

The drivers and impact of complementary and alternative medicine use in the provision of care for women during pregnancy, labour and birth: A health services research study

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CERTIFICATE OF ORIGINAL AUTHORSHIP

I certify that the work in this thesis has not previously been submitted for a degree nor has it been submitted as part of requirements for a degree except as fully acknowledged within the text.

I also certify that the thesis has been written by me. Any help that I have received in my research work and the preparation of the thesis itself has been acknowledged. In addition, I certify that all information sources and literature used are indicated in the thesis.

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STATEMENT OF CONTRIBUTIONS TO JOINTLY AUTHORED WORKS CONTAINED IN THE THESIS

The results from this thesis have been submitted for publication in peer-reviewed journals through five discrete manuscripts which are presented in Chapters 4 through 8. For each of these papers, I have been primarily responsible for determining the research question, undertaking the analysis and drafting the manuscript.

Support in all of these areas has been provided by Professor Jon Adams, Professor David Sibbritt and Associate Professor Alex Broom. Ms Jane Frawley has also assisted with data interpretation and final stages of manuscript drafting as needed. Additional support with drafting and finalising manuscript has been provided by Professor Cindy Gallois.

I take full responsibility in the accuracy of the findings presented in these publications and this thesis.

PUBLISHED WORKS BY THE AUTHOR INCORPORATED INTO THE THESIS

Of the drafted manuscripts contained in this thesis, all have been submitted for publication of which 4 are under review, and 1 is published. The list of manuscripts contained in this thesis are as follows:

1. Steel A, Adams J, Sibbritt D, Broom A, Gallois C, Frawley J. Utilisation of complementary and alternative medicine (CAM) practitioners within maternity care provision: results from a nationally representative cohort study of 1,835 pregnant women. *BMC Pregnancy Childbirth*. 2012;12(1):146.
2. Steel A, Adams J, Sibbritt D, Broom A, Gallois C, Frawley J. Determinants of women consulting with complementary and alternative medicine (CAM) practitioners in pregnancy. *Women Health*. Under review: *revised and resubmitted 18th September 2013*
3. Steel A, Adams J, Sibbritt D, Broom A, Frawley J, Gallois C. The influence of complementary and alternative medicine use in pregnancy on labour pain management choices: results from a nationally-representative study of 1835 women. *J Altern Complement Med*. doi:10.1089/acm.2013.0171

4. Steel A, Adams J, Sibbritt D, Broom A, Gallois C, Frawley J. Managing the pain of labour: the role of CAM and other factors in influencing the use of labour pain management in Australian women. *Health Expect.* Under review: revised and submitted 22nd September 2013
5. Steel A, Adams J, Sibbritt D, Broom A, Frawley J, Gallois C. Relationship between complementary and alternative medicine use and incidence of adverse birth outcomes: An examination of a nationally-representative sample of 1835 Australian women. *Midwifery.* Under review: revised and resubmitted 23rd September 2013

RELEVANT PUBLISHED WORKS BY THE AUTHOR NOT FORMING PART OF THE THESIS^a

JOURNAL ARTICLES

1. Steel A, Frawley J, Sibbritt D, Adams J. A preliminary profile of Australian women accessing doula care: findings from the Australian Longitudinal Study on Women's Health. *Aust N Z J Obstet Gynaecol.* 2013; DOI:10.1111/ajo.12123
2. Steel A, Wardle J, Diezel H, Johnstone K, Adams J. Educating for collaboration: the outcomes of an interprofessional education workshop for complementary and alternative maternity care providers. *Adv Integr Med.* 2013; DOI:10.1016/j.aimed.2013.05.001
3. Steel A, Diezel H, Wardle J, Johnstone K. Patterns of inter-professional communication between complementary and conventional practitioners providing maternity care services: a preliminary examination of the perceptions of CAM practitioners. *Aust J Herbal Med.* 2013; 25(2):57-61, 73
4. Diezel H, Steel A, Wardle J, Johnstone K. Patterns and influences of interprofessional communication between midwives and CAM practitioners: a preliminary examination of the perceptions of midwives. *Aust J Herbal Med.* 2013;25(1): 4-10

^a Only includes works relevant to this thesis. However, during her candidature the candidate has published 21 peer-reviewed articles, 7 book chapters (with three updated for a 2nd edition), 2 commissioned reports, 13 conference presentations with published abstracts, and presented 3 invited seminars (2 were expenses paid).

