

This manuscript is the final author version of (and should be cited as):

Skouteris, H., Wertheim, E. H., Rallis, S., Germano, C., Paxton, S. J., Kelly, L. & Milgrom, J. (2008). Use of complementary and alternative medicines by a sample of Australian women during pregnancy, *Australian and New Zealand Journal of Obstetrics and Gynaecology*, 48. 384–390

Running Head: Complementary Medicines in Pregnancy

Use of Complementary and Alternative Medicines by a Sample of Australian Women
During Pregnancy

Helen Skouteris

School of Psychology, Deakin University
Burwood (Melbourne), Australia

Eleanor H. Wertheim, Sofia Rallis, Susan J. Paxton, & Leanne Kelly

School of Psychological Science, La Trobe University
Bundoora (Melbourne), Victoria, Australia

and

Jeannette Milgrom

School of Behavioural Science, The University of Melbourne, Victoria, Australia

Correspondence author:

Professor E. Wertheim, School of Psychological Science, La Trobe University, Bundoora,
Victoria, 3086, Australia

E-mail: e.wertheim@latrobe.edu.au

Abstract

Background: The use of complementary and alternative medicines (CAM) is growing in Australia, with adult females higher users than males. Yet, only a few Australian studies have explored the use of CAM during pregnancy.

Aims: To explore the use of CAM, the types of CAM practitioners consulted, physical symptoms/complaints for which CAM are used by a sample of pregnant Australian women, and women's perceptions of the efficacy of CAM in treating those complaints.

Methods: Three hundred and twenty-one pregnant women, who volunteered for a study exploring women's well-being during pregnancy, completed a self-report questionnaire in their late second/early third trimester.

Results: Seventy-three percent of women had used at least one kind of complementary therapy in the prior eight weeks of pregnancy. Over one third of the women had visited at least one alternative medicine practitioner during pregnancy. Approximately one third of the women reported taking CAM to alleviate a specific physical symptom, with 95.7% of these women reporting they either got completely better or a little bit better with use of CAM; one quarter reported planning to use an alternative therapy to assist with labour preparation. Age, number of physical symptoms experienced, income level and level of education were not associated with greater use of CAM ($p < .05$), however women reporting more physical symptoms were more likely to consult a CAM practitioner.

Conclusion: Findings highlight the substantial use of CAM during pregnancy and the need to have all health professionals adequately informed about such therapies during this life stage.

Key words: CAM, alternative medicines, pregnancy, obstetrics, women's health

Recent research suggests the use of complementary and alternative medicines (CAM) in pregnancy is increasing.¹⁻⁵ This is not surprising given two facts: the use of CAM is growing in Australia^{2,7} and other Western countries⁷⁻¹², and adult females tend to be higher users than males⁶. The term CAM is frequently used to describe “therapeutic products and services that are not usually considered to be part of conventional mainstream health care”⁶. We could find only two Australian studies that have explored the use of CAM during pregnancy^{13,14}; however, neither of these studies reported on types of CAM practitioners pregnant women visit. Moreover, whilst the types of complementary therapies reported during pregnancy have been documented, there has been little research exploring what proportion of pregnant women use CAM.^{2, 14, 15, 16} Percentages of reported use range from 4.1% to 60% in American^{3, 17, 18} and 39% - 87% in Australia.^{13,14} Hence, the first aim of our study was to explore CAM use further in a sample of Australian pregnant women and to determine the extent to which non-conventional practitioners are consulted during this life stage.

Pregnant women in other Western countries report using CAM for various physical symptoms and complaints.¹⁵⁻²² The second aim in this study was to discover which complaints Australian women report using CAM for during pregnancy and to establish how helpful women feel these are in treating their symptoms/complaints; to our knowledge, there is little research on perceived effectiveness of these therapies in pregnancy.^{2,14} We also know that women report using CAM for labour preparation and during labour to prevent perineal trauma, ripen the cervix, shorten labour, and reduce labour pain^{15, 16, 23}. Given the lack of Australian research on this, our third aim was to explore whether women report planning to use CAM to assist with labour. Our fourth and

final aim was to examine whether women who use CAM differ from those who do not with level of education, age, and family income.

