Associations between the use of complementary and alternative medications and demographic, health and lifestyle factors in mid-life Australian women

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S. Gollschewski, D. Anderson, H. Skerman and P. Lyons-Wall*
Centre for Health Research, Queensland University of Technology, Brisbane; *School of Public Health, Queensland University of Technology, Brisbane, Australia

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ABSTRACT
Objective To determine the prevalence and types of complementary and alternative medications (CAMs) used by menopausal women living in South-East Queensland, Australia; and profile the women who are using CAMs through sociodemographic characteristics, self-rated health status, lifestyle and preventative health strategies.
Method This study was a secondary data analysis of data collected by postal questionnaire from 886 women aged 48–67 years participating in the Queensland Midlife Women’s Health Study. The outcome measure was CAM use, distinguished by three categories: herbal therapies, phytoestrogens and nutritional intake (supplements and healthy eating).

Results The overall prevalence of CAM use among mid-life Australian women was 82% which included therapeutic techniques (83%), nutritional supplements (66.8%), phytoestrogens (55.8%), herbal therapies (41.3%), Evening Primrose oil (34%) and vitamin E (28.8%). CAM users, when compared to non-users, were more likely to be previous (p<0.05) but not current users (p>0.05) of hormone therapy (HT), higher educated (p<0.05), low to middle income earners (p<0.001) and have participated in self-breast examination (p<0.01). They were also more likely to report good general health (p<0.05) and improved physical functioning without limitations due to health (p<0.05). CAM users were less likely to be aged over 55 years (p<0.05) and smoke more than 20 cigarettes per day (p<0.001).

Conclusions/implications for health research As prevalence of current CAM use in this population group is considerably higher than HT use, health education programs to assist mid-life women to understand the scientific evidence (or lack of it) for their efficacy is recommended.

INTRODUCTION
Improving current and future health status and well-being is an important consideration during menopause1. Symptoms of menopause, particularly vasomotor symptoms such as hot flushes and night sweats, can adversely affect the quality of a woman’s life2,3. The symptoms associated with use of complementary and alternative medications (CAMs) during menopause have been previously explored in a study of 886 Australian menopausal women; anxiety and vasomotor symptoms were a predictor of CAM use during the menopause4. Factors such as changes in social, emotional and physical health, which often coincide with the
menopause transition, can also affect women’s health and are just as relevant and important to measure as vasomotor symptoms. A qualitative exploration of the experiences of 16 menopausal women found that menopause itself was not considered an important event; however, health, family and marriage problems occurring during the menopause transition were perceived as crucial and detrimental to health.

CAMs have been broadly defined by the World Health Organization to include a wide range of medications, beliefs, techniques and exercises and, from the perspective of menopause, they have the potential to address menopause symptoms as well as improve general health status. This definition highlights the importance of CAMs as a multitreatment approach to prevent illness and maintain well-being, rather than to treat or cure illness. While clinical trials have been undertaken to test the clinical effectiveness of specific CAMs including phytoestrogens and herbal therapies such as Chinese herbs and dong quai, the literature indicates that the treatment effect is often equal or exhibits no change to the placebo. For example, for phytoestrogens, a decrease in the frequency of flushes or symptoms was evident, although, in most cases, participants in the placebo group also experienced a similar decrease. Despite a lack of scientific evidence proving the efficacy of CAMs, the use of CAMs is evident in both the general and menopause literature. In Australia, a study of adults found that just over one-half were using at least one non-physician-prescribed CAM, with a further 27% using two or more. The study also indicated an increase in women’s use of CAMs from 55% in 1993 to 60% in 2000 (p<0.01). In the American population, a 7-year follow-up study found a 36% increase in visits to alternative practitioners and a 65% increase in the total.

CAMs used between 1990 and 1997. Specifically, the literature signified that women, particularly Caucasian and of menopausal age, were more likely to use CAMs. Studies with Western menopausal women have indicated that CAM use ranged from 22 to 61% between 1990 and 1997. In American women aged 45–65 years, 22% used CAMs to treat menopausal symptoms; herbal and naturopathic remedies (13%) were the most common, followed by relaxation (9%) and dietary soy supplements (7%). In 1604 American menopausal women, 48.5%, used at least one CAM, with nutritional remedies (31.8%) the most commonly cited. In the Australian context, 14% of women used CAMs specifically to treat menopausal symptoms and, in a further study of women aged 45–54 years, 61% consumed healthy foods and 61% participated in regular physical activity.

The reviewed literature has reflected that, despite a lack of scientific evidence about the efficacy of CAMs in reducing symptoms, women are using CAMs during menopause. This present study has two aims: first, to quantify the prevalence and types of CAMs used by women living in South-East Queensland during the menopause and, second, to profile the women who are using CAMs during this transition through sociodemographic characteristics, self-rated health status, lifestyle and preventative health strategies.

