

Women's use of complementary and alternative medicine products and services during pregnancy: Insights for safe, informed maternity care

Jane Elizabeth Frawley

Australian Research Centre in Complementary and Integrative Medicine, Faculty of
Health, University of Technology Sydney

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Technology Sydney

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.

Signature of Student:

Production Note:
Signature removed prior to publication.

Jane Elizabeth Frawley

June 2015

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, 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.

I have received support in all of these areas by Professor Jon Adams, Professor David Sibbritt and Dr Jon Wardle. Dr Amie Steel has also assisted with data interpretation and final stages of manuscript drafting as needed. Professor Alex Broom and Professor Cindy Gallois have provided additional support with drafting and finalising the submitted/published manuscripts contained within this thesis.

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 two are published, two have been resubmitted with revisions and one is one under review. Following is the list of manuscripts contained in this thesis:

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Other relevant published works by the author not forming part of the thesis

Journal articles

1. Frawley J, Sundberg T, Steel A, Sibbritt D, Broom A, Adams J (2015). Prevalence and characteristics of women who consult with osteopathic practitioners during pregnancy; a report from the Australian Longitudinal Study on Women's health (ALSWH). *Journal of Bodywork and Movement Therapies*, (In press).
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Abbreviations

ABS – Australian Bureau of Statistics

AHPRA – Australian Health Practitioners Regulation Agency

AIDS – Acquired Immunodeficiency Syndrome

AIHW – Australian Institute of Health and Welfare

ALSWH – Australian Longitudinal Study on Women’s Health

ART – assisted reproductive technologies

ARTG – Australian Register of Therapeutic Goods

ASGC - Australian Standard Geographical Classification

CAM – Complementary and alternative medicine

CI – Confidence interval

GP – General practitioner

HIV – Human immunodeficiency virus

HRT - hormone replacement therapy

HSR – Health services research

NCCAM - National Centre for Complementary and Alternative Medicine’s

NIH – National Institute of Health

OR – Odds ratio

PHI – private health insurance

RCT – Randomised-controlled trial

TGA – Therapeutic Goods Administration

US – United States

UK – United Kingdom

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Abstract

Aim: The aim of this project is to explore the use of complementary and alternative medicine (CAM) products and services by women during pregnancy, with a focus upon: determining the current prevalence of CAM use and examining the determinants, characteristics and attitudes of women who use CAM; investigating the utilisation of various information sources used by pregnant women to make decisions about the use of CAM; and examining the extent to which pregnant women choose to self-prescribe certain CAM products.

Method: The study sample was obtained via the Australian Longitudinal Study on Women's Health (ALSWH). The ALSWH is a longitudinal study of women in three age groups ("young" 18-23, "mid age" 45-50 and "older" 70-75 years), who were randomly selected from the Australian national Medicare database to investigate multiple factors affecting health and wellbeing of women over a 20-year period. This research project analyses data from a sub-study survey administered in 2010. Participants in the sub-study were identified based upon their reporting of being pregnant or as having recently given birth in the 2009 ALSWH Survey 5 (n=2,316) of the young cohort. A total of 1,835 women responded to the sub-study survey and were included in the analysis (79.2% response rate).

Results: CAM use during pregnancy is high with 91.7% (n=1,485) of women using a CAM product (52.0% excluding vitamins and minerals) and 48.1% (n=623) of women

consulting a CAM practitioner. CAM practitioner visits were more likely for selected pregnancy-related health concerns, namely back pain or backache, and neck pain. Employment was also found to be predictive of pregnant women's visits to a CAM practitioner. Significant health history and demographic predictors of CAM product use were tiredness and fatigue, embarking on preparation for labour and having a university education. Further analysis found that of the 447 women who did consult a CAM practitioner prior to pregnancy 62.4% (n=279) continued to utilise a CAM practitioner during pregnancy. Certain attitudes were found to be associated with women who use CAM products during pregnancy and women were more likely to use herbal medicine if they suffered from anxiety, sleeping problems and/or fatigue. The self-prescription of herbal medicine was also found to be widespread. Of the women deciding whether or not to visit a CAM practitioner, nearly half (48%, n=493) were influenced by their own personal experience of CAM and 43% (n=423) by family and friends.

Conclusion: CAM use by women during pregnancy is high. Maternity health care professionals need to inquire about CAM use during routine antenatal visits in order to ensure safe maternal outcomes.

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Appendix 6: Frawley J, Adams J, Steel A, Broom A, Gallois C, Sibbritt D (2015). Women's Use and Self-Prescription of Herbal Medicine during Pregnancy: An Examination of 1,835 Pregnant Women. *Women's Health Issues* (doi: 10.1016/j.whi.2015.03.001 Epub ahead of print). 372

1. Background

1.1 Chapter introduction

This chapter provides a context for the thesis. It outlines the rationale and scope of this work and provides contemporary definitions of key topics. All research aims, objectives and questions are also stated here along with background information in order to provide a scaffold for the following chapters.

1.2 Women's use of complementary and alternative medicine products and services during pregnancy: A health services research study

This thesis draws upon the methods and principles of health services research to critically examine women's utilisation of complementary and alternative medicine (CAM) during pregnancy. The epistemology of the thesis adopts a positivistic approach to knowledge, which is in line with applied health services research. This background chapter explores the role and value of health services research in the examination of all aspects of CAM utilisation and provides an overview of the structure of this thesis.

1.2.1 Health services research for the examination of complementary and alternative medicine (CAM)

“There is a danger of tying the CAM research programme exclusively to the issue of efficacy. In order to fully understand CAM we must broaden our approach beyond simply asking questions of clinical effectiveness, to include methods and research perspectives from neighbouring traditions such as public

health, health services research and health social science.” (Adams, 2007a, pg. 14)

1.2.1.2 Definition of health services research

Health services research examines how people get access to health care, the cost of healthcare, and what happens to patients as a result of this care (Horner, Russ-Sellers, & Youkey, 2013). It aims to identify the most efficient and effective approaches to healthcare delivery, management, organisation and financing whilst maintaining patient centred care (Horner et al., 2013). The definition of health services research is ever evolving with the latest Academy Health (the professional organisation of the health services research field in the USA) (Lohr & Steinwachs, 2002) definition stating:

“Health services research is the multidisciplinary field of scientific investigation that studies how social factors, financing systems, organisational structures and processes, health technologies, and personal behaviours affect access to health care, the quality and cost of health care, and ultimately our health and well-being. Its research domains are individuals, families, organisations, institutions, communities, and populations.”

This particular field of enquiry, health services research, was conceptualised in the early 1960s to study important healthcare issues such as cost, access, quality of care and patient outcome (Bindman, 2013) and since then, has evolved to become an integral part of the healthcare and medical research landscape. Investment in health services research helps to better plan for future health care in relation to the allocation

of funding, setting appropriate healthcare priorities and the improved allocation of human and operational resources (Bindman, 2013; Adams, 2008).

1.2.1.3 Health services research regarding complementary and alternative medicine (CAM)

Historically, health services research has focused upon conventional health care and very little has examined CAM. In the modern healthcare context though, CAM is popular, making up a significant component of health care/service utilisation. A health services research examination of CAM is vital to explore all facets of this utilisation.

In order to completely characterise and understand CAM use it is crucial to expand the research gaze beyond randomised controlled trials designed to evaluate clinical efficacy. Whilst the need for ongoing randomised controlled trials examining the efficacy and safety of CAM undoubtedly exists, health services research is also important in order to gain an insight into the prevalence of CAM use, the profile and characteristics of CAM users, determinants of use and the interface between CAM and conventional medicine (Adams, 2007b). Beyond questions of prevalence and user characteristics there is a need to evaluate decision-making, information sources, access to CAM treatments and products, and treatment outcomes following CAM use. This information will inform consumers, health care professionals, governments and health care policy makers (Adams, 2008).

Health services research was listed as a new research goal in the US National Centre for Complementary and Alternative Medicine's (NCCAM) 2005-2009 strategic plan (Herman, D'Huyvetter, & Mohler, 2006). A 2006 literature review of health

services research studies in CAM found 84 published studies (Herman, D'Huyvetter, & Mohler, 2006). Herman et al (2006) commented that many areas were, as yet, under explored and welcomed more research evaluating the many aspects of health services research in this area including the integration of CAM with orthodox medicine; development of patient guidelines; health insurance for CAM treatments; cost-effectiveness of CAM together with the adoption of whole systems research (the evaluation of a 'whole' system approach such as naturopathy, Ayurveda or traditional Chinese medicine) (Ritenbaugh, Verhoef, Fleishman, Boon, & Leis, 2003; Verhoef et al., 2005).

1.2.1.4 Health services research regarding complementary and alternative medicine (CAM) in maternity care

Prominent authors in the CAM field have called for more health services research to be conducted to examine the use of CAM in pregnancy, using large-scale, nationally representative samples of pregnant women in order to guide practice and policy development (Adams & Steel, 2012; Hall, Griffiths, & McKenna, 2011). Research is needed to quantify and characterise the profile of women who choose to use CAM products and visit CAM practitioners for pregnancy-related health issues. Pregnant women's attitudes towards the use of CAM during pregnancy as well as patterns of CAM use and influential sources of information in relation to this use are crucial to understanding and fully exploring the use of CAM during pregnancy (Adams & Steel, 2012; Steel & Adams, 2011; Hall et al., 2011). This thesis provides one direct first step to responding to these important calls to address health services research gaps, using

well-recognised research methods and providing a novel contribution and advance to our understanding of CAM use during pregnancy.

“Ultimately, public health/health services research holds great promise for charting and critically understanding the contemporary developments around CAM practice and decision-making amongst practitioners and pregnant women in their care. To ignore such health services/delivery questions will be to deny the broad evidence-base necessary to help effectively inform maternity care providers and the women in their care regarding the use of CAM during pregnancy.” (Adams & Steel, 2012, pg. 74)

1.2.2 Aims and scope of thesis

1.2.2.1 Research aims

The aim of this research is to characterise and examine women’s use of CAM products and services during pregnancy through application of a health services research approach.

1.2.2.2 Research questions

In order to address the above research objectives this project will answer six (6) research questions as outlined below:

1. What proportion of Australian women are choosing to use CAM products and services during pregnancy?

2. What extent does education, income, marital status and area of residence affect women's choices about CAM during pregnancy?
3. Are there any differing characteristics between women that use CAM prior to but not during pregnancy, to those that continue to use CAM through their pregnancy?
4. What are the attitudes of Australian women towards CAM use during pregnancy?
5. To what extent is self-prescribed CAM used during pregnancy?
6. How much influence do certain information sources have on women's CAM use during pregnancy?

1.2.2.3 Significance and scope of thesis

The current work regarding women's use of CAM in pregnancy shows high prevalence and emerging characteristics of use (Hall et al., 2011; Adams, Lui, Sibbritt, Broom, Wardle, Homer, & Beck, 2009b). However, to date there has not been a thoroughly designed, detailed analysis of gestational CAM use. The insufficient level of information available on women's utilisation of CAM during pregnancy has led to questions regarding the safety of these products and services for pregnant women. In light of these challenges, it is important to understand (among other things) the drivers, determinants and characteristics of CAM use during pregnancy in a nationally representative study of pregnant women.

The outcomes of this research will primarily help inform maternity health professionals about women's utilisation of CAM in pregnancy, including the amount of use, types of products consumed and types of practitioners consulted, profile of users, determinants of use, self-prescription of CAM and identification of information sources that women trust to make decisions about CAM. Currently much of this information is unknown and a greater understanding of these factors will inform health professionals and contribute towards safe, coordinated care for mother and baby.

1.2.3 Thesis structure

This is a thesis by publication. Whilst it is a cohesive and consistent body of research, the findings from this thesis have resulted in journal publications that are presented here in relevant chapters. The overall structure of the thesis is as follows:

Chapter 1 covers background knowledge about the wider context of CAM including contemporary and evolving definitions, international utilisation of CAM, general CAM use in Australia including the current regulatory framework, the utilisation of CAM for women's health disorders and maternity health care provision in Australia are described in this chapter.

Chapter 2 reviews the current international literature relating to CAM use by women during pregnancy and specifically reviews the prevalence of CAM practitioner and product utilisation, the determinants and characteristics of this use, women's attitudes in relation to the utilisation of CAM during pregnancy, the information sources women use to inform their choices and the self-prescription of CAM during pregnancy.

Chapter 3 describes the methodology, study design, sample selection, ethical considerations and statistical analysis that were employed for this project.

Chapter 4 presents the first results within the thesis and outlines the prevalence, determinants and characteristics of women's use of CAM products and services during pregnancy. The results from this chapter have been published in the *Australia New Zealand Journal of Obstetrics and Gynaecology*.

Chapter 5 defines the impact of prior CAM practitioner utilisation on the use of CAM practitioners during pregnancy. This chapter examines women's use of four different CAM practitioners before pregnancy to determine if this is related to antenatal use. The results of this chapter have been submitted to the *Women & Health*.

Chapter 6 explores women's attitudes towards CAM use during pregnancy. This chapter examines the attitudes of women who utilise individual CAM products during pregnancy as compared to those who do not. The results from this chapter have been resubmitted following revisions to the *Journal of Obstetrics and Gynaecology*.

Chapter 7 outlines the information sources that women utilise when making decisions about CAM practitioner use during pregnancy. A manuscript reporting the results from this chapter has been published in the *Journal of Alternative and Complementary Medicine*.

Chapter 8 examines the prevalence, characteristics and determinants of women who use herbal medicine during pregnancy. This chapter also explores the prevalence, characteristics and determinants of women who choose to self-prescribe herbal

medicine during pregnancy. These results of this chapter have been resubmitted to the journal *Women's Health Issues*, following revisions.

Chapter 9 discusses the implications of the findings of this thesis in the context of previous research, identifies limitations to the study, and highlights important issues relevant to the research aims and objectives. This chapter also identifies areas for future research.

Chapter 10 summarises the significant findings from this thesis

1.3 Defining complementary and alternative medicine (CAM)

There are a variety of terms commonly used in the literature to describe these systems of medicine such as 'complementary medicine,' alternative medicine', integrative medicine', 'holistic medicine', 'natural medicine, 'traditional medicine' as well as combinations of these terms such as 'complementary and integrative medicine' and 'complementary and alternative medicine' (Wieland, Manheimer, & Berman, 2011; Zollman & Vickers, 1999).

The term 'alternative medicine' has been used to describe non-conventional medicine that was offered or sought as a substitute for biomedicine (Zollman & Vickers, 1999). This term was more popular in the 1960s, 1970s and 1980s before the popularity of the term 'complementary medicine'. Terms such as 'holistic medicine' and natural medicine' were also popular at this time. The term complementary

medicine is used more commonly to denote the practice of medical pluralism wherein alternative, or non-conventional medicines are used alongside conventional biomedicine in order to 'complement' treatment (Zollman & Vickers, 1999).

More recently, due to increases in academic and public interest in CAM, much debate has occurred in relation to these terms and definitions (Wieland et al., 2011). The term complementary and alternative medicine (CAM) is now more commonly used however it is challenging to precisely define as it encompasses many systems of medicine that are both diverse and lacking in clear boundaries. The World Health Organization (WHO) defines CAM as referring to a "broad set of health care practices that are not part of the country's own tradition and are not integrated into the dominant health care system" (World Health Organization, 2001). The National Centre for Complementary and Alternative Medicine (NCCAM), part of the United States government's National Institutes of Health (NIH) broadens out this definition slightly to include health care systems, practices, and products and thus defines CAM as "complementary and alternative medicine (CAM) is group of diverse medical and health care systems, practices, and products that are not generally considered part of conventional medicine" (National Center for Complementary and Alternative Medicine, 2013).

More recently still, the term integrative (or integrated) medicine or integrative health care has been used to describe the practice of a medical professional that prescribes conventional medicine alongside complementary and alternative medicine. An attempt at a concise definition has proved difficult (Boon, Verhoef, O'Hara, Findlay, & Majid, 2004), however definitions in common use tend to

range from the practice of incorporating CAM into conventional medicine to a new system of patient centred medicine that actively encourages integration and shared patient care and treats the 'whole person' and not just a medical condition (Coulter, Khorsan, Crawford, & Hsiao, 2010). A recent study found that 92% of participants preferred a general practitioner (GP) who was knowledgeable about CAM, 70% desired to consult a GP who was happy to refer to CAM practitioners and 42% indicated that they would like their GP to collaborate with CAM practitioners (Jong, van de Vijver, Busch, Fritsma, & Seldenrijk, 2012). In response to this, integrative medicine clinics are becoming more available wherein patients can either see an integrative medical practitioner or where patients may navigate this pluralistic landscape themselves and choose to consult a medical and CAM practitioner from the same clinic.

1.3.1 The need for an operational definition of complementary and alternative medicine (CAM)

Many authors have pointed out the heterogeneity of studies due to the variances in the definitions of CAM (Bishop et al., 2011a; Eardley et al., 2012; Gratus et al., 2009; Wu et al., 2012). Additionally, some CAM therapies are accepted by most people as CAM, such as aromatherapy or naturopathy, however some disciplines are not so clear and are thought of by some as part of conventional medicine, and by others as CAM, such as vitamins, relaxation and special diets. Further to this, some common CAM practices may be partially incorporated into conventional medicine, depending on what they are being utilised to treat. A good example of this is folate, taken by women before and during the early stages of pregnancy to prevent neural-tube defects. Whilst folate is a vitamin, this application has been extensively researched and thus folate has

become part of conventional maternity health care (The Royal Australian and New Zealand College of Obstetricians and Gynaecologists, 2014).

The Cochrane Collaboration accepts the US Institute of Medicine's theoretical definition of CAM as "a broad domain of healing resources that encompasses all health systems, modalities, and practices and their accompanying theories and beliefs, other than those intrinsic to the politically dominant health system of a particular society or culture in a given historical period," however they acknowledge the need for a standardised operational definition that will help to harmonise and co-ordinate research in the field (Wieland, et al., 2011). In developing a working definition the collaboration considered whether the historical context of the paradigm was alternative or conventional and whether the therapy or treatment is currently considered a conventional or standard treatment by the Western medical system (Wieland et al., 2011).

An operational definition was developed which incorporates most CAM modalities, practices and products (Wieland et al., 2011). Whilst this definition goes a long way to clarifying which treatments and therapies can generally be classified as CAM or conventional medicine, there are still some unclear areas that may be unable to be resolved due to the ever shifting and dynamic borders of medicine. Ultimately though, CAM is defined by its political relationship to medicine. Products and services that are outside of the medical model of care are generally considered to be CAM. As such, for the purposes of this research project, the term complementary and alternative medicine (CAM) has been adopted as it most accurately reflects and

incorporates the most widely utilised components of this system of health care in Australia. The NCCAM definition has been adopted for this project as it most accurately reflects the way CAM is viewed in the Australian health care landscape.

1.4 International trends in the use of complementary and alternative medicine (CAM)

1.4.1 Prevalence and determinants of international complementary and alternative medicine (CAM) use

Five systematic reviews have been published since the beginning of 2012, detailing the high international use of CAM (Frass et al., 2012; Harris, Cooper, Relton, & Thomas, 2012; Eardley et al., 2012; Posadzki, Watson, Alotaibi, & Ernst, 2013a; Seo, Baek, Kim, Kim, & Choi, 2013). Of these, two systematic reviews have included studies from all countries that fit their inclusion criteria (Harris, et al., 2012; Frass et al., 2012), one has included studies from the UK (Posadzki et al., 2013a), one from Europe (Eardley et al., 2012) and one from South Korea (Seo et al., 2013).

Harris et al (2012) included 49 surveys across 15 countries including the US, Canada, Australia, UK, Germany, Denmark, Italy, Israel, Singapore and Japan published since 1998, in a systematic review of the prevalence of CAM use in the general community. The authors found that 32 studies reported the prevalence of CAM use in the previous 12 months, which ranged from 9.8 to 76%. Harris et al (2012) included studies in their systematic review if the research reported a CAM prevalence rate for a

12-month retrospective period, included a sample size of at least 1000 and were nationally or regionally representative. Studies of single CAM therapies were excluded and the authors concluded that standardised approaches to data collection would reduce the large ranges in prevalence and improve international comparisons.

Frass et al (2012) conducted a systematic review to evaluate the international use and acceptance of CAM amongst the general population (Frass et al., 2012). CAM was categorised into whole medical systems (acupuncture, Ayurveda, naturopathy, traditional Chinese medicine etc.), biologically based therapies (aromatherapy, megavitamin therapy, herbal medicine etc.), energy medicine (light therapy, magnetic therapy, reiki, Qi gong etc.), manipulative and body based therapies (acupressure, Alexander technique, chiropractic, massage, reflexology etc.) and mind-body therapies (biofeedback, cognitive-behavioural therapies, hypnosis, imagery, meditation, prayer, tai-chi, yoga etc.). Frass et al searched all major databases for the search terms: complementary and alternative medicine, complementary/alternative medicine/therapies/treatments, country (variable), definition, expenditure/cost, population, prevalence, survey, unconventional medicine, use/utilisation. A total of 16 manuscripts from 10 countries, namely US, Canada, Australia, UK, Austria, Denmark, Germany, Italy, South Korea and Switzerland met the inclusion criteria (at least 1000 participants aged 15 years and older), with six studies involving over 1500 participants. Use of CAM, as reported in these studies, ranged from 5 to 74.8%, with the authors speculating that the wide range was due to a lack of consensus regarding the definition of CAM. In almost all countries, CAM consultations were not subsidised by the

government and the patient had to pay for the service themselves, occurring an out of pocket cost, perhaps further demonstrating the popularity of CAM.

The more recent systematic review of 89 UK studies, involving 97,222 participants found the average lifetime prevalence of CAM use was 51.8% and the average 12-month utilisation was 41.1% (Posadzki et al., 2013a). The authors noted the poor methodological quality of many included studies and found that in surveys reporting a response rate of >70%, prevalence of use was much lower (26.3% in the last 12 months with a lifetime prevalence of 44%). Posadzki et al (2013a) utilised an inclusive definition of CAM that included physical therapies such as acupuncture/acupressure, Alexander technique, chiropractic, Feldenkrais, biofeedback, hydrotherapy, kinesiology, massage, aromatherapy, osteopathy, Qigong, reflexology, shiatsu, tai-chi and yoga; mind-body practices such as relaxation therapy, spiritual healing and mediation; systems of traditional medicine such as Ayurveda, homeopathy and naturopathy, and other ingestible medicines that may be self-prescribed such as flower remedies, herbal medicine and homeopathic medicine. Vitamins and other non-herbal dietary supplements, exercise and ultrasound were excluded as they were considered to be outside the definition of CAM. Eardley et al (2012) also evaluated research in this field, this time evaluating 87 studies from the European Union. Eardley et al (2012) reported that the prevalence of CAM use varied greatly across Europe and from study to study, with some studies reporting as little as 0.3% utilisation and others recording up to 86% use. The authors commented that many studies suffered from poor design and/or reporting, which has been discussed to

date in all systematic reviews of CAM utilisation (Eardley et al., 2012; Posadzki et al., 2013a; Seo et al., 2013).

The systematic review evaluating the prevalence of CAM use in South Korea reported that CAM use amongst adults ranged from 29 – 75%, from 11 studies (Seo et al., 2013). Traditional Korean medicine was included within the definition of CAM by some researchers but not by others; however, this did not appear to affect the prevalence of use. The authors suggest though that inconsistent taxonomy, recall bias, non-representative sampling techniques and lack of pilot testing may have contributed to the large variations in prevalence.

The presence of a chronic health disorder has been shown to be predictive of CAM utilisation (Frass et al., 2012; Metcalfe et al., 2010; Okoro, Zhao, Li, & Balluz, 2012; Okoro, Zhao, Li, & Balluz, 2013). An international systemic review of CAM use found that suffering from certain chronic health conditions such as back pain, depression, insomnia, severe headache or migraine, and gastrointestinal illnesses was predictive of increased CAM use (Frass et al., 2012). A Canadian study found that CAM utilisation was higher amongst patients with asthma and migraine than the general public, with lower utilisation being noted for those patients with diabetes (Metcalfe et al., 2010). Conversely many studies have found that the use of CAM is relatively high in adults with diabetes; however prevalence varies greatly across different geographical locations from 30.9% use in the UK (Nahin, Byrd-Clark, Stussman, & Kalyanaraman, 2012) to 61.0% utilisation in Malaysia (Ching et al., 2013). Additionally, a US study found that 35.4% of study participants without chronic health problems used CAM, as

opposed to, 48.7% of participants with functional limitations (Okoro et al., 2012). Further variances in utilisation appear to be tied to disease severity with some authors reporting that increasing chronicity and severity of symptoms is predictive of CAM use (Morgan, Center, Arms-Chavez, & Lobello, 2014; Nahin et al., 2012), in many cases independent of socioeconomic status (Nahin et al., 2012).

Many large studies report that users of CAM are more likely to be female, have attained a higher level of education and be older (Eardley et al., 2012; Frass et al., 2012; Harris et al., 2012; Seo et al., 2013). In the US, where many cultures co-exist, some inter-racial differences in CAM use have also been noted. Barnes et al (2008) reported variances in CAM utilisation from 25.5% to 50.3% depending on race. They found that 50.3% of American Indian or Alaska Native adults used CAM compared to white citizens (43.1%), Asian citizens (39.9%) and black citizens (25.5%) (Barnes et al., 2008).

Studies in both younger (Upchurch & Wexler Rainisch, 2012) and older adults (Lavin, & Park, 2014) have found interracial differences related to the use of CAM. Analysis of data from the National Longitudinal Study of Adolescent Health (US adults aged between 18-27 years) found that Cuban and Central/South American Hispanics were more likely to use CAM as compared to White adults (Upchurch & Wexler Rainisch, 2012). Respondents identifying as Black/African-American were less likely to use CAM when compared to non-Hispanic White respondents. Similarly, a recent critical review of interracial and ethnic variants related to symptoms, physical functioning and health service utilisation in older adults found racial variation (Lavin &

Park, 2014). Minority racial groups (adults identifying as non-Hispanic White, which includes African American, Hispanic/Latino, American Indian or Alaska Native, Asian, and Native Hawaiian or other Pacific Islander) were more likely to use CAM as compared to non-Hispanic White older adults.

Further to this, recent research has shown that ethnic minority populations generally have higher CAM utilisation than their native counterparts (Lavin & Park, 2014; Upchurch & Wexler Rainisch, 2012).

Common reasons given for CAM use include a desire to prevent disease, and to enhance general health and wellness (Ekor, Adeyemi, & Otuechere, 2013; Ock et al., 2009; Okoro et al., 2012). Additionally, Barnes et al (2008) found that adults in the US for whom the cost of conventional care was of concern, were more likely to utilise CAM as opposed to those who were not concerned about conventional medical costs. Dissatisfaction with standard medical care was also reported to be a factor associated with increased use of CAM in a large systematic review of CAM use in Europe (Eardley et al., 2012), but conversely other authors have not found such an association (Shaw et al., 2008; van Tilburg et al., 2008).

