GP one or two times per year (OR=0.70; 95 % CI 0.52, 0.95) or more than three times a year

Table 1 Women's consultations with complementary and alternative medicine (CAM) practitioners for back pain by demographic characteristics

Demographics	Acupuncturist		Chiropractor		Herbalist/naturopath		Massage therapist		Yoga/meditation		Osteopath		Other CAM		Total CAM	
	Yes n=174	No n=1,136	Yes n=488	No n=822	Yes n=125	No n=1,185	Yes n=578	No n=732	Yes n=124	No n=1,186	Yes n=115	No n=1,195	Yes n=324	No n=986	No n=1,001	No n=309
Education[a]																
No formal education	15 %	9 %	9 %	11 %	8 %	10 %	11 %	10 %	11 %	10 %	7 %	10 %	10 %	10 %	10 %	11 %
High school	37 %	40 %	39 %	40 %	38 %	40 %	41 %	39 %	39 %	40 %	44 %	40 %	41 %	39 %	39 %	41 %
Trade diploma	23 %	21 %	22 %	21 %	25 %	21 %	20 %	22 %	22 %	21 %	24 %	21 %	22 %	21 %	22 %	20 %
University	25 %	30 %	30 %	28 %	29 %	29 %	28 %	29 %	28 %	29 %	25 %	29 %	27 %	30 %	29 %	28 %
Income																
Difficult to manage	15 %	11 %	11 %	12 %	11 %	12 %	11 %	12 %	13 %	12 %	14 %	11 %	12 %	12 %	12 %	11 %
Sometimes difficult	22 %	22 %	23 %	22 %	28 %	22 %	21 %	24 %	19 %	23 %	20 %	23 %	22 %	22 %	22 %	25 %
Not too bad	47 %	45 %	46 %	44 %	43 %	45 %	47 %	43 %	49 %	44 %	47 %	45 %	48 %	44 %	46 %	40 %
Easy to manage	16 %	22 %	20 %	22 %	18 %	21 %	21 %	21 %	19 %	21 %	19 %	21 %	18 %	22 %	20 %	24 %
Marital status[b]																
Married/de facto	74 %	75 %	74 %	75 %	76 %	74 %	75 %	74 %	77 %	74 %	73 %	75 %	73 %	75 %	75 %	74 %
Separated/divorced/widowed	23 %	21 %	23 %	21 %	20 %	22 %	21 %	22 %	21 %	22 %	27 %	21 %	23 %	21 %	22 %	21 %
Never married	3 %	4 %	3 %	4 %	4 %	4 %	4 %	4 %	2 %	4 %	0 %	4 %	4 %	4 %	3 %	5 %
Residence[c, d]																
Urban	90 %	90 %	91 %	90 %	88 %	91 %	93 %	88 %	84 %	91 %	94 %	90 %	88 %	91 %	91 %	88 %
Rural	10 %	10 %	8 %	10 %	12 %	9 %	7 %	12 %	16 %	9 %	6 %	10 %	12 %	9 %	9 %	12 %

[a] Statistically significant association with acupuncturist ($p < 0.05$)

[b] Statistically significant association with osteopath ($p < 0.05$)

[c] Statistically significant association with massage therapist ($p < 0.05$)

[d] Statistically significant association with yoga/meditation ($p < 0.05$)