Method

Participants

A community sample of 321 pregnant women living in Australia were recruited at 12-17 weeks for a research project exploring health and well being during pregnancy that ran across a 3-year period from 2005-2007.²⁴ Any woman who volunteered was included in the study; no formal means of participant selection was conducted.

Measures

A self-report questionnaire requested information regarding current weight, height, age, parity status, employment, marital status, and annual household income, and the following scales.

Pregnancy –Related Physical Symptoms. Participants indicated which symptoms, from a list, they had experienced during the previous eight weeks, including: nausea/morning sickness, heartburn, constipation, increased urination, backache, headache, sore breast, groin pain, and “other”. Women received a score of 1 for each symptom identified to calculate number of symptoms.

CAM During Pregnancy. A CAM Questionnaire was devised to assess how often women had used CAM and/or visited CAM practitioners in the prior 8 weeks of their pregnancy. The CAM list was based on a previous Australian study⁷ and included: yoga, meditation, massage, homeopathic remedy, herbal remedy, naturopathy, minerals, Chinese herbs, Western or other herbs, special juices, aromatherapy, essentials oils for pregnancy, or “other”. A list of CAM practitioners included: acupuncturist, reflexologist, chiropractor, osteopath, Reiki therapist, Shiatsu practitioner, kinesiologist, and “other”.

Physician, psychiatrist, psychologist, and counsellor were included to determine whether women visit conventional medical and allied health practitioners, other than those consulted for pregnancy (e.g., gynaecologist). For both lists women described frequency of use and visits, respectively, from Never to Daily. Questions also asked: “Over the last 8 weeks have you taken a remedy for a specific complaint and if so, what was the specific complaint? What remedy was used to treat the complaint?”, and “Was the remedy helpful?” rated from 1 (Got completely better) to 4 (Got somewhat worse). The final question was: “Are you preparing for labour with the assistance of natural therapies? If yes, please describe what you plan to use”.

Procedure

After obtaining university ethics approval, pregnant women were recruited from baby shows, obstetrician and GP clinics, advertisements in local papers, university newsletters, as well as baby magazines, to take part in a prospective study exploring women’s well-being during pregnancy²⁴. Women were asked about CAM use when they were between 24 to 31 weeks gestation; no further follow up of CAM use at a latter stage in pregnancy was possible. The questionnaire pack was posted to participants and returned via reply-paid envelope; a prize draw was offered as an incentive for women to return their questionnaires.

Data Analysis

Frequencies and percentages were calculated for all categorical variables. T-tests explored the differences between CAM and non-CAM users on demographic variables and mean number of physical symptoms reported; significance level was set at $\alpha = 0.05$.

Results

Participant Details

The women in this study had a mean age of 31 years ($SD = 4.55$) and mean gestation of 27 weeks ($SD = 2.40$); 167 women (52%) were primiparous. Almost all women (95.3%) were married and 69.2% had an annual family income of over A\$70,000. Most women were tertiary educated (74.5%) and born in Australia (81.9%). Mean body mass index (BMI; kg/m^2) at time of participation was 27.95 ($SD = 5.30$).

CAM Use During Pregnancy

On CAM use frequency, women overwhelmingly replied “Never” or “Once”, so responses were recoded as “Never” or “At Least Once”. At least one kind of CAM was reported being used during the prior 8 weeks by 73.2% of participants; 51.4%, 17.8%, 13.7%, and 17.1% reported using one, two, three, and from four to 11 different types of therapies, respectively. Table 1 shows the percentage of women reporting using each type of CAM.