1.4.2 International prevalence of consultations with different complementary and alternative medicine (CAM) practitioners

Some studies have investigated the prevalence of visits to various CAM practitioners such as acupuncturists, naturopaths, Chinese medicine practitioners, Ayurvedic practitioners, massage therapists, chiropractors and osteopaths. A recent systematic review investigated the prevalence of visits to five common CAM practitioner groups,

namely acupuncturists, homeopaths, osteopaths, chiropractors and medical herbalists (Cooper, Harris, Relton, & Thomas, 2013). Studies were included if they reported the number of visits to one or more of the above mentioned CAM practitioner groups in the previous 12-months. The studies had to be nationally representative and not involve particular patient sub-groups. In total, 44 studies from 12 countries were included in the review. The review found that visits to an acupuncturist ranged from 0.6% to 1.4% in the US, 1.0% to 2.3% in Canada and 1.6% in the UK, in the 12 months previous. Between 0.4% and 1.8% of the adult population had visited a homeopath in the previous 12 months in the US, 1.7 to 1.9% in the UK and 2.0% to 2.3% in Canada. It was estimated that 3.3 - 10.9% of US adults, 1.6 - 2.2% of UK adults, 1.4 - 11.0% of Canadian adults, and 15.0 - 16.7% of Australian adults visited a chiropractor in the previous 12 months. The review found very few reports of medical herbalist and osteopathic consultations. A US government survey included in this review found 1.8% of adults visited a medical herbalist in the previous 12 months as compared to 0.8 - 1.8% for UK adults and 0.6% for Canadian adults. Only two UK government studies reported the prevalence of osteopathic consultations in the last 12-months (1.9 - 2.7%).

A recent Canadian study involving 400,055 participants, investigated the prevalence of CAM practitioner visits amongst patients with a chronic illness and the general population (Metcalf et al., 2010). They found that 12.4% of the general population had visited a CAM practitioner in the previous year. Massage, acupuncture, homeopathy, chiropractic care, herbal medicine, reflexology and spiritual healing were the most popular modalities utilised. Individuals with asthma and migraine had

significantly higher odds of visiting a CAM practitioner in the previous 12 months and in particular, higher odds of consulting a chiropractor than the general population. Additionally, patients with migraine also demonstrated significantly higher odds of seeing a massage therapist as compared to the general population. Patients with epilepsy and diabetes were significantly less likely to visit a chiropractor, and patients with diabetes were also less likely to visit a massage therapist but more likely to consult an acupuncturist or a reflexologist than the general population (Metcalfe et al., 2010). Overall, after controlling for socio-demographic factors, participants with diabetes were significantly less likely than the general public to utilise the services of CAM practitioners, whilst patients with migraine and asthma were more likely to visit a CAM practitioner. Similarly, in their systematic review, Frass et al (2012) reported that across all included studies, chiropractic care (included 9 times), herbal medicine (included 6 times), massage (included 6 times), and homeopathy (included 5 times) were amongst the three most popular CAM modalities utilised.

1.4.3 International prevalence of use of different complementary and alternative medicine (CAM) products

Some studies have also reported specifically on the prevalence of CAM product utilisation, for example herbal medicine, flower essences and homeopathic medicine use. Recently, a systematic review evaluating available research on CAM product utilisation in the UK, published between January 2000 and October 2011, reported high levels of use (Posadzki et al., 2013a). Eighty-nine studies met the inclusion criteria and were therefore incorporated, amounting to 97,222 individuals. Whilst some studies investigated CAM use in healthy participants, others included patients with a

range of chronic health conditions including asthma, cancer, skin conditions, epilepsy, human immunodeficiency virus, hypertension, infertility, multiple sclerosis, pain, Parkinson's disease and paediatric illnesses. Many of these studies reported on CAM product utilisation with herbal medicine being the most common product used in 32.4% of surveys. This was followed by homeopathy, which was the most popular in 10.8% of surveys and aromatherapy in 8.1%. It is worthy to note that vitamins and minerals were not considered to be CAM products by the authors of this systematic review and were thus not included in the analysis.

All studies included in a recent systematic review reported on CAM product use (Frass et al., 2012). Herbal medicine and homeopathy were the most popular overall with prevalence for herbal medicine use ranging from 0.8% in the UK to 26.6% in Germany. Similarly, prevalence for homeopathy use ranged widely from 0.1% in South Korea to 33.3% in Germany, demonstrating different levels of popularity for both herbal medicine and homeopathy in different countries. Complementary and alternative medicine use is very popular in Germany and some other European countries therefore a systematic review of the same year aimed to determine the prevalence of CAM product use in Europe by examining cross-sectional, population based studies from this region (Eardley et al., 2012). Studies published up until September 2010 were evaluated from Denmark (n=1), Finland (n=4), France/Iceland (n=1), Germany (n=15), Israel (n=12), Italy (n=4), Netherlands (n=1), Norway (n=7), Poland (n=1), Portugal (n=1), Slovenia (n=1), Spain (n=2), Sweden (n=9), Switzerland (n=3), Turkey (n=2) and the UK (n=22). The prevalence of herbal medicine use was reported in 31 papers and ranged from 5.9% to 48.3%, and the use of homeopathy was

reported in 25 studies and ranged from 2% to 27%. The authors reported that no meaningful conclusions could be drawn about the prevalence of use of individual CAM products due to disparity between studies and the use of varying terms.

1.4.4 Out-of-pocket costs associated with complementary and alternative medicine (CAM) use internationally

To date, only a handful of studies have attempted to calculate the out-of-pocket spend on CAM by the general public. An Australian cross-sectional study of 1,427 women reported the average annual spend on CAM practitioner consultations was AUS\$416. The highest spend was for women who resided in larger urban areas, declining as the distance from capital cities increased (Adams et al., 2011). The average total spend on self-prescribed CAM was AU\$349, which remained consistent across different geographical areas.

A study from the US found that adults spent US\$33.9 billion on out-of-pocket expenses for CAM in the year 2007 (Nahin, Barnes, Stussman, & Bloom, 2009). Of the total out-of-pocket cost, a little over one third (US\$11.9 billion) was spent on visits to CAM practitioners and nearly two-thirds (totalling \$22.0 billion) was spent on self-care, such as CAM products (for example herbal medicine), and classes (for example yoga or meditation). Notwithstanding the prominence of self-prescribing and self-care, visits to CAM practitioners were also significant with an estimated 354.2 million visits by 38.1 million adults during 2007. Further, a Korean study of 3,000 adults in the general population found that the median annual out-of-pocket cost of CAM therapies was US\$203.00 (Ock et al., 2009), whilst a systematic review of CAM use in the UK reported

that the average monthly spend on CAM was £15.99, based on four studies (Posadzki et al., 2013a).

Various studies have reported average out-of-pocket expenses for CAM products and services for patients with particular chronic illnesses such as Parkinson's disease (US\$102.30 per month) (Kim, Lee, Kim, Lee, & Chung, 2009), osteoarthritis (AUS\$32.25 per year) (Zochling, March, Lapsley, Cross, Tribe, & Brooks, 2004), prostate cancer (US\$21 per year) (Lin, Chen, & Chiu, 2010), functional bowel disease (US\$200 per year) (van Tilburg et al., 2008) and diabetes type 2 (US\$16.90 per month) (Ching, Zakaria, Paimin, & Jalalian, 2013). Although large variations in out-of-pocket expenses are reported from country to country, owing to the different medical conditions being evaluated and the heterogeneity of international health care systems, economic reporting and evaluation of CAM use should be encouraged, as it is important to inform decision-making.

1.5 Complementary and alternative medicine (CAM) in Australia; contemporary features

1.5.1 An overview of the complementary and alternative medicine (CAM) profession in Australia

Complementary and alternative medicine is an active and thriving sector of the Australian health workforce. Over the last three decades the popularity of CAM together with the lack of state or federal regulation has encouraged the growth of

many CAM courses such as, naturopathy, herbal medicine, aromatherapy, reflexology, Chinese medicine, reiki, massage and nutrition, by private educational providers (McCabe, 2008). Many of these courses are taught by the Vocational Education and Training sector and thus award either a certificate or advanced diploma, depending of the duration and extent of the course. Some private education providers also award Bachelor degrees for major courses of study such as naturopathy and Chinese medicine (Breakspear, 2013; Wardle, Steel, & Adams, 2012b). Some courses are also offered in the public university sector such as undergraduate and postgraduate degrees in complementary medicine, traditional Chinese medicine, chiropractic and osteopathy (Australian Health Practitioner Regulation Agency, n.d.). Recently, a decision was made in Australia to phase out the advanced diplomas of naturopathy, Western herbal medicine, nutrition and homeopathy in favour of Bachelor programmes (Community services and Health Industry Skills Council, n.d.).

This results in a large CAM workforce in Australia, with CAM practitioners making up the third largest group of health professionals (Leach, 2013). A recent analysis of the CAM workforce in Australia utilised data from the 2006 Australian Bureau of Statistics Census of Population and Housing (response rate of 97%) in an attempt to quantify this labour force (Leach, 2013). The survey collected data on seven key CAM professions namely osteopath, chiropractor, naturopath, homeopath, acupuncturist, traditional Chinese medical practitioner, massage therapist and 'other' CAM practitioners (herbalists, aromatherapists, reflexologists etc.). The survey found that 19,401 Australians identified their profession as a CAM practitioner. Of these, it was discovered that there were 8,191 massage therapists, 2,982 naturopaths, 2,488

chiropractors, 946 acupuncturists, 777 osteopaths, 483 traditional Chinese medicine practitioners, 238 homeopaths and 3,296 'other' CAM practitioners. Overall the CAM workforce has a high level of female representation with 67.1% being female. The survey further investigated gender and found different ratios within different CAM professions, for example 67.3% of chiropractors were male as compared to 24.9% of massage therapists. There were also higher amounts of men in the professions of osteopathy (51.6%), traditional Chinese medicine (58.8%) and acupuncture (50.2%) but lower in naturopath (21%), homeopathy (24.4%) and 'other' (24.9%). A total of 45% of CAM practitioners were aged up to 40 years, 47.8% aged between 40-59 years and 7.2% were aged 60 or over. Most chiropractors (89%), osteopaths (84.8%), traditional Chinese medicine practitioners (66.5%) and acupuncturists (68.7%) had a bachelor or postgraduate degree for the modality in which they practiced. Lower levels of bachelor or postgraduate education were seen for naturopaths (40%) and homeopaths (43.3%).

Another recent study investigated the Australian CAM workforce by surveying members of a herbal medicine and naturopathy peak body, the National Herbalists Association of Australia (Leach, McIntyre, & Frawley, 2014). This study found that whilst all participants were either naturopaths or herbalists, over 55% of respondents practiced multiple CAM modalities. Of this subgroup of CAM practitioners, 37.1% held a bachelor degree as their highest qualification, 34.6% a postgraduate qualification and 27% an advanced diploma or lower qualification. More than half of the respondents worked in a major city (51.1%), were self employed (87.7%) and worked part-time or casually (72.6%). It appears from this study that the Australian naturopathy and herbal

medicine workforce is becoming increasingly part-time, female, and more highly educated (Leach, McIntyre, & Frawley, 2014).

An older Australian CAM workforce study conducted in 2004 found that the practices of naturopathy and Western herbal medicine contribute largely to the Australian health sector with approximately 1.9 million annual consultations and industry turnover of \$AUD 85 million dollars (Bensoussan, Myers, Wu, & O'Connor, 2004). Whilst a more up to date analysis of consultation rates and income turnover has not been completed, these professions still undoubtedly form a large part of the healthcare landscape in Australia.

There is National Statutory Registration in Australia for osteopaths, chiropractors and traditional Chinese medicine practitioners but not for any other CAM modality (Wardle, 2010). Registration for naturopaths and Western medical herbalists has been recommended but at this stage has not been implemented by the government (Lin et al., 2009). In the absence of registration for naturopathy and Western herbal medicine in Australia; however, there is some evidence of institutional recognition of the role of these health disciplines, which may be the result of interest and pressure from the general public and the need to ensure safe practices (McCabe, 2005). The Therapeutic Goods Administration (TGA) regulates the availability of CAM products; the Australian Taxation Office recognises professional peak bodies and their members for taxation purposes; the new Australian national body - Tertiary Education Quality Standards Agency (TEQSA) have continued to allow some private colleges to award bachelor degrees (Chinese medicine, naturopathy, nutritional medicine, herbal medicine,

myotherapy and homeopathy); most private health funds offer rebates for CAM services and Medicare, Australia's universal health care system, recently introduced new regulations to allow general and other medical practitioners to refer to a osteopath or chiropractor (McCabe, 2005). In addition to this the Australian Medical Association, Royal Australian College of Nursing and the Royal Australian College of General Practitioners in conjunction with the Australasian Integrative Medicine Association, have developed position statements on complementary medicine/therapies (Royal Australian College of General Practitioners, 2004).

Peak bodies that set standards for the profession such as minimum qualifications, continuing education and practice standards generally oversee unregistered CAM practitioners. As it stands today, there are many different professional associations with varying education and practice standards. In addition to this, due to the current lack of statutory registration, it is possible to practice these CAM disciplines without adequate training, without being a member of an association or without having completed any formal training (McCabe, 2008).

In Australia, as with many other Western countries, the practice of integrative medicine is growing, possibly due to an increased acceptance of CAM and the need to offer more for patients suffering with a chronic illness (Baer, 2008). This system attempts to blend the best of biomedicine with the best practices of complementary medicine. Biomedical practitioners may either have a general interest in a CAM modality such as meditation, or they may pursue further education in the CAM field. In addition to this, there has been a recent groundswell of interest in incorporating

complementary medicine and the notion of holism into mainstream medical education (Cohen, Penman, Pirotta, & Costa, 2005; Hassed, 2004; Hassed, Sierpina, & Kreitzer, 2008). An Australian study evaluated GP attitudes to a variety of complementary therapies as well as exploring current levels of training in CAM and interest in further training (Cohen et al., 2005). A total of 12% of GPs had completed a qualification in acupuncture and a further 24% indicated they would like to in the future. Further to this, 6% of respondents reported having formal qualifications in hypnosis, 5% spiritual healing, 5% vitamin and mineral therapy and 3% in meditation. Of all respondents, 16% reported they would like to undertake formal training in meditation, 14% hypnosis, 13% vitamin and mineral therapy, 11% herbal medicine, 11% yoga, 10% massage and 9% Chinese herbal medicine. The results of this study indicate an interest in incorporating some CAM modalities into general practice. A more recent Australian study sought to expand on these results and investigate differences between GPs who practice integrative medicine and those who do not (Pirotta et al., 2010). A total of 1,178 GPs responded and of these, 38% practiced integrated medicine and 62% did not. Acupuncture was the most popular CAM therapy practiced by an integrated medical practitioner (15.8%), followed by naturopathy/Western herbal medicine (5.8%), homeopathy (2.2%), chiropractic (2.2%), traditional Chinese medicine (1.4%) and osteopathy (1.4%).

Research shows that Australian pharmacists are also embracing CAM (Braun et al., 2010; Naidu, Wilkinson, & Simpson, 2005). A survey of 484 pharmacists, randomly selected from pharmacies across New South Wales, Australia found that 77% had used CAM themselves, 71% sold CAM products within their pharmacy and 91% believed that

it is important for pharmacists to be knowledgeable about both conventional and CAM products (Naidu et al., 2005). Within the context of maternity care, many Australian midwives also support the use of CAM (Hall, Griffiths, & McKenna, 2012a). Midwives have a role in facilitating informed decision making in relation to gestational CAM use that ensures safe maternal and child outcomes (Hall, Griffiths, & McKenna, 2013).

1.5.2 Prevalence and determinants of complementary and alternative medicine (CAM) use in Australia

Complementary and alternative medicine (CAM) use is popular in Australia with recent research showing that 69% of adults had used a CAM product in the previous 12 months and 44% had visited a CAM practitioner (Xue, Zhang, Lin, Da Costa, & Story, 2007). Xue et al (2007) found the national annual 'out-of-pocket' expenditure on CAM overall was approximately \$AU4.13 billion. CAM users were significantly more likely to be female (aged 18-34 years) and employed with higher than average income, higher qualifications and private health insurance. Similarly, a random sample of 1,261 adults in the state of Queensland, Australia determined that 61% had used either self-prescribed a CAM product or visited a CAM provider (Thomson, Jones, Evans, & Leslie, 2012) This study found that the most commonly used CAM were massage (51.2%), acupuncture (43.3%), chiropractic (41.4%), herbal medicine (36.8%), and nutritional medicine (29.9%). CAM users were statistically more likely to be female and and/or under the age of 65 years and disclosing the use of CAM was more likely if you were male and in better health.

Research in particular cohorts has reported even higher use, for example a survey of surgical patients in four major Australian hospitals reported that over 90% were using CAM (Shorofi, 2011). Non-herbal supplements such as vitamins and minerals (60.3%), and massage therapy (45%) were the most frequently used products. Another study found that 78% of visitors to a rural-health screening clinic (average age 66+/-10yrs) had used at least one CAM product within the past 12 months and 66% had visited a CAM practitioner (Wilkinson & Jelinek, 2009). The most frequently used CAM were vitamin/mineral supplements (54%) followed by herbal supplements (28%).

The prevalence of CAM utilisation within certain patient groups in Australia has found high utilisation amounts patients with chronic health conditions (Adams, Sibbritt, Easthope, & Young, 2003b; Adams, Sibbritt, & Young, 2009c; Sibbritt, Adams, & Young, 2004). Studies evaluating CAM use by patients with back pain have found that up to 76.4% utilise CAM to manage the symptoms (Murthy et al., 2014). A recent study of 10,638 women mid-age women found that 77% experienced back pain and 42% consulted with both a conventional medical practitioner and a CAM practitioner in relation to this condition (Broom, Kirby, Sibbritt, Adams, & Refshauge, 2012). Additionally women with more frequent back pain but better general health, physical functioning and vitality were more likely to consult a CAM practitioner. On average Australian women have been shown to consult with three different health practitioners in relation to their back pain, resulting is an average of 12.2 consultations, occurring an out-of-pocket expense of AU\$873.10 (Kirby, Broom, Sibbritt, Refshauge, & Adams, 2013). Another Australian study examined CAM use with a cohort of young women with back pain (Sibbritt & Adams, 2010). Of the 8,910

participants (aged 28-33 years), 69.6% revealed they suffered from back pain and 23.3% sought treatment for this condition. Unlike the older cohort of women, younger women who sought help for their back pain were significantly more likely to have poorer general health, physical and social functioning as well as more bodily pain. Of the women who sought help for back pain, 2% consulted a CAM practitioner only, 20% a conventional practitioner only and 78% consulted both. Women who sought help consulted on average 1.5 CAM practitioners and 2.7 conventional practitioners.

Research has also found that Australian patients with cancer are high users of CAM (Adams, Sibbritt, & Young, 2005). A longitudinal study of mid-age women with cancer found that CAM use was associated with increased levels of stress pre-diagnosis and lower levels of depression post-diagnosis (Beatty, Adams, Sibbritt, & Wade, 2012). Interestingly, no relationship with quality of life was found. Another study found that a considerable number (65%) of Australian cancer patients had used at least one CAM (Oh, et al., 2010). Similarly, another Australian study found that CAM was currently utilised by 61.5% of male cancer patients, whilst 61.5% had used CAM at some point since their cancer diagnosis (Klafke, Elliott, Wittert, & Olver, 2012). In this particular cohort of cancer patients, CAM use was associated with an advanced stage of cancer (patients with metastatic cancer were 1.68 times more likely to use CAM than patients with non-metastatic cancer), religious beliefs (OR=4.92), and tertiary education (OR=5.54). A survey of Australian adults attending a regional comprehensive cancer care centre demonstrated that 49% of respondents (n=285) were using CAM therapies (Wilkinson & Stevens, 2014). A total of 66% of patients had utilised CAM before their cancer diagnosis and had continued its use, whilst 33% became first time users of

CAM. For these patients, CAM use was associated with a greater level of acceptance and satisfaction, which was unrelated to prognosis or diagnosis.

The prevalence of CAM use amongst Australian patients with other chronic health conditions such as multiple sclerosis (Leong et al., 2009), HIV/AIDS (Thomas, Lam, Piterman, Mijch, & Komesaroff, 2007; Thorpe, 2009), acne and psoriasis (Magin, Adams, Pond, & Smith, 2006), diabetes (Lui, Dower, Donald, & Coll, 2012), depression and anxiety (Alderman & Kiepfer, 2003), and osteoporosis (Mak & Faux, 2010) has also been evaluated. Two Australian studies have highlighted that between 49-55% of HIV/AIDS patients use CAM to manage the symptoms of the disease (Thomas et al., 2007). CAM was generally utilised to complement treatment and not due to dissatisfaction with conventional medications with many patients stating that they would like to use CAM more, but they found the cost prohibitive (Thomas et al., 2007). Patients in this study described using CAM to manage the chronic nature of their illness due to a desire for control over some treatment decisions and the need for a holistic approach (Thorpe, 2009). These themes (control, autonomy and holistic health care), are commonly cited by patients as reasons for CAM use when living with a chronic health condition and many scholars have suggested that in a post-modern environment scientific information is less regarded, leading to a propensity for patients to question the health care sector, their doctor and their treatment options (Thorpe, 2009). Patients are more likely to use a variety of approaches to manage their health and CAM utilisation is commonplace within this context.

1.5.2.1 The prevalence of consultations with complementary and alternative medicine (CAM) practitioners in Australia

In Australia, commonly consulted CAM practitioners include massage therapists, Chinese medicine practitioners (including acupuncturists and Chinese herbalists), naturopaths, herbalists, chiropractors, osteopaths and aromatherapists (Adams, Sibbritt, Easthope, & Young, 2003b; Leach, 2013). These practitioners may work individually in a solo clinic or may alternatively be part of a group practice, which may consist of only CAM practitioners or may include CAM and conventional medical practitioners.

There appears to be high utilisation of CAM practitioners by the Australian public. A study published in 2007 (n=1,067) found that 44.1% of respondents visited a CAM practitioner in the previous 12-month period, leading to an estimated total expenditure of AU\$1.73 billion (Xue et al., 2007). The authors found the number of visits to different practitioner groups varied, however the practitioners providing manual treatments were highly represented. For example a total of 27.2% of participants had utilised massage and of these 73.7% had visited a massage practitioner. Similarly 16.1% had used chiropractic care, of which 90.6% consulted a chiropractor; 9.2% used acupuncture and 81.1% had visited an acupuncturist for this treatment. Of the total number of visits to CAM practitioners, 32.1% consulted a chiropractor and 27.5% a massage therapist. A more recent study from a large regional city in South Australia found that 27.3% of participants had visited a CAM practitioner (D'Onise, Haren, Misan, & McDermott, 2013). Chiropractors (24.2%), alternative

therapists (5.4%) and massage therapists (0.3%) were the most popular. Participants that consulted CAM practitioners were significantly more likely to have obtained a bachelor degree, have a higher total income, were more apt at saving money and were more likely to be working full-time. Patients with a chronic health disorder were no more likely to utilise the services of a CAM practitioner.

Other authors have evaluated CAM practitioner utilisation in non-urban, rural locations within Australia and have also reported high usage (Sibbritt et al., 2004). Wilkinson et al (2009) reported that 66% of visitors to a rural health screening had visited a CAM practitioner in the previous 12 months, namely a chiropractor (17%), massage therapist (17%) and/or naturopath (15%). Participants were aged between 49-89 years (average age 66) and more likely to be female (61%). Another study described high numbers of CAM practitioners in rural locations in the state of New South Wales (NSW), Australia (Wardle, Adams, Magalhães, & Sibbritt, 2011). They reported that CAM practitioners form a significant part of the rural health care system in NSW with numbers of practitioners (n=1,304) similar to those for general practitioners (GPs) (n=1,470) across all 17 rural Divisions of General Practice in NSW. CAM practitioners outnumbered GPs in four Divisions of General practice. Of all CAM practitioners, chiropractors and naturopaths were the most represented with the number of individual practitioners in each modality being greater than all the other CAM disciplines combined.

Adams et al (2003) have shown that CAM service utilisation may change over the life course for Australian women. The researchers analysed data from 41,817

women and found that 19% of young women (aged 18-23 years) had visited a CAM practitioner as compared to 28% of mid-age women (aged 45-50 years) and 15% of older women (aged 70-75 years). Overall CAM utilisation was associated with women who resided in rural areas, reported poorer health with more symptoms and who were also higher users of conventional health services (Adams, Sibbritt, Easthope, & Young, 2003b). Another Australian study sought to explore the reasons why patients were visiting CAM practitioners and found that 53% of CAM patients in their cohort wanted counselling about general health (D'Crus & Wilkinson, 2005). D'Crus and Wilinon also found that 49% wanted dietary/nutritional advice, 49% homeopathy treatment, 25% herbal medicine treatment, 17% physical bodily adjustment, 13% massage, 7% acupuncture and 4% traditional Chinese medicine treatment. Patients explained that they used CAM in order to gain a different perspective about a health condition (36%), as a result of positive results in the past (25%), dissatisfaction with biomedicine (23%) and due to lack of improvement with biomedicine.

1.5.2.2 The prevalence of complementary and alternative medicine (CAM) product use in Australia

Complementary and alternative medicine products commonly used in Australia include vitamins and minerals, herbal medicines and essential oils (Ghosh, Skinner, & Ferguson, 2006). Most of these products are freely available for sale in pharmacies, health food shops and supermarkets. They are classified as therapeutic goods and as such need to be either listed or registered with the Therapeutic Goods Administration (TGA) who have defined complementary medicine substances in section 52F of the Therapeutic Goods Act 1989. The definition states 'complementary medicines means

[sic] therapeutic goods consisting wholly or principally of one or more designated active ingredients, each of which has a clearly established identity and: (a) a traditional use; or (b) any other use prescribed in the regulations' (Commonwealth of Australia 1989).

The TGA oversees the safety of a product, including its manufacture and handling, together with the advertising claims that can be made in relation to its therapeutic use. All therapeutic goods that are imported into Australia, manufactured in Australia or exported from Australia must be included in the Australian Register of Therapeutic Goods (ARTG) (Ghosh et al., 2006). In order to apply for a product to be registered on the ARTG, the sponsoring company must produce evidence of safety and efficacy for any therapeutic claims made in relation to the product. Products that are included as registered therapeutic goods on the ARTG can generally make higher level claims about the therapeutic value of their product and thus need to provide a high level of evidence for the indications/claims made by the company as well as detailed evidence of safety (Ghosh et al., 2006). Very few CAM products however are registered by the TGA in Australia. Most CAM products in the Australian market are available as listed medicines and therefore display an AUST L number to show that they comply with regulations (Ghosh et al., 2006). In order to list a CAM product on the ARTG, a company must be able to provide evidence that their product is safe. Regular audits of these listed medicines are conducted and this evidence must be produced if required by the TGA (Therapeutic Goods Administration, 2013).

It is important to note that most CAM products on the ARTG are listed medicines only and therefore, there is no requirement for the sponsor/manufacturee to provide evidence of efficacy (Ghosh et al., 2006). Whilst the amount of positive evidence of effectiveness for some CAM products is increasing, there are still many products that have received sub-standard scientific evaluation (pre-clinical studies or poorly designed and/or small clinical trials) and others that are yet to be evaluated (Fischer et al., 2014). There are many challenges in researching CAM and aligning it with the principles of 'evidence-based care' – the conscientious use of the best available evidence when making clinical decisions (Sackett et al., 1996).

