Abstract: The objective of this study was to investigate the use of complementary and alternative medicines (CAM) in a group of older rural Australian attending a multi-disciplinary health screening clinic. The average age of all participants (n = 102) was 66 ± 10 years (range 49-89) and 61% were female. Three-quarters (78%) of respondents had used at least one CAM product within the past 12 months and 66% had visited a CAM practitioner. The most frequently used CAM were vitamin/mineral supplements (54%) followed by herbal supplements (28%). Among products named by respondents that they were currently using the most frequently cited were omega-3/fish oils (28%) and glucosamine (24%). The main source of information for most respondents (53%) was doctors and pharmacists followed by family and friends (28%). Almost half (46%) had not discussed their use of CAM with their doctor and only 15% had discussed their CAM use with a pharmacist. Respondents were not found to hold strongly pro-CAM or anti-CAM health beliefs. This study demonstrates that while older, rural Australians do not have significant pro-CAM beliefs they do have high use of CAM. Based on the types of products used it is suggested that CAM use forms part of these individuals self-management strategies.

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Complementary medicine use among attendees at a rural health screening clinic

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Author contribution:
Both authors were involved with the conception and design of the research. HJ was responsible for the recruitment of participants and collection of completed questionnaires. JW was responsible for the data analysis and the first draft of the manuscript. Both authors contributed to the subsequent revision of the manuscript and approved the final manuscript prior to submission.

Running title: CAM use in a rural older population
Abstract

Objective – To investigate the use of complementary and alternative medicines (CAM) in a group of older rural Australians

Use of Design – Self-administered questionnaire.

Setting – Attendees at a multi-disciplinary health screening clinic

Participants – 102 individuals completed the questionnaire (39% response rate). 61% were female and the average age of all participants was 66 ± 10 years (range 49-89).

Main outcome measure(s) – Data was collected relating to three areas (1) information about use of CAM products, visits to CAM practitioners and CAM information sources; (2) CAM health beliefs; and (3) demographic information about respondents.

Results – Three-quarters (78%) of respondents has used at least one CAM product within the past 12 months and 66% had visited a CAM practitioner. The most frequently used CAM were vitamin/mineral supplements (54%) followed by herbal supplements (28%). Among products named by respondents that they were currently using the most frequently cited were omega 3/fish oils (28%) and glucosamine (24%). The main source of information for most respondents (53%) was doctors and pharmacists followed by family and friends (28%). Almost half (46%) had not discussed their use of CAM with their doctor and only 15% had discussed their CAM use with a pharmacist. Respondents were not found to hold strongly pro-CAM or anti-CAM health beliefs.

Conclusions – This study demonstrates that while older, rural Australian do not have significant pro-CAM beliefs they do have high use of CAM. Based on the types of products used it is suggested that CAM use forms part of these individuals’ self-management strategies.

Keywords: rural health, complementary medicine, gerontology, chronic disease
'What this paper adds' boxes

What is already known on this subject?

- Complementary medicine use is growing and is higher in those with chronic conditions and/or chronic pain, for example arthritis and back pain
- Older individuals have a higher incidence of chronic health issues and may use complementary medicine to assist in self-management

What does this study add?

- 78% of older rural Australians in this study had used a complementary medicine in the past 12 months and 66% had visited a complementary medicine practitioner
- Vitamins and mineral supplements, glucosamine and omega 3/fish oils were the most frequently used products.
- 46% of respondents did not disclose their complementary medicine use to their doctor suggesting that there is significant room for improvement in patient-practitioner discussion of complementary medicines.
Introduction

Australia’s population is aging and there is a high incidence of hypertensive disease (and associated conditions) and a growing problem with diabetes mellitus. In addition older individuals are more likely to experience disability from arthritis, chronic respiratory conditions and back pain. While the prevalence of cardiovascular disease and diabetes is not significantly higher in regional areas compared to major metropolitan centres, there is a higher incidence of arthritis and some other chronic conditions in rural Australia. It has however been suggested that the incidence of cardiovascular disease and diabetes may be higher in some specific rural areas and that this is masked in the national data. Thus it is likely that in the future there will be more individuals seeking options for management of these conditions, one option that some may use are complementary and alternative medicines.