Insert Table 1 here

Consultations with CAM Practitioners

Over a third (36.8%) reported visiting a CAM practitioner during the prior eight weeks of pregnancy, including a chiropractor (10.6%); osteopath (5.6%), reflexologist (3.4%), acupuncturist (3.1%), Reiki therapist (2.5%), kinesiologist (1.9%), Shiatsu practitioner (0.9%), and in the “other” category, physiotherapist (8.1%), midwife (1.6%), massage therapist (0.9%), podiatrist (0.6%), homeopath, spiritual healer, and social worker (0.3% each); 7.5% of these women consulted two practitioners and 4% consulted three or four practitioners. Regarding conventional medical and allied health

professionals, 42.4% of women reported seeing a physician, and 1.6% consulted a psychiatrist, 5% a psychologist, and 6.9 % counsellor at least once.

CAM Use for Complaints During Pregnancy and Labour Preparation

Almost a third ($n = 93$, 29.0%) of the women reported they had taken a remedy to alleviate a specific complaint during the previous 8 weeks; Table 2 shows complaints reported by at least two women. Most women used natural remedies (37 women) or mainstream non-prescribed remedies (34 women); a minority of women ($n = 22$) reported prescribed medicines such as antidepressants and antibiotics. Of the 37 women using natural remedies, 7 (18.9%) women reported they “Got completely better”, 29 (78.4%) women reported they “Got a bit better” and one woman reported “No change”. For the mainstream non-prescribed remedies 8 (23.5%) women reported they “Got completely better”, whereas most reported they “Got a bit better” ($n = 24$, 71.0%). Two women reported “No change”. For the prescribed medicines, 12 (54.5%) women reported they “Got completely better” and 10 (45.5%) reported they “Got a bit better”.

Almost one quarter of all participants ($n = 78$, 24.3%) reported planning to prepare for labour with the assistance of natural therapies. Preparations included massage, aromatherapy, hypnotherapy, raspberry leaf tea, yoga, naturopathic and homeopathic remedies, acupuncture, breathing techniques, water, meditation, herbal teas and Reiki.

Insert Table 2 here

Characteristics of CAM and Non-CAM Users

Women did not differ in age, income level, education level, or number of physical symptoms (Table 3). There were also no significant differences between women, except that those visiting a CAM practitioner reported more physical symptoms, $t(319) = 2.96$, $p = .003$, Cohen’s $d = 0.3$.

Insert Table 3 here

Discussion

In accordance with previous research,^{13, 14 18} findings revealed a high prevalence of CAM use during the second to early-third trimester of pregnancy, with almost three quarters of the women reporting some kind of CAM use. Additionally, over one third reported visiting a CAM practitioner. Women who visited a CAM practitioner during pregnancy reported more physical symptoms/complaints than women who did not, albeit the effect size for this difference was small. There was no evidence here that women in the higher family income bracket were using more CAM, consistent with research in non-pregnant women²⁵, but inconsistent with research conducted with pregnant women in America.^{3, 17, 18} Different ages and education were also not associated with CAM use.

Interestingly, the four most commonly used CAM therapies in our study were massage, mineral supplements, meditation and yoga; similarly, massage, vitamins, and yoga were among the most commonly reported CAM therapies in another Australian study¹⁴. Whilst these therapies are classified as non-mainstream, they are certainly therapies that are recommended for use as part of mainstream care by medical practitioners and midwives and are unlikely to be harmful². The use of different types of herbal therapies and naturopathy, that are considered not as helpful during pregnancy by medical practitioners², were used by fewer women in our study. It is possible that medical advice is impacting on women's decisions about CAM use.

Our findings supported overseas research showing that women from Western countries use CAM for complaints/physical symptoms during pregnancy¹⁵⁻²²; almost one third of sample reported doing so over an eight-week period and a range of natural therapies and non-prescribed remedies were reported. Only 22 women (6.8% of sample) reported use of

prescribed medication to treat a complaint. Specific reasons why women used CAM were not assessed in this study; however, they may include perceptions (appropriately or inappropriately) that prescribed medication is risky or concerns that conventional medicine is not preventive or effective enough on its own. These possibilities require further study. Our findings also show that most women perceive the effectiveness of natural therapies as at least somewhat helpful. Almost a quarter of women also planned to use CAM for assisting with labour. Randomised controlled trials are needed to establish whether these positive perceptions can be substantiated with evidence of safety and efficacy of CAM use in pregnancy and for labour and delivery.^{2,14} If CAM therapies do have therapeutic effects, the mechanisms need to be explored so practitioners are well informed when advising pregnant patients