Many natural substances are chemically complex and as the raw materials are often sourced from nature, issues of product variation abound (Braun & Cohen, 2010). In addition, a unique prescription is usually devised for a client, taking the whole person into account, rather than just the presenting symptom(s) (Hechtman, 2011). CAM products are also frequently prescribed in 'complex' mixtures (i.e. a herbal formula that contains more than one herb or a multivitamin/mineral supplement). Often multiple formulas and/or supplements are prescribed together. In addition to questions about the efficacy of each of these medicines individually, many questions are raised in relation to the interactions (both positive and negative) between these medicines, making the alignment with evidence-based care difficult.

Xue et al (2007) found that 68.9% of nationally surveyed participants had used one of 17 forms of CAM product in the previous 12 months, with an estimated individual annual expenditure of AU\$182.00 and an annual total expenditure of

AU\$1.86 billion dollars. Products that were popular included nutritional supplements (45.8%), herbal medicines (16.3%), aromatherapy products (16.1%) and homeopathy (6.0%). Similarly Wilkinson et al (2009) revealed that 78% of attendees to a rural health screening had used a CAM product in the previous 12 months. Vitamins and minerals were the most popular products utilised (54%), followed by herbal supplements (28%). Women were found to use an average of 2.2 products as compared to 1.6 for males (Wilkinson & Jelinek, 2009). Conversely, D'Onise et al (2013) found that 32% of survey participants from a regional study in South Australia used CAM products; a much lower utilisation rate than reported by Xue et al (2007). Multivitamins and fish oil were the most popular products and 40.9% of participants were also using at least one conventional medication. The lower prevalence rate may be due to the use of a regional, non-representative sample.

1.6 Complementary and alternative medicine (CAM) in women's health; global insights

1.6.1 Prevalence of complementary and alternative medicine (CAM) use in women's health globally

Complementary and alternative medicine (CAM) is making its presence felt in the area of women's health (Adams, Easthope, & Sibbritt, 2003a). Studies show that many women use CAM for female health complaints such as premenstrual tension (Girman, Lee, & Kligler, 2003), back pain (Broom et al., 2012) and breast cancer (Huebner et al.,

2014; Saghatchian et al., 2014; Wanchai, Armer, & Stewart, 2010) as well as during life stages, for example to enhance fertility (Rayner, McLachlan, Forster, & Cramer, 2009; Smith, Ussher, Perz, Carmady, & de Lacey, 2011) or improve menopause symptoms (Lunny & Fraser, 2010; Peng, Adams, Sibbritt, & Frawley, 2014). A recent review of eight studies published between 1999-2010 found that the use of CAM for fertility enhancement was common with a prevalence ranging from 29% to 91% (Rayner, Willis, & Burgess, 2011). Herbal medicines were the most popular products used however acupuncture and nutritional supplements and advice were also commonplace. The authors found that the profile of women who used CAM to enhance fertility was similar to the profile of CAM users overall—women who were older, (median age of 35 years), had higher levels of education, were working in professional jobs and earning a higher income. The review also found that many women used CAM together with assisted reproductive technologies (ART), after unsuccessful ART or due to dissatisfaction with ART.

More recently, a retrospective audit of new clients attending an Australian CAM practice specialising in fertility enhancement, found that most women were using ART concomitantly with CAM (Rayner, Willis, & Dennis, 2012). Women were most commonly aged over 31 years (83.1%) and 62.8% also used ART. A total of 59.1% of women were attending the clinic to visit a naturopath while 40.9% consulted an acupuncturist. Another recent study found that 91.3% of survey participants presenting at a fertility clinic in the US were using CAM and of these over 80% felt that it was beneficial to their treatment (Clark, Will, Moravek, Xu, & Fisseha, 2013). The list of CAM products and treatments included in this study was perhaps too inclusive with

prayer and exercise encompassed, however notwithstanding, rates of herbal medicine, vitamin supplementation and acupuncture utilisation were high.

A recent critical review of 56 articles found a high prevalence of CAM use for menopausal symptoms (Peng et al., 2014). Studies were divided according to whether they utilised a large ($n \geq 500$) or small ($n < 500$) cohort in order to determine prevalence. A total of 14 large studies reported that CAM utilisation ranged from 31% up to 82.5%. Of these, the Study of Women's Health Across the Nation (SWAN), a large longitudinal study conducted in the US, found that the prevalence of CAM use for menopause had increased from 48.5% in 2002 to 80% in 2008 (Bair et al., 2005; 2008; Peng et al., 2014). The demographic characteristics associated with CAM use for menopause were: a greater number of symptoms, greater symptom severity, higher education level, smoke less frequently and to be of white ethnicity, whilst the findings in relation to income, health and age were inconsistent (Peng et al., 2014). Another study published since the critical review evaluated the prevalence of CAM use in 1,893 German women who were transiting through menopause (Buhling, Daniels, Studnitz, Eulenburg, & Mueck, 2014). The authors found that 56% of women had used a form of treatment to alleviate symptoms with 64.8% of these women using CAM only, 14.2% using hormone replacement therapy (HRT) only and 21.1% trying both CAM and HRT. In total, CAM was utilised by 48.2% of women. This prevalence is lower than many others that have been reported in the literature however when Peng and colleagues (2014) evaluated only large studies that had investigated a wider range of health services, rather than just CAM, prevalence rates were found to be in line with this (11% to 40%).

Peng et al (2014) reported that vitamins and minerals are the most popular CAM products used followed by herbal medicine, relaxation/yoga and dietary change. Of individual supplements — soy products, black cohosh (*Cimicifuga racemosa*), evening primrose oil, St John's wort (*Hypericum perforatum*) and maidenhair (*Ginkgo biloba*) were the most commonly utilised across all studies. Nine studies identified that CAM was being used concomitantly with HRT with the prevalence of combined use ranging from 12% to 46%.

Women with breast cancer are high users of CAM (Huebner et al., 2014; Saghatchian et al., 2014; Sohl et al., 2014; Wanchai et al., 2010). A recent systematic review found that up to 75% of women with breast cancer are using CAM (Wanchai et al., 2010), with utilisation consistently higher for breast cancer than for other cancers (Huebner et al., 2014; Wanchai et al., 2010). Wanchai and colleagues (2010) found that younger women with breast cancer and those with higher levels of education were more likely to utilise CAM. Contradictory findings were found for other demographic and social details such as income, marriage status, health insurance and support group participation and more research is required in order to understand these nuances. In addition to use for life stages and gynaecological conditions, women are crucial drivers of CAM consumption for general health related concerns such as back pain, depression, insomnia, severe headache and gastrointestinal illnesses (Bishop, Northstone, Green, & Thompson, 2011b). The profile of CAM users as reported by most studies is predominantly female, tertiary educated and middle-aged (Bishop et al., 2011b; Hameen-Anttila, Niskala, Siponen, & Ahonen, 2011), with some

studies reporting that women who used CAM were in poorer health (Adams, Sibbritt, Easthope, & Young, 2003b; Hameen-Anttila et al., 2011).

1.6.2 Information sources that women utilise globally in relation to complementary and alternative medicine (CAM) use

Women appear to utilise a variety of sources when finding information or advice about CAM use (Kirby, Broom, Adams, Sibbritt, & Refshauge, 2014; Peng et al., 2014; Rayner et al., 2011; Tautz, Momm, Hasenburg, & Guethlin, 2012; Wanchai et al., 2010). Whilst some women utilise professional sources of information such as their general practitioner, obstetrician or other medical professional, many women prefer to use non-professional sources of information such as friends, family, colleagues, newspapers/magazines, the Internet or radio or television advertisements (Kirby et al., 2014; Peng et al., 2014; Rayner et al., 2011; Tautz et al., 2012; Wanchai et al., 2010). Some women rely on CAM practitioners for advice, but many women commonly self-prescribe CAM products, perhaps in the belief that they are natural and safe.

Sharing information about health is commonplace amongst women (Henwood, Wyatt, Hart, & Smith, 2003), and this attitude most likely extends to information sharing in relation to complementary medicine. A study examining information sources that women undergoing treatment for breast cancer use to access CAM information, found that participants were reluctant to ask their oncologist for advice about CAM (Tautz et al., 2012). Women were much more likely to rely on advice from non-professional sources such as friends and family (49%), and the media (39%). Some women stated that they also relied on general practitioners (40%) for information

about CAM. In this context, Wanchai et al (2010) found that women with breast cancer were less likely to utilise health professionals for advice on CAM. Women were more likely to ask friends and family, CAM providers, media outlets, self-help groups and their health insurance company (Wanchai et al., 2010). Conversely, medical professionals were commonly utilised by women seeking information on CAM to enhance fertility (Rayner et al., 2011). An Australian study found that 31% of participants were influenced by their general practitioner to try CAM and 26% by their fertility specialist, 22% were influenced by their family, 16% by their friends, 14% by CAM providers and 10% by the Internet (Stankiewicz, Smith, Alvino, & Norman, 2007).

1.6.3 The attitudes of international women towards complementary and alternative medicine (CAM) use

A range of attitudes to CAM has been revealed in recent literature on women's health. A study investigating the attitudes of women utilising CAM to enhance fertility found that most women agreed or strongly agreed that clinical care should integrate the best of both orthodox and CAM therapies; health professionals should be able to advise on commonly used CAM; conventional medicine could benefit from CAM ideas and methods; CAM approaches hold promise for the treatment of symptoms, diseases and conditions; and knowledge about CAM is important to me as a patient (Clark et al., 2013). A facilitated focus group sought to further explore women's attitude to CAM use for fertility management. Women disclosed that CAM gave them a sense of control over their bodies and they particularly welcomed the focus on individualised treatments and the trusting relationship they built with their CAM practitioner(s) (Rayner et al., 2009). Women discussed their preference for a 'whole body approach'

to health care as opposed to feeling as though they were reduced to a series of body parts that they aligned with their experiences of ART. They described a feeling of hope and empowerment, and of being in control of at least some aspects of their health care.

1.6.4 Disclosure of complementary and alternative medicine (CAM) use to medical professionals

A recent study of women's CAM use in relation to fertility treatment found that as many as 73.9% of study participants did not disclose the use of CAM to their medical practitioner (Clark et al., 2013). The most common reason given was they were not asked, however the same study found that 89.8% of physicians reported they commonly enquire about CAM use amongst their patients. Further to this, a qualitative study found that women were reluctant to disclose their CAM use to a fertility specialist for fear of not being taken seriously and due to previously vague or disparaging responses (Rayner et al., 2009). A review by Peng et al (2014) found that between 7% and 81% of menopausal women did not disclose their use of CAM to their doctor, most commonly citing concern that their doctor would not be fully informed about CAM use in menopause and may not be able to adequately guide their decisions about symptom management using CAM.

Studies have found that half of all women with breast cancer who utilise CAM do not disclose this use to their general practitioner or oncologist (Wanchai et al., 2010). Rates of disclosure may alter though, depending on the particular type of CAM used. One study included in the systematic review (Shen et al., 2002) found that women with

end stage breast cancer were more likely to report using herbal medicine to their practitioner but were more reluctant if they used chiropractic, hypnosis, acupuncture, imagery, spiritual healing or energy healing. This may be due to beliefs about which CAMs are more accepted by the medical profession.

A survey of consumer views on CAM, and relationships with CAM and conventional medicine practitioners found that many respondents (65%) felt that medical professionals were uncomfortable with their visits to CAM practitioners and believed that improved communication would benefit relationships with, and between, different health practitioners (72%) (Emmerton, Fejzic, & Tett, 2012). Further to this, a review of qualitative and quantitative studies, including both men and women, found the three most common reasons for non-disclosure were fear of a negative response from their doctor, believing that the doctor does not need to know, and simply not being asked about CAM use by their doctor (Robinson & McGrail, 2004).

Biomedical practitioners are in a prime position to discuss the use of CAM with pregnant women in their care (Furlow, Patel, Sen, & Lui, 2008). A recent Australian study found that 81% of obstetricians and 85% of midwives thought that medical practitioners should be able to advise their patients about commonly used CAM (Gaffney & Smith, 2004a). Similarly a more recent American study reported that 68% of physicians thought that health professionals should also be able to advise their patients about commonly used CAM (Furlow, Patel, Sen, & Liu, 2008). This raises important education and practice issues for conventional medical staff as they

commonly receive little or no formal training on the use of complementary medicine (Dayhew, Wilkinson, & Simpson, 2009), and this may be partly responsible for some health care professionals lack of inquiry about CAM use.

1.7 Conventional maternity care providers in Australia

In 2009, a total of 294,540 women gave birth to 299,220 babies in Australia and of these 296,791 were live births (AIHW, 2011). This represented an increase of 0.8% in the total number of births as compared to the previous year, however there was a slight fall (from 64.4 per 1,000 in 2008 to 63.6 per 1,000 in 2009) in the total number of women aged between 15-44 years who gave birth compared to 2008. On average women were aged 30.0 years, an increase of one year from the average maternal age in 2000 (AIHW, 2011). Just over 40% (41.6%) of women were having their first baby and of these women, 13.7% were aged 35 years or older. A total of 33.5% of women were having their second baby, 15.9% their third and 9.8% of women had given birth three or more times before. In the four jurisdictions where antenatal data was available (Queensland, South Australia, Northern Territory and the Australian Capital Territory), a total of 97.1% of women who gave birth attended at least one antenatal visit, with 91.2% attending 5 or more (AIHW, 2011). A total of 71.2% of women attended at least one antenatal appointment in the first trimester of pregnancy. A small number of women (0.3%) made no antenatal visits to a health professional.

In 2009 the onset of labour was spontaneous for just over half (56.1%) of the women who laboured and most women had a vaginal birth (68.5%). Overall, 31.5% of

women gave birth by caesarean section in 2009, which was a 0.4% rise from 2008. Baby outcomes in Australia are very good. In 2009, 8.2% of babies were born before 37 weeks of gestation and 0.9% were born post-term at 42 weeks gestation or more. Over 90% of liveborn babies recorded a normal birthweight (6.2% of live births were recorded as low - less than 2,500 grams) and just over 98.5% of liveborn babies had a normal Apgar score.

Maternity services in Australia are of a high quality and compare positively with other Western countries (Australian Health Workforce Advisory Committee, 2002). The efficacy and safety of primary maternity services currently available to women are supported by a foundation of collaboration between maternity health care providers. This ensures quick and adequate assessment and timely referral to secondary or tertiary sources if needed (NSW Department of Health, 2008). Primary maternity services are reasonably diverse and women are able to choose the model of care that best suits their personal preferences, and maternal and health circumstances. Women may be cared for in a variety of different models of care that may be either conducted in a public or private hospital environment, public or private consulting rooms or in the community. Access to these models may vary due to geographical location (for example urban vs. rural). These models of maternity care include (Australian Health Workforce Advisory Committee, 2002):

1. Public hospital clinic care

This is care provided to women in a public hospital setting (or satellite clinic). Women usually visit an outpatient's clinic in their local hospital for antenatal appointments.

Most women go on to utilise the same hospital's birth and postnatal services. Medical staff commonly supervises women's antenatal care.

2. Public hospital midwives' clinic

Women attend a public hospital in this model of care however antenatal care is provided by a midwives' clinic. A team of midwives consult with women during their antenatal visits alongside one or two visits to a registrar or consultant. This model of care is for women with low-risk pregnancies, and women who develop complications during pregnancy are transferred to consultant-led care. Women utilising a midwife-led model of care often have a different set of caregivers for intrapartum care; however, midwives often attend low-risk births.

3. Private maternity care

A specialist obstetrician or GP-obstetrician provides private maternity care in their consulting rooms. Women usually attend scheduled appointments during pregnancy and the same practitioner usually delivers intrapartum care.

4. Birth centre care

This model of care is lead by a team of midwives within a separate section of the hospital. Midwives provide antenatal, intrapartum and postnatal care to women with low-risk pregnancies and for whom complications of labour and birth haven't arisen.

5. Shared maternity care

Shared maternity care involves a formal arrangement between a hospital and a community maternity health professional such as a GP, obstetrician or midwife for the provision of antenatal services. Women usually visit the hospital at the beginning and at the end of gestation but are cared for in the community for the majority of their pregnancy.

6. Combined maternity care

Combined maternity care combines standard hospital care with antenatal check-ups performed in the community by a GP or obstetrician. The difference between this model of care and shared maternity care is in relation to hospital visits, as they are not usually required prior to admission during labour.

7. Team midwifery care

Team midwifery care is provided to women during pregnancy, labour, birth and the postnatal period in hospitals by small teams of midwives. Midwives usually provide most of the antenatal care with one or more visits to a consultant or registrar if needed. This differs from birth centre care as the location of the antenatal and intrapartum care is in the hospital and conventional labour ward, as opposed to a birth centre within a hospital.

8. Caseload midwifery care

Caseload midwifery care aims to provide continuity of care for women during pregnancy, labour and birth. Women consult with a midwife for most of their antenatal check-ups and then this same midwife is on call during labour and birth. The midwives

also assist women during the post-natal period in hospital and in their home. One or two other midwives usually provide 'back-up' care in case the primary midwife is unavailable at the time of birth or due to a very extended birth. They usually consult with women once or twice during gestation and then are also on call during labour and birth.

9. GP/midwife public care

This model of care involves joint antenatal care between GPs in private practice, and hospital midwives, for women receiving standard intrapartum care in a public hospital.

10. Outreach midwifery care

Outreach midwifery care offers additional care to women with high social or obstetric risk. Visits usually take place either in the woman's home or in another convenient location, with the primary goal being patient education and support. Women's medical and obstetric needs are met during these hospital visits, or by a community maternity health care provider. Labour, birth and postnatal services are provided by a private hospital.

11. Planned home births

Some women choose to birth their baby at home with the care of a midwife. The same midwife usually performs antenatal and postnatal check-ups at home, however a certain amount of visits to a medical practitioner are also warranted. If complications or difficulties during labour arise the woman is transferred to a hospital for care. This is usually a private hospital with the woman being admitted as a private patient under an

obstetrician. Arrangements for this are usually made earlier during the pregnancy, in case care needs during labour are escalated.

1.7.2 Conventional maternity care practices in Australia

In 2009, 285,460 (96.9%) women gave birth in a hospital, 6,395 women (2.2%) gave birth in a birth centre and 2,629 women (0.9%) gave birth in other settings such as at home or on route to the hospital (AIHW, 2011). Despite many options and much diversity in the provision of maternity care in Australia, women are usually exposed to common practices during their antenatal care. Women usually visit their GP to confirm the pregnancy and discuss antenatal options. The doctor will often run a series of diverse blood tests including blood typing, antirubella antibodies, vitamin D and haemoglobin levels as well as screening for the Human Immunodeficiency Virus (HIV), hepatitis C surface antigen, hepatitis B surface antigen, bacterial vaginosis, syphilis and chlamydia (Australian Health Ministers' Advisory Council, 2012) that might adversely affect the pregnancy. Frequently, there is also a general health check conducted (weight, blood pressure etc.) which includes gathering details of the women's medical and obstetric history. Women are routinely instructed on healthy eating habits and advised on which foods and lifestyle behaviours to avoid (including alcohol and tobacco) (The Royal Australian and New Zealand College of Obstetricians and Gynaecologists, 2014). The babies due date is also calculated. Following this, further appointments with the primary caregiver (midwife, GP or obstetrician) are typically scheduled based on individual women's needs. For a women's first pregnancy, if it is without complications, a schedule of around 10 antenatal visits are usually recommended (Australian Health Ministers' Advisory Council, 2012). For a second or

subsequent pregnancy a schedule of seven visits is usually recommended. Women with complex healthcare needs and/or pre-existing conditions such as asthma, diabetes, autoimmune disease, epilepsy, neurological disorders, renal disease, congenital or known acquired cardiac disease, haematological disorders, obesity (body mass index 30 or more), severe pre-existing or past mental health disorder and any condition for which they are under the care of a specialist is usually referred to an obstetrician (The Royal Australian and New Zealand College of Obstetricians and Gynaecologists, 2014).

If antenatal screening for certain congenital defects such as Down syndrome, neural tube defects and single gene defects is desired, blood is taken between 9 and 13 weeks and 6 days, with the ultrasound assessment occurring between 11 weeks and 13 weeks and 6 days (Australian Health Ministers' Advisory Council, 2012; Bonacquisto, 2011). Another ultrasound is usually offered between 18-20 weeks to assess morphology and check that appropriate growth measures have been met (Patient Safety and Quality Improvement Service, 2010). Routine check-ups during pregnancy usually involve blood pressure and weight gain monitoring, and testing urine for protein and glucose. At 24 weeks gestation a full assessment includes abdominal palpation and foetal auscultation along with a request slip for a full blood count, Rhesus Antibody blood screen and glucose challenge for all women (Patient Safety and Quality Improvement Service, 2010). Women are usually advised to also attend antenatal and birthing classes, which are routinely conducted by the hospital. These classes cover all aspects of antenatal care in the final trimester and explain policies and procedures in relation to labouring women. These classes also cover the various options for birthing anaesthesia and explain the post-natal options that are available at

the hospital.

Women may also discuss common pregnancy symptoms with their maternity health care practitioner such as fatigue, constipation, nausea, back pain, hip pain, headaches, gastrointestinal reflux and sleeping problems and many women also appear to discuss these symptoms with a CAM practitioner (Steel, Adams, Sibbritt, Broom, Gallois, et al., 2014b). Within the context of providing safe maternity care for mothers and their unborn children, the question of safety is foremost in any discussion about the use of CAM. The types of CAM practices that women use during pregnancy are very diverse and may include both direct and indirect risks for the mother and baby. Direct risks associated with CAM use include ingestible medicines that are harmful to mother and/or baby, such as certain herbal medicines (Gossler, 2010; Louik, Gardiner, Kelley, & Mitchell, 2010; Marcus & Snodgrass, 2005). Indirect risks include poor treatment, delayed diagnosis, issues around communication due to lack of disclosure and inefficient referral practices (Gossler, 2010; Steel, Adams, Sibbritt, Broom, Frawley, et al., 2014a). There remains an urgent need to understand all aspects of women's use of CAM during pregnancy in order to contribute to safe maternal outcomes for mother and baby.

1.8 Chapter summary

This chapter overviewed the background knowledge in relation to the wider context of CAM including current and evolving definitions, international CAM utilisation and general CAM use in Australia. The current Australian regulatory framework for practitioners and products was also described. More generally, international and

Australian utilisation of CAM for women's health disorders as well as an outline of maternity health care provision in Australia were described in this chapter.

2. Literature review – complementary and alternative medicine (CAM) use during pregnancy

2.1 Chapter introduction

Chapter 2 overviews the current scientific literature pertaining to women's use of CAM during pregnancy and serves to describe what is already known in this field of inquiry. This chapter also identifies gaps in the literature for further exploration. To date, two literature reviews have been conducted on this topic, namely, Hall et al (2011) and Adams et al (2009b); however, this chapter will overview the studies included in those two reviews as well as incorporate more recent work in order to gain a thorough framework for this thesis.

2.2 Prevalence of complementary and alternative medicine (CAM) use during pregnancy

Emerging data highlight the substantial use of CAM during pregnancy, as detailed in Table 2.1 (Adams, 2011; Adams, Lui, Sibbritt, Broom, Wardle, et al., 2009b; Hall et al., 2011; Bishop, Northstone, Green, & Thompson 2011b; Cagayan & Oras, 2010; Forster, Denning, Wills, Bolger, & McCarthy, 2006; Gossler, 2010; Kalder, Knoblauch, Hrgovic, & Munstedt, 2010; Wang, 2003). International estimates of CAM use vary considerably; even so, there appears to be a trend towards increasing CAM use in gestation with

research from many regions showing that up to 87% of women are using some form of CAM during pregnancy (Sibbritt, Adams & Lui, 2011; Hall & Jolly, 2014).

There are many variances in the prevalence of CAM use during pregnancy. This may be due to variations in survey design, including differing gestational times at the point of data collection, diverse definitions of CAM, and whether the survey has investigated CAM product use, CAM practitioner utilisation or both (Hall & Jolly, 2014). Some authors have surveyed women retrospectively in relation to their most recent pregnancy (whole pregnancy), others have collected data during a current pregnancy (Adams, Lui, Sibbritt, Broom, Wardle, et al., 2009b), whilst some researchers have surveyed women in their first trimester only (Chuang et al., 2006). Others have investigated CAM use in all trimesters separately (Bishop, Northstone, Green, & Thompson 2011b; Nordeng & Havnen, 2004) whilst some researchers have asked women about use of CAM in the last eight weeks of their pregnancy (Skouteris et al., 2008).

The definition of CAM is most likely the biggest element leading to discrepancies in prevalence. There are regional differences in CAM definitions, but disparities also exist within countries and/or regions. Some researchers have adopted a narrower definition of CAM, including mainly primary modalities such as herbal medicine/naturopathy, acupuncture and nutritional medicine, whilst others have utilised very inclusive definitions such as the National Centre of Complementary and Alternative Medicine (NCCAM) definition (see Chapter 1.2) (Hall & Jolly, 2014). Confusion has also occurred due to the inclusion of vitamins and minerals within many

studies. Vitamins and minerals fit within the standard definition of CAM; however, they are increasingly moving into mainstream medical practice. Further to this, even though the majority of women in Australia, and many other parts of the world, routinely take folic acid in pregnancy to prevent neural tube defects such as spina bifida (Centres for Disease Control and Prevention, 2004), the fact that it is standard medical practice (Gomes et al., 2015) may occlude many women from considering it a complementary medicine.

Some studies that have reported the prevalence of CAM use have only inquired about use of products such as herbal medicine, aromatherapy, homeopathy, vitamins and minerals (Forster et al., 2006; Forster et al., 2009; Sibbritt et al., 2014). Others have asked about consultations with CAM practitioners, such as massage therapists, naturopaths, herbalists, homeopaths and acupuncturists (Wang et al., 2005; Skouteris et al., 2008), during pregnancy, whilst further studies have included both products and practitioners (Bishop et al., 2011; Adams et al., 2011). A proportion of papers have reported the prevalence of each modality separately, whilst others have combined all modalities together and reported a total percentage. It is therefore difficult to get an in-depth understanding of the overall prevalence of CAM use during pregnancy. In addition to this, very few studies are nationally-representative and some have used convenience sampling, further impacting on the generalizability of this research. Despite this, some studies have reported an overall prevalence.

Two studies from Europe, including the United Kingdom (UK) and Germany, have investigated the use of both CAM products and practitioners during pregnancy and

reported similar prevalence of use (Kalder et al., 2010). The recent UK study employed a cross-sectional questionnaire that adopted the National Centre of NCCAM definition of CAM to survey 315 postnatal women (Hall & Jolly, 2014). They determined that a total of 57.1% of women utilised CAM during pregnancy, including vitamins (34.9%), massage therapy (14.0%), yoga (11.1%) and relaxation (10.2%). Kalder et al (2011) also used the NCCAM criteria for CAM and investigated the prevalence of use in 205 women attending one of three maternity hospitals covering an entire region in Germany. During pregnancy a total of 50.7% of women used CAM, of which acupuncture (29.8%), homeopathy (18.5%), herbal medicine (15.1%) and massage (12.2%) were deemed to be particularly popular. Most women were satisfied or very satisfied with the CAM modalities and/or products utilised during pregnancy.