Complementary and alternative medicines (CAM) are a diverse range of medicines and therapies that typically lie outside the dominant health care system. Included under the umbrella term of CAM are whole medical systems (e.g. traditional Chinese medicine, naturopathic medicine), biological and energy based medicines/therapies, mind-body therapies and tactile or manipulative therapies (e.g. remedial massage). It is estimated that 60-70% of the Australian population have used at least one complementary or alternative medicine (CAM) product within the past 12 months and while many individuals use CAM for maintaining general health use is also associated with the presence of chronic conditions and/or chronic pain. For example, those with arthritis, cancer and cardiovascular diseases are more likely to use CAM than those with no chronic disease.

In this study we investigate the use of complementary medicines within an older rural population attending a multi-disciplinary health screening program to determine base levels of use and the types of CAM used by attendees.
Methods
Participants for this study were recruited from the Charles Sturt University Diabetes Complications Screening Clinic (Albury) during 2007. All attendees (n= 263) were provided with an information sheet, copy of the questionnaire and reply paid envelope and invited to participate in the research. Responses were provided without identifying information and the research was approved by the Charles Sturt University Ethics in Human Research Committee.

The questionnaire used in this study was based on those used previously by one of the authors and comprised the followings sections:

1) Information about use of CAM products, visits to CAM practitioners and CAM information sources
2) CAM health beliefs scales (Postmodern values and complementary health beliefs questionnaire CHBQ)
3) Demographic information (e.g. age, education level, income)

Data from the questionnaire was coded and entered into SPSS (Statistical Package for the Social Sciences, v14) for analysis. Descriptive statistics were calculated for all questions with differences between groups calculated by ANOVA or chi-squared analysis depending on the data type. Differences were deemed significantly different where p<0.05. Where respondents were asked to provide the names of specific products used in the past 3 months products were categorized into groups of like products (e.g. different brands/formulation of multivitamins were grouped together as ‘multivitamins’) and the data reported at the group rather than individual product level.
Results

Respondent characteristics
Surveys were distributed to all individuals attending the Diabetes Screening Clinic in 2007 (n=263) with a response rate of 39\% (n=102). The majority of the respondents in this study were female (61\%) with a mean age of 66 ± 10 years (range 49-89 years). There was no statistically significant difference in the ages of the male and female respondents (males 67 ± 9 y, females 65 ± 10 y, p=0.3213). All but one respondent gave residential postcodes from towns within the southeast NSW and northeast Victoria, with the majority of these individuals from Albury and surrounding towns. Most (58\%) of respondents had completed high school as their highest level of education; 25\% had completed a certificate, diploma or advanced diploma, 8\% had completed a bachelors degree, 6\% had only a primary education and 3\% a postgraduate qualification. Of those who disclosed their annual income the majority (54\%) had incomes less than $30,000, 25\% had annual incomes of between $30,001 and $80,000 and the remained earned more than $80,000 per year. Eighty four percent had no formal training in health or biomedical sciences with 8\% having training in an allied health area (e.g. nursing, pharmacy, and physiotherapy), 3\% in complementary therapies and 4\% in biomedical sciences. Over half (64\%) indicated that they had been diagnosed with a cardiovascular condition, diabetes, obesity and/or had chronic pain or arthritis (Figure 1). There were no significant differences in the proportions of males and females reporting the various health problems.

Use of complementary medicines
Respondents were asked to nominate those complementary medicines or therapies they had used in the past 12 months. Overall 78\% had used at least one complementary medicine/therapy with the most popular being vitamin/mineral supplements (54\%) followed by herbal supplements (28\%). The full list of medicines/therapies and the percent of respondents using each are shown in Figure 2. Sixty six percent of respondents had visited a complementary medicine practitioner, primarily naturopaths (15\%), massage therapists (17\%) and chiropractors (17\%) (Figure 3). The only medicines/therapies where gender differences existed were homeopathic remedies (3\% males v 15\% females, p=0.043) and essential oils (not aromatherapy) (3\% males v 16\% females, p=0.027). However females used an average of 2.2 products compared with 1.6 for males (p=0.044). Respondents were also asked to list any vitamins/mineral supplements, herbal medicines, essential oils or soy products that they had used in the past 3 months. The most commonly cited products were omega 3/fish oils (28\%), glucosamine (with or without chondroitin) (24\%) and vitamins, particularly B vitamins (18\%) and multivitamin formulations (17\%). Ten percent were using calcium, 9\% magnesium and 12\% some form of soy product (milk, ice cream, tofu). Over 20 other products were mentioned by only 1-3 respondents and these included cranberry, evening primrose oil, zinc, vitamin C, herbal teas, homeopathic remedies.
and mixed vitamin/herbal formulations designed to support function of a particular organ (e.g. Thyroguard (Nutralife) and MacuVision (Blackmores)). There was also no relationship between the number of medicines/therapies used and either having one of the listed conditions (p = 0.803) or the number of co-morbidities (p = 0.467).