Table 2 Women's health service utilization and CAM consultations for back pain

Consultations	Acupuncturist Yes n=174	Acupuncturist No n=1,136	Chiropractor Yes n=488	Chiropractor No n=822	Herbalist/naturopath Yes n=125	Herbalist/naturopath No n=1,185	Massage therapist Yes n=578	Massage therapist No n=732	Yoga/meditation Yes n=124	Yoga/meditation No n=1,186	Osteopath Yes n=115	Osteopath No n=1,195	Other CAM Yes n=324	Other CAM No n=986	Total CAM Yes n=1,001	Total CAM No n=309
GP[a, b, c, g]																
Never	35 %	45 %	53 %	38 %	29 %	45 %	40 %	46 %	37 %	44 %	44 %	44 %	37 %	46 %	44 %	41 %
1 or 2 times	30 %	24 %	22 %	27 %	29 %	24 %	27 %	24 %	23 %	25 %	22 %	25 %	27 %	24 %	25 %	26 %
More than 3 times	35 %	31 %	25 %	35 %	42 %	30 %	33 %	30 %	40 %	31 %	34 %	31 %	36 %	30 %	31 %	32 %
Orthopedic Surgeon[c, e]																
Never	90 %	92 %	93 %	91 %	86 %	92 %	91 %	92 %	87 %	92 %	89 %	92 %	91 %	92 %	92 %	91 %
1 or 2 times	6 %	6 %	5 %	7 %	8 %	6 %	7 %	6 %	9 %	6 %	9 %	6 %	7 %	6 %	6 %	6 %
More than 3 times	4 %	2 %	2 %	2 %	6 %	2 %	2 %	2 %	4 %	2 %	2 %	2 %	2 %	2 %	2 %	3 %
Neurologist																
Never	93 %	96 %	96 %	96 %	95 %	96 %	96 %	96 %	94 %	96 %	95 %	96 %	95 %	96 %	96 %	95 %
1 or 2 times	5 %	3 %	3 %	3 %	2 %	3 %	3 %	3 %	4 %	3 %	4 %	3 %	4 %	3 %	3 %	3 %
More than 3 times	2 %	1 %	1 %	1 %	3 %	1 %	1 %	1 %	2 %	1 %	1 %	1 %	1 %	1 %	1 %	2 %
Rheumatologist																
Never	93 %	94 %	95 %	93 %	90 %	94 %	92 %	94 %	92 %	94 %	94 %	94 %	92 %	94 %	94 %	93 %
1 or 2 times	4 %	4 %	3 %	5 %	5 %	4 %	5 %	4 %	5 %	4 %	3 %	4 %	5 %	4 %	4 %	4 %
More than 3 times	3 %	2 %	2 %	2 %	5 %	2 %	3 %	2 %	3 %	2 %	3 %	2 %	3 %	2 %	2 %	3 %
Physiotherapist[a, b, d, e, g, h]																
Never	49 %	65 %	69 %	59 %	65 %	63 %	54 %	70 %	56 %	64 %	65 %	63 %	52 %	66 %	61 %	69 %
1 or 2 times	13 %	13 %	13 %	13 %	12 %	13 %	15 %	11 %	20 %	12 %	15 %	13 %	15 %	13 %	13 %	13 %
More than 3 times	38 %	22 %	18 %	28 %	23 %	24 %	31 %	19 %	24 %	24 %	21 %	24 %	33 %	21 %	26 %	18 %
Occupational therapist[c, e, f, g]																
Never	97 %	97 %	98 %	96 %	94 %	98 %	96 %	98 %	94 %	97 %	95 %	97 %	96 %	98 %	97 %	97 %
1 or 2 times	1 %	2 %	1 %	2 %	4 %	1 %	2 %	1 %	3 %	2 %	4 %	1 %	3 %	1 %	2 %	1 %
More than 3 times	2 %	1 %	1 %	2 %	2 %	1 %	2 %	1 %	3 %	1 %	1 %	2 %	1 %	1 %	1 %	2 %
Nurse[a, d, e, g]																
Never	94 %	97 %	97	96 %	93 %	97 %	96 %	97 %	93 %	97 %	93 %	95 %	95 %	97 %	96 %	97 %
1 or 2 times	1 %	1 %	1 %	1 %	3 %	1 %	2 %	1 %	5 %	1 %	2 %	1 %	3 %	1 %	2 %	1 %
More than 3 times	5 %	2 %	2 %	3 %	4 %	2 %	2 %	2 %	2 %	2 %	5 %	2 %	2 %	2 %	2 %	2 %

Table 2 (continued)