Three studies from the US have investigated total CAM use during pregnancy (Hollyer, Boon, Georgousis, Smith, & Einarson, 2002; Pettigrew, King, McGee, & Rudolph, 2004; Strouss, Mackley, Guillen, Paul, & Locke, 2014). The most recent of these examined and compared CAM use at two time points in 2006 (n=153) and in 2013 (n=201) (Strouss et al., 2014). The authors found that 72% of women used CAM during their pregnancy in 2006 whilst a slightly lower amount of women (68.5%) used CAM during their pregnancy in 2013. CAM use in this study included 22 different modalities or products, namely prayer, supplements (not prenatal), meditation, yoga or imagery, massage therapy, music, art or dance therapy, herbal medicine or herbal tea, chiropractic manipulation, special diets, probiotics, homeopathy or naturopathy, traditional Chinese medicine, spiritual healing, reflexology and biofeedback, osteopathic manipulation, Qi Gong, Tai Chi or reiki, touch therapy, magnetic or energy

healing, alternative medicine (other), mind body (other), biologic based (other), osteopathic manipulation and energy healing (other). The most popular CAM therapies used in both 2006 and 2013 were prayer, supplements, massage therapy, meditation, yoga, teas, music therapy, chiropractor and special diets. Mothers from both the Well Baby Newborn Unit (WBN) and the Neonatal Intensive Care Unit (NICU) were recruited for the 2013 cohort. Women from the NICU cohort were more likely to have used homeopathy/naturopathy ($p=0.032$), spiritual healing ($p=0.011$) and prayer ($p=0.05$) than women from the WBN. Overall 79.8% of women in 2013 and 89.0% of women in 2006 either strongly agreed or agreed that CAM use during pregnancy was beneficial or helpful. A small amount of women (4.3% in 2013 and 5.0% in 2006) agreed or strongly agreed with the statement that CAM use during pregnancy is harmful (Strouss et al., 2014).

A convenience sample of 250 US women waiting at a women's health clinic was examined to determine the prevalence of CAM use (Pettigrew et al., 2004). Half of the surveyed women were pregnant or had recently had a baby. The researchers noted that CAM was being utilised by 69% of all the respondents but didn't report the prevalence of use by pregnant women only. The most common treatments and products used were prayer (66.0%), vitamins (50.8%), massage (43.6%), dietary change (40.4%), aromatherapy (29.2%), imagery (29.2%), meditation (26.8%), folk remedies (24.0%), herbal medicines (24.4%), chiropractic (15.2%), biofeedback (14.4%) and reflexology (12.0%). The average number of CAM treatments used in this sample was six, but ranged between two and 19. Another US study investigated the use of CAM by women ($n=70$) suffering from a particular pregnancy-related condition—nausea and

vomiting (Hollyer et al., 2002). They found that 61% of women used CAM, of which ginger tea or tablets (50.7%), acupressure (45.8%) and vitamin B6 (29.2%) were the most common.

An Australian study reported that 73% of women surveyed (n=321) indicated that they used CAM during the previous eight weeks of their pregnancy (Skouteris et al., 2008). The women were all in the end of the second trimester or the beginning of the third trimester (24-31 weeks) and CAM use was based on a previous CAM study of members of the general population (Xue et al., 2007) and included yoga, meditation, massage, homeopathic remedy, herbal remedy, naturopathy, minerals, Chinese herbs, Western or other herbs, special juices, aromatherapy, essential oils, acupuncture, reflexology, chiropractor, osteopathy, reiki, Shiatsu, kinesiology and 'other'. A total of 51.4% of women had used one CAM product, 17.8% had used two, 13.7% had used three and 17.1% had used between four and 11 different types of therapies in the previous eight weeks. The most popular CAM therapies and treatments were massage (49.5%), vitamins and minerals (30.8%), meditation (20.6%), yoga (18.4%), aromatherapy (17.5%) and herbal remedies (10.3%). Additionally, more than a third of women stated that they planned to use CAM treatments to prepare for labour and birth, including homeopathic and naturopathic remedies, massage, aromatherapy, hypnotherapy, raspberry leaf and other herbal teas, yoga, acupuncture, breathing techniques, water, meditation and reiki.

Another Australian study revealed that of the 227 pregnant women interviewed and surveyed, 87% used CAM (Gaffney & Smith, 2004a). Of the list of 27 CAM

modalities and products, herbal medicine (32%), massage (21%), aromatherapy (17%), yoga (13%), chiropractic (13%), meditation (8%), antioxidants (7%), therapeutic oils (3%) and reiki (2%) were the most commonly utilised. Most women (84%) had used CAM before pregnancy. Nationally-representative samples of women and standardised definitions of CAM are needed to answer questions about the prevalence of CAM use during pregnancy. It appears however that use is substantial (Sibbritt, Adams & Lui, 2011; Hall & Jolly, 2014).

Table 2.1: Empirical studies investigating the use of CAM in pregnancy between 2002 and 2014

Author/year	Country	Method	Sample
Strous et al (2014)	USA	Questionnaire	n=153
Steel et al (2014)	Australia	Questionnaire	n=1,835
A-Ramahi et al (2013)	Palestine	Questionnaire	n=300
Oriefet et al (2013)	Egypt	Questionnaire	n=300
Kennedy et al (2013)	23 countries including Europe, Canada, USA, Australia	Questionnaire	n=9,459
Hall & Jolly (2014)	United Kingdom	Questionnaire	n=315
Steel et al (2012)	Australia	Questionnaire	n=1.835
Thomson et al (2012)	Australia	Questionnaire	n=1,261

Nordeng et al (2011)	Norway	Questionnaire	n=600
Sibbtritt et al (2011)	Australia	Questionnaire	n=897
Adams et al (2011)	Australia	Questionnaire	n=13,961
Bishop et al (2011)	United Kingdom	Questionnaire	n=14,115
Munstedt et al (2011)	Germany	Data was analysed from 409,413 deliveries	n=409,413
Zhu et al (2010)	China	Questionnaire <13weeks	n=4,290
Kalder et al (2010)	Germany	Questionnaire	n= 205
Cagayan & Oras (2010)	Philippines	Questionnaire	n= 52
Cuzzolin et al (2010)	Italy	Interviews	n=392
Bercaw et al (2010)	USA	Questionnaire	n=485
Lapi et al (2008)	Italy	Questionnaire	n= 172
Moussally et al (2009)	Germany	Questionnaire	n=3,354
Forster et al (2009)	Australia	Questionnaire	n=588
Holst et al (2009)	UK	Questionnaire	n= 259
Holst et al (2009)	UK	Focus group discussion	n= 6
Moussally et al (2009)	Canada	Questionnaire	n=3,354
Skouteris et al (2008)	Australia	Questionnaire ≥second trimester	n=321

Furlow et al (2008)	USA	Questionnaire	n= 480 (including not-pregnant women)
Holst et al (2008)	Sweden	Data obtained from information recorded at first antenatal appointment (<12 weeks gestation)	n= 860,215 births
Forster et al (2006)	Australia	Questionnaire (36-38 weeks)	n=588
Wang et al (2005)	USA	Questionnaire	n=950
Refuerzo et al (2005)	USA	Questionnaire	n=418
Ong et al (2005)	Hong Kong	Questionnaire	n=593
Nordeng & Havnen, (2004)	Norway	Interviews	n= 400
Pettigrew et al (2004)	US	Questionnaire	n= 250 (125 pre/post natal)
Gaffney & Smith (2004)	Australia	Semi-structured interview and questionnaires ≥36 weeks	n=227
Westfall (2003)	Canada	Interviews	n=27
Hollyer et al (2002)	USA	Questionnaire	n=70
Hepner et al (2002)	USA	Questionnaire	n =734
Bryne et al (2002)	Australia	Questionnaire	n=48

Pinn & Pallet (2002)	Australia	Questionnaire 16-24 weeks gestation	n=305
Maats & Crowther (2002)	Australia	Interviews	n=211

2.3 The most common complementary and alternative medicine (CAM) practitioners utilised by pregnant women

Very few studies have detailed exactly which CAM practitioners' women are consulting during pregnancy. When this is examined, usage appears to differ significantly from country to country and from study to study (see Table 2.2). For example, massage was utilised by 12% of pregnant women in a German study of 205 women (Kalder et al., 2010) and by 0.01% in a British study of 14,115 women (Bishop et al., 2011b). Similarly, acupuncture was very popular in one German study (30%) (Kalder et al., 2010) but not in another (3.7%), in which 409,413 deliveries were analysed (Münstedt et al., 2011). Further, it was deemed to be even less popular in a British study of 14,541 pregnant women (0.05%) (Bishop et al., 2011b). Homeopathy was used frequently in German (18%) and British (14%) studies (Bishop et al., 2011b; Kalder et al., 2010); however, it is not known how many of these women visited a homeopath in contrast to prescribing the remedies themselves.

In Australia, up to 49.2% of women visit a CAM practitioner during pregnancy (Adams, Sibbritt, & Lui, 2011b; Skouteris et al., 2008; Steel et al., 2012), with massage (49.5%), meditation (20.6%) and yoga (18.4%) found to be particularly popular in one study (Skouteris et al., 2008). This study also found that 10.6% of women consulted a

chiropractor, 5.6% visited an osteopath, 3.4% visited a reflexologist, and 3.1% consulted an acupuncturist. Some women consulted more than one CAM practitioner with 7.5% of women visiting two practitioners and 4% consulting three or four (Skouteris et al., 2008). Another recent Australian study detailed the CAM practitioners consulted by women during pregnancy and determined that 14% of women visited a chiropractor, 10% visited a naturopath; 6% visited an acupuncturist and 4% consulted an osteopath (Adams, Sibbritt, & Lui, 2011b). This longitudinal study analysed data from 13,961 women collected across four surveys between 1996 and 2006 to explore patterns and nuances of consultations with CAM practitioners during pregnancy; they found that the number of women who consulted a CAM practitioner during pregnancy increased over the four survey periods. In 1996, survey one, 9.3% of women indicated they consulted with a CAM practitioner. However, in 2000 this prevalence nearly doubled to 16.1%; with a further rate of 20.5% and 32.8% found in surveys three and four respectively. No association between CAM use and pregnancy was found as the prevalence of CAM consultations during pregnancy rose at the same rate as that for non-pregnant women in the study.

Another longitudinal study examined the wider health service utilisation of this group of women over a seven-year period (Sibbritt, Adams & Lui, 2011). Of the 535 women who were pregnant at the time of Survey 2 in 2003, and not during any other survey period, 20.7% had consulted a CAM practitioner in the previous 12 months before the survey. Of these women, 66.7% had consulted a CAM practitioner prior to becoming pregnant and 55.0% continued to visit a CAM practitioner after giving birth. There was also an increase in the use of other health services with the number of

consultations with general practitioners and specialists rising in line with increases in CAM practitioner utilisation. The increase in visits to conventional care practitioners was the same for women who also consulted CAM practitioners as for women who did not utilise CAM services.

Table 2.2: The most common complementary and alternative medicine practitioners used by women during pregnancy

Author/year	Country	Sample	Visits to CAM practitioners
Strous et al (2014)	US	n=153	Massage therapy, meditation, yoga most popular
Steel et al (2014)	Australia	n=1,835	34.1% of women visited a massage therapist, 16.3% saw a chiropractor, 13.6% participated in yoga/meditation classes, 9.5% saw an acupuncturist, 7.2% consulted a naturopath/herbalist and 6.2% visited an osteopath.
Munstedt et al (2013)	Germany	n=200	Acupuncture, homeopathy, herbal medicine and aromatherapy used but paper did not state what percentage of women sought this treatment from a practitioner.
Hall et al (2013)	UK	n=315	180 women (57.1%) used CAM overall; massage therapy (14.0%) and yoga (11.1%) most commonly reported practitioners visited
Steel et al (2012)	Australia	n=1,835	49.4% visited a CAM practitioner of which 34.1% saw a massage therapist, 16.3% visited a chiropractor, 13.6% participated in yoga/meditation classes, 9.5% saw an acupuncturist, 7.2% consulted a naturopath/herbalist, 6.2% visited an osteopath and 0.6% saw an aromatherapist.
Sibbritt et al (2011)	Australia	Baseline survey in 1996 (n=14,779)	Longitudinal study that found CAM practitioner utilisation increased from 9.9% in 1996 to 15.2% in 2000, 21.0% in 2003 and 32.6% in 2006.

Bishop et al (2011)	UK	n=14,115	(26.7%; <i>n</i> = 3774) overall although only small amounts of women consulted practitioners for example, osteopaths (0.11%), chiropractors (0.07%) and acupuncturists (0.05%).
Kalder et al (2010)	Germany	n= 205	50.7% used CAM during pregnancy including acupuncture 29%, and massage 12.2%
Skouteris et al (2008)	Australia	n=321 ≥second trimester	36.8% women visited a CAM practitioner of which chiropractor (10.6%); osteopath (5.6%), reflexologist (3.4%) and an acupuncturist (3.1%) were the most common.
Wang et al (2005)	US	n=950	31.5% of women continued using CAM for back pain during pregnancy. Massage (31.7 %), yoga (18.3 %), chiropractic (5.9%) most popular
Pettigrew et al (2004)	US	n= 250 (125 pre/post natal)	69% used CAM. Most common practitioner visited was a massage therapist (43.6%)
Gaffney and Smith (2004)	Australia	n=227 ≥36 weeks	87% used CAM most popular practitioner visits were to massage therapists (21%), and chiropractors (13%).

A more recent analysis from this 2010 cohort found that CAM practitioner utilisation had increased to 49.4% (Steel et al., 2012). Further to this, women visited CAM practitioners, specifically for the treatment or relief of pregnancy-related conditions or symptoms such as back pain, hip pain, headaches/migraines, constipation, tiredness, reflux/indigestion, nausea, sciatica and leg cramps. Steel et al (2012) found that women utilised a wide range of health professionals during pregnancy with 99.8% accessing conventional care practitioners (GP most common 90.6%) and nearly half consulting a CAM practitioner. Massage therapists (34.1%), chiropractors (16.3%) and meditation/yoga practitioners (13.6%) were the most commonly visited practitioners. In contrast to other studies, women typically consulted one CAM practitioner during pregnancy, with fewer consulting two different CAM practitioners.

Data from the UK shows that whilst total CAM use is high during pregnancy, CAM practitioner utilisation appears to be substantially lower than in Australia. Hall and Jolly (2014) reported that of the 57.1% of women that used CAM during pregnancy, only 35% of these women visited a CAM practitioner. Practitioners trained in manual therapies were the most commonly consulted with 7.0% of women visiting a massage therapist, 7.0% participating in a yoga class and 4.4% consulting a reflexologist (Hall & Jolly, 2014).

2.4 The most common complementary and alternative medicine (CAM) products used in maternity care

The use of CAM products such as vitamins and minerals, herbal medicine, aromatherapy and homoeopathy is relatively commonplace in Europe and the US (see Table 2.3) (Adams et al., 2009b). Up to 57.8% of women have reported using herbal medicine during pregnancy (Bercaw, Maheshwari, & Sangi-Haghpeykar, 2010; Bishop et al., 2011b; Hollyer et al., 2002; Holst, Wright, Haavik, & Nordeng, 2009b; Kennedy, Lupattelli, Koren, & Nordeng, 2013; Nordeng & Havnen, 2004), with up to 18.5% using homeopathy (Bishop et al., 2011b; Kalder et al., 2010).

2.4.1 Women's use of vitamin and mineral supplements during pregnancy

Data from Australia on the use of CAM products during pregnancy shows that vitamins and minerals are routinely utilised (Forster, Wills, Denning, & Bolger, 2009; Gaffney & Smith, 2004a; Maats & Crowther, 2002; Skouteris et al., 2008). One recent study demonstrated that 91% of women took a vitamin or mineral supplement during pregnancy and of that, 79% of women used folic acid, 52% iron, 35% pregnancy multivitamins, 24% calcium, 14% Vitamin B6 and 7% zinc (Forster et al., 2009). Eight percent of women did not use any vitamin and mineral supplements during pregnancy. Another Australian study found that 30.8% of pregnant women reported the use of vitamins and/or minerals during pregnancy (Skouteris et al., 2008). Given that other Australian studies have reported much higher levels of vitamin and mineral use, generally noting a prevalence rate of between 81% and 95% (Adams, Sibbritt, & Lui, 2011b; Forster et al., 2009; Gaffney & Smith, 2004a), this prevalence may exclude prenatal and perinatal supplements such as folate. An older study from Maats and Crowther (2002) found the majority of women took vitamins and/or minerals during

pregnancy and that utilisation patterns changed through pre-pregnancy and the subsequent trimesters. Maats and Crowther (2002) reported that 33% of women took folate during preconception, which increased to 63% during the initial trimester, then reduced to 27% and 18% during the second and third trimesters respectively. Iron utilisation remained relatively steady throughout the first two trimesters of pregnancy (14% first trimester, 13% second trimester) but increased substantially in the final trimester to 27%. Multivitamin use increased slightly once women were pregnant from 12% during the pre-natal period to 16% during the first trimester and then remained relatively constant for the last two trimesters by only increasing to 18% (Maats & Crowther, 2002).

Vitamin and mineral supplementation during pregnancy has also been reported in other regions such as the UK, US and China (Bercaw et al., 2010; Strouss et al., 2014; Zhu et al., 2010). A UK study found that 34.9% of participants used vitamins during pregnancy, and 5.1% used dietary supplements, however no more information is offered (Hall & Jolly, 2014). A recent US study attempted to explore the prevalence of vitamin and mineral supplementation in more depth, finding that 47% of women used vitamins other than pre-natal vitamins during gestation (Bercaw et al., 2010). A total of 77% of women in this study used pre-natal vitamins and 21% reported they used folic acid. Iron was also popular with 35% of women reporting they supplemented with it during pregnancy (Bercaw et al., 2010). Another more recent study from the US found that over 90% of women were taking supplements during gestation with just over a quarter of study respondents taking vitamins and minerals not generally recommended for use during pregnancy (Strouss et al., 2014). A study of 4,290

pregnant women in China found that vitamins and minerals were popular, with 65.2% of women taking folic acid during the first trimester, 14.6% vitamins, 12.0% calcium and 11.1% other minerals (Zhu et al., 2010).

Table 2.3: The most common complementary and alternative medicine products used by women during pregnancy

Author/year	Country	Sample	CAM products used
Strous et al (2014)	US	n=153	Prayer and supplements most popular
A-Ramahi et al (2013)	Palestine	n=300	40% used herbal medicine (n=120 women). Most common used herbs were anise (61.7%), chamomile (53.3%), sage (55%), a mixture of herbs (33.3%), thyme (29.2%)
Oriefet al (2013)	Egypt	n=300	27.3% used herbal medicine, 89.0% used dietary supplements. Most common herbs were ginger (52.4%) and fenugreek (64.6%)
Kennedy et al (2013)	23 countries including Europe, Canada, US, Australia	n=9,459	28% use of herbs overall. Highest use of herbal medicine in Russia (69.0%), Poland (49.8%) and Australia (43.8%). Most common herbs used were ginger, cranberry, valerian and raspberry
Munstedt et al (2013)	Germany	n=200	Herbal teas and dietary interventions were most frequently used during pregnancy
Hall et al (2013)	United Kingdom	n=315	180 women (57.1%) used CAM; vitamins (34.9%) most commonly reported
Nordeng et al (2011)	Norway	n=600	39.7% used herbal medicine during pregnancy
Bishop et al (2011)	United Kingdom	n=14,115	(26.7%; n = 3774) overall Herbal teas (17.7%; n=2499), homeopathic medicine (14.4%;

			n=2038), herbal medicine (5.8%; n=813) most common.
Kalder et al (2010)	Germany	n= 205	50.7% used CAM during pregnancy Acupuncture 29%, homeopathy 18.5%, herbal medicine 15.1%, massage 12.2%
Cuzzolin et al (2010)	Italy	n=392	27.8% of women taking herbal medicine during pregnancy. The most popular were chamomile, licorice, fennel, aloe, valerian, echinacea, almond oil, propolis, and cranberry.
Bercaw et al (2010)	US	n=485	19% used took herbs and 47% took vitamin supplements, other than prenatal vitamins.
Moussally et al (2009)	Germany	n=3,354	9% took herbal medicine of which chamomile, green tea, peppermint and flax were the most popular
Forster et al (2009)	Australia	n=588	Iron (52%), calcium (24%), Vitamin B6 (14%), pregnancy multivitamins (35%), zinc (7%).
Holst et al (2009)	UK	n= 259	57.8% used herbal medicine
Skouteris et al (2008)	Australia	n=321 ≥second trimester	73% used CAM in prior 8 weeks of pregnancy. 29% had used a specific remedy of which vitamins and minerals (30.8%), essential oils (17.1% and herbal medicine (10.3%) were the most popular.
Lapi et al (2010)	Italy	n= 172	48% of pregnant women reported using CAM previously and during current pregnancy. Most common were almond oil (27.8%), propolis (19.4%) and a tea made of fennel and mauve

Holst et al (2008)	Sweden	n= 860, (1st trimester)	Herbal medicine (1%)
Forster et al (2006)	Australia	n=588 (36-38 weeks)	36% used herbal medicine. The most common supplements taken were raspberry leaf (14%), ginger (12%) and chamomile (11%)
Refuerzo et al (2005)	US	n=418	Vitamins 89%, herbs of other CAM 4.1% (vitamins excluded)
Nordeng and Havnen (2004)	Norway	n= 400	36% used herbs. Most common were echinacea (22.9%), iron-rich herbs (11.8%), ginger (10.4%), chamomile (9.0%) and cranberry (8.3%)
Pettigrew et al (2004)	US	n= 250 (125 pre/post natal)	69% used CAM. Most common CAM products used were vitamins (50.8%), diet (40.4%) and aromatherapy (29.2%)
Gaffney and Smith (2004)	Australia	n=227 ≥36 weeks	87% used CAM most popular products were vitamins (95%) and herbs (32%)
Hollyer et al (2002)	US	n=70	61% reported using CAM therapies, for nausea and vomiting. Three most popular products were: ginger and vitamin B6.
Hepner et al (2002)	US	n =734	7.1% used herbal medicine
Bryne et al (2002)	Australia	n=48	73% used CAM, herbs (56%), aromatherapy (40%), vitamins and minerals (34%), dietary supplements (12%)
Pinn and Pallet (2002)	Australia	n=305 16-24 weeks	40% used CAM, vitamins (24%), herbal medicine (12%), aromatherapy (4%), homeopathy (4%)
Maats and Crowther (2002)	Australia	n=211	Herbal and vitamin supplements (62%)

2.4.2 Women's use of herbal medicine products during pregnancy

Research has also evaluated the prevalence of herbal medicine use during pregnancy (Forster et al., 2006; Holst, Wright, Haavik, & Nordeng, 2009b; Kennedy et al., 2013; Nordeng & Havnen, 2004). A large, recent study involved 9,459 women from 23 countries and six regions, namely Western Europe (n = 3, 201), Northern Europe (n = 2, 820), Eastern Europe (n = 2, 342), North America (n = 533), South America (n = 346) and Australia (n=217) (Kennedy et al., 2013). Herbal medicine use varied considerably from country to country with Russia (69.0%), Poland (49.8%) and Australia (43.8%) reporting the highest rates of use. France (15.5%), Finland (8.7%) and Sweden (4.3%) recorded the lowest rates of use. The means for different regions of the world were Eastern Europe—Croatia, Serbia, Slovenia, Poland and Russia (51.9%), Australia (43.8%), Western Europe—Italy, Austria, Switzerland, France, UK and The Netherlands (27.7%), North America—US and Canada (26.6%), South America—Uruguay, Paraguay, Argentina, Peru, Bolivia, Venezuela, Columbia, Chile, Ecuador and Brazil (17.9%) and Northern Europe—Norway, Sweden, Finland and Iceland (11.9%) (Kennedy et al., 2013). The same survey instrument was used in each country, and the definition of herbal medicine was consistent and based on the World Health Organization's definition "any medicinal product based on herbs, herbal materials, herbal preparations and finished herbal products, that contain as active ingredients, parts of plants, other plant materials, or combinations thereof." The data for each country, however, was not nationally representative in all cases. Countries such as The Netherlands (n=82), Austria (n=81), Canada (n=236), Australia (n=207) and US (n=297) had low levels of participation. Additionally, many countries in South America, namely

Ecuador (n=4), Brazil (n=5), Columbia, (n=12) and Chile (n=12) also had minor levels of involvement. The study also utilised an online questionnaire however rates of Internet access for women varied significantly from country to country (50-100%). The national generalizability of these studies is therefore, impossible. The majority of other studies to exclusively investigate the prevalence of herbal medicine use during pregnancy have reported between 18% to 36% usage, however, none of these studies engaged a nationally representative sample of pregnant women (Forster et al., 2006; Holst, Wright, Haavik, & Nordeng, 2009b; Nordeng & Havnen, 2004; Skouteris et al., 2008).

A national representative sample of Australian pregnant women found 15% of women used herbal medicine during pregnancy (Adams, Sibbritt, & Lui, 2011b). Forster et al (2006) reported a higher prevalence, finding that 36% of Australian women used a herbal medicine product during the natal period (Forster et al., 2006). The authors also investigated which herbs were being utilised and found that raspberry leaf (*Rubus idaeus*) 14%, ginger (*Zingiber officinale*) 12% and chamomile (*Matricaria recutita*) 11%, were the most popular. Similarly, Maats and Crowther (2002) reported that 20% of women used ginger during pregnancy, 9% utilised raspberry leaf and 6% used chamomile. Maats and Crowther (2002) also found that rates of use differed between trimesters with raspberry being used by 8% of women in the third trimester as compared to 2% in the first trimester. Ginger was used by 20% of women during the first trimester and by only 1% of women in the last trimester. Use of chamomile increased slightly from the first (4%) to the third trimester (6%) whilst echinacea (*Echinacea purpurea/angustifolia*) utilisation remained fairly constant.

Similar herbs were popular in a UK study that showed raspberry leaf (23.7%), ginger (27.2%), cranberry (*Vaccinium oxycoccos*) (24.9%) and chamomile (13.1%) were highly utilised during pregnancy (Holst, Wright, Haavik, & Nordeng, 2009b). Holst et al (2009b) surveyed 578 pregnant women (>20 weeks gestation) attending an antenatal ultrasound department in a major UK hospital, and determined that 57.8% had used, or were currently using, herbal medicine during pregnancy. Another larger UK study of 14,115 women reported that 5.7% used herbal medicine and 17.6% used herbal teas (Bishop et al., 2011b), which is a lower rate of utilisation when compared to Holst et al (2009b). The researchers also investigated patterns of herb use across the three trimesters and found similar results to Maats and Crowther (2002). Of the total number of women who used herbal medicine during pregnancy, 4.9% of used ginger in the first trimester compared to 0.4% in the third trimester, whilst 5.0% of women consumed raspberry leaf in the first trimester compared to 12.7% in the last trimester. Use of peppermint, chamomile, rose hip (*Rosa canina*) and fennel also increased substantially in the final trimester as compared to the first trimester. Other European studies have reported rates of herbal medicine use during pregnancy of 15.1% and 36% (Kalder et al., 2010; Nordeng & Havnen, 2004). Several authors have raised concerns that some pregnant women may be using herbal medicines that are unsafe, or where safety has not been established during pregnancy (Nordeng & Havnen, 2004). Nordeng et al (2004) revealed that of the 36% of women using herbal medicine during pregnancy, in their Norwegian study, 39% of these women were using herbs that were potentially hazardous.