METHODS

Subjects
Participants were a cross-sectional sample of women aged between 45 and 60 years living in South-East Queensland, Australia. Women living within one of six postcodes selected to present urban and rural areas were randomly selected from the electoral roll. From this sample, 1500 women were randomly selected to participate in
the study. Of the 1500 questionnaires distributed, 886 were completed and returned for analysis, giving an overall response rate of 59%. Ethical approval was granted by Queensland University of Technology Human Ethics Committee.

**Data collection**

A 73-item postal questionnaire was sent to participants to collect information on sociodemographic characteristics, menopausal status, self-rated health status, menopausal symptoms and the Complementary medicine in mid-life Australian women Golshewski et al. 272 Climacteric types of medications and therapies used during the menopause. Data on menopausal symptoms were also collected and the results are published elsewhere 4. Sociodemographic data included age, education level, income, employment status and ethnicity. Menopausal status was determined by questions relating to menstrual history, used with permission from McKinlay at the New England Research Institute, Boston. Women were grouped into four categories: premenopausal, with no irregularity in the past year and had menstruated in the previous 3 months; perimenopausal, with irregular menstruation over the previous year but had menstruated in past 3 months or irregular menstruation over the previous year but no menstruation in past 3 months; postmenopausal, did not menstruate in the previous year; and surgical menopause, hysterectomy and/or a bilateral oophorectomy. Self-rated health status over the previous month was measured using the Short-Form 36 (SF-36), a generic tool which measures eight dimensions of physical and mental health status: general health, physical functioning, social functioning (impact of health on social activities), role limitations: emotional (restrictions due to emotional health), role limitations: physical (restrictions due to physical health), vitality, mental health, and bodily pain28. It has been administered internationally in over 260 clinical trials28 and, in the context of menopause, the SF-36 has been used to compare the quality of life of users and non-users of hormone therapy (HT)29,30 and women attending primary care clinics31.

CAM use in the sample was measured in three categories: herbal therapies, phytoestrogens and nutritional intake. A list of eight herbal therapies was provided including wild yam cream, topical progesterone cream, dong quai, black cohosh, vitamin E, Evening Primrose oil, ginseng and red clover, and women were asked to indicate if they had ever used these supplements for menopausal symptoms. Phytoestrogen intake was measured by the current use of supplements, including Promensil and Phytolife, and whether women had consumed any of the 11 dietary phytoestrogens listed, including soy and linseed products over the previous month. Nutritional intake was measured through healthy eating, defined as eating healthy foods to improve health, and dietary supplements, including vitamins or minerals consumed over the previous month. Lifestyle factors were measured by smoking status and current or previous use of HT. Preventative health strategies were measured by women’s use of professional breast screening, Papanicolaou smears and breast self-examinations performed within the past 2 years.

**Statistical analysis**

Characteristics of the sample were described using frequencies. Unadjusted odds ratios were used to identify associations; these relationships were investigated at the multivariate level using binary logistic regression after adjustment for demographics factors, self-rated health status, lifestyle and preventative health strategies. Data are
presented as the odds ratio (OR) with 95% confidence interval (CI). Analysis of the SF-36 was undertaken according to the SF-36 Health Survey Manual and Interpretation Guide. Out of range values were recoded as missing and items were reverse-scored as specified and, where necessary, missing values were substituted with mean total scores. Raw scores were calculated for each of the eight dimensions and then recoded to create transformed scale scores. Scoring checks were performed to ensure accuracy of the scores produced. The scores are situated on a scale of 1–100, with a higher score indicating a better rate of self-perceived health status. Scores are presented as the mean (standard deviation). The Statistical Package for Social Science (SPSS version 10) was used for the quantitative data analysis and statistical significance for this study was set at p ≤ 0.05.

RESULTS

Table 1 Prevalence of use of complementary and alternative medications in the sample

<table>
<thead>
<tr>
<th>Variables</th>
<th>Percentage</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Herbal therapies*</td>
<td>41.3</td>
<td>886</td>
</tr>
<tr>
<td>Evening Primrose oil</td>
<td>34.0</td>
<td>698</td>
</tr>
<tr>
<td>Vitamin E</td>
<td>28.8</td>
<td>663</td>
</tr>
<tr>
<td>Ginseng</td>
<td>13.3</td>
<td>633</td>
</tr>
<tr>
<td>Red clover</td>
<td>10.5</td>
<td>627</td>
</tr>
<tr>
<td>Nutrition</td>
<td>66.8</td>
<td>886</td>
</tr>
<tr>
<td>Healthy eating</td>
<td>64.9</td>
<td>613</td>
</tr>
<tr>
<td>Nutritional supplements</td>
<td>47.0</td>
<td>872</td>
</tr>
<tr>
<td>Phytoestrogens</td>
<td>55.8</td>
<td>886</td>
</tr>
<tr>
<td>Phytoestrogen supplements</td>
<td>33.0</td>
<td>224</td>
</tr>
<tr>
<td>Phytoestrogens consumed in diet</td>
<td>60.6</td>
<td>725</td>
</tr>
</tbody>
</table>

*Wild yam cream, dong quai, black cohosh and tropical progesterone cream were less than 10% respectively.