5. Steel A, Diezel H, Johnstone K, Sibbritt D, Adams J and Adair R. The value of care provided by student doulas: an examination of the perceptions of women in their care. J Perinat Education. 2013;22(1): 39-48
6. Frawley J, Sibbritt D, Adams J, Broom A, Gallois C and Steel A. Prevalence and determinants of complementary and alternative medicine (CAM) use during pregnancy: Results from a nationally representative sample of Australian pregnant women. Aust N Z J Obstet Gynaecol 2013;DOI: 10.1111/ajo.12.056
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10. Steel A and Adams J (2011). The role of naturopathy in pregnancy, labour and post-natal care: broadening the evidence-base. Complement Ther Clin Pract. 17:189-192

PUBLISHED CONFERENCE ABSTRACTS

1. Steel A, Adams J, Sibbritt D, Broom A, Frawley J. The influence of complementary and alternative medicine use in pregnancy on pain management in labour and birth outcomes. Forsch Komplementmed. 2013;20(suppl 1):41
2. Frawley J, Adams J, Sibbritt D, Steel A, Broom A (2013) Self-care practices of women using Complementary and Alternative Medicine (CAM) in pregnancy: A nationally representative sample of 1,835 women. Forsch Komplementmed. 2013;20(suppl 1):67
3. Steel A, Diezel H, Sibbritt D, Adams J. OA16.03. Promoting safe and integrated maternity care through interprofessional education. BMC Complement Altern Med. 2012;12(Suppl 1):O51.

4. Frawley J, Sibbritt D, Adams J, Steel A, Wardle J, Broom A, Lui C, Murthy V. OA16.04. Women's sources of information for CAM use during pregnancy. BMC Complement Altern Med. 2012;12(Suppl 1):O65
5. Steel A, Sibbritt D, Adams J, Daley J. P04.80. Navigating the divide: women's engagement with conventional and complementary medicine in pregnancy. BMC Complement Altern Med. 2012;12(Suppl 1):P350
6. Steel A, Adair R. The ghost in the room: the role of doulas in maternity care in Australia. Women Birth. 2011;24(Suppl 1):S44

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ABSTRACT

Background: There is evidence of high use of complementary and alternative medicine (CAM) by pregnant women. Despite debate and controversy regarding CAM use in pregnancy there has been little research focused upon the factors which drive women's use of CAM during pregnancy, labour and birth (PLB) and the patterns of CAM use which impacts on labour and birth outcomes. **Methods:** A cross-sectional sub-study of women from the 'younger' cohort of the Australian Longitudinal Study on Women's Health (aged 31-36 years) (n=8012) who identified as pregnant or recently given birth (n=2445) were recruited for the study. Alongside the women's demographics and health history, the survey explored women's consultations with conventional maternity health professionals and CAM practitioners, use of pharmacological pain management techniques (PPMT) and non-pharmacological pain management techniques (NPMT), and incidence of birth outcomes. The statistical analysis included Pearson chi-square tests, and analysis of variance or t-tests to examine bivariate relationships. Multiple logistic regression and backwards stepwise regression was undertaken as needed to more closely examine the relationship between variables. **Results:** The survey was completed by 1835 women. A substantial number of respondents consulted with a CAM practitioner (49.4%) or used CAM products commonly associated with CAM practice (52.0%) for pregnancy-related health conditions. Differences were seen in the influence of demographics, health service utilisation, health status, use of CAM, and attitudes and beliefs upon consultation with a CAM practitioner and use of intrapartum pain management techniques across all categories of practitioners. Higher educational attainment was strongly associated with consultations with an acupuncturist (RR=4.17-4.53). More than two thirds of women (66.7%) who used NPMT utilised CAM during pregnancy. Women were significantly more likely to use NPMT during birth if they were married (OR=6.90), consulted with massage therapist (OR=1.58), or attended yoga/meditation class (OR=2.87). Women who consulted with a chiropractor were less likely to have a premature delivery (OR=0.29) or caesarean section after onset of labour (OR=0.10) but more likely to have emotional distress associated with the labour (OR=3.27). **Conclusions:** This thesis presents novel findings and further develops our understanding of CAM use in PLB. This thesis highlights a need for future research to examine this topic more closely, and to develop policy and encourage health literacy in relation to CAM use in PLB. The results of this study requires the attention of policy makers, maternity health professionals and women.

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ABBREVIATIONS

ABS:	Australian Bureau of Statistics	NPMT:	non-pharmacological pain management techniques
AHPRA:	Australian Health Practitioners Regulation Agency	OAM:	Office of Alternative Medicine
ALSWH:	Australian Longitudinal Study on Women's Health	PHI:	private health insurance
ANOVA:	analysis of variance	PLB:	pregnancy, labour and birth
AOR:	adjusted odds ratio	PPMT:	pharmacological pain management techniques
BMI:	body mass index	OR:	odds ratio
CAM:	complementary and alternative medicine	RCT:	randomised-controlled trial
CS:	caesarean section	RR:	rate ratio
GP:	general practitioner	TCM:	traditional Chinese medicine
HREC:	human research ethics committee	TENS:	transcutaneous electrical nerve stimulation
HSR:	health services research	TGA:	Therapeutic Goods Administration
MeSH:	medical subject heading	US:	United States
MHP:	maternity health professional	UK:	United Kingdom
NIH:	National Institute of Health		