A study of 300 Palestinian women found that among herbal medicine users, anise (*Pimpinella anisum*) was most commonly used (61.7%), whilst chamomile (53.3%), sage (*Salvia officinalis* 55%) and thyme (*Thymus vulgaris* 29.2%) were also popular (Al-Ramahi, Jaradat, & Adawi, 2013). This highlights regional differences in the types of herbal medicines that are favoured across various countries. Similarly, a study of 300 African women during pregnancy found high herbal medicine utilisation (27.3%), with anise being the most common herb used (Orief, Farghaly, & Ibrahim, 2012). Ginger and fenugreek were also widely used but in contrast to many other studies, peppermint was the least popular.

Studies from the US investigating herbal medicine use during pregnancy show a wide variation of utilisation of between 7.1% and 45.2% (Bercaw et al., 2010; Glover, Amonkar, Rybeck, & Tracy, 2003; Hepner et al., 2002; Strauss et al., 2014). One study investigated patterns of use and found that 25.8% of women utilised one herbal medicine, 12.5% used two and 6.9% used 3 or more during pregnancy (Glover et al., 2003). Glover et al (2003) also reported that 18% of respondents used peppermint whilst 13% used cranberry during pregnancy. Bercaw et al (2010) found that chamomile was the most popular herb in their sample of US women, whilst the use of ginger was under 1% and raspberry was not mentioned. This is interesting as both ginger and raspberry are commonly utilised by pregnant women in Australian (Forster et al., 2006; Maats & Crowther, 2002) and European studies (Bishop et al., 2011b; Holst, Wright, Haavik, & Nordeng, 2009b).

Bercaw et al (2010) investigated some of the reasons that women use herbal medicine in pregnancy and found several, namely to improve general health (38%), increase energy (21%), as a supplement to prescription medications (15%), to improve immune health (10%) and to help with nausea (5%). Conversely, it is noteworthy that of the 61% of women in a Canadian study who reported using CAM for nausea and vomiting in pregnancy, 50.7% of these women used ginger tea or tablets (Hollyer et al., 2002). Additionally, a Norwegian study reported that women used herbal medicine for a total of 226 indications, among which the most common were colds and respiratory tract illnesses (20.4%), the need for nutritional supplementation (14.2%), skin problems (13.3%), and pregnancy-related health concerns (13%), such as nausea and to increase uterus tone (Nordeng & Havnen, 2004). An analysis of herbal medicine use and birth outcomes found a significant association between the use of iron-rich herbs during pregnancy and the delivery of a high birth-weight baby (Nordeng, Bayne, Havnen, & Paulsen, 2011). Further, the use of raspberry was significantly associated with increased risk of caesarean delivery, leaving the authors to advocate for more research investigating the safety of herbal medicine during pregnancy (Nordeng et al., 2011).

A total of 134 herbs were recorded as being used in pregnancy across all countries, and of these, 20 were found to account for more than 70% of all herbs utilised by women (Kennedy et al., 2013). They were—in descending order of popularity—ginger, cranberry, valerian (*valerian officinalis*), raspberry, chamomile, peppermint, rosehip, cowberry (*Vaccinium vitis-idaea*), psyllium (*Plantago ovata*), rosemary (*Rosemarinus officinalis*), century (*Centaurium erythraea*), lovage (*Levisticum*

officinale), lemon (*Citrus limon*), echinacea, lemon balm (*Melissa officinalis*), motherwort (*Leonurus cardiaca*), garlic, fibre crops and uva ursi (*Arctostaphylos uva-ursi*).

2.4.3 Women's use of aromatherapy and homeopathy during pregnancy

The use of aromatherapy oil is also relatively popular in Australia with up to 17% of women using them during pregnancy (Adams, Sibbritt, & Lui, 2011b; Sibbritt, Catling, Adams, Shaw, & Homer, 2014; Skouteris et al., 2008); however, exactly which essential oils are being utilised is unknown. A survey of expectant women in the UK found that 72 women (0.5%) used aromatherapy of which lavender (0.5%), eucalyptus (0.4%) and peppermint/spearmint (0.3%) were the most common (Bishop et al., 2011b).

Whilst caution is warranted when comparing studies conducted in different time periods, and with different sample sizes, the use of homeopathy during pregnancy appears to be more widespread in Europe than in Australia. A study of 321 Australian women found that 6.5% of women reported using homeopathy during pregnancy (Skouteris et al., 2008) compared to 14.4% and 18.5% in the UK and Germany respectively (Bishop et al., 2011b; Kalder et al., 2010). Bishop et al (2011b) found that arnica, ipecac, calendula, pulsatilla and nux vomica were the most widely used homeopathic remedies in their large UK cohort (14,541) of pregnant women (Bishop et al., 2011b). The utilisation of homeopathic remedies in this UK study increased steadily throughout the trimesters from 1.8% in the first trimester, to 12.8% in the last trimester. Ipecac was the most popular remedy used in the first trimester whilst arnica was widely utilised in the third (Bishop et al., 2011b).

2.5 Demographics, profile and characteristics of women who use complementary and alternative medicine (CAM) during pregnancy

Some demographic characteristics of women, who utilise CAM during pregnancy, differ from region to region; however, many are the same. The main parallel across different studies and/or regions relates to education. Women who use CAM during pregnancy have a higher level of education compared to women who do not use CAM (Adams, Sibbritt, & Lui, 2011b; Bishop et al., 2011b; Chuang et al., 2009; Gaffney & Smith, 2004a; Kennedy et al., 2013; Strouss et al., 2014; Wang, 2003). More specifically, women who use CAM during pregnancy are more likely to have a tertiary education. Studies have also found that CAM use is more common for women who are pregnant with their first child (Forster et al., 2006; Kennedy et al., 2013; Strouss et al., 2014) and for mothers slightly older than the average birth age (Bishop et al., 2011b; Forster et al., 2006; Strouss et al., 2014). One survey failed to find any significant differences in demographic characteristics between CAM users and non-users (Skouteris et al., 2008), and conversely a study from China found women who used CAM during pregnancy were more likely to be less educated and more commonly belonged to a lower socio-economic group (Ong, Chan, Yung, & Leung, 2005).

An Australian study examined the demographic profile of women who chose to visit CAM practitioners—namely massage therapists, chiropractors, acupuncturists and naturopaths, during pregnancy (Steel, Adams, Sibbritt, Broom, Gallois, & Frawley,

2014b). Women who visited a massage therapist were less likely to be employed casually or be unemployed, and more likely to have private health insurance and able to manage on available income. Women who visited a chiropractor were more likely to live in a rural location, have private health insurance that covered their visits to a chiropractor, have a higher level of education and less likely to be employed casually or be unemployed. Women who chose to visit an acupuncturist during pregnancy were more likely to have private health insurance that would provide a rebate for the consultation and more likely to have a tertiary education. Lastly, women who utilised naturopathic care during pregnancy were more likely to have private health insurance to help towards the cost of the consultation.

Research demonstrates that women who use CAM during pregnancy are more likely to have used CAM prior to pregnancy, possibly indicating that women are more confident to utilise certain CAM remedies and methods familiar to them (Gaffney & Smith, 2004a; Hope-Allan, Adams, Sibbritt, & Tracy, 2004; Kalder et al., 2010; Lapi et al., 2010; Wang et al., 2005). Herbal medicine use prior to pregnancy appears to be predictive of herbal medicine use during pregnancy (Holst, Wright, Haavik, & Nordeng, 2009b; Nordeng & Havnen, 2004; Westfall, 2003). Very little is known, however, about the pre-pregnancy use of other specific CAM products as most of the current research combines all the CAM products together (Hollyer et al., 2002; Lapi et al., 2010). Studies evaluating CAM products separately are needed in order to more thoroughly elucidate the prevalence, trends and patterns of use, prior to and during pregnancy.

Two small, cross-sectional studies have evaluated the effect of CAM practitioner utilisation, prior to pregnancy, on consultation during gestation. One study

addressed a specific pregnancy condition—lower-back pain (Wang et al., 2005), whilst the other involved a pilot trial of an acupuncture service in an Australian antenatal hospital clinic (Hope-Allan et al., 2004). Wang et al (2005) reported that 31.1% of women who visited a CAM practitioner prior to pregnancy for the treatment of lower-back pain, continued to use the same therapy during pregnancy. Massage (31.7%), yoga (18.3%) and chiropractic care (5.9%) were the most commonly utilised treatments. Similarly, the Australian pilot study found 49% of women who accessed an acupuncture service during pregnancy had consulted either an acupuncturist (21.6%), massage therapist (21.6%), naturopath (16.2%) or chiropractor (8.1%) prior to pregnancy (Hope-Allan et al., 2004).

Women who utilise CAM during pregnancy are also increasingly likely to report more physical symptoms than women who do not (Skouteris et al., 2008). Further to this, Adams et al (2011) found that women who utilised vitamins and minerals during pregnancy had poorer general health and thus had considerably lower Short Form-36 (SF-36 is a validated, 36-item instrument measuring health-related quality of life) physical component scores than non-users. Studies have shown that the use of CAM in pregnancy is significantly associated with other pregnancy-related health concerns such as fatigue, urinary tract infection, nausea and vomiting, and preparation for labour (Adams et al., 2009b; Adams, Sibbritt, & Lui, 2011b). Another Australian study found that women most commonly used CAM for coughs and colds, indigestion, headaches and back pain during pregnancy (Skouteris et al., 2008). The three most popular herbal medicines used by pregnant women, namely ginger, cranberry and

raspberry leaf, were most commonly used for nausea, urinary tract infection and to prepare the uterus for birth respectively (Holst, Wright, Haavik, & Nordeng, 2009b).

Gaffney and Smith (2004) reported the use of CAM during pregnancy did not reflect women's dissatisfaction with their conventional maternity care. A more recent US study found a similar result; however, it should be noted that in 2006 only 1% of pregnant women agreed they used CAM due to dissatisfaction with traditional Western medical care in contrast to 10.3% of women who agreed with this sentiment in 2013 (Strauss et al., 2014).

2.6 Pregnant women's attitudes and beliefs about complementary and alternative medicine (CAM) use

Use of CAM during pregnancy appears to be mediated, at least in part, by a desire for a natural approach that is nontoxic and effective (Holst, Wright, Haavik, & Nordeng, 2009b; Westfall, 2003). Many women believe that CAM is as safe as conventional medicine to during pregnancy (Lapi et al., 2010; Nordeng & Havnen, 2004); with some women believing it is less harmful (Bercaw et al., 2010; Holst, Wright, Nordeng, & Haavik, 2009c; Lapi et al., 2010; Westfall, 2003). Bercaw et al (2010) determined, in a study of 485 Hispanic women living in the US, that 20% of the women surveyed felt CAM products were safer or more efficacious than conventional medications during pregnancy. Whilst women in a focus group discussion stated they were aware that "herbal does not equal safe" they all believed herbal medicines were safer than pharmaceutical medications (Holst, Wright, Nordeng, & Haavik, 2009c). Some of the women interviewed described a sense of safety knowing that herbal medicine has

been utilised for thousands of years, and is not “tampered with.” Further to this, a US study showed 14.6% of women considered herbal medicines to be medications (Hepner et al., 2002), whilst another study found only 59.1% of pregnant women could identify the CAM product they were taking (Lapi et al., 2010). Nordeng and Havnen (2004) observed that 39% of women using herbal medicine during pregnancy consumed herbs that were considered harmful, or where evidence of safety was lacking. This is particularly concerning as it is widely acknowledged that many pregnant women do not disclose their use of CAM to their maternity healthcare professional (Holst, Wright, Haavik, & Nordeng, 2009b; Strouss et al., 2014), and thus, this use may go unchecked.

Women often cite concern related to loss of control, and the desire for a holistic approach as reasons for using CAM during pregnancy. Childbirth is viewed as a stressful experience for some women that evoke feelings of vulnerability and loss of control (Mitchell, 2010); CAM may offer a sense of control and choice by enabling women to make some maternity health care decisions themselves (Gaffney & Smith, 2004a; Warriner, Bryan, & Brown, 2014). During a focus group discussion, designed to explore women’s reasons for using CAM during pregnancy, participants described feeling that their pregnancies were closely watched, resulting in a loss of control and the sense that you “hand your body over” once you fall pregnant (Warriner et al., 2014). Women explained that the use of CAM gives a degree of autonomy and a sense of active participation in some health care decisions during pregnancy. Congruently, Steel et al (2014b) found the statement ‘alternative medicine gives me more control

over my health/body' was positively associated with women who visited a massage therapist or naturopath during pregnancy.

Women who use CAM during pregnancy also describe being attracted to a more holistic approach to health care (Warriner et al., 2014). This attitude may be more common during pregnancy due to concerns about the safety of medications, and the inherent belief of some that CAM is innocuous (Holst, Wright, Nordeng, & Haavik, 2009c; Lapi et al., 2010; Westfall, 2003). A recent study found women who consulted a chiropractor during pregnancy were statistically more likely to agree with the statement "alternative medicine promotes a holistic approach to health," whilst women who visited an acupuncturist, massage therapist and/or naturopath were more likely to agree that "alternative medicine is more natural than conventional medicine," than women who did not use these practices during pregnancy (Steel, Adams, Sibbritt, Broom, Gallois, et al., 2014b). Women appear to value a holistic approach to the treatment of maternity symptoms and additionally, many women believe the use of CAM increases overall health and wellbeing during pregnancy (Warriner et al., 2014).

2.7 Key sources of information utilised for the use of complementary and alternative medicine (CAM) in pregnancy

Women utilise various professional and non-professional sources of information when looking for guidance about CAM use during pregnancy (see Table 2.4). Research has identified that up to 33% of pregnant women utilise conventional practitioners such as

obstetricians, doctors, nurses, midwives and pharmacists for information on CAM at this time (Cagayan & Oras, 2010; Forster et al., 2006; Hollyer et al., 2002; Holst, Wright, Haavik, & Nordeng, 2009b; Lapi et al., 2010; Nordeng & Havnen, 2004; Westfall, 2003). Holst et al (2009b) analysed the information sources women used to make decisions about CAM and found that 7.7% reported asking their doctor, 22.4% consulted a nurse or midwife, and 1.9% referred to a pharmacist. Participants were also asked who they would consult in the future about CAM use and 34.9% of CAM users indicated that they would ask a doctor, 49.2% would ask a nurse or midwife and 34.2% a pharmacist. Conversely, professional and biomedical sources of information were more regularly used within an Italian cohort of 172 women (third trimester) where 48% of those surveyed reported taking at least one CAM during pregnancy (Lapi et al., 2010). The principal professional source of information about CAM use was a gynaecologist (32.6%), followed by a midwife (19.6%) and then a pharmacist (17.4%). General practitioners were rarely used as a source of information about CAM (4.3%).

Table 2.4: Key information sources used by women when sourcing information about complementary and alternative medicine use during pregnancy

Author/year	Country	Product(s)	Sample	Key findings
Kennedy et al (2013)	23 countries including Europe, Canada, US, Australia	Herbal medicine	n=9,459	Own initiative 28.6% Doctor 21.6% Friends and family 16.8% Internet 11.3% Midwife/nurse 7.8% Pharmacy 6.1% Magazine/newspaper 3.3% Herbal shop 3.0%
Hall & Jolly (2013)	US	CAM	n=315	Friends and family 51.1% Health care professional 30.0% Own initiative 20.5% Media 16.7% Antenatal class 11.7% Alternative health practitioner 6.1%
Forster et al. (2006)	Australia	Herbal medicine	n=588	Who recommended herb Raspberry leaf Friends 37%, naturopath 23%, self 22%

				<p>Ginger Self 42%, friends 39%, naturopath 17%</p> <p>Chamomile Self 71%, family 15%, friends 11%</p> <p>Cranberry juice Self 63%, friends 14%, local doctor 14%</p> <p>Echinacea Self 59%, friends 18%</p> <p>Evening primrose oil Self 36%, friends 36%</p> <p>Digestive bitters No pattern</p> <p>Slippery elm Naturopath 33%, self 33%</p> <p>Garlic Self 50%, family 50%, naturopath 38%</p> <p>Chinese herbs Chinese doctor 63%</p>
Hepner et al. (2002)	US	Herbal medicine	n=734	<p>Health care provider 46%</p> <p>Friend, family member, advertisement or own initiative 54%</p>
Hollyer et al. (2002)	US	CAM	n=70	<p>Friends/family 40.1%</p> <p>Allied health professionals 30.3%</p> <p>CAM practitioners 21.6%</p>

				Doctor / pharmacist 8.1%
Holst et al. (2009)	England	Herbal medicine	n=259	Family or friends 160 (61.8%) My own idea 83 (32.0%) Newspaper or magazine 47 (18.1%) Health food store 20 (7.7%) Doctor 20 (7.7%) Alternative therapist 15 (5.8%) Pharmacist 5 (1.9%) Nurse or midwife 58 (22.4%) Other 18 (6.9%) Internet 3 (1.2%) Books 9 (3.5%)
Lapi et al. (2008)	Italy	CAM	n=172	Gynaecologist 32.61% Midwife 19.57% Pharmacist 17.39% Herbalist 15.22% General practitioner 4.35%
Maats & Crowther (2002)	Australia	Herbal medicine	n=211	Family and friends (no more information given)
Nordeng & Havnen, (2004)	Norway	Herbal medicine	n=400	Herbal store 77.3% Pharmacy 52.3% Doctor 39.3%

				CAM practitioner 38.3%
Pettigrew et al. (2004)	US	CAM	n=250 (125 pre/post natal)	Most common sources were television and radio, family, newspapers and magazines, friends and other Least common were physicians, nurse-midwives, drug stores, Internet, health food stores and registered nurses lowest info sources No more information was given
Westfall (2003)	Canada	Herbal medicine	n=27	Books 28% Midwife/doula 28% Friend/family 14% Herbalist 11% Herbal shop 11% Doctor/nurse 6% Internet 3%

Up to 38% of pregnant women also consult CAM practitioners for advice on CAM use (Forster et al., 2006; Hepner et al., 2002; Hollyer et al., 2002; Holst, Wright, Haavik, & Nordeng, 2009b; Lapi et al., 2010; Nordeng & Havnen, 2004; Pettigrew et al., 2004). Lapi et al (2010) reported 15.2% of women used a herbalist for information about CAM during pregnancy, as compared to 50.4% when not pregnant, or for previous pregnancies. Likewise, a Norwegian study found 7.6% of women used CAM practitioners as an information source during pregnancy, as compared to 38% when not pregnant (Nordeng & Havnen, 2004). Women do not routinely appear to consult herbalists for information on the use of herbal medicine during pregnancy either, with Holst et al (2009b) and Westfall (2003) reporting that 5.8% and 11% of women respectively consulted herbalists for advice.

Research demonstrates that up to 71% of women utilise non-professional sources of information to regarding CAM use during pregnancy, which includes relying on their own experience, and attaining advice from friends, family, the media, books, magazines, the Internet and health food shops (Cagayan & Oras, 2010; Forster et al., 2006; Hepner et al., 2002; Hollyer et al., 2002; Holst, Wright, Haavik, & Nordeng, 2009b; Lapi et al., 2010; Maats & Crowther, 2002; Nordeng & Havnen, 2004; Pettigrew et al., 2004; Westfall, 2003). 'Friends and family' are consistently reported as popular sources of information on CAM use during pregnancy, with between 14% and 61.8% of women seeking their advice (Cagayan & Oras, 2010; Forster et al., 2006; Hepner et al., 2002; Hollyer et al., 2002; Holst, Wright, Haavik, & Nordeng, 2009b; Lapi et al., 2010; Maats & Crowther, 2002; Nordeng & Havnen, 2004; Pettigrew et al., 2004; Westfall, 2003). Holst et al (2009b) found that 61.8% of women actively sought information

about herbal medicine from friends and family and self-prescribed these products 32% of the time. Newspapers and/or magazines (18.1%), the health food store (7.7%), books (3.5%) and the Internet (1.2%) were other sources of non-professional information that women favoured. Further, a focus group, conducted to elucidate women's motivations for CAM use during pregnancy, found women relied heavily upon information from friends and family when deciding to use herbal medicine (Holst, Wright, Nordeng, & Haavik, 2009c). Women described difficulty in ascertaining whether a practitioner was reputable and safe, and commented that they would prefer to look on the Internet or ask friends and family rather than go to a CAM therapist. Participants asked one another for advice on herbal products twice during the group session.

A total of 27 participants were asked about their use of herbal medicines during pregnancy in an interview-based research project conducted in British Columbia (Westfall, 2003). When looking for guidance on self-medication, women described a reliance on prior knowledge (32%), trusted sources of advice (56%) and intuition (12%). Trusted sources of advice were varied and included books, friends and family, maternity care providers, herbalists, herbal shops and the Internet. When participants specifically sought herbal advice, their principal sources of information were books (28%), midwife/doula (28%), family/friend (14%), herbal shop (11%) and herbalist (11%). Overall it was found that word-of-mouth communication was the major source of herbal advice (69%).

2.8 Women's self-prescription of complementary and alternative medicine (CAM) products during pregnancy

The self-prescribing of CAM product is prevalent during pregnancy, with studies finding between 22% and 71% of women prescribe product for themselves (Forster et al., 2006; Holst, Wright, Haavik, & Nordeng, 2009b; Holst, Wright, Nordeng, & Haavik, 2009c; Nordeng & Havnen, 2004; Westfall, 2003). Most of the data collected on women's self-prescription of CAM products during pregnancy has been in relation to herbal medicines, possibly due to particular concerns about the potential teratogenic nature of some herbal medicines (Chuang et al., 2006). It also appears that the rate of herbal medicine self-prescription during pregnancy may vary for different herbs. Forster et al (2006) asked 588 pregnant women to identify who prescribed the herbal medicines they were using, namely raspberry leaf, ginger, chamomile, cranberry juice, echinacea, evening primrose oil, digestive bitters and Chinese herbs. The self-prescription of herbal medicines (other than Chinese herbal medicine) ranged from 33% to 71%, with higher rates noted for ginger (42%), chamomile (71%), cranberry juice (63%) and echinacea (59%), as compared to recommendations by a naturopath, friend, family member or doctor. It may be possible that herbs in common use are considered to be more innocuous than unfamiliar herbs and are therefore thought to be safe during pregnancy.

A more recent study has provided further evidence that the self-prescription of herbal medicine during gestation is high throughout many regions of the world (Kennedy et al., 2013). Across the six regions surveyed, namely Western Europe (n =

3,201), Northern Europe (n = 2,820), Eastern Europe (n = 2,342), North America (n = 533), South America (n = 346) and Australia (n=217) researchers found that herbal medicine self-prescription ranged from 22.5% in Australia to 31.9% in Northern Europe. Similarly a survey of 400 Norwegian women found that 22.9% of women who used herbal medicine during pregnancy initiated this use themselves (Nordeng & Havnen, 2004). Holst et al (2009) found that of the 57.8% of women who reported using herbal medicine during pregnancy, 32.0% self-prescribed these products. Further, a focus group survey of pregnant women found that 32% of women were guided by prior knowledge and 12% by intuition when self-prescribing herbal medicine products for use during pregnancy (Westfall, 2003).

2.9 Disclosure of women's complementary and alternative medicine (CAM) use during pregnancy

It has been established that up to 75% of women are not disclosing their gestational use of CAM to their maternity health care providers (Bercaw et al., 2010; Holst, Wright, Nordeng, & Haavik, 2009c; Low Dog, 2009; Strouss et al., 2014). Rates of disclosure vary considerably between studies; however, overall there may be evidence to show that rates of disclosure are increasing. A recent US study that evaluated women's CAM utilisation at two time points—2006 and 2013—found that as little as 1% of participants disclosed their gestational use of CAM to a maternity health care professional in 2006, compared to 50% in 2013 (Strouss et al., 2014). Conversely, the same study found fewer women were comfortable informing their obstetrical provider

about their CAM use during 2013 (69.6%) as compared to 2006 (78.0%). Another current study found that although 33% of women did not disclose their use of CAM during pregnancy to their doctor or midwife 81.3% of study participants were not asked about their CAM use (Hall & Jolly, 2014). Some women appear to be reluctant to disclose their utilisation of CAM during this time due to fear of encountering negative attitudes and feeling chastised (Holst, Wright, Haavik, & Nordeng, 2009b), whereas other women may be more likely to disclose their use of CAM if asked (Hall & Jolly, 2014).

2.10 Chapter summary

Chapter 2 reviewed the current international literature relating to women's utilisation of CAM during pregnancy. This chapter provided a framework for the proposed study by specifically outlining what is already known about the prevalence of CAM practitioner and product utilisation by women during pregnancy, as well as the determinants and characteristics of this use. Literature relating to women's attitudes towards the use of CAM during pregnancy, and the information sources that directed these decisions were examined. Research relating to the self-prescription of CAM products during pregnancy was also collated.

3. Research design and methodology

3.1 Chapter introduction

Chapter 3 describes the design and methodology of the study. This chapter primarily outlines the design, participants, development, data collection and management, ethical considerations and data analysis of the parent study – the Australian Longitudinal Study on Women’s Health. Methodology for each included research paper is included within the respective chapter of this thesis (Chapters 4-8).

3.2 Questionnaire design

This project employed a cross-sectional design that involved a self-administered questionnaire, administered to a sub-set of a large nationally representative study on women’s health called the Australian Longitudinal Study on Women’s Health. Questionnaires are an effective way of collecting data and have several advantages over other types of instruments (Taylor, Kermode, & Roberts, 2006). In comparison to other methods of data collection such as qualitative interviews, questionnaires are relatively inexpensive, enable quick data collection, as they are simple and easy to administer and collect, and they are useful for obtaining large amounts of information from the target population (Rea & Parker, 2014).

As with any research design method there are some limitations related to questionnaires. Self-administered questionnaires are only useful for those who can understand and interpret them (Rea & Parker, 2014). They are also unsuitable for

potential respondents who do not speak and/or read the designated language, for illiterate people and for people who are visually challenged (Taylor et al., 2006).

3.3 Australian Longitudinal Study on Women's Health (ALSWH) study background

The Australian Longitudinal Study on Women's Health (ALSWH) is a national research resource providing information on women's health issues across the life-course. It provides an evidence base to the Australian Government Department of Health and Ageing for the development and evaluation of policy and practice in many areas of service delivery that affect women (Women's Health Australia, 2014). The project is the largest of its kind ever conducted in Australia and was developed in response to needs identified in the National Women's Health Policy (Brown et al., 1996).

The National Women's Health policy was published in 1989 and recommended a number of initiatives in relation to research in women's health. Various committee reports followed, and it was established that research should focus on determining elements that either improve or reduce Australian women's health (Brown et al., 1996). The main themes of the study are time use (women's social and economic roles), certain health determinants such as chronic health conditions, signs and symptoms of illness, weight, diet and exercise; violence against women; life stages, including young, middle-age and elderly women; health service utilisation and satisfaction (Brown et al., 1996). Multidisciplinary researchers from a variety of backgrounds, including medicine, sociology, psychology, epidemiology and

biostatistics, across two universities (University of Queensland and University of Newcastle) were appointed to administer the project.