Consultations	Acupuncturist		Chiropractor		Herbalist/naturopath		Massage therapist		Yoga/meditation		Osteopath		Other CAM		Total CAM	
	Yes $n=174$	No $n=1,136$	Yes $n=488$	No $n=822$	Yes $n=125$	No $n=1,185$	Yes $n=578$	No $n=732$	Yes $n=124$	No $n=1,186$	Yes $n=115$	No $n=1,195$	Yes $n=324$	No $n=986$	Yes $n=1,001$	No $n=309$
Pharmacist[c, d, e, h]																
Never	79 %	78 %	79 %	77 %	62 %	80 %	73 %	82 %	67 %	78 %	73 %	78 %	74 %	79 %	76 %	84 %
1 or 2 times	9 %	10 %	10 %	10 %	12 %	9 %	13 %	7 %	11 %	10 %	12 %	10 %	11 %	10 %	11 %	7 %
More than 3 times	12 %	12 %	11 %	13 %	26 %	11 %	14 %	11 %	22 %	12 %	15 %	12 %	15 %	11 %	13 %	9 %

[a] Statistically significant association with acupuncturist ($p < 0.05$)

[b] Statistically significant association with chiropractor ($p < 0.05$)

[c] Statistically significant association with herbalist/naturopath ($p < 0.05$)

[d] Statistically significant association with massage therapist ($p < 0.05$)

[e] Statistically significant association with yoga/meditation ($p < 0.05$)

[f] Statistically significant association with osteopath ($p < 0.05$)

[g] Statistically significant association with other CAM ($p < 0.05$)

[h] Statistically significant association with total CAM consultations ($p < 0.05$)

(OR=0.56; 95 % CI 0.41, 0.76), compared with women who did not consult a GP; consulted a physiotherapist more than three times a year (OR=0.53; 95 % CI 0.39, 0.72), compared with women who did not consult with a physiotherapist; experienced sleeping problems (OR=0.74, 95 % CI 0.56, 0.99); or experienced muscle spasms (OR=0.74, 95 % CI 0.56, 0.97). Women were more likely to consult a herbalist or naturopath if they: consulted a pharmacist three or more times per year (OR=2.42; 95 % CI 1.51, 3.89), compared with women who did not consult a pharmacist; experienced neck pain (OR=1.7; 95 % CI 1.09, 2.63); fatigue (OR=2.02; 95 % CI 1.32, 3.09); or anxiety and tension (OR=1.83; 95 % CI 1.19, 2.8).

Women were more likely to consult a massage therapist if they: consulted a physiotherapist three or more times a year (OR=2.03; 95 % CI 1.54, 2.69), compared with women who did not consult a physiotherapist; consulted a nurse one or two times per year (OR=4.8; 95 % CI 1.3, 17.69), compared with women who did not consult a nurse; consulted a pharmacist one or two times per year (OR=2.08; 95 % CI 1.4, 3.09), compared with women who did not consult a pharmacist; experienced neck pain (OR=1.94; 95 % CI 1.49, 2.54); arm pain (OR=1.36; 95 % CI 0.02, 1.8); stiffness (OR=1.47; 95 % CI 1.13, 1.92); or anxiety and tension (OR=1.34; 95 % CI 1.01, 1.78). Women were less likely to consult a massage therapist if they: resided in an urban area (OR=0.55; CI 0.36, 0.82); or experienced weakness (OR=0.52; 95 % CI 0.37, 0.73). Women were more likely to consult a yoga and meditation practitioner if they: consulted with a nurse one or two times in a year (OR= 3.57; 95 % CI 1.25, 10.18), compared with women who did not consult a nurse; consulted with a pharmacist three or more times a year (OR=2.14; 95 % CI 1.29, 3.54), compared with women who did not consult a pharmacist; or experienced fatigue (OR=1.81; 95 % CI 1.22, 2.7). Women were more likely to consult an osteopath if they: consulted with a nurse three or more times in a year (OR=3.4; 95 % CI 1.29, 8.92), compared with women who did not consult a nurse; experienced neck pain (OR=1.85; 95 % CI 1.16, 2.96); or instability (OR=1.98; 95 % CI 1.07, 3.67). However, women were 0.58 (95 % CI 0.36, 0.92) times less likely to consult an osteopath if they experienced sleeping problems, compared with women who did not experience sleeping problems.