CAM use and demographic, self-rated health status, lifestyle factors and preventative health strategies. Women who used herbal therapies were more likely to experience good general health, (OR = 1.01, CI = 1.00–1.02; p = 0.03), be aged under 55 years (OR = 0.72, CI = 0.53–0.99; p = 0.05), have previously used HT (OR = 1.76, CI = 1.16–2.68; p = 0.008) and participated in self breast examinations over the previous 2 years (OR = 1.69, CI = 1.34–2.52; p = 0.01), but were less likely to be current users of HT (OR = 0.63, CI = 0.41–0.97; p = 0.04). Women who used phytoestrogens were more likely to experience good physical functioning without limitations due to health (OR = 1.01, CI = 1.00–1.02; p = 0.02), be aged under 55 years (OR = 0.73, CI = 0.53–0.99; p = 0.05) and have obtained trade/technical qualifications (OR = 2.33, CI = 1.44–3.77; p = 0.001) or university.
degree (OR = 1.81, CI = 1.15–2.84; p = 0.010). Women who used nutrition were more likely to experience good physical functioning without limitations due to health (OR = 1.01, CI = 1.00–1.02; p = 0.04), be educated for more than 10 years, with a linear trend towards CAM use with increasing education levels: 11–12 years (OR = 1.76, CI = 1.09–2.82; p50.05), trade/technical (OR = 2.02, CI = 1.21–3.39; p 40.05), university (OR = 2.47, CI = 1.48–4.12; p 40.001). Women who used nutrition were also more likely to be low to middle income earners (OR = 2.29, CI = 1.41–3.71; p = 0.001), have participated in self-breast examinations over the previous 2 years (OR = 1.68, CI = 1.13–2.50; p = 0.01) but less likely to smoke more than 20 cigarettes per day (OR = 0.18, CI = 0.07–0.47; p = 0.000). No statistically significant associations were present between herbal therapies, phytoestrogens and nutritional intake for employment status, menopause status, social functioning, mental health, role-emotional, role-physical, vitality, body pain, professional breast checks and Papanicolaou smears. These results are summarized in Figure 1 to present the profile of a CAM user during menopause.

Table 2 Short-form-36 scores in the sample compared to Australian norms (mean ± standard equivalent)*

<table>
<thead>
<tr>
<th></th>
<th>Present study 47–67 years</th>
<th>Australian norms1 45–54 years</th>
<th>Australian norms1 55–64 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>General health</td>
<td>70.7 ± 0.7</td>
<td>72.9 ± 0.7</td>
<td>68.1 ± 0.9</td>
</tr>
<tr>
<td>Physical functioning</td>
<td>81.2 ± 0.6</td>
<td>81.8 ± 0.8</td>
<td>75.2 ± 1.1</td>
</tr>
<tr>
<td>Social functioning</td>
<td>87.6 ± 0.7</td>
<td>85.7 ± 0.8</td>
<td>84.6 ± 1.1</td>
</tr>
<tr>
<td>Role-emotional</td>
<td>84.3 ± 1.0</td>
<td>84.0 ± 1.2</td>
<td>80.6 ± 1.5</td>
</tr>
<tr>
<td>Role-physical</td>
<td>80.7 ± 1.1</td>
<td>81.0 ± 1.2</td>
<td>72.9 ± 1.7</td>
</tr>
<tr>
<td>Vitality</td>
<td>61.4 ± 0.7</td>
<td>64.5 ± 0.7</td>
<td>63.0 ± 0.9</td>
</tr>
<tr>
<td>Mental health</td>
<td>75.9 ± 0.6</td>
<td>75.5 ± 0.6</td>
<td>75.0 ± 0.8</td>
</tr>
<tr>
<td>Bodily pain</td>
<td>72.1 ± 0.8</td>
<td>74.8 ± 0.9</td>
<td>70.9 ± 1.2</td>
</tr>
</tbody>
</table>

*The scores are situated on a 1–100 scale, with a higher score indicating greater self-perceived health status;
1Australian Bureau of Statistics, 1995

DISCUSSION
CAMs have been broadly defined by the World Health Organization to include a wide range of medications, beliefs, techniques and exercises. In the current study, CAMs were defined to include both ingestible medications and therapies, and were grouped within three categories. The findings indicate that, in this population-based sample of
menopausal women aged 45–67 years in South-East Queensland, Australia, the use of CAMs is high, with 82% of women reported using at least one type of CAM. The most commonly cited CAM was nutritional intake (67%), followed by phytoestrogens (56%) and herbal therapies (41%).