3.4 Australian Longitudinal Study on Women's Health (ALSWH) study methodology

In 1995, the Medicare database, which is maintained by the Health Insurance Commission and contains the name and address details of all Australian citizens and permanent residents, was used to select randomly, women in three age groups (18-23 years, 45-50 years and 70-75 years) to be invited to participate in a 20 year study of health and health service use. These three age groups were chosen because over the next 20 years, they would represent the three key life stages for women, namely young adulthood and childbearing, mid-age, and elderly. These women were shown in the baseline survey in 1996 to be broadly representative of the national population of women in this target age group (Brown, Dobson, Bryson, & Byles, 1999). A total of 106,000 women were sent an invitation to participate in the survey. After removing invitations that were returned to sender and those ineligible due to death, traveling overseas, male gender or too ill to participate, response rates were 41.0% (n=14,792) for women in the young cohort, 53.5% (n=14,200) in the mid-age cohort and 35.5% (n=12,614) in the older cohort. A total of 41,616 women agreed to participate in the study for 20 years.

Each age group was sampled randomly, except that women from rural and remote areas who were sampled at twice the rate of women in urban areas. This over-

sampling was done to enable statistical comparisons between numbers of women living in both rural and urban areas.

The surveys are sent by mail to each cohort, once every three years as outlined in Table 3.1.

Table 3.1: Schedule of surveys 1996-2009

Survey number	Year	Cohort and age	Participants (n=)
Survey 1	1996	Young; 18-23	14,247
Survey 1	1996	Mid-age; 45-50	13,715
Survey 1	1996	Elderly; 70-75	12,432
Survey 2	1998	Mid-age; 47-52	12,338
Survey 2	1998	Elderly; 73-78	10,434
Survey 2	2000	Young; 22-27	9,688
Survey 3	2001	Mid-age; 50-55	11,226
Survey 3	2002	Elderly; 76-81	8,647
Survey 3	2003	Young; 25-30	9,081
Survey 4	2004	Mid-age; 53-58	10,905
Survey 4	2005	Elderly; 79-84	7,158
Survey 4	2006	Young; 28-33	9,145
Survey 5	2007	Mid-age; 56-61	10,638
Survey 5	2008	Elderly; 82-87	5,561
Survey 5	2009	Young; 31-36	8,200

The longitudinal study design enables changes in women's health to be measured over time and shows cause-and-effect relationships between many

variables. At the beginning of the study, the women in the younger age group were in the early stages of transition into full adulthood, and over time most of them are moving into the workforce, entering adult relationships, leaving home, and becoming mothers. It is this cohort that was sampled for the pregnancy sub-survey in 2010.

3.5 Participants

The study sample was obtained via a sub-survey of ALSWH participants. In the most recent ALSWH survey of the younger cohort in 2009 (Survey 5 of 8,199 women then aged 31-36 years), 2,316 women responded that they were currently pregnant or had recently given birth. It is these women who were invited to participate in the sub-study, administered in 2010. A total of 1,835 women agreed to participate in the sub-study survey, representing a response rate of 79.2%.

3.6 Questionnaire development

The sub-study questionnaire (see Appendix 1) was developed through the collaboration of a multi-disciplinary team of psychologists, epidemiologists, maternity health care professionals, sociologists and bio-statisticians. The survey includes questions on a range of areas which were chosen based on previous research to examine a number of topics including pregnancy-related health concerns, socio-demographic factors, maternity health service utilisation, complementary and alternative medicine utilisation, and information sources, attitudes, beliefs and

perceptions associated with maternity care. A self-administered, cross-sectional survey was used to collect the data. This was mailed to participants and included dichotomous (yes/no), tick-box and open-ended questions.

3.6.1 Pregnancy-related health concerns

Women were asked questions about their pregnancy-related health concerns (Question 22). Information was collected on a range of common pregnancy complaints including hip or pelvic pain, constipation, pre-eclampsia, neck pain, haemorrhoids, fluid retention, headaches/migraines, urinary tract infection, anaemia, repeated vomiting, varicose veins, gestational diabetes, nausea, leg cramps, dizziness or faintness, sleeping problems, reflux or heartburn, food cravings, vaginal bleeding, tiredness or fatigue and weight management. Question 17 was also utilised as it asked women to indicate if they experienced depression or anxiety during pregnancy.

Women were also asked to indicate who they sought help from for each pregnancy-related symptom or condition. Choices included general practitioner (GP), obstetrician, midwife, chiropractor, acupuncturist, herbalist/naturopath, massage therapist or other alternative health practitioner (Question 22). Participants were also asked about their emotional and mental health during their most recent pregnancy (Question 17). Women were asked to indicate if they experienced depression, anxiety, stress or distress, sadness or low mood, lack of enjoyment or interest in things, feelings of guilt, excessive worry or another emotional issue, and also if a health practitioner had told them they had depression, anxiety or another emotional issue (Question 18).

3.6.2. Socio-demographic measures

Postcode of residence at the time of the fifth survey was used to classify residence as urban, non-urban or remote according to the Australian Standard Geographical Classification (ASGC) (Australian Institute of Health and Welfare, 2004). The ASGC classifications categorise residence as 'major cities', 'inner regional', 'outer regional', 'remote' and 'very remote' based on the distance by road to the nearest service centre. The categories of remote and very remote were combined for the ALSWH surveys due to low numbers of participants in these areas and thus participants were categorised into four areas of residence, namely: major cities, inner regional, outer regional and remote/very remote.

Women were also asked about: marital status (Question 77 - never married, married, defacto (opposite sex), defacto (same sex), separated, divorced, widowed); their ability to manage on available income (Question 79 - impossible, difficult all the time, difficult some of the time, not too bad and easy to manage on available income); their employment status at the time of birth, even if on maternity leave (Question 23 - full-time, part-time, casual/temp, looking for work, not in paid work force); private health insurance at the time of birth (Question 25 - yes-full coverage including pregnancy-related care, yes-not including pregnancy-related care, no), and if the private health insurance included ancillary cover for CAM services (Question 82 - yoga/Pilates/meditation, chiropractic, osteopathic, acupuncture, Chinese medicine, homeopathy, naturopathy, massage, nutrition/dietetics, hydrotherapy and hypnotherapy); the birth environment (Question 27 - public hospital, private hospital, birth centre, home, other); and highest level of educational qualification completed

(Question 84 - no formal qualification, year 10 or equivalent, year 12 or equivalent, apprenticeship, certificate/diploma, university degree, higher university degree).

3.6.3 Conventional maternity health service utilisation

Women were asked about their engagement with maternity health care professionals such as general practitioners, obstetricians and midwives (Question 6). Participants were asked to indicate how many times they visited each of these conventional health care practitioners during their pregnancy, specifically for pregnancy-related concerns. Categories included none, 1 or 2, 3 or 4, 5 or 6, or 7 or more visits.

3.6.4 Use of complementary and alternative (CAM) practitioners and medicine

CAM use was divided into CAM practitioner visits (Question 8) and CAM product use (Question 10). Women who reported at least one consultation with an alternative health practitioner for a pregnancy-related health issue were defined as CAM practitioner users and similarly, women who used at least one complementary medicine product for a pregnancy-related health issue were defined as CAM product user users. Women were provided with a list of CAM practitioners, including acupuncturist, aromatherapist, chiropractor, herbalist/naturopath, doula, massage therapist, meditation/yoga practitioner and osteopath, and they were asked to indicate if they had consulted with the practitioner once or twice, three or four times, on five or six occasions, seven or more times or not at all.

Women's gestational use of CAM products was also investigated. Participants were asked if they utilised products such as herbal medicine, vitamins and minerals, aromatherapy oils, homeopathic remedies and flower essences for pregnancy-related

health concerns. Additionally, if they indicated that they used CAM products, women were asked to specify who prescribed these treatments, either themselves, a general practitioner, obstetrician, midwife or alternative health practitioner.

3.6.5 Information seeking behaviour

Women were also asked about various sources of information that were influential in their decision to use CAM during pregnancy (Question 12). Potential information sources included partner/spouse, family/relatives, friends/colleagues, mass media (newspaper, television or radio), books/magazines, the Internet, own personal experience, general practitioner, obstetrician, midwife, pharmacist, nurse, CAM practitioner and other.

3.6.6 Attitudes and beliefs about complementary and alternative medicine (CAM)

The survey explored women's attitudes and beliefs about CAM use in general (Question 14). Women were asked to indicate (on a likert scale) the degree to which they agreed or disagreed with the following belief statements (strongly agree, agree, neutral, disagree, strongly disagree):

- Alternative medicine is more natural than conventional medicine
- Alternative medicine boosts my immune system/resistance
- Alternative medicine has fewer side effects than conventional medicine
- Alternative medicine is a better preventative measure than conventional medicine
- Alternative medicine promotes a holistic approach to health

- Alternative medicine gives me more control over my health/body
- Knowledge about evidence of alternative medicine is important to me as a patient
- My personal experience of the effectiveness of alternative medicine is more important than clinical effectiveness
- Alternative medicine needs to be tested for safety/side effects

In addition to this, women were also asked specific questions about their attitudes towards maternity health care professionals in relation to CAM practitioners (Question 15). Women were asked how much they agreed or disagreed with the following statements using a likert scale (strongly agree, agree, neutral, disagree, strongly disagree, non-applicable):

- An alternative health practitioner spends a longer time with me in consultations when compared with a general practitioner
- An alternative health practitioner spends a longer time with me in consultations when compared with an obstetrician
- An alternative health practitioner spends a longer time with me in consultations when compared with a midwife
- An alternative health practitioner provides more support than a general practitioner does

- An alternative health practitioner provides more support than an obstetrician does
- An alternative health practitioner provides more support than a midwife does
- I find it easier to talk to an alternative health practitioner than to a general practitioner
- I find it easier to talk to an alternative health practitioner than to an obstetrician
- I find it easier to talk to an alternative health practitioner than to a midwife
- I have a more equal relationship with alternative health practitioners than with general practitioners
- I have a more equal relationship with alternative health practitioners than with obstetricians
- I have a more equal relationship with alternative health practitioners than with midwives
- General practitioners should be able to advise their patients about commonly used alternative medicine
- Obstetricians should be able to advise their patients about commonly used alternative medicine
- Midwives should be able to advise their patients about commonly used alternative medicine

3.6.7 Women's use of complementary and alternative medicine (CAM) prior to pregnancy

In order to conduct a longitudinal analysis investigating whether women's utilisation or non-utilisation of CAM practitioners prior to pregnancy had any impact on consultations with CAM practitioners during pregnancy, Survey 4 was utilised for pre-pregnancy data. Survey 4, conducted in 2006 when the young cohort were aged 28-33 years, included 107 questions relating to women's social, emotional and physical health. Women were asked if they had consulted any of the following practitioners in the previous 12 months (Question 2) (note: for this thesis, only the data on CAM practitioners was examined):

- A hospital doctor (e.g. in outpatients or casualty)
- A midwife
- A counsellor or other mental health worker
- A chiropractor
- An osteopath
- A massage therapist
- An acupuncturist
- A naturopath/herbalist
- Another alternative health practitioner (e.g. aromatherapist, homeopath, reflexologist, iridologist)

- A community nurse, practice nurse or nurse practitioner
- A physiotherapist

Women were also asked in Survey 4 (Question 12) to indicate if they had been diagnosed with, or treated for a chronic illness including diabetes mellitus (type I and type II), heart disease, hypertension, low iron, asthma, bronchitis, postnatal depression, depression, anxiety disorder, polycystic ovarian syndrome, endometriosis, a sexually transmitted infection (e.g. chlamydia, genital herpes) and chronic urinary tract infection. Additionally, women were asked to indicate if they were currently pregnant (Question 32) and how many live births, miscarriages and/or stillbirths they had experienced (Question 33). Demographic data was also collected in Survey 4 including women's level of education (Question 89), income (Question 100), employment status (Question 77), private health insurance status (Question 10) and area of residence (Question 99).

3.7 Data collection and data management

Women were responsible for completing the surveys and placing them in a pre-paid return envelope to return them to ALSWH. The surveys were then scanned and saved as images. The images were then processed to capture the data using Optical Mark Recognition software. The data capture from the scanned images was conducted twice using two slightly different levels of mark recognition sensitivity. ALSWH staff reconciled any discrepancies between the resulting two data sets and internal

inconsistencies in survey responses. Additionally, a review of outliers was also conducted to identify any potential errors. The data was stored on a password-protected laptop.

3.8 Data analysis

For all analyses, statistical significance was set at $p < 0.05$. All data analysis was conducted using the statistical software STATA 11.2 (STATA Corp LP).

3.8.1 Descriptive statistics

The prevalence of CAM product and CAM practitioner use by women was calculated with 95% confidence intervals. Women's use of each CAM product and/or CAM modality for a pregnancy-related symptom or condition was also calculated with 95% confidence intervals along with socio-demographic variables and health conditions.

3.8.2 Bivariate comparisons

Associations between variables were then calculated using a chi-square analysis. Logistic regression models were used to investigate the significance of relationships among many different variables.

3.8.3 Multivariate logistic regression models

When many variables were under consideration, those variables that contained a (bivariate) p -value of < 0.25 were entered into a logistic regression model in order to determine significant covariates. A stepwise backward elimination process was

employed, using a likelihood ratio test, to eventually produce the most parsimonious model.

3.9 Ethical considerations

Ethics approval for the sub-study reported here was gained from the relevant ethics committees at the University of Newcastle (#H-2010_0031), University of Queensland (#2010000411) and the University of Technology Sydney (#2011-174N). Ethics clearance for the doctoral project was gained from the University of Technology Sydney (UTS). A Nil/Negligible Risk Declaration Form was submitted to the Faculty of Health at the University of Technology Sydney for consideration and the faculty agreed that the project did not require review from the UTS Human Research Ethics Committee (HREC), as it was a secondary data analysis.

ALSWH has an informative website with contact numbers for additional information. Due to the nature of some of the questions related to violence, illness and mental health, the telephone number for lifeline was also provided on each survey. Survey 5 and 6 included the following:

“If you are concerned about any of your health experiences and would like some help, you may like to contact:

- Your nearest Women’s Health Centre or Community Health Centre
- Your General Practitioner for advice about who would be the best person in your community for you to talk to

- If you feel distressed now and would like someone to talk to, you could ring Lifeline on 13 11 14 (local call).”

The pregnancy sub-survey contained information, including the phone number for Lifeline, after a question relating to self-harm (page 15). Additionally the above resources and phone numbers were suggested for women who had suffered from violence and abuse and would like to receive some help. This message appears on page 22 of the sub-study, directly related to questions about abuse and violence.

The survey was completed and mailed back to ALSWH by the women themselves, which implied consent. All surveys contained a consent page at the end that asked women to consent to the researchers ‘matching’ the information provided in this survey with that given in previous surveys so that any changes in health can be noted.

3.10 Chapter summary

This chapter has provided a broad outline of the methodology used for the study reported in this thesis by describing the methodology, study design, sample selection, ethical considerations and statistical analysis that were employed. Further methodological detail is provided in the results chapters to follow.

4. Prevalence and determinants of complementary and alternative medicine (CAM) use during pregnancy: Results from a nationally representative sample of Australian pregnant women

The results contained within this chapter have been published as follows:

Frawley J, Adams J, Sibbritt D, Steel A, Broom A and Gallois C (2013) Prevalence and determinants of complementary and alternative medicine (CAM) use during pregnancy: Results from a nationally representative sample of Australian pregnant women. *Australian and New Zealand Journal of Obstetrics and Gynaecology*. 53(4):347-52.

A copy of the manuscript is attached to this thesis as Appendix 4.

4.1 Introduction

4.1.1 Variable categorisation and rationale for this analysis within the broader research project

The aims of this project as outlined in Chapter 1 (Section 1.1.2) require an understanding of the prevalence and determinants of women's use of CAM during

pregnancy. Pregnant women have been identified as high users of CAM. It is important to gauge the scale of utilisation of both CAM practitioners and CAM products and to determine the factors that predict CAM use during pregnancy in a large nationally representative sample of pregnant women. Closer research attention to CAM use during pregnancy will be warranted if sufficient numbers of women are using CAM during gestation. Examination of determining factors associated with CAM use will help maternity health care professionals identify women who are more likely to use CAM in pregnancy; hopefully facilitating an open discussion about this utilisation. A health services research approach has been utilised to explore the prevalence of CAM use and the demographic factors and reasons associated with this use.

With this in mind, this chapter reports the determinants and prevalence of women's use of CAM products and their consultations with CAM practitioners for pregnancy-related health conditions. This was undertaken to answer Research Question 1 and Research Question 2 and in doing so address the aims of the overall project. All analyses from this chapter were drawn from data gathered through the ALSWH pregnancy sub-study survey, with one variable (area of residence), obtained from ALSWH Survey 5 and merged with the sub-study dataset.

Basic demographic data was described from the responses to Questions 77, 79, 81, 82, 83 and 84. Question 77 was recoded to consolidate the 7 response options to 3 categories: never married; married/de facto; separated/widowed/divorced to make subsequent statistical analyses more robust. Likewise, Question 84 was recoded to generate 3 categories (Year 12 or less; Trade/Diploma; University degree or higher)

from the 7 response options in the original item to also increase the validity of the statistical analysis. Question 79 was analysed in order to explore questions relating to financial security. The 5 original answers to the question — how do you manage on the income you have available, were condensed to 4 (it is impossible/it is difficult all the time; it is difficult some of the time; it is not too bad; it is easy) as the amount of responses to “it is impossible all the time” were too minimal to analyse. Similarly, Question 83 in relation to employment status was recoded into 4 variables (full time; part time; casual/temporary; not working/looking for work), as responses to the variable “looking for work” were also too minimal to analyse. Area of residence was based on postcode information from Survey 5 in accordance with the Australian Standard Geographical Classifications (ASGC) (Australian Institute of Health and Welfare, 2004) (see Chapter 3.6.2). This variable was recoded as urban, non-urban or remote and was combined with data from the pregnancy sub-study for analysis. These questions were included in the analysis, as previous research has shown that marital status, area of residence, level of education, financial security, employment status and private health insurance influence CAM utilisation (Adams, Sibbritt, & Lui, 2011b; Hall et al., 2011).

The prevalence of CAM practitioner consultations was determined from analysing the responses to Question 8, whilst Question 10 elucidated information on CAM product utilisation. Question 22 asked women to note if they suffered from any of the stated common pregnancy health conditions (yes/no). These questions were important to understand not only the broader prevalence of CAM utilisation, but also more specifically, which pregnancy symptoms and conditions are more likely to predict

this use. Question 8 and Question 10 were both recoded to represent a binary variable whereby consultation with each respective CAM practitioner group or utilisation of a CAM product was categorised as 'yes' or 'no'. These questions were re-categorised in order to determine the predictors and determinants of both the use of CAM practitioners and products as a whole for this particular research article. These recoded variables were utilised in a bivariate analysis (see Table 4.1).

4.2 Background

Complementary and alternative medicine (CAM) - a group of diverse medical and health care systems, practices, and products that are not traditionally considered part of conventional medicine (Adams, Andrews, Barnes, Broom, & Magin, 2012) - have risen in popularity in Australia as elsewhere in recent years (Adams et al., 2012; Adams, Sibbritt, Easthope, & Young, 2003b). CAM is making its presence felt in the area of women's health (Hameen-Anttila et al., 2011). Studies show that women use CAM for a range of female health complaints (Lunny & Fraser, 2010; Smith et al., 2010), and are leading CAM consumption for general health related concerns such as back pain, depression and severe headache (Bishop & Lewith, 2010; Sibbritt & Adams, 2010). The CAM user profile appears predominantly female, tertiary educated and middle-aged (Bishop & Lewith, 2010; Hameen-Anttila et al., 2011), with some studies reporting poorer health status as a driving factor (Adams, Sibbritt, Easthope, & Young, 2003b; Bishop & Lewith, 2010). Recent data highlights substantial use of a wide range of CAM in pregnancy (Adams, Sibbritt, & Lui, 2011b; Bishop et al., 2011b; Forster et al., 2009).

While international estimates vary (Adams, Sibbritt, & Lui, 2011b; Bishop et al., 2011b; Forster et al., 2009) due to inclusion/exclusion criteria and other design features, there appears to be a recent trend towards increasing CAM use in gestation (Sibbritt, Adams & Lui, 2011). Up to 36.8% of Australian women visit a CAM practitioner during pregnancy (Adams, Sibbritt, & Lui, 2011b; Skouteris et al., 2008) with massage (49.5%), meditation (20.6%) and yoga (18.4%) found to be popular in one study (Skouteris et al., 2008). Another Australian study found 14% of women consulted a chiropractor, 10% consulted a naturopath, 6% consulted an acupuncturist and 4% consulted an osteopath during pregnancy (Adams, Sibbritt, & Lui, 2011b). Australian studies have also shown that up to 91% of pregnant women use CAM products (Forster et al., 2009; Holst, Wright, Nordeng, & Haavik, 2009c), with vitamins and minerals, aromatherapy oils and herbal medicine being the most commonly used (Skouteris et al., 2008). One study showed herbal medicine use as mediated by women's desire for a natural approach to pregnancy that is perceived to be safe and effective (Holst, Wright, Nordeng, & Haavik, 2009c) - this may also possibly extend to other CAM treatments/modalities. Some researchers have raised concerns regarding pregnant women's use of some CAM products (in particular herbal medicines) given a paucity of evidence for efficacy and safety (Chuang et al., 2006). A substantial proportion of pregnant women also fail to disclose their gestational use of CAM to their maternity providers (Low Dog, 2009). A quarter of birthing mothers in Australia are born overseas and of these, 18% are born in countries where English is not the primary language (Bandyopadhyay, Small, Watson, & Brown, 2010). As such, disclosure of traditional medicines is also crucial. The profile of women who choose to use CAM during

pregnancy is tertiary educated (Adams, Sibbritt, & Lui, 2011b; Bishop et al., 2011b; Chuang et al., 2009), employed and aged over 35 (Bishop et al., 2011b). However, one survey failed to find any significant differences in demographics between CAM users and non-users amongst pregnant women (Skouteris et al., 2008). As such, questions remain regarding the patterning of CAM use across populations. CAM use in pregnancy appears significantly associated with pregnancy-related concerns and symptoms such as back pain, fatigue, urinary tract infection, nausea and vomiting, and preparation for labour (Adams et al., 2009b; Adams, Sibbritt, & Lui, 2011b).

Despite emerging research on CAM use during pregnancy, no study to date has provided detailed analysis of gestational CAM use amongst a national representative sample of pregnant women. The majority of previous studies have been of poor design and limited to relatively small and localised samples of pregnant women. In direct response to this research gap, this paper aims to examine the prevalence and determinants of CAM use, drawing upon findings from a survey of a nationally representative sample of Australian pregnant women.

4.3 Methodology

4.3.1 Sample

The study sample was obtained via the Australian Longitudinal Study on Women's Health (ALSWH). The ALSWH is a longitudinal study of women in three age groups ("young" 18-23, "mid age" 45-50 and "older" 70-75 years) who were randomly selected from the national Medicare database to investigate multiple factors affecting

health and well-being of women over a 20 year period. The baseline survey was conducted in 1996. The focus of this present study is the “young” cohort, who to date have been surveyed 5 times. In the 2009 ALSWH survey of the “young” cohort (Survey 5) 2,316 women indicated that they were pregnant or had recently given birth. It is these women who were invited to participate in this present sub-study (conducted in 2010), of which 1,835 women agreed to participate. A self-administered, questionnaire was used to collect the data. The 85-item questionnaires were mailed to participants and included both closed and open-ended questions, addressing the areas of demographics, health status, and health service utilisation. Ethics approval for the sub-study reported here was gained from the relevant ethics committees at the University of Newcastle, University of Queensland and the University of Technology Sydney.

4.3.2 Demographic measures

Postcode of residence was used to classify residence as urban or non-urban. Women were also asked about marital status, income, employment and highest level of educational qualification completed.

4.3.3 Pregnancy-related health concerns

Women were asked questions about their pregnancy-related health concerns. Information was collected on a range of common pregnancy complaints such as back pain and other musculoskeletal complaints, nausea, vomiting and other gastrointestinal complaints, headaches and migraines, sleeping problems, anxiety, depression, urinary tract infections, varicosities, fatigues, hypertension, pre-eclampsia, anaemia and gestational diabetes.

4.3.4 Health service utilisation

Women were asked about their pregnancy care providers, birth choices and CAM use. Pregnancy care providers included obstetricians, general practitioners and midwives and information on birth choices detailed whether a woman decided to give birth in a private or public hospital setting, birth centre or at home. Women who reported at least one consultation with an alternative health practitioner (acupuncturist, aromatherapist, chiropractor, herbalist/naturopath, doula, massage therapist, meditation/yoga practitioner and osteopath) were defined as CAM practitioner users, and similarly women who used at least one CAM product (herbal medicines, vitamins and minerals, aromatherapy oils, homeopathy and flower essences) were defined as CAM product users. These inclusion criteria provided an operational definition of CAM use for the study. Women were provided with a list of these practitioners and products and asked to indicate if they had utilised any of them in the previous 12 months for a pregnancy-related health issue. Note that vitamin and mineral supplements such as folate are routinely taken by women before or at the onset of pregnancy (Forster et al., 2009) and, as our survey did not distinguish between various vitamins and minerals, we removed all data pertaining to the use of vitamins and minerals from the analyses. Information on private health insurance was also collated.

4.3.5 Statistical analysis

The characteristics of women choosing to visit a CAM practitioner and/or to use a CAM product during their most recent pregnancy were investigated and relationships determined using a chi-square analysis. Identification of significant covariates was also determined through univariate logistic regression between all possible predictors (i.e.

the demographic, medical history and health care variables) and CAM practitioner and/or product use. All the demographic, symptoms and health service utilisation variables listed above were entered into a model and then a stepwise backward elimination process was employed, using a likelihood ratio test, to eventually produce the most parsimonious model. Statistical significance was set at $p < 0.05$. All analyses were conducted using statistical program STATA 11.2.

4.4 Results

A total of 1,835 women responded to the sub-study survey and were included in the analysis (79.2% response rate). As seen in Table 4.1, respondents were more commonly married or living with a partner (96.3%, $n=1,760$), had a university degree (60.1%, $n=1,095$) were working leading up to the time of birth or on maternity leave (full-time 31.5%, $n=574$; part-time 32.8%, $n=599$; and casual 28.9%, $n=529$) and were usually able to manage on available income (42.1%, $n=768$). Women were also more likely to have private health insurance (72.0%, $n=1,316$) with ancillary cover for CAM (92.4%, $n=1,073$) and were slightly more likely to choose to give birth in a public hospital (48.7%, $n=882$ vs. 46.9%, $n=850$ for private hospitals).