Forty percent of respondents had not discussed their CAM use with any of the listed health professionals, 54% had discussed it with their GP or specialist, 15% with a pharmacist, 9% with a podiatrist and 4% with a physiotherapist. None of the respondents reported discussing their CAM use with a community or other type of nurse. Doctors and pharmacists were the most frequently cited source of CAM information (53%), followed by friends and family (28%), popular magazines such as Good Medicine (23%), a CAM practitioner (22%) and the Internet or medical/scientific journals (10% each). There were no statistically significant gender based differences in responses to these two items with only the item “I have not discussed my CAM use with a health professional” approaching significance (males 51% v 32%, p=0.054).

Postmodern values and attitudes were categorised into 6 domains: natural remedies, anti-science sentiments, holism, rejection of authority, and individual responsibility and consumerist attitudes to health care. Mean summary scores for each of these domains is shown in Table 1. None of the items displayed strong ‘for’ or ‘against’ responses from respondents with gender differences seen only for the consumerist approach to health care. Overall respondents scores to the CHBQ showed that this group generally endorsed complementary health beliefs but neither strongly endorsed, nor were opposed, to these beliefs (Table 2). Interestingly the only statement where there appeared to be a bimodal distribution of responses was statement 10. Thirty eight percent either agreed or strongly agreed that complementary medicines should be used before conventional medicine whereas 46% either disagreed or very strongly disagreed with this statement.
Discussion
Interest in CAM is growing and the association between use and chronic illness and/or pain means that groups with high prevalence of arthritis, cancer, back pain and other chronic illness are also more likely to seek out and use CAM. The prevalence of these conditions in older individuals (>50 years) suggest that these individuals will also have high use of CAM. This study has identified a high use of CAM amongst a group of older rural individuals with 78% having used at least one CAM in the past year. Other studies have also shown high use of CAM in older populations however in their national survey of CAM use Xue et al. report a declining use of CAM with age. Reports of visits to CAM practitioners were also higher in this study (66%) than for Xue et al. (<45%). Graffen et al. in their review of medication use in the ambulant elderly in a comparable rural community found that 60% had used a CAM with vitamin C, multivitamins and other vitamin products the most frequently used products.

Almost two thirds of the participants in this study reported having one or more chronic health issue with the most cited being hypertension and heart disease followed by arthritis and chronic pain. Arthritis is particularly associated with CAM, as is cardiovascular disease but not diabetes. The most frequently cited CAM used was vitamin and mineral supplements followed by herbal supplements, which is consistent with other studies. This was also reflected in the named products given by participants. Given the high incidence of arthritis and cardiovascular problems in this age group, and the strong marketing campaigns related to omega 3 fatty acids and glucosamine, it is perhaps not surprising that these two products were the most frequently named in this study. Research Australia in their 2007 Health and Medical Public Opinion Poll report that 32% of consumers had used glucosamine for osteoarthritis during the past year and 26% had used fish oils for prevention of heart disease or joint pain. Entile et al. in their study of Australian veterans (mean age 76 y) also found that the most frequently used CAM were herbal products, vitamins and minerals, glucosamine and fish oils.

Despite a decade of research showing that a large section of the community does not discuss their CAM use with any health professional this remains a significant issue in the integration of CAM and conventional health care. In this study 40% of participants had not discussed their CAM use with any health professional and 46% had not discussed it with their GP or specialist. As there are a significant number of potential interactions between over-the-counter herbal and other natural products and prescription medications, and older individuals typically take several different medications this represents an area of risk to patients and a need for greater intervention by health care practitioners. It is interesting to note that although a significant proportion of respondents did not
disclose CAM use to their doctor or pharmacist, these health professionals were the most frequently cited source of information about CAM.