Several limitations should be noted. The method of recruitment does not permit calculation of response rates and the possibility of selection and volunteer biases exists in the present sample, since women volunteered to participate²⁴. The sample was not representative of women from low socioeconomic groups with many women, from higher socioeconomic levels. Replication with a larger percentage of women from low socioeconomic groups is needed. Astin argued that individuals with higher education levels may question the authority of conventional medical practitioners and may possess greater self confidence in educating themselves about health concerns and available CAM treatments²⁶. Furthermore, CAM use in the first and third trimesters was not assessed so follow-up analyses were not possible. A prospective study of CAM at multiple time points throughout pregnancy would reveal any changes in use of CAM over time and allow antecedents and consequences of CAM use during the entire pregnancy to be revealed. Finally, whilst women reported CAM use retrospectively only for the eight prior weeks of their pregnancy, the possibility that findings here may be limited by recall

bias cannot be dismissed. Prospective data that tracks women on a weekly basis through pregnancy will produce the most reliable and valid data in relation to CAM use.

In conclusion, given the high prevalence of CAM use during pregnancy it is now time to ensure that all health professionals working with pregnant women have adequate knowledge of CAM and the associated benefits and risks of such therapies. As Gaffney and Smith note, the lack of CAM education in most undergraduate and postgraduate courses for doctor and midwife training needs to be addressed². In addition further research into usage patterns and effectiveness of CAM during pregnancy is needed to ensure an evidence base for this education.

Author Notes:

An Australian Research Council Discovery Grant (DP0557181) awarded to EW, SP, HS and JM, funded this research. Grand United Health provided additional funds towards exploring alternative therapies used during pregnancy. We express our appreciation to the women who participated in this research.

References

1. Allaire, A.D., Moos, M., & Wells, S. (2000). Complementary and alternative medicine in pregnancy: A survey of North Carolina certified nurse-midwives. *Obstetrics and Gynecology*, 95, 19-23.
2. Gaffney, L., & Smith, C. (2004). Use of complementary therapies in pregnancy: The perceptions of obstetricians and midwives in South Australia. *Australian and New Zealand Journal of Obstetrics and Gynaecology*, 44, 24-29
3. Gibson, P., Powrie, R., & Star, J. (2001). Herbal and alternative medicine use during pregnancy: A cross-sectional survey. *Obstetrics and Gynecology*, 97,(S4), S44–S45.
4. Tiran, D. (2006). Complementary therapies in pregnancy: Midwives' and obstetricians' appreciation of risk. *Complementary Therapies in Clinical Practice*, 12, 126-131.
5. Tiran, D., & Chummun, H. (2004). Complementary therapies to reduce physiological stress in pregnancy. *Complementary Therapies in Nursing and Midwifery*, 10, 162-167.
6. Barnes, P., Powell-Griner, E., McFann, K., & Nahin, R.(2004). Complementary and alternative medicine use among adults: United States, 2002. *Advance Data*, 343, 1-20.
7. Xue, C.C.L., Zhang, A., Lin, V., Da Costa, C., & Story, D. (2007). Complementary and alternative medicine use in Australia: A national population-based survey. *Journal of Alternative and Complementary Medicine*, 13, 643-650.
8. Eisenberg, D.M., Davis, R., Ettner, S., Appel, S., Wilkey, S., Van Rompay, M., & Kessler, R. (1998). Trends in alternative medicine in the United States, 1990-1997: Results of a follow-up national survey. *Journal of the American Medical Association*, 280, 1569-1575.

