status as a stronger predictor of conversion to dementia (Xu *et al.*, 2010). Sensitive physiological indicators (e.g. levels of HbA1c to estimate average plasma glucose concentration) to detect poorly controlled diabetes or pre-clinical stages could predict dementia conversion and serve to clarify whether successfully controlling diabetes or pre-clinical states prevents cognitive decline in middle-old and old-old adults.

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Conflict of interest

None.

Description of authors' roles

C. Gould designed the study, conducted the statistical analyses, and contributed to the writing of the letter. S. Beaudreau designed the study and contributed to the writing of the letter. H. Salman contributed to the design of the study.

Predictors of Complementary and Alternative Medicine (CAM) use in two cohorts of Australian women

Complementary and Alternative Medicine (CAM) use has been researched widely; however, studies with older adults and Australian populations are limited. The profile of Australian women CAM users has been mapped using the 1996 data from the ALSWH (Adams *et al.*, 2003). Mid-age adults were frequent CAM users (28%) followed by young adults (19%) and older adults (15%). No consistent characteristics of CAM users across age groups were identified. Generally, CAM users lived in non-urban settings, and reported poorer physical and mental health. Predictors of CAM use for Australian women have not yet been explored.

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CHRISTINE E. GOULD,[1]
SHERRY A. BEAUDREAU[2,3]
AND HUMA SALMAN[2]

[1]Veterans Affairs Palo Alto Health Care System & Geriatric Research Education and Clinical Center, Palo Alto, CA, USA
[2]Veterans Affairs Palo Alto Health Care System & the Sierra Pacific Mental Illness, Research Education and Clinical Centers, Palo Alto, CA, USA
[3]Stanford University School of Medicine, Department of Psychiatry and Behavioral Sciences, Palo Alto, CA, USA
Email: sherryb@stanford.edu

Predictive factors of CAM use by women were explored in ALSWH in the second (1998/1999) and fifth (2007/2008) surveys for two age groups: mid-age (born 1946–1951) and older (born 1921–1926). Self-report measures of physical health, mental health, stress, common physical symptoms, medical history, and an index of accessibility and remoteness were used.

There were more non-CAM than CAM users in 1999 compared to 2007 in the mid-age adult cohort ($N = 12,338$; Age: $M = 49.52$, $SD = 1.46$, $p < 0.001$) and significantly less CAM users and less non-CAM users in 1998 compared to 2008 in the older adult cohort ($N = 10,434$; Age: $M = 84.20$, $SD = 1.44$, $p < 0.016$).

In the mid-age cohort, 3,882 (67.4%) non-CAM users were included in the logistic regression. Differences between included and excluded cases (due to missing data) were found on marital and

socioeconomic status but were to be expected given the sample size. As such, they were not a concern for the interpretation of results. From the second survey, the model was able to correctly classify 75.9% of cases into CAM or non-CAM users in the fifth survey. Hosmer–Lemeshow tests supported the model's ability to predict CAM use: χ^2 (6, $N = 3,882$) = 13.51, $p < 0.01$. This indicated that the predictors, as a set, reliably distinguished between women who used CAM in the fifth survey and women who did not at the second survey. The model as a whole was excellent at identifying women who would remain non-CAM users but was poor at identifying women who would become CAM users from a background of non-CAM use.

The Accessibility/Remoteness Index of Australia (ARIA) scores from major cities (χ^2 (6, $N = 3,882$) = 11.04, $p = 0.03$), inner regional cities (χ^2 (6, $N = 3,882$) = 9.29, $p = 0.002$), and outer regional cities (χ^2 (6, $N = 3,882$) = 6.16, $p = 0.01$) reliably predicted CAM use. Stress was also a significant predictor: χ^2 (6, $N = 3,882$) = 11.61, $p = 0.001$. The relationships of the odds ratios were positive indicating that as remoteness and stress increased, so too did an individual's likelihood of using CAM.

In the older adult cohort, 3,503 (42.5%) non-CAM users were included in the logistic regression. The full model was unable to distinguish between women who used and did not use CAM in 2008, compared to the original non-CAM use group. No variables included in the model reliably predicted CAM use.

CAM use for older women steadily declined over time (Adams *et al.*, 2003). Compared to a figure of 28% of CAM use in mid-age Australian women in 1996 (Adams *et al.*, 2003), the increase of CAM use to 45% in 1999 demonstrated an interesting spike in mid-age CAM use, prior to its later decline to 22% in 2008. In 1999, the age range of the mid-age women was 47–52 years. It could be speculated that at this time, there was an increase in common problems associated with menopause, which Adams *et al.* (2003) identified as being a common characteristic of CAM users in 1996. A theory is that CAM use may be related to stages of life and cohort effects in addition to the aging process and passing of time.

Stress (measure created by ALSWH research team) was measured by asking respondents how stressed they had felt over the past year on a range of topics, e.g. health, work, and relationships. Increased stress and rural location as measured by ARIA scores (Australian Department of Health and Ageing and GISCA, 1999), were found to predict CAM use in mid-age women. This was consistent with other studies that demonstrate CAM use is lower in metropolitan areas compared to non-urban locations (Sibbritt *et al.*, 2004) and stress is linked to CAM use (Barnes *et al.*, 2004). General practitioners in rural areas need to be aware of these patterns of CAM use.

Neither mental nor physical health predicted CAM use, contrary to the literature indicating CAM users are more likely to have chronic illness or physical health complaints (Sibbritt *et al.*, 2004) or mental health conditions and psychiatric disorders (Mamtani and Cimino, 2002) than non-CAM users.

The ALSWH surveys were self-report and as such are vulnerable to recall bias and individual interpretation. Secondly, the phrasing of the CAM-use question was limited in that it was defined solely as having accessed an alternative health practitioner in the previous 12 months. The present study was therefore unable to provide information on specific forms of services accessed or self-prescribed CAM products. As such, the question was based highly on the individual's interpretation of what did or did not constitute an alternative health practitioner rather than the formalized definition of CAM. The reason for this limitation rests largely in the broader design of the ALSWH survey and space limitations. The broader survey was not specifically designed to investigate CAM use but rather was used to capture a broad picture of Australian women's health across a range of issues.

The present study was unique in that it explored the predictive variables of CAM use in mid-age and older women rather than just looking at the profile of female Australian CAM users. A large and nationally representative sample of Australian women that can be generalized to the rest of the Australian population was used. Rates of CAM use were similar to those reported in previous studies (Adams *et al.*, 2003). Increased stress and rural location were found to be significant predictors of CAM use in mid-age women; however, no predictors were found for the older adult cohorts. Further research is needed to explore the motivations and beliefs of older adult CAM user compared to mid-age CAM users.

Conflict of interest

None.

Acknowledgments

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EMMA E. POULSEN,[1] DAVID SIBBRITT,[2] DEIRDRE MCLAUGHLIN,[3] JON ADAMS[4] AND NANCY A. PACHANA[1]

[1] School of Psychology, The University of Queensland, St Lucia, Australia
Email: emma.poulsen@uqconnect.edu.au
[2] School of Medicine and Public Health, The University of Newcastle, Callaghan, Australia
[3] School of Population Health, The University of Queensland, Herston, Australia
[4] Faculty of Nursing, Midwifery and Health, University of Technology Sydney, Ultimo, Australia