Discussion

This paper presents the first examination of CAM practitioner consultancy patterns for back pain within the context of wider care options from the survey of a large, nationally representative sample of Australian women aged 60 to 65 years. Our analysis identifies four key findings. First, our analysis reveals a high level of CAM practitioner use for back pain with more than three quarters of the women consulting a CAM

Table 3 CAM consultations by women for associated symptoms

Symptoms		Acupuncturist		Chiropractor		Herbalist/naturopath		Massage therapist		Yoga/meditation		Osteopath		Other CAM		Total CAM	
		Yes n=174	No n=1,136	Yes n=488	No n=822	Yes n=125	No n=1,185	Yes n=578	No n=732	Yes n=124	No n=1,186	Yes n=115	No n=1,195	Yes n=324	No n=986	Yes n=1,001	No n=309
Headaches[a, b, c, d, e, f, h]	Yes	40 %	28 %	38 %	25 %	41 %	29 %	36 %	25 %	40 %	29 %	39 %	29 %	30 %	30 %	33 %	18 %
	No	60 %	72 %	62 %	75 %	59 %	71 %	64 %	75 %	60 %	71 %	61 %	71 %	70 %	70 %	67 %	82 %
Nausea	Yes	13 %	11 %	12 %	11 %	18 %	11 %	13 %	10 %	13 %	11 %	10 %	11 %	14 %	11 %	12 %	8 %
	No	87 %	89 %	88 %	89 %	82 %	89 %	87 %	90 %	87 %	89 %	90 %	89 %	86 %	89 %	88 %	92 %
Neck pain[a, b, c, d, e, f, h]	Yes	70 %	58 %	76 %	50 %	75 %	58 %	71 %	51 %	69 %	59 %	75 %	58 %	64 %	58 %	68 %	33 %
	No	30 %	42 %	24 %	50 %	25 %	42 %	29 %	49 %	31 %	41 %	25 %	42 %	36 %	42 %	32 %	67 %
Leg pain[a, b, c, d, f, g, h]	Yes	68 %	55 %	61 %	54 %	69 %	55 %	61 %	53 %	60 %	56 %	66 %	56 %	63 %	55 %	60 %	45 %
	No	32 %	45 %	39 %	46 %	31 %	45 %	38 %	47 %	40 %	44 %	34 %	44 %	37 %	45 %	40 %	55 %
Arm pain[a, b, c, d, e, h]	Yes	39 %	29 %	34 %	27 %	38 %	29 %	37 %	24 %	38 %	29 %	35 %	30 %	33 %	29 %	33 %	20 %
	No	61 %	71 %	66 %	73 %	62 %	71 %	63 %	76 %	62 %	71 %	65 %	70 %	67 %	71 %	67 %	80 %
Pins and needles, numbness[a, c, d, h]	Yes	40 %	30 %	33 %	31 %	42 %	31 %	35 %	29 %	35 %	31 %	37 %	31 %	34 %	31 %	34 %	24 %
	No	60 %	70 %	67 %	69 %	58 %	69 %	65 %	71 %	65 %	69 %	63 %	69 %	66 %	69 %	66 %	76 %
Stiffness[a, c, d, e, g, h]	Yes	57 %	44 %	50 %	43 %	62 %	44 %	54 %	39 %	55 %	45 %	59 %	44 %	49 %	44 %	51 %	30 %
	No	43 %	56 %	50 %	57 %	38 %	56 %	46 %	61 %	45 %	55 %	41 %	56 %	51 %	56 %	49 %	70 %
Fatigue[a, c, d, e, g, h]	Yes	31 %	24 %	26 %	24 %	48 %	23 %	28 %	23 %	38 %	24 %	30 %	25 %	31 %	23 %	27 %	20 %
	No	69 %	76 %	74 %	76 %	52 %	77 %	72 %	77 %	62 %	76 %	70 %	75 %	69 %	77 %	73 %	80 %
Weakness[c, e]	Yes	22 %	19 %	19 %	19 %	30 %	18 %	19 %	20 %	26 %	18 %	21 %	19 %	21 %	18 %	20 %	16 %
	No	78 %	81 %	81 %	81 %	70 %	82 %	81 %	80 %	74 %	82 %	79 %	81 %	79 %	82 %	80 %	84 %
Depression[a, c, d, h]	Yes	26 %	19 %	20 %	19 %	36 %	18 %	23 %	17 %	25 %	19 %	23 %	19 %	22 %	19 %	21 %	15 %
	No	74 %	81 %	80 %	81 %	64 %	82 %	77 %	83 %	75 %	81 %	77 %	81 %	78 %	81 %	79 %	85 %
Sleeping problems[a, b, c, d, g]	Yes	40 %	32 %	29 %	35 %	50 %	31 %	37 %	30 %	37 %	32 %	30 %	33 %	40 %	30 %	33 %	30 %
	No	60 %	68 %	71 %	65 %	50 %	69 %	63 %	70 %	63 %	68 %	70 %	67 %	60 %	70 %	67 %	70 %
Instability[c, e, f]	Yes	9 %	8 %	7 %	9 %	18 %	7 %	8 %	8 %	14 %	8 %	15 %	8 %	9 %	8 %	8 %	7 %
	No	91 %	92 %	93 %	91 %	82 %	93 %	92 %	92 %	86 %	92 %	85 %	92 %	91 %	92 %	92 %	93 %
Muscle spasm[a, c, d, e, f, h]	Yes	42 %	32 %	32 %	35 %	46 %	32 %	41 %	28 %	44 %	33 %	42 %	33 %	35 %	33 %	36 %	25 %
	No	58 %	68 %	68 %	65 %	54 %	68 %	59 %	72 %	56 %	67 %	58 %	67 %	65 %	67 %	64 %	75 %
Anxiety/tension[c, d, e, g, h]	Yes	32 %	25 %	26 %	26 %	48 %	23 %	30 %	22 %	37 %	25 %	24 %	26 %	33 %	24 %	28 %	19 %
	No	68 %	75 %	74 %	74 %	52 %	77 %	70 %	78 %	63 %	75 %	76 %	74 %	67 %	76 %	72 %	81 %