9. MacLennan, A.H., Wilson, D.H., & Taylor, A.W. (2002). The escalating cost and prevalence of alternative medicine. *Preventive Medicine, 35*, 166-173.
10. Ramsay, C., Walker, M., & Alexander, J. (1999). Alternative medicine in Canada: Use and public attitudes. *Public Policy Sources, 21*, 1-31.
11. Thomas, K., & Coleman, P. (2004). Use of complementary or alternative medicine in a general population in Great Britain: Results from the National Omnibus survey. *Journal of Public Health, 26*, 152-157.
12. Thomas, K.J., Nicholl, J.P., & Coleman, P. (2001). Use and expenditure on complementary medicine in England: A population based survey. *Complementary Therapies in Medicine, 9*, 2-11.
13. Pinn, G., & Pallett, L. (2002). Herbal medicine in pregnancy. *Complementary Therapies in Nursing and Midwifery, 8*, 77-80.
14. Gaffney, L., & Smith, C. (2004). The views of pregnant women towards the use of complementary therapies and medicines. *Birth Issues, 13*, 43-50.
15. Anderson, F.W., & Johnson, C.T. (2005). Complementary and alternative medicine in obstetrics. *International Journal of Gynecology and Obstetrics, 91*, 116-124.
16. Petrie, K.A., & Peck, M.R. (2000). Alternative medicine in maternity care. *Primary Care, 27*, 117-136.
17. Wang, S., DeZinno, P., Fermo, L., William, K., Caldwell-Andrews, A., Bravemen, F., & Kain, Z. (2005). Complementary and alternative medicine for low-back pain in pregnancy: A cross-sectional survey. *Journal of Alternative and Complementary Medicine, 11(3)*, 459-464.

18. Refuerzo, J., Blackwell, S., Sokol, R., Lajeunesse, L., Firchau, K., Kruger, M., & Sorokin, Y. (2005). Use of over-the-counter medications and herbal remedies in pregnancy. *American Journal of Perinatology*, 22(6), 321-324.
19. Hollyer, T., Boon, H., Georgousis, A., Smith, M., & Einarson, A. (2002). The use of CAM by women suffering from nausea and vomiting during pregnancy. *BMC Complementary and Alternative Medicine*, 2, 1-6.
20. Roscoe, J., & Matteson, S. (2002). Acupressure and acustimulation bands for control of nausea: A brief review. *American Journal of Obstetrics and Gynecology*, 186, S244-247.
21. Tiran, D. (2002). Nausea and vomiting in pregnancy: safety and efficacy of self-administered complementary therapies. *Complementary Therapies in Nursing and Midwifery*, 8, 196-191.
22. Westfall, R.E. (2004). Use of anti-emetic herbs in pregnancy: Women's choices and the question of safety and efficacy. *Complementary Therapies in Nursing and Midwifery*, 10, 30-36.
23. Allaire, A. (2001). Complementary and alternative medicine in the labour and delivery suite. *Clinical Obstetrics and Gynecology*, 44(4), 681-691.
24. Skouteris, H., Carr, R., Wertheim, E.H., Paxton, S.J., & Duncombe, D. (2005). A prospective study of factors that lead to body dissatisfaction during pregnancy. *Body Image*, 2(4), 347-361.
25. Wu, P., Fuller, C., Liu, X., Lee, H.C., Fan, B., Hoven, C.W., Mandell, D., Wade, C., Kronenberg, F. (2007). Use of complementary and alternative medicine among women with depression: Results of a national survey. *Psychiatric Services*, 58, 349-356.

26. Astin, J. (1998). Why patients use alternative medicine. *Journal of the American Medical Association*, 279, 1548-1553.

Table 1

Percentage of Women Reporting Using Each Type of CAM During Pregnancy

<i>Type of CAM</i>	<i>% (n) of total sample ((n= 321)</i>
Massage	49.5 (159)
Minerals and Vitamins	30.8 (99)
Meditation	20.6 (66)
Yoga	18.4 (59)
Aromatherapy	17.5 (56)
Essential oils	17.1 (55)
Herbal remedy	10.3 (33)
Special juices	7.8 (25)
Homeopathic remedies	6.5 (21)
Western herbs	6.5 (21)
Naturopathy	5.9 (19)
Other ^a	2.5 (8)
Chinese herbs	1.6 (5)

^a *Other* category answers reported by 1-2 women included Bach flower remedy, Pilates, hypnosis, Fibergel^R, crystals, acidophilus powder.