Table 4.1: Demographic characteristics of pregnant women using CAM

Characteristics	Total (n=1,835)	Consulted a CAM practitioner		Used CAM product (excluding vitamins and minerals)	
		Yes (n= 623)	No (n=672)	Yes (n=842)	No (n=777)
Marital status					
Married/defacto	1,760 (96.3%)	598 (96.3%)	639 (95.7%)	812 (96.7%)	745 (96.2%)
Separated/divorced/widowed	46 (2.6%)	17 (2.7%)	18 (2.7%)	22 (2.6%)	18 (2.3%)
Never married	21 (1.1%)	6 (1.0%)	11 (1.6%)	6 (0.7%)	11 (1.4%)
Education²					
Up to year 12 or equivalent	292 (16.0%)	90 (14.5%)	122 (18.3%)	95 (11.3%)	158 (20.5%)
Apprenticeship/certificate/ diploma	435 (23.9%)	142 (22.9%)	162 (24.4%)	187 (22.3%)	192 (24.9%)
University degree/ Higher university degree	1095 (60.1%)	389 (62.7%)	381 (57.3%)	557 (66.4%)	422 (54.7%)

Employment status¹					
Full time work (≥35hrs /week)	574 (31.5%)	221 (35.5%)	191 (28.5%)	229 (34.8%)	231 (29.8%)
Part-time work (<35hrs/week)	599 (32.8%)	204 (32.8%)	215 (32.1%)	256 (30.6%)	262 (33.8%)
Casual/temp (irregular hours)	124 (6.8%)	46 (7.4%)	42 (6.3%)	60 (7.2%)	49 (6.3%)
Not currently in the work force	528 (28.9%)	151 (24.3%)	222 (33.1%)	230 (27.4%)	233 (30.1%)
Income					
Impossible/difficult to manage on available income	221 (12.1%)	86 (13.8%)	87 (13.0%)	99 (11.8%)	100 (12.9%)
Sometimes difficult	530 (29.0%)	175 (28.2%)	202 (30.2%)	242 (28.9%)	223 (28.8%)
Usually manageable	768 (42.1%)	251 (40.4%)	266 (39.8%)	350 (41.8%)	323 (41.7%)
Easy to manage	307 (16.8%)	109 (17.6%)	114 (17.0%)	147 (17.6%)	128 (16.6%)
Private Health Insurance¹					
Full cover including pregnancy-related care	1139 (62.5%)	408 (65.7%)	378 (56.7%)	527 (62.9%)	480 (62.1%)
Yes, not including pregnancy-related care	157 (8.6%)	61 (9.8%)	56 (8.4%)	84 (10.0%)	62 (8.0%)

No	527 (28.9%)	152(24.5%)	233 (34.9%)	227 (27.1%)	231 (29.9)
Ancillary cover¹					
CAM covered	1073 (92.4%)	426 (94.5%)	313 (88.7%)	524 (92.9%)	434 (92.1%)
CAM not covered	88 (7.6%)	25 (5.5%)	40 (11.3%)	40 (7.1%)	37 (7.9%)
Birth environment^{1,2}					
Public hospital	882 (48.7%)	264 (43.1%)	373 (55.9%)	392 (47.2%)	388 (50.2%)
Private hospital	850 (46.9%)	308 (50.2%)	281 (42.1%)	385 (46.3%)	368 (47.7%)
Birth centre/homebirth/other	80 (4.4%)	41 (6.7%)	13 (2.0%)	54 (6.5%)	16 (2.1%)

¹ statistically significant association with consultation with a CAM practitioner (p<0.05)

² statistically significant association with consultation with use of CAM products (p<0.05)

Use of CAM was found to be high with 48.1% (n=623) of pregnant women consulting a CAM practitioner and 52.0% (n=842) of women using a CAM product(s) during pregnancy (excluding vitamins and minerals). Individual CAM practitioners that were consulted included massage (34.1%, n=594), chiropractor (16.3%, n=279), acupuncturist (9.4%, n= 162), aromatherapist (0.6%, n=10), herbalist/naturopath (7.2%, n=121), osteopath (6.1%, n=104) and doula (1.4%, n=23). CAM products included vitamins and minerals (89.6%, n=1,605), herbal medicines (34.4%, n=588), aromatherapy oils (9.1%, n=152), flower essences (6.6%, n=110) and homeopathy (4.2%, n=70).

For their most recent pregnancy, the majority of women consulted with a general practitioner (GP) (90.6%, n=1,663), obstetrician (86.6%, n=1,589) and/or a midwife (70.7%, n=1,298). Back pain (39.5%, n=725), fatigue (35.4%, n=694), reflux or heartburn (34.7%, n=637), nausea (32.9%, n=604), sciatica (22.1%, n=406), and hip or pelvic pain (20.9%, n=384) were the most commonly reported pregnancy-related health conditions. Using products and/or services to prepare for labour was also found to be popular (21.9%, n=401).

Table 4.2: Multiple logistic regression outcomes for CAM practitioner visits

CAM practitioner visits	Odds Ratio	95% Confidence Interval	p-value
Full-time employment	1.66	1.23, 2.26	0.001
Part-time employment	1.44	1.07, 1.95	0.016

Casual employment	1.66	1.01, 2.72	0.045
Back pain or backache	2.58	1.99, 3.34	<0.0001
Neck pain	3.87	2.43, 6.17	<0.0001
Preparing for labour	1.74	1.31 - 2.34	<0.0001
Headaches/migraines	0.63	0.45 - 0.91	0.012

Table 4.3: Multiple logistic regression outcomes for CAM product use

CAM product use*	Odds Ratio	95% Confidence Interval	p-value
Education – university degree or higher degree	1.82	1.37, 2.43	<0.0001
Preparing for labour	1.67	1.31, 2.14	<0.0001
Tiredness or fatigue	1.41	1.14, 1.73	0.001

*CAM product use excluding vitamins and minerals

Multiple logistic regression found that visits to CAM practitioners were more likely for certain concerns (Table 4.2), namely back pain or back ache (OR=2.58, $p<0.0001$), neck pain (OR=3.87, $p<0.0001$) and labour preparation (OR=1.75, $p<0.0001$). Women were less likely to consult with a CAM practitioner if they suffered with headaches or migraines (OR=0.64, $p<0.012$). Working full-time (OR=1.67 $p=0.001$), part-time (OR=1.44 $p=0.016$) or casually (OR=1.66 $p=0.045$) was also found to be predictive of visits to a CAM practitioner. Significant health history and demographic predictors of CAM product use (Table 4.3) were tiredness and fatigue (OR=1.41,

p=0.001), labour preparation (OR=1.68, p<0.0001) and having a university education (OR=1.82, p<0.0001).

4.5 Discussion

This paper reports findings from the first nationally representative study examining gestational CAM use and the profile of pregnant CAM users in Australia. Our analysis highlights three broad areas of findings relating to the prevalence of CAM use, the demographics of CAM users and the reasons pregnant women use CAM.

4.5.1 Prevalence of use

Our survey found 52% of the pregnant women were using CAM products (herbal medicines, aromatherapy, homeopathy and essential oils but excluding vitamins and minerals). Previous prevalence estimates have differed across studies due to varying CAM definitions employed and other design features but have ranged up to 91% (Adams et al., 2009b; Forster et al., 2009). Our finding (most certainly conservative because it excludes a range of vitamins and minerals) supports these previous studies in suggesting substantial CAM product use during pregnancy and further examination of the specific CAM products women are using is needed to fully understand the implications of this usage during pregnancy. High CAM use during pregnancy illuminates certain potential safety issues, especially with the ingestion of herbal medicines (Chuang et al., 2006) that face pregnant women and their providers. This is particularly important due to an often lacking evidence-base for CAM during pregnancy, the concern that many pregnant women do not disclose CAM, and in

particular herbal medicine use, to their physician (Low Dog, 2009), and the general rise of evidence-based medicine in evaluating both CAM and maternity care (Broom & Adams, 2012).

In addition to CAM product use, nearly half of all women surveyed were found to consult a CAM practitioner, such as an acupuncturist, chiropractor, massage therapist or naturopath during pregnancy. Follow up research is needed to further quantify and understand this use. High use of CAM practitioners highlights the significance of ensuring effective intra-professional communication across all provider groups relating to CAM use in the context of women's broader maternity care.

4.5.2 Demographics

Having a university education was significantly correlated with increased CAM product use in our study. A higher level of education has consistently been shown in the literature regarding characteristics of general CAM users (Adams, Sibbritt, Easthope, & Young, 2003b) and is becoming evident in emerging data concerning CAM use in pregnancy (Adams et al., 2009b; Bishop et al., 2011b; Chuang et al., 2009). A university education may encourage the development of critical thinking (Banfield, Fagan, & Janes, 2011), which could conceivably foster an ability to critically appraise health care options that may lie outside conventional care.

Our analysis also shows that having employment is strongly associated with increased CAM practitioner visits and this is in line with previous literature (Bishop et al., 2011b). Whilst it is tempting to assume this is due to employment enabling women to fund CAM treatments that are largely 'out of pocket' expenses, our analysis did not

identify income as a significant factor predicting CAM use. Many women from lower-income households are in employment but may still be unable to afford CAM treatments; thus it does not appear that employment increases CAM use solely due to an increased household income. Another possible explanation of our finding may relate to the assertion from previous research that being employed increases women's sense of self-esteem and well-being (Alstveit, Severinsson, & Karlsen, 2011). It may be that such self-esteem and well-being in turn leads women to seek more pro-active, self-care practices including CAM (Low Dog, 2009). Further research is required examining the effect that employment has on health care practices and exploring these possible explanations.

4.5.3 Reasons for use

Our analysis shows expectant women with back pain visit CAM practitioners more frequently than women without back pain. Similarly, previous research has identified women with generalised back pain as likely to seek help from CAM practitioners, with one recent paper showing that they are likely to be high consumers of both biomedical and CAM treatments (Sibbritt & Adams, 2010). In line with our study, international research shows that antenatal women are likely to seek help from acupuncturists, massage therapists, chiropractors and yoga practitioners in order to relieve back-pain (Hope-Allan et al., 2004; Wang et al., 2005). There is emerging data showing that these treatments may be useful for back-pain in pregnancy (Ee, Manheimer, Pirotta, & White, 2008) and may be additionally attractive as they are non-pharmacological in nature (Hope-Allan et al., 2004).

In our study women who suffered from headaches and migraines in pregnancy were less likely to consult with CAM practitioners. This finding is somewhat surprising given there are few safe pharmacological options available for headaches and migraines in pregnancy (Alcantara & Cossette, 2009). Moreover, a recent study found that CAM is used more frequently amongst headache and migraine sufferers than non-sufferers in the wider population. However, only 4.5% of a sample of these adults reported using CAM to treat their actual headache or migraine symptoms (Wells, Bertisch, Buettner, Phillips, & McCarthy, 2011). While acknowledging that headaches and migraines can have serious implications for pregnant women and their babies, it is possible that women perceive mild headache as routinely associated with pregnancy and they may not wish to medicate for a seemingly 'tolerable complaint'. Further research is needed to tease out the intricacies of this health-seeking behaviour and further understand the treatment decisions of women regarding headaches and migraines during gestation.

In line with a literature review of 24 papers published between 1999 and 2008 (Adams et al., 2009b) our analysis identifies women who undertook labour preparation as more likely to consult with CAM practitioners and to use CAM products than those women who did not undertake labour preparation. An Australian study found that almost a quarter of study participants reported using CAM, including massage, aromatherapy, herbal medicine, hypnotherapy, yoga, naturopathic and homeopathic remedies and acupuncture to prepare for labour (Skouteris et al., 2008). Utilising CAM to prepare for labour appears to be relatively commonplace, however numerous products lack evidence of safety in pregnancy, such as many herbal medicines (Holst,

Haavik, & Nordeng, 2009a) and essential oils (Sibbritt et al., 2014) requiring further investigation. Certain CAM practitioners (for example naturopaths and teachers of hypnosis) may also cite their treatments as being helpful in the preparation for birth (Bradley, 2011; Holst, Haavik, & Nordeng, 2009a; Mottershead, 2006).

Fatigue and tiredness are a common complaint in pregnancy (Bradley, 2011) and women in our study who suffered from these conditions were more likely to use CAM products. Adams et al (2011) found that severe tiredness was significantly correlated with CAM use in a study of 13,961 pregnant women (Adams, Sibbritt, & Lui, 2011b) and CAM has been used to treat fatigue and tiredness in some chronic diseases (Olsen, 2009; White, Hirsch, Patel, Adams, & Peltekian, 2007). However, the role of CAM in pregnancy care for these symptoms remains unknown and requires further investigation.

A limitation of our study is that it relies on self-reported data and therefore women's recall of information from their most recent pregnancy. Nevertheless, this limitation is countered by the opportunity to draw upon a large nationally representative sample of pregnant women to examine details of CAM use during gestation. Another limitation of our study is that we may have under-estimated the prevalence of CAM use in pregnancy due to exclusion of all vitamins and minerals.

4.6 Conclusion

A substantial majority of pregnant women in Australia are utilising CAM products and/or services as part of their maternity care alerting us to possible safety issues given both the emerging, but in many cases, still lacking evidence-base for CAM. Of

particular concern is the use of certain products such as herbal medicines and aromatherapy oils. Additionally, many pregnant women do not disclose CAM use to their conventional maternity care provider. There is an urgent need for further research examining the safety and efficacy of CAM use during pregnancy. Meanwhile, in acknowledgement of the high CAM use amongst pregnant women, obstetricians, general practitioners and midwives need to enquire with women in their care about possible CAM use in order to help promote communication and safe, effective coordinated maternity care.

4.7 Chapter Summary

The results from this chapter indicate that a considerable number of women are using CAM products and/or consulting CAM practitioners during pregnancy. Certain demographic factors and pregnancy health conditions were found to predict this utilisation. These findings raise further questions about the use of these healthcare practices, products and services such as the potential impact of pre-pregnancy use on the prevalence of gestational use; information about how women navigate information sources regarding CAM use during pregnancy; attitudes of women to CAM use during pregnancy; and the extent to which women self-prescribe these products. A detailed examination of all of these factors is needed before a clear understanding of the reasons behind this utilisation and further, the impact it has on safe maternal and child outcomes can be determined.

These findings also highlight the need for maternity health care professionals to be cognisant that CAM utilisation is commonplace and to ask women about this use. This chapter demonstrates that the typical profile of a woman who may consult a CAM practitioner during pregnancy is employed and suffering from pregnancy-related back and/or neck pain. She may also be interested in preparing her body for labour. Somewhat similarly, the profile of a woman who might be more inclined to use CAM products during pregnancy is highly educated and suffering from pregnancy-related fatigue and wishing to prepare for labour. This also raises questions about the efficacy and safety of these products and services, as currently, very little research has examined CAM use during pregnancy.

5. Complementary and alternative medicine practitioner use prior to pregnancy predicts use during pregnancy

The results contained within this chapter are under peer review as follows:

Jane Frawley, David Sibbritt, Alex Broom, Cindy Gallois, Amie Steel, Jon Adams. Complementary and alternative medicine practitioner use prior to pregnancy predicts use during pregnancy: A longitudinal analysis. *Women & Health* (resubmitted with revisions 06/06/2015)

5.1 Introduction

5.1.1 Variable categorisation and rationale for this analysis within the broader research project

The aims and objectives of this project, as outlined in Chapter 1 (Section 1.1.2), require an understanding of the impact of pre-pregnancy CAM utilisation on use during pregnancy. Chapter 4 delivered insights into the prevalence of CAM utilisation during pregnancy as well as determining key factors associated with this use. It is important to understand other nuances of this growing utilisation in order to determine the factors that increase the likelihood of antenatal CAM use. Currently, there is very little work examining the effects of prior CAM use on rates of utilisation during pregnancy, however two small Australian studies have found that visits to CAM practitioners

during pregnancy may be more likely for women who have consulted CAM practitioners prior to becoming pregnant (Hope-Allan et al., 2004; Wang et al., 2005). The longitudinal design of ALSWH afforded an opportunity to answer this question in a large nationally-representative sample of pregnant women.

Therefore, this chapter highlights the impact of previous CAM utilisation on use during pregnancy using a longitudinal design methodology. Further to this, various nuances of this relationship are considered such as the impact of prior consultation with four specific practitioner groups and the effects on consultation patterns with these same modalities during gestation. This was undertaken to answer Research Question 3 of this thesis. All analyses from this chapter were drawn from data gathered through ALSWH Survey 4 (pre-pregnancy) and the ALSWH pregnancy sub-study survey.

The CAM modalities — massage, chiropractic, herbal medicine/naturopathy, and acupuncture — were chosen for analysis because they were common to both the pre-pregnancy survey and the pregnancy sub-survey. Question 2 from Survey 4 was analysed to provide data on pre-pregnancy CAM practitioner consultations, and Question 8 from the sub-survey was used to determine gestational use. The data resulting from both questions were recoded to represent a binary variable whereby consultation with each respective CAM practitioner group was categorised as ‘yes’ or ‘no’. This was re-categorised in order to determine the prior utilisation of CAM practitioners for this particular research article. These recoded variables were utilised in all analyses (see Table 5.1 and Table 5.2).

5.2 Background

The use of complementary and alternative medicine (CAM) – defined as a group of healthcare practices and products that are generally considered to be outside the dominant, conventional medical system (Adams, Hollenberg, Lui, & Broom, 2009a) - is popular during pregnancy (Adams et al., 2012). Previous research has highlighted the significance of this use, in part due to questions about communication between CAM practitioners and maternity health care professionals in relation to ensuring safe, coordinated healthcare for pregnant women (Diezel, Steel, Wardle, & Johnstone, 2013; Steel & Adams, 2012).

Women are high adopters of CAM in general (Adams, Easthope, & Sibbritt, 2003a), and across various life stages, such as mid-life (Bair et al., 2002; Upchurch, Dye, Chyu, Gold, & Greendale, 2010) and pregnancy (Steel et al., 2012). Women using CAM during pregnancy is an entirely distinct topic that needs to be further explored due to unclear maternal and foetal safety implications. Previous research has investigated pregnant women's motivations for CAM use during pregnancy and identified key themes, including, a desire for some degree of autonomy in healthcare decisions and an interest in a holistic approach to health and well-being (Holst, Wright, Nordeng, & Haavik, 2009c; Warriner et al., 2014).

A recent Australian study identified that approximately one-third of pregnant women (36.8%) consulted a CAM practitioner during pregnancy (Skouteris et al., 2008). Of these women, 10.6% consulted a chiropractor, 5.9% consulted a naturopath, 3.1% consulted an acupuncturist and 0.9% consulted a massage therapist. Other authors have established that use of CAM practitioners appears to be much higher for some

pregnancy-related conditions such as back pain (Hope-Allan et al., 2004; Wang et al., 2005). Wang et al (2005) also reported that 61.4% of pregnancy healthcare professionals (nurse midwives, nurse educators and obstetricians) supported recommending massage, 44.6% supported recommending acupuncture and 36.6% supported recommending visiting a chiropractor for the relief of lower back pain during pregnancy.

Two small, non-longitudinal studies evaluating the relationship between prior use of CAM practitioners and use during pregnancy were identified in the existing literature one addressing a specific pregnancy condition (lower back pain) (Wang et al., 2005), and the other, a pilot study assessing an acupuncture service in an Australian hospital antenatal clinic (Hope-Allan et al., 2004). Wang et al (2005) reported that of the 501 women who used CAM therapies prior to pregnancy, 31.1% continued using the same therapies during pregnancy for lower-back pain. The most frequently used modalities used amongst that study sample were massage (31.7%), yoga (18.3%) and chiropractic care (5.9%). Similarly, the Australian pilot study found that 49% of women who used an acupuncture service during pregnancy had consulted a CAM practitioner prior to pregnancy, namely an acupuncturist (21.6%), massage therapist (21.6%), naturopath (16.2%) or a chiropractor (8.1%). Unfortunately, other research on this topic has categorised various CAM products and practitioners together (Hall & Jolly, 2014) providing a less than optimal analysis to the pre-pregnancy use of CAM practitioners and the subsequent impact on use during gestation.

Recent research from the Australian Longitudinal Study on Women's Health (ALSWH) found that 49.4% of women consulted a CAM practitioner during pregnancy (Steel et al., 2014). Pregnant women were more likely to consult with a chiropractor if they lived in a non-urban environment and more likely to consult with a massage therapist if they found it easy to manage on available income. Visits to massage therapists, acupuncturists and chiropractors were more likely for women who had health insurance coverage for these disciplines, and a tertiary education was associated with consultations to acupuncturists and chiropractors during pregnancy.

The current analysis built on this earlier work by investigating the effect of pre-pregnancy CAM practitioner use on CAM practitioner use during pregnancy for pregnancy-related health complaints. A longitudinal analysis of this topic is required to examine each CAM practitioner group separately to elucidate more thoroughly the prevalence, trends and patterns of use for each CAM modality prior to and during pregnancy. This information is significant to maternity care practice. If pre-pregnancy use of CAM is shown to be a predictive factor for use during pregnancy, this may help to identify women who are more likely to use CAM during pregnancy. Many types of CAM appear to be safe for use during pregnancy, for example yoga or massage, but limited information about others such as herbal medicine, precludes the same assurances (Dugoua 2010; Nordeng & Havnen, 2004). Whilst some women may be conscious of safety issues related to CAM use, many believe it is safer than conventional medicine (Bercaw et al., 2010; Westfall, 2003). There is limited research evaluating the safety and efficacy of CAM treatments during pregnancy (Fugh-Berman & Kronenberg, 2003; Kalder et al., 2011), and women may not consider other potential

consequences such as delayed or ineffectual treatment. Additionally, research has found that some women rely on family and friends to inform their treatment decisions in relation to CAM (Frawley et al., 2014) and do not disclose this use to their maternity care providers (Harrigan 2011). Open communication with women about CAM use is therefore paramount to a healthy pregnancy, and knowledge identifying women who are more likely to engage CAM practitioners is imperative. In response to this research gap, we examined whether prior use of CAM practitioners was related to use during pregnancy via a longitudinal analysis using a large, nationally representative sample of pregnant women.

5.3 Methods

The aim of this study is to determine if prior consultation with a CAM practitioner is predictive of CAM practitioner use during pregnancy.

5.3.1 Sample

The study data were obtained from the Australian Longitudinal Study on Women's Health (ALSWH). Women, randomly selected from the Medicare database, were invited to participate in a longitudinal study on issues affecting women's health and wellbeing. Women were divided into three cohorts at the commencement of the study in 1996 ("young" 18-23, "mid age" 45-50 and "older" 70-75 years). The women were shown to be representative of the national population of women in these target age groups (Brown, Dobson, Bryson, & Byles, 1999).

The response rates to Survey 1 were 41% (n=14,792) for the young cohort, 54% (n=14,200) for the mid-age cohort and 36% (n=12,614) for the older cohort (Brown et al., 1999). The completed surveys were mailed back to ALSWH by the women themselves, implying consent. Additionally, all surveys contained a consent page at the end that asked women to consent to the researchers 'matching' the information provided in this survey with that given in previous surveys so that any changes in health could be noted over time. The young cohort was the focus of this study and were surveyed in 1996 (Survey 1), 2000 (Survey 2), 2003 (Survey 3), 2006 (Survey 4), and 2009 (Survey 5).

5.3.2 Data collection

In 2009 (Survey 5), women completed a 107-item survey and answered questions about their parity, health status, demography and health service use. In addition, women were asked if they were currently pregnant or had recently given birth, and those who answered positively (n=2,316) were then asked to complete a sub-study detailing information about complementary and alternative medicine use during pregnancy. A response rate of 79.2% (n=1,835) was attained. A self-administered questionnaire was used to collect the data. The 85-item questionnaire was mailed to participants and included both closed and open-ended questions, also addressing the areas of demographics, health status and health service use. Data relating to women's pre-pregnancy use of CAM was taken from Survey 4 (2006). Women with children and those currently pregnant in Survey 4 were removed from the analyses as they may have used CAM during a prior or current pregnancy. This rendered the comparison of

CAM use prior to pregnancy with CAM use during pregnancy impossible. Ethics approval for the sub-study was gained from the relevant ethics committees at the University of Newcastle (#H-2010_0031), University of Queensland (#2010000411) and the University of Technology Sydney (#2011-174N).

5.3.2.1 Demographic measures

Postcode of residence was used to classify residence as urban or non-urban. Women were also asked about marital status, income, private health insurance, employment and highest level of educational qualification completed. A new variable was created to represent changes in private health insurance status between Survey 4 in 2006 and the sub-survey in 2010.

5.3.2.2 Use of complementary and alternative medicine practitioners

Women were asked about their use of CAM practitioners, namely massage therapists, acupuncturists, herbalists/naturopaths and chiropractors, both before pregnancy (in Survey 4, 2006) and during pregnancy (sub-survey, 2010).

5.3.2.3 Health status

Women were asked to indicate if they had been diagnosed with, or treated for a chronic illness in Survey 4 including diabetes mellitus (type I and type II), hypertension, low iron, asthma, depression, anxiety, polycystic ovarian syndrome, endometriosis and chronic urinary tract infection.

5.3.4 Ethical considerations

The study utilised self-administered questionnaires that resulted in de-identified data for analysis. The phone number of a national counselling service was given at various stages through each survey in the event that women wanted to speak to someone about any issues the survey raised. Ethics approval for the study was gained from the relevant ethics committees at three universities.

5.3.5 Data analysis

The relationship between women's use of CAM practitioners during their most recent pregnancy and their use of CAM practitioner prior to pregnancy was examined using a chi-square analysis. Identification of significant covariates that were associated with the use of specific practitioner modalities during pregnancy (massage therapist, chiropractor, herbalist/naturopath and acupuncturist) were then determined through a multiple logistic regression model, using odds ratios (OR) and 95% confidence intervals (CI), adjusting for level of education, change in private health insurance status, area of residence, income, employment status and the presence of a chronic health condition. Hosmer-Lemeshow goodness of fit statistic was used to assess model fit (Hosmer et al., 2013) and statistical significance was set at $p < 0.05$. All analyses were conducted using statistical program STATA 11.2.

5.4 Results

A total of 9,145 women responded to Survey 4 of whom 3,768 were nulliparous and/or not pregnant. In the 2010 sub-study, 752 of these women were pregnant or had recently given birth to their first child. Half of these women (50.5%, $n=380$) visited a

CAM practitioner during pregnancy for a pregnancy- related health concern. Prior to pregnancy 59.4% (n=447) of these women had consulted a CAM practitioner.

Among women who consulted a CAM practitioner prior to pregnancy, 62.4% (n=279) continued to use a CAM practitioner during pregnancy (Table 5.1). Of the women who had not visited a CAM practitioner prior to pregnancy, 33.1% (n=101) consulted a CAM practitioner during pregnancy, and 66.9% (n=201) did not ($\chi^2=62.27$, $p<0.001$).

Table 5.1: Women’s use of a complementary and alternative medicine (CAM) practitioner prior to pregnancy in relation to use during pregnancy

	Did not consult CAM practitioner* during pregnancy (n=372)	Did consult CAM practitioner* during pregnancy (n=380)
Did not consult CAM practitioner* prior to pregnancy (n=305)	204 (66.9%)	101 (33.1%)
Did consult CAM practitioner* prior to pregnancy (n=447)	168 (37.6.3%)	279 (62.4%)

$\chi^2= 62.27$, $p<0.001$ *

*CAM practitioner defined as an acupuncturist, massage therapist, herbalist/naturopath or chiropractor

Prior to pregnancy 49.0% of women visited a massage therapist compared to 40.8% during pregnancy; 9.3% consulted an acupuncturist before pregnancy and 13.3% during pregnancy; 16.8% visited a herbalist/naturopath before becoming pregnant as compared to 8.4% whilst pregnant and 15.1% saw a chiropractor prior to pregnancy which remained constant during pregnancy (15.1%). Income ($p=0.022$) and working full-time ($p=0.013$) were associated with the continued use of massage during pregnancy, whilst living in a remote area was associated with less massage

consultations ($p=0.014$). Continued visits to a chiropractor during pregnancy were less likely for women with low iron ($p=0.035$) and women with health insurance in 2006 but not 2009 ($p=0.03$). Continued visits to a chiropractor during pregnancy were also associated with having depression ($p=0.036$) or a urinary tract infection ($p=0.036$) and living in a rural community as compared to an urban environment ($p=0.039$). No other demographic or health factors were significant.