[a] Statistically significant association with acupuncturist (p <0.05)

[b] Statistically significant association with chiropractor (p <0.05)

[c] Statistically significant association with herbalist/naturopath (p <0.05)

[d] Statistically significant association with massage therapist (p <0.05)

[e] Statistically significant association with yoga/meditation (p <0.05)

[f] Statistically significant association with osteopath (p <0.05)

[g] Statistically significant association with other CAM consultations (p <0.05)

[h] Statistically significant association with total CAM consultations (p <0.05)

Table 4 Factors associated with use of CAM by women suffering from back pain

	Acupuncturist		Chiropractor		Herbalist/ naturopath		Massage therapist		Yoga/ meditation		Osteopath		Other CAM		Total CAM	
	OR	P values	OR	P values	OR	P values	OR	P values	OR	P values	OR	P values	OR	P values	OR	P values
Are a of residence																
Urban							0.55	0.004	2.05	0.01						
GP use																
Never																
1 or 2 times			0.70	0.02												
More than 3 times			0.56	<0.001											0.66	0.01
Physiotherapist																
Never																
1 or 2 times							1.56	0.01								
3 or more times	2.12	<0.001	0.53	<0.001			2.03	<0.001					1.96	<0.001		
Occupational therapist																
Never																
1 or 2 times											2.8	0.03				
More than 3 times																
Nurse																
Never																
1 or 2 times							4.8	0.02	3.57	0.02						
More than 3 times											3.4	0.01				
Pharmacist																
Never																
1 or 2 times							2.08	<0.001							1.99	0.009
More than 3 times					2.42	<0.001			2.14	0.003					1.99	0.005
Headaches	1.53	0.01	1.42	0.01												
Neck pain			3.12	<0.001	1.7	0.02	1.94	<0.001			1.85	0.01			3.77	<0.001
Leg pain	1.52	0.02	1.33	0.04												
Arm pain							1.36	0.04								
Stiffness							1.47	0.004							1.58	0.003
Fatigue					2.02	<0.001			1.81	0.003						
Weakness							0.52	<0.001								
Sleeping problems			0.74	0.04							0.58	0.02				
Instability											1.98	0.03				
Muscle spasm			0.74	0.03												
Anxiety/tension					1.83	0.01	1.34	0.04					1.56	0.002		

practitioner alongside conventional and allied health care practitioners. The high level of CAM practitioner use for back pain is in line with results from previous studies on CAM utilization amongst women [11] and the wider population [2, 9]. Women's use of conventional medical and allied health care practitioners alongside CAM practitioners suggests that women may take an explorative approach wherein they try out different treatment options due to lack of efficacious treatments. When considered alongside the fact that back pain sufferers often choose not to disclose CAM use to their GP due to presumed GP disinterest or disapproval [11, 43], the possibility of reduced opportunities for optimal communication between patients and their health care practitioners on treatment options for back pain is highlighted.