Table 2

Complaints Reported by at Least Two Pregnant Women and the Alternative, Non-Prescription and Prescription Remedies Used

Type of complaint	Number of women	Alternative/Natural Remedy (n)	Mainstream Non-prescription Remedy (n)	Prescription Remedy (n)
Cough/cold	19	Vitamins (2) Echinacea (1) Garlic Tablets (1) Eucalyptus oil (1)	<i>Cough Syrup</i> (3)	<i>Paracetamol</i> (8) <i>Antibiotics</i> (3)
Indigestion	14	Mint chew (1)	<i>Antacid</i> (13)	
Headaches	11	Essential Oils (1)	<i>Paracetamol</i> (10)	
Back pain	6	Massage (3) Chiropractor (1)	<i>Panadol</i> ^R (2)	
Fluid retention	3	Dandelion leaf tea (1) Chinese herbs (1) Reflexology (1)		
Morning sickness	4	Bach Flower (1) Ginger Tea (1) Vitamins (1)	<i>Restavit</i> ^R (1)	
Leg cramps	4	Mineral tablets (4)		
Constipation	3		<i>Fiberget</i> ^R (3)	
Infection	4			<i>Antibiotics</i> (4)
Tiredness	3	Vitamins (1) Chinese herbs (1) Floradix ^R (1)		
Thrush	3	Acidophilus (2)		<i>Canesten</i> ^R (1)
Sinusitis	2	Eucalyptus (1)	Nasal spray (1)	

Type of complaint	Number of women	Alternative/Natural Remedy (<i>n</i>)	Mainstream Non-prescription Remedy (<i>n</i>)	Prescription Remedy (<i>n</i>)
Worrying thoughts	2	Rescue Remedy ^R (2)		
Depression	2			<i>Antidepressants</i> (2)

Table 3

Demographics and Number of Physical Symptom, for Women Who Did and Did Not Use CAM or Visit a CAM Practitioner During Pregnancy

	Women who used CAM <i>n</i> = 235	Women who did not use CAM <i>n</i> = 86	Women who consulted a CAM practitioner <i>n</i> = 118	Women who did not consult a CAM practitioner <i>n</i> = 203
<i>Mean (SD) Age</i>	31.66 (4.38)	30.61 (4.92)	31.81 (4.93)	31.12 (4.30)
<i>Mean (SD) Number of Physical Symptoms</i>	4.48 (1.83)	4.29 (1.69)	4.81 (1.85)	4.21 (1.73)
% (<i>n</i>) of Women with a Family Income >\$A70,000	70.6% (<i>n</i> = 166)	65.1% (<i>n</i> = 56)	67% (<i>n</i> = 79)	70.4% (<i>n</i> = 143)
% (<i>n</i>) of Women with a Family Income \$A30,000-69,000	25.5% (<i>n</i> = 60)	27.9% (<i>n</i> = 24)	25.4% (<i>n</i> = 30)	26.6% (<i>n</i> = 54)
% (<i>n</i>) of Women with a Family Income <\$A30,000	3.8% (<i>n</i> = 9)	7.0% (<i>n</i> = 6)	7.6% (<i>n</i> = 9)	3.0% (<i>n</i> = 6)
% (<i>n</i>) of Women with a Tertiary Education	74.9% (<i>n</i> = 176)	73.3% (<i>n</i> = 63)	78% (<i>n</i> = 92)	72.4% (<i>n</i> = 147)
% (<i>n</i>) of Women with a less than Tertiary Education	25.1% (<i>n</i> = 59)	26.7% (<i>n</i> = 23)	22.0% (<i>n</i> = 26)	27.6% (<i>n</i> = 56)

Note: \$A indicates Australian dollars