The reasons why people use CAM are complex and not fully understood however access and other perceived barriers to conventional care have been suggested to increase CAM use. However while these may be issues in rural and regional locations CAM use is not necessarily associated with rurality per se but with local access to CAM services and products. Given that 66% of respondents in this study had visited a CAM practitioner within the past 12 months access to CAM services does not appear to be a limiting factor in this study. It is thought that holistic and patient-centred care, and individual responsibility and input into health care decisions are particularly valued by CAM users. This was explored further in this study using two scales, the postmodern values and CAM Health Beliefs Questionnaire (CHBQ). The data from this study suggest that the participants did not have strong positive or negative feelings about natural remedies, individual responsibility, holism or the other postmodern domains. Similarly responses to the CHBQ showed while there was general endorsement of CAM health beliefs these were not strongly held beliefs. Motivation toward self-care and active coping are also predictors of CAM use in older adults and the findings in this study may relate to use of CAM to manage a range of health issues associated with aging and/or living with chronic conditions or pain.
References


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Table 1. Mean summary score for the postmodern values items. Each domain is the summary of several items where each item is scored from 1 (strongly agree) to 4 (strongly disagree). The maximum possible score represents the strongest disagreement with the statements contained within the domain. p values are provided for the comparison between males and females for each domain.

<table>
<thead>
<tr>
<th>Domain (maximum possible score)</th>
<th>Mean summary score</th>
<th></th>
<th></th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>total</td>
<td>males</td>
<td>females</td>
<td></td>
</tr>
<tr>
<td>Positive altitudes to natural remedies (20)</td>
<td>11.0</td>
<td>11.4</td>
<td>10.8</td>
<td>0.080</td>
</tr>
<tr>
<td>Anti-science sentiment (8)</td>
<td>4.4</td>
<td>4.5</td>
<td>4.2</td>
<td>0.325</td>
</tr>
<tr>
<td>Holism (16)</td>
<td>7.8</td>
<td>7.9</td>
<td>7.7</td>
<td>0.440</td>
</tr>
<tr>
<td>Rejection of authority (16)</td>
<td>7.2</td>
<td>7.5</td>
<td>7.1</td>
<td>0.255</td>
</tr>
<tr>
<td>Individual responsibility (16)</td>
<td>7.3</td>
<td>7.7</td>
<td>7.1</td>
<td>0.067</td>
</tr>
<tr>
<td>Consumerist attitude to health care (4)</td>
<td>1.8</td>
<td>2.0</td>
<td>1.7</td>
<td>0.003</td>
</tr>
</tbody>
</table>
Table 2. Responses to the CHBQ. Each item response ranged from 1 (very strongly agree) to 7 (very strongly disagree) where 4 is ‘unsure’.

<table>
<thead>
<tr>
<th>Item</th>
<th>Mean ± standard deviation</th>
<th>Mode (% with modal response)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Complementary therapies include ideas and methods from which conventional medicine could benefit</td>
<td>2.8 ± 0.9</td>
<td>3 (60%)</td>
</tr>
<tr>
<td>2. Most complementary therapies stimulate the body's natural therapeutic powers</td>
<td>3.4 ± 0.8</td>
<td>4 (46%)</td>
</tr>
<tr>
<td>3. Physical and mental health are maintained by an underlying energy or vital force</td>
<td>3.5 ± 0.8</td>
<td>3 (40%) &amp; 4 (41%)</td>
</tr>
<tr>
<td>4. Health and disease are a reflection of balance between positive life-enhancing forces and negative destructive forces</td>
<td>3.5 ± 0.8</td>
<td>3 (44%) &amp; 4 (42%)</td>
</tr>
<tr>
<td>5. The body is essentially self-healing and the task of a health care provider is to assist in the healing process</td>
<td>2.9 ± 0.8</td>
<td>3 (67%)</td>
</tr>
<tr>
<td>6. A patient's expectations, health beliefs and values should be integrated into the patient care process</td>
<td>2.8 ± 0.8</td>
<td>3 (63%)</td>
</tr>
<tr>
<td>7. Complementary therapies are a threat to public health</td>
<td>4.8 ± 0.9</td>
<td>5 (54%)</td>
</tr>
<tr>
<td>8. Treatments not tested in a scientifically recognized manner should be discouraged</td>
<td>3.4 ± 1.2</td>
<td>3 (46%)</td>
</tr>
<tr>
<td>9. Effects of complementary therapies are usually the result of a placebo effect</td>
<td>4.1 ± 0.8</td>
<td>4 (59%)</td>
</tr>
<tr>
<td>10. Complementary medicine should be tried before conventional medicine, except in case of emergency</td>
<td>4.1 ± 1.1</td>
<td>5 (44%)</td>
</tr>
</tbody>
</table>
**Figure 1.** Health conditions reported by respondents.

**Figure 2.** Use of various complementary medicines and therapies (CAM) by respondents in the past 12 months. (TCM = traditional Chinese medicine)

**Figure 3.** Complementary medicine or therapy (CAM) practitioners visited in the past 12 months by respondents. (TCM = traditional Chinese medicine)