Our analysis also shows that the income, educational level, and marital status of the women does not influence their consultations with CAM practitioners or their consultations with other health care practitioners for the treatment of their back pain. This finding contrasts to those from previous studies where higher income and higher education were characteristic of women's CAM usage [11–13, 16]. Although our bivariate analysis shows women with "no formal education" consult acupuncturists less frequently, our stepwise multiple regression model disproved such an association. Back pain

sufferers may consult CAM practitioners due to low availability of efficacious conventional medical treatments for back pain [24, 26] and the possibility of adverse effects associated with pharmaceutical treatments [23, 27]. Additionally, as benefits from CAM treatments and other allied health care options [25, 28, 29] are only short term, back pain sufferers may be explorative in their choices of treatments irrespective of their socioeconomic position. The significant use of CAM practitioners by women alongside conventional medical and allied health care practitioner use raises questions about possible variations in back pain sufferers' notions of effectiveness of treatments, which requires further research.

Our analysis shows no association between women's consultations with CAM practitioners for back pain and their urban or rural residence, except for consultations with yoga and meditation practitioners and massage therapists, wherein women tended to reside in urban areas. Previous research has identified a mixed pattern of CAM use across urban and rural locations with different studies identifying greater use of CAM by women in urban areas [44] and rural areas [45]. Our finding that women who consult a yoga and meditation practitioner or a massage therapist predominantly reside in urban areas highlights the need for further research to determine the role of access to CAM practitioners in women's decision-making regarding their back pain treatment.

Third, our analysis shows women's consultations with chiropractors are diminished with increased consultations with conventional medical practitioners and physiotherapists. Although previous research has suggested conventional medical practitioners and allied health care providers favor chiropractors more readily than other CAM practitioners [12, 36], our finding identifies a potential discordance between GPs and physiotherapists on the one hand and chiropractors on the other. Despite some evidence on inter-professional discordance [34], further research is necessary to examine the extent to which such an assumption of discordance is based on conventional medical and allied health care practitioners' perceptions of the efficacy of chiropractic in back pain care or inter-professional competition in this area of health care provision. Furthermore, our analysis shows that back pain sufferers who consult a GP more frequently seek less help from CAM practitioners, indicating a possible discouragement of CAM use by GPs. This finding does appear to be in line with previous research indicating GP caution regarding CAM treatments for back pain [32].

Fourth, our study reveals women's higher CAM practitioner use for back pain is associated with frequent pharmacist visits. Pharmacists may be a key source of information on CAM for back pain sufferers as previous research has identified pharmacists as supportive of CAM and as having an important role in counseling customers on CAM use [38, 39, 41]. It is likely that pharmacists would be familiar with over-the-counter CAM products for back pain as pharmacists can sell non-pharmaceutical remedies. However, recent research suggests pharmacists have limited knowledge or confidence in suggesting CAM treatments to customers [38]. Alternatively, the customer and vendor relationship within the context of pharmacist visits may facilitate professional dialogue about CAM decision-making for back pain treatments especially given that pharmacists consider CAM sales an important source of pharmacy income [40]. Further research is necessary to examine the impact of pharmacists on decision-making of back pain sufferers' regarding CAM practitioner use.

The interpretation of our findings is limited by the fact that women's care-seeking for back pain is self-reported by the participants, and the results may be potentially affected by recall bias. Despite this, the ALSWH is a respected source of data for epidemiological research in Australia, and these limitations are countered by the insights provided by the first focused analysis of back pain sufferers' utilization of CAM practitioners amidst other back pain care options.

Conclusions

Our study identifies substantial CAM practitioner use by women with back pain within a broader field of provision, and given the extent of concurrent care identified, there is a need for further research to examine the communication between patients and practitioners as well as across the diverse groups of providers offering back pain care. It is also important that future research investigate the decision-making and information-seeking of back pain patients in relation to the possible use of CAM practitioners amongst other available service providers.

Disclosures None

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