In the general American and Australian populations, the prevalence of CAM use ranged from 42 to 60%20,23, with 11–16% citing use of herbal therapies and 6–41% using vitamins. In studies of American menopausal women, 22% had used CAMs specifically to treat menopausal symptoms, with herbal and naturopathic remedies (13%), relaxation (9%) and dietary soy supplements (7%) the three most commonly used26. The prevalence was higher in Japanese women aged 40–59 years, where 76% cited use of at least one CAM, with healthy eating habits (44%) the most commonly used32. However, comparisons with the previous literature are limited since the concept of CAMs and the modalities included in this group are debatable and widely varied in different studies. For example, in a study by Eisenberg and colleagues (1998) in 1539 adult Americans in 1991 and in a further 2055 in 1997, CAM use was measured as one of 16 therapies including relaxation techniques, herbal medicine, massage, vitamins, spiritual healing, energy healing and acupuncture20. Our definition of CAMs included herbal therapies, phytoestrogens consumed via the diet and supplementation and nutritional intake measured through healthy eating and nutritional supplementation. Methodological differences in the sampling frames, tools used to measure CAMs and the time frame of CAM use could also have contributed to the observed variation in prevalence.

This study also sought to profile the type of women using CAMs during the menopause by exploring the associations between the three CAM categories and demographic, self-rated health status, lifestyle or preventative health characteristics (Figure 1). Users of at least one CAM category were 1.7–2.5 times more likely to have higher education levels, a low to middle income, be aged under 55 years, previous users of HT and have participated in self-breast examination; CAM users were 40–90% less likely to be currently using HT or to smoke more than 20 cigarettes per day. The consistency of these associations varied across the different CAM categories. For example, trends towards a higher education level were observed with one category; the trend towards decreased smoking was observed across two CAM categories, while associations with HT or younger age were observed in one or two categories, respectively. The SF-36 questionnaire reported health status in eight dimensions of physical, social or mental health. In our group, mean SF-36 scores were comparable to the norms for women of the same age33, especially the younger cohort aged 45–54 years, which could reflect that the majority of our sample (61%) were under 55 years (Table 2). Results showed that CAM users were more likely to experience good general health and physical functioning without limitations due to health. While these results suggest that CAM users generally perceive themselves as having better health than non-users, the magnitude of the effect was relatively small. Further studies are therefore required to clarify the association between CAM use and self-reported health status. The associations identified in our study are similar to those identified in a previous Australian study conducted in the general population by MacLennan and colleagues23, who found that CAM users were more likely to be female, in the
younger age group and employed with postsecondary education. Newton and colleagues26, in a sample of American women, also identified that users of any alternative therapy, including soy products, herbal and homeopathic therapies, were less likely to be current users of HT. Our profile of a CAM user has some features in common with that of HT users1. In a study of American women aged 40–65 years, HT was more likely to be taken by Caucasian women aged 50–54 years, who completed high school and reported excellent health by self-report. HT users were also more likely to have health insurance, were comfortable talking to their doctor, had undergone health screening in the previous year including a complete physical, breast exam and Papanicolaou smear, and also more likely to be current users of calcium supplements1.

Menopause is a phase of life where social and emotional changes can impact on an individual’s perceived health status and well-being. This study explored the prevalence and sociodemographic profile of CAM users in a relatively large sample of menopausal women from the general population. A limitation of the current study was apparent in the measurement and types of CAMs quantified. It is clear that women are using a wide range of CAMs during the menopause, despite uncertainty regarding the safety and efficacy of these therapies. Reasons for this phenomenon can be postulated. The concept of CAMs as ‘natural’ may have lead to the perception of CAMs as being safe, although, for many individual CAMs, scientific efficacy, tolerability and long-term safety have not been established34,35. Alternative explanations for the increased use of CAMs include dissatisfaction with medical outcomes, changing beliefs about health, increased access to information, and dissatisfaction with the relationship between doctor and patient36. The concept of empowerment, the need for women to have control over their menopausal symptoms and long-term health, is another consideration.

The higher levels of self-reported general health, including possible improved levels of physical functioning, together with the increased likelihood of self-breast examinations and decreased intake of cigarettes may indicate the adoption of a healthy lifestyle, embracing the concept of holistic health, health for the mind, body, spirit and emotions37. The results provide information for health professionals working in the area of women’s health on the prevalence and range of therapies utilized during the menopause.

CONCLUSION
Further studies are required to explore the complex reasoning behind the use of CAMs during the menopause, and women’s experiences with their health practitioner, since these also have the potential to influence women’s choice. As prevalence of current CAM use in this population group is high, health education programs to assist mid-life women to understand the scientific evidence (or lack of it) for their efficacy is recommended.

Conflict of interest Nil.
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