Consultation with a specific type of CAM practitioner prior to pregnancy was found to be strongly predictive of consultation with the same modality during pregnancy for pregnancy related health complaints (Table 5.2). Prior use of massage therapy (OR=3.45; 95% CI 2.39, 5.00, $p<0.001$), acupuncture (OR=2.20; 95% CI 1.15, 4.20, $p=0.017$) and chiropractic (OR=1.78; 95% CI 1.08, 2.95, $p=0.025$) were related to use of massage during pregnancy. Earlier use of acupuncture (OR=3.56; 95% CI 1.81, 6.99; $p<0.001$) was associated with use of acupuncture during pregnancy. Women who consulted with a herbalist/naturopath pre-pregnancy were more likely to use the same service during pregnancy (OR=6.51; 95% CI 3.33, 12.72; $p<0.001$), and similarly women with prior use of chiropractic services were more likely to consult a chiropractor during pregnancy (OR=11.66; 95% CI, 6.52, 20.85; $p<0.001$).

Table 5.2: Factors associated with consultation with complementary and alternative medicine (CAM) practitioners for pregnancy-related complaint in the most recent pregnancy

CAM practitioner visits before pregnancy	CAM practitioner visited during pregnancy			
	Massage (n=299, 40.8%)	Acupuncture (n=95, 13.3%)	Naturopath /herbalist (n=59, 8.4%)	Chiropractor (n=107, 15.1%)
	Odds Ratio * (95% C.I.)	Odds Ratio * (95% C.I.)	Odds Ratio * (95% C.I.)	Odds Ratio * (95% C.I.)
Massage (n=373, 49.0%)	3.45 (2.39, 5.00) p<0.001	1.52 (0.89, 2.59) p=0.120	1.25 (0.62, 2.52) p=0.526	1.31 (0.75, 2.27) p=0.340
Acupuncture (n=71, 9.3%)	2.20 (1.15, 4.20) p=0.017	3.56 (1.81, 6.99) p<0.001	1.68 (0.70, 4.03) p=0.244	1.45 (0.58, 3.65) p=0.425
Naturopath/herbalist (n=128, 16.8%)	1.48 (0.91, 2.41) p=0.111	1.48 (0.80, 2.74) p=0.207	6.51 (3.33, 2.72) p<0.001	1.05 (0.51, 2.14) p=0.892
Chiropractor (n=115, 15.1%)	1.78 (1.08, 2.95) p=0.025	1.08 (0.54, 2.15) P=0.831	1.48 (0.64, 3.40) p=0.356	11.66 (6.52, 20.85) p<0.001

Education					
	High school	-	-	-	-
	Apprenticeship/diploma	1.29 (0.65, 2.54) p=0.469	0.97 (0.35, 2.66) p=0.955	0.73 (0.20, 2.60) p=0.625	1.05 (0.45, 2.48) p=0.905
	University degree	1.33 (0.71, 2.50) p=0.367	1.31 (0.53, 3.24) p=0.561	1.12 (0.36, 3.48) p=0.840	0.68 (0.31, 1.52) p=0.353
Income					
	Impossible to manage on available income	-	-	-	-
	Difficult to manage on available income	1.81 (0.93, 3.53) p=0.08	0.61 (0.27, 1.39) p=0.243	0.67 (0.23, 1.99) p=0.477	1.21 (0.51, 2.87) p=0.663
	Difficult some of the time to manage	2.20 (1.15, 4.19) p=0.016	0.73 (0.34, 1.58) p=0.425	0.88 (0.32, 2.41) 0.812	0.71 (0.30, 1.70) p=0.446
	Easy to manage on available income	2.30 (1.12, 4.71) p=0.022	0.44 (0.17, 1.15) p=0.094	0.68 (0.21, 2.21) p=0.521	1.02 (0.40, 2.65) p=0.959
Private health cover					
	2009 only	-	-	-	-
	2006 only	0.97 (0.46, 2.00)	0.98 (0.34, 2.84)	0.42 (0.09, 1.85)	0.29 (0.09, 0.89)

2006 and 2009	p=0.929 0.60 (0.32, 1.11) p=0.107	p=0.973 1.11 (0.46, 2.67) p=0.813	p=0.251 1.00 (0.33, 3.03) p=0.992	p=0.03 0.66 (0.28, 1.57) p=0.354
Work before baby was born				
No	-	-	-	-
Full time work	1.87 (1.13, 3.07) p=0.013	1.40 (0.70, 2.81) p=0.340	1.28 (0.51, 3.19) p=0.598	1.47 (0.72, 3.01) p=0.289
Part time work	1.69 (0.99, 2.88) p=0.054	1.06 (0.49, 2.27) p=0.883	1.12 (0.42, 3.03) p=0.811	1.34 (0.62, 2.91) p=0.458
Area of residence				
Urban	-	-	-	-
Rural	1.09 (0.72, 1.64) p=0.679	0.82 (0.45, 1.48) p=0.511	0.76 (0.34, 1.67) p=0.494	1.83 (1.03, 3.28) p=0.039
Remote	0.14 (0.03-0.67) p=0.014	0.37 (0.05, 3.00) p=0.355	0.70 (0.08, 6.16) p=0.751	3.00 (0.91, 9.83) p=0.070
Chronic urinary tract infection	1.32 (0.83-2.09) p=0.240	1.39 (0.76, 2.54) p=0.286	1.34 (0.61, 2.94) p=0.467	1.97 (1.05, 3.69) p=0.036

Polycystic ovarian syndrome	0.40 (0.15, 1.05) p=0.063	1.36 (0.47, 3.90) p=0.572	0.62 (0.12, 3.20) p=0.570	0.90 (0.23, 3.49) p=0.885
Endometriosis	0.93 (0.36, 2.39) p=0.883	0.71 (0.18, 2.70) p=0.612	2.63 (0.67, 10.20) p=0.163	0.44 (0.081, 2.43) p=0.351
Anxiety	1.06 (0.48, 2.34) p=0.884	0.76 (0.25, 2.29) p=0.623	1.51 (0.43, 5.29) p=0.522	0.60 (0.17, 2.13) p=0.432
Depression	0.88 (0.49, 1.59) p=0.669	1.17 (0.53, 2.62) p=0.693	0.97 (0.33, 2.88) p=0.955	2.26 (1.05, 4.86) p=0.036
Asthma	1.33 (0.72, 2.45) p=0.354	1.45 (0.64, 3.26) p=0.361	0.58 (0.17, 2.01) p=0.389	1.55 (0.67, 3.56) p=0.301
Low iron/anaemia	0.61 (0.35, 1.08) p=0.093	1.27 (0.63, 2.58) p=0.499	1.29 (0.53, 3.15) p=0.569	0.32 (0.12, 0.92) p=0.035
Hypertension	0.82 (0.08, 8.38) p=0.866	0.91 (0.10, 8.08) p=0.932	Omitted	0.82 (0.08, 8.38) p=0.866

5.5 Discussion

Women who use a particular practitioner-based CAM modality prior to pregnancy are highly likely to utilise these same CAM practices during pregnancy. This has important practice and practitioner implications in relation to coordinating safe health care for pregnant women. Research has highlighted that even though women's disclosure of gestational CAM use to their conventional maternity health care providers has improved over recent years, rates of disclosure are still poor (Strouss et al., 2014). Prior use of CAM by a woman could certainly be seen as an indication that gestational use is likely and an open, non-judgemental conversation in relation to this use should be initiated.

The association between prior use of CAM and use during pregnancy may be due to a variety of factors including women's general philosophy on health and well-being and a desire to have a more 'active role' regarding some health care decisions (Holst, Wright, Nordeng, & Haavik, 2009c; Warriner et al., 2014). In line with this, it has been suggested that women who tend to view pregnancy, labour and birth as a natural physiological process that is not inherently risky, may be more likely to use CAM during pregnancy (Mitchell, 2010). Similarly, women for whom lower levels of obstetric intervention are desirable may be more likely to employ CAM practices (Mitchell, 2010). A previous study found that women who visited a midwife more frequently during pregnancy were more likely to use the services of an acupuncturist and/or a doula than women who visited a midwife less frequently (Steel et al., 2012). However, women who made more visits to a general practitioner during pregnancy were also

found to be more likely to consult an acupuncturist during pregnancy, which may indicate higher health service utilization rather than a desire for reduced obstetric intervention.

About one third of women in our study who did not consult a CAM practitioner prior to pregnancy adopted the use of CAM during pregnancy and visited a CAM practitioner. This may be due to pregnancy-related health symptoms coupled with a desire for a more holistic and natural approach during pregnancy (Warriner et al., 2014). Additionally over a third of women who consulted a CAM practitioner prior to pregnancy did not use this service when pregnant. Whilst the exact reasons for this are unknown, it may be due to resolution of symptoms any time prior to pregnancy, improvements in general health during pregnancy or concern relating to the safety of CAM use for both the viability of the pregnancy and the health of the unborn child (Kalder et al., 2010; Warriner et al., 2014).

Our finding that women who use the services of a particular CAM practitioner group before pregnancy are more likely to also use this same CAM modality during pregnancy, appears to indicate that women employ CAM modalities with which they are familiar with, perhaps considering them safe and/or efficacious. It may also be possible that these particular CAM practitioners have had the opportunity to promote the usefulness of their services during gestation to women who are planning a pregnancy. A recent study found that women were inclined to choose a particular CAM treatment for back pain primarily based on familiarity with the treatment or prior experience with the practitioner (Kirby et al., 2014). It is not clear from our research

whether women are choosing to continue treatment during pregnancy based purely on the usefulness of the modality or due to the relationship of trust they have built with the practitioner or a combination of both. Further research is required to establish the motivation of women who continue to use a CAM-based model of care during pregnancy.

Gestational use of acupuncture increased in our cohort while use of the other modalities decreased (naturopathy, massage) or stayed the same (chiropractor). Whilst the reasons for this are unknown it is interesting to note that Hope-Allan (2004) also reported an increase in acupuncture use during pregnancy. Further research is required to understand why acupuncture use, in particular, increases during pregnancy.

Use of massage during pregnancy was also found to be significantly associated with prior use of an acupuncturist or a chiropractor, but not a herbalist/naturopath. Massage may be considered 'safe' or efficacious by women (Adams, 2012), is frequently recommended by maternity health professionals during pregnancy (Adams, Lui, Sibbritt, Broom, et al., 2011a; Gaffney & Smith, 2004b; Hall, McKenna, & Griffiths, 2012b) and may also be regularly recommended by CAM practitioners for antenatal use. Massage, acupuncture and chiropractic are all body-work modalities and therefore do not generally involve the internal ingestion of CAM products, such as herbal medicine, which may have known or unknown safety considerations during pregnancy. As such, acupuncturists and chiropractors may be more comfortable recommending another physical therapy such as massage rather than non-physical modality such as herbal medicine to a pregnant woman. At present no empirical data are available that

have examined inter-disciplinary referral practices of various CAM and maternity health professionals during pregnancy. This requires further research focus to explore fully the referral practices of CAM practitioners and the impact they have on women's decision-making regarding CAM consultations during pregnancy. Additionally, research has shown that many conventional maternity providers have positive views on CAM (Gaffney and Smith 2004; Samuels et al., 2013), with some recommending, or indicating that they would recommend, use during pregnancy (Samuels et al., 2013; Kalder et al., 2011; Wang et al., 2005). Further research is required to characterize referral practices between conventional maternity care providers and CAM practitioners.

It is also plausible that women who consult a massage therapist during pregnancy are more likely to have used the services of another physical CAM therapist preceding pregnancy and wish to continue this non-invasive approach. Further, research in non-pregnant women suggests that women tend to base treatment decisions for back pain on their familiarity with the modality and the particular practitioner as opposed to the evidence base of the modality being used (Kirby et al., 2014).

The likelihood of using massage during pregnancy was not significantly increased in women who had consulted a herbalist/naturopath prior to pregnancy. Traditionally, and still today, many naturopathy schools in Australia include massage within the scope of their naturopathy curriculum (Training.gov.au), thus the lack of a

statistically significant relationship between a herbalist/naturopathy consultation and massage may be due to women receiving massage treatments from their naturopath.

Several study limitations of this study should be noted. First, the surveys relied on self-reported data and women's recall of information relating to their health status and CAM practitioner use and thus may be subject to errors of recall and/or recall bias. Second, it would also have been preferable for our study to include more CAM practitioner modalities, however due to study design limitations only four were included in both Survey 4 and the sub-study. Third, Survey 4 did not contain information on health conditions for which the services of CAM practitioners were used. Fourth, some women may have visited a CAM practitioner in the interim between the two surveys, and as women in the sub-survey were only asked if they visited a CAM practitioner during pregnancy, this information was not collected. Similarly women may have discontinued CAM treatment for any reason before falling pregnant and not as a result of falling pregnant. Lastly, the survey instrument used for this study was specifically developed for this work, rather than using a standard instrument. This raises the possibility of misclassification of information and the lack of comparability to other studies that have used standard instruments. Despite these limitations, this longitudinal analysis provides the first opportunity to evaluate key research questions regarding the relation of prior use of CAM practitioners to CAM practitioner use during pregnancy from a large, nationally representative sample of pregnant women.

These study findings have important implications for maternity care practice. In the light of increasing CAM use by pregnant women, communication between conventional maternity care providers and the patient is important to ensure safe use of CAM. However, just as important, is the facilitation of reciprocal, collaborative communication and relationships between CAM practitioners and conventional maternity care providers to help advance patient centred maternity care.

5.6 Conclusion

The use of CAM practitioners, such as massage therapists, acupuncturists, herbalists/naturopaths and chiropractors during pregnancy is frequent, and women who consult CAM practitioners prior to pregnancy are inclined to continue to use these modalities during pregnancy for the relief of pregnancy related health concerns. This may be due to an existing relationship of trust with a practitioner, and/or the desire for a holistic approach to health and wellbeing during pregnancy. Additional research needs to investigate both the information sources women use to inform their decisions about CAM use and the patterns of patient referral between different CAM practitioners during pregnancy to ensure coordinated, safe maternity care. Further, it is important to explore management of communication amongst CAM and conventional providers by women during pregnancy. Prior CAM use by women before pregnancy should act as an alert that such women may also be using CAM during pregnancy. Thus, it is important that all maternity healthcare professionals instigate an unguarded, open discussion with women in their care about antenatal CAM use.

5.7 Chapter Summary

The results from this chapter indicate that prior consultation with a CAM practitioner is predictive of CAM use during pregnancy. Moreover, pre-pregnancy and antenatal CAM practitioner use is closely associated in terms of continuity of care provided by some practitioners, which requires further research attention. Prior use of massage therapy was related to use of massage during pregnancy. Previous use of acupuncture was predictive of acupuncture utilisation during pregnancy. Women who consulted a herbalist/naturopath pre-pregnancy were more likely to use the same service during pregnancy and similarly, women with prior utilisation of a chiropractor were more likely to consult a chiropractor during pregnancy. These findings add to our understanding of CAM utilisation during pregnancy and highlight some of the nuances and patterns related to this use. This relationship has not been previously investigated using a longitudinal design.

Knowledge about a women's pre-pregnancy use of CAM highlights the need for an unguarded, open discussion between women and their conventional maternity care providers about antenatal CAM utilisation. Further to this, communication between conventional maternity care providers and CAM practitioners is also very important in the provision of coordinated and safe maternal care. Additional research is required to more fully investigate women's attitudes towards the use of CAM during pregnancy and to explore the information sources they use to inform this use. This chapter also highlights that additional research is needed to examine the patterns of referral between different CAM practitioners.

6. Women's attitudes towards the use of complementary and alternative medicine products during pregnancy

The results contained within this chapter have been resubmitted following revisions, as follows:

Jane Frawley, Jon Adams, David Sibbritt, Amie Steel, Alex Broom and Cindy Gallois. (2014). Women's attitudes towards the use of complementary and alternative medicine products during pregnancy. *Journal of Obstetrics & Gynaecology* (Resubmitted with revisions 25/03/2015)

6.1 Introduction

6.1.1 Variable categorisation and rationale for this analysis within the broader research project

Chapter 4 and Chapter 5 of this thesis have highlighted the prevalence, characteristics and determinants of CAM use during pregnancy. In view of the high CAM utilisation there is now an explicit need to understand this use and to explore in more detail women's attitudes towards the use of CAM products during pregnancy. Therefore the aim of Chapter 6 is to identify and analyse women's attitudes towards the use of particular CAM products including herbal medicine, aromatherapy products and

homeopathy for pregnancy-related conditions. This was undertaken to answer Research Question 4 and will help to fulfil the overall aims of the project.

Questions 10, 14, 15 and 22 form the pregnancy sub-study were used to answer this research question and objective. Question 10 asked women to indicate who prescribed particular CAM products during pregnancy (self, GP, obstetrician, alternative health practitioner or did not use). The data was recoded to represent a binary variable whereby use of each CAM product was categorised as 'yes' or 'no' as the identity of the prescribing practitioner was not important for this analysis. Question 14 asked women to rate their level of agreement or disagreement to the following statements on a Likert scale (strongly agree, agree, neutral, disagree or strongly disagree): CAM boosts my immune system; CAM promotes a holistic approach to health; CAM gives me more control over my health and body; evidence of effectiveness is important to my choice of CAM; my personal experience of the effectiveness of CAM is more important than clinical evidence; CAM needs to be tested for safety and side effects; CAM is more natural than conventional medicine (CM); CAM has fewer side-effects than conventional medicine (CM); and CAM is a better preventative measure than CM. Three sections of Question 15 were also analysed in this chapter. Women were asked to indicate (also on a Likert scale) if they believed general practitioners, obstetricians and midwives should be able to advise their patients about commonly used CAM. Answers to these questions were recoded. The responses agree and strongly agree were recoded to form the variable "agree" whilst the responses neutral, disagree and strongly disagree were recoded to form the variable "disagree" in order to consolidate responses and strengthen analysis. Question 22 asked women to note if they suffered

from any of the stated common pregnancy health conditions and if they consulted a particular CAM practitioner or conventional medical practitioner to resolve these complaints. Responses to this question were condensed into a 'used CAM practitioner' category and a 'did not use CAM practitioner' category in order to identify the attitudes of women using CAM practitioners as opposed to those using conventional medical practitioners for the resolution of specific pregnancy-related complaints. As CAM use in pregnancy appears to be increasingly commonplace, it is important that maternity health care providers have insights into the attitudes of pregnant women who use CAM during gestation.

6.2 Background

Complementary and alternative medicine (CAM) can be defined as a group of healthcare practices and products that are generally considered to be outside the dominant, conventional medical system (Adams et al., 2012), with common CAM products including herbal medicines, aromatherapy oils and homeopathic remedies. The use of CAM is becoming increasingly popular with women emerging as leading this trend (Adams, Easthope, & Sibbritt, 2003a; Frass et al., 2012). Consequently the use of CAM during pregnancy has also become increasingly widespread (Adams et al., 2009b) with a recent review showing that up to 87% of women use CAM at this time (Hall et al., 2011). Women appear to be attracted to the use of CAM during pregnancy due to a perception of safety (Holst, Wright, Nordeng, & Haavik, 2009c; Nordeng & Havnen, 2004; Warriner et al., 2014) and a desire for increased healthcare choices, autonomy and some degree of control over their health (Mitchell, 2010; Warriner et al., 2014).

Use of CAM during pregnancy is also congruent with holistic health beliefs and a desire to increase general wellbeing during the antenatal period (Warriner et al., 2014). Many authors have also suggested that the increase in CAM use in the general population is associated with a quest for more choice and greater autonomy in healthcare decision-making (O'Callaghan & Jordan, 2003). These are values that can be commonly found in the literature relating to women's attitudes towards CAM during pregnancy (Gaffney & Smith, 2004a; Holst, Wright, Nordeng, & Haavik, 2009c; Mitchell, 2010; Warriner et al., 2014).

The use of herbal medicine during gestation appears to be related to the perception that it is safe (Holst, Wright, Nordeng, & Haavik, 2009c; Nordeng & Havnen, 2004). Yet there is an absence of data, and it is not yet sufficiently clear that using herbal medicines during gestation is safe. In addition, there is a growing concern that many women equate the term 'natural' (often associated with CAM) with meaning safe when making decisions about the use of herbal medicines and broader CAM product use during pregnancy (Warriner et al., 2014). Previous research has indicated that women may have limited knowledge of side-effects of herbal medicines (Holst, Wright, Nordeng, & Haavik, 2009c). Whilst very little has been written about women's attitudes towards the specific use of aromatherapy and homeopathy for pregnancy-related complaints, research investigating pregnant women's attitudes toward CAM use in general, which includes homeopathy and aromatherapy show women believe CAM to be inherently safe (Warriner et al., 2014).

To date there is a paucity of research that evaluates women's attitudes towards the use of CAM products, in particular herbal medicine, aromatherapy and homeopathy during pregnancy, utilising a nationally representative sample. This paper, reporting findings from the study of a nationally representative sample of pregnant women in Australia, provides the first significant step towards addressing this research gap.

6.3 Methodology

6.3.1 Sample

The study sample was obtained via the Australian Longitudinal Study on Women's Health (ALSWH). The ALSWH is a longitudinal study of women in three age groups ("young" 18-23, "mid age" 45-50 and "older" 70-75 years), who were randomly selected from the Australian national Medicare database to investigate multiple factors affecting health and wellbeing of women over a 20-year period. These women were shown in the baseline survey (conducted in 1996) to be broadly representative of the national population of women in the target age groups. The present study is based on a sub-study survey of 1,835 women, administered in 2010. Participants were identified and invited to participate based upon their reporting of being pregnant or as having recently given birth in the 2009 ALSWH Survey 5 (n=2,316) of the young cohort. A response rate of 79.2% (n=1,835) was attained. A self-administered questionnaire was used to collect the data. The 85-item questionnaire was mailed to participants and included both closed and open-ended questions, addressing the areas of

demographics, health status, and health service utilisation. Ethics approval for the sub-study reported here was gained from the relevant ethics committees at the University of Newcastle, the University of Queensland and the University of Technology Sydney.

6.3.2 Use of complementary and alternative medicine

Women were asked about their use of CAM products for common pregnancy-related health conditions for their most recent pregnancy for example musculoskeletal complaints, gastrointestinal complaints, headaches and migraines, sleeping problems, anxiety, depression, urinary tract infections, varicosities, fatigue, hypertension, pre-eclampsia, anaemia and gestational diabetes. CAM products included herbal medicines, aromatherapy and homeopathy. Although data was also collected on the use of vitamins and minerals, we did not include this in our analysis as almost all women (over 90%) were taking these supplements.

6.3.3 Women's attitudes toward the use of complementary and alternative medicine during pregnancy

Women were asked about their attitudes towards the use of CAM. Women were asked if they agree or disagree with the statements: CAM boosts my immune system; CAM promotes a holistic approach to health; CAM gives me more control over my health and body; evidence of effectiveness is important to my choice of CAM; my personal experience of the effectiveness of CAM is more important than clinical evidence; CAM needs to be tested for safety and side effects; CAM is more natural than conventional medicine (CM); CAM has fewer side-effects than CM; and CAM is a better preventative measure than CM. Participants were also asked if they believed general practitioners,

obstetricians and midwives should be able to advise their patients about commonly used CAM.

6.3.4 Statistical analysis

Attitudes about CAM from women who chose to use herbal medicine, aromatherapy or homeopathy during pregnancy were investigated using a chi-squared analysis. Identification of significant predictors was determined through logistic regression modelling. That is, all attitudes towards CAM were then entered into the model, and a backward stepwise elimination process was employed, using a likelihood ratio test, to eventually produce the most parsimonious model. Women's level of education, income, area of residence (urban or rural) and private health insurance status were included in the model as confounders. Statistical significance was set at $p < 0.05$. All analyses were conducted using statistical program STATA 11.2.

6.4 Results

Of the women who chose to use CAM products during pregnancy, 34.5% (n=588) were utilising herbal medicines, 17.4% (n=319) were using aromatherapy products and 13.3% (n=244) were using homeopathic remedies.

As shown in Table 6.1, 83% of the pregnant women who participated in the study agreed that CAM needs to be tested for safety and side effects, 64% agreed that evidence of effectiveness is important to my choice of CAM, 50% agreed that CAM promotes a holistic approach to health, 42% agreed that CAM is more natural than conventional medicine, 34% of women agreed with the statement that CAM boosts my

immune system, 27% agreed that CAM gives them more control over their health and body, 27% agreed that their personal experience of the effectiveness of CAM is more important than clinical evidence, 25% agreed that CAM has fewer side-effects than CM and 24% agreed that CAM is a better preventative measure than CM. In addition most women agreed that maternity healthcare professionals such as general practitioners (79%), obstetricians (77%) and midwives (73%) should be able to advise their patients about commonly used CAM.

Table 6.1: Attitude of women towards the use of CAM during pregnancy

Attitudes towards CAM during pregnancy	Agree (%)	Neutral (%)	Disagree (%)	N/A (%)
CAM boosts my immune system/resistance	34	54	12	-
CAM promotes a holistic approach to health	50	41	9	-
CAM gives me more control over my health/body	27	53	20	-
Evidence of effectiveness is important to my choice of CAM	64	29	7	-
My personal experience of the effectiveness of CAM is more important than clinical evidence	27	44	29	-
CAM needs to be tested for safety/side effects	83	15	2	-
CAM is a more natural than conventional medicine	42	45	13	-
CAM has fewer side effects than conventional medicine	25	51	24	-
CAM is a better preventative measure than conventional medicine	24	50	26	-
GPs should be able to advise their patients about commonly used CAM	79	13	3	5
OBs should be able to advise their patients about commonly used CAM	77	14	3	7
MWs should be able to advise their patients about commonly used CAM	73	14	4	9

Table 6.2: Comparison of attitudes between users and non-users of complementary and alternative medicine (CAM) products during pregnancy

Attitudes	CAM products					
	Herbal medicine		Aromatherapy		Homeopathy	
	Yes	No	Yes	No	Yes	No
CAM boost my immune system / resistance ^{A, B, C}						
Disagree	8.6	14.2	8.6	12.9	5.0	9.6
Neutral	42.8	59.1	46.3	55.4	34.7	42.2
Agree	48.6	26.7	45.1	31.7	60.3	48.2
CAM promotes a holistic approach to health ^{A, B, C}						
Disagree	5.8	11.0	6.4	9.6	10.4	21.5
Neutral	24.9	49.0	30.2	43.5	48.3	54.2
Agree	69.3	40.0	63.4	46.9	41.3	24.3
CAM gives me more control over my health/body ^{A, B, C}						
Disagree	15.5	23.0	12.4	21.6	10.4	21.5
Neutral	39.5	59.3	45.4	55.1	48.3	54.2
Agree	45.0	17.7	42.2	23.3	41.3	24.3
Evidence of effectiveness is important to my choice of CAM ^{A, B, C}						
Disagree	3.4	8.8	4.1	7.5	4.2	7.3
Neutral	15.9	36.0	18.8	31.4	21.8	30.4
Agree	80.7	55.2	77.1	61.1	74.0	62.3
My personal experience of effectiveness of CAM is more important than clinical evidence ^{A, B, C}						
Disagree	25.1	30.5	22.7	29.8	19.7	29.9

	Neutral	35.7	48.6	40.0	45.1	42.9	44.2
	Agree	39.2	20.9	38.3	25.1	37.4	25.9
CAM needs to be tested for safety/side effects ^A							
	Disagree	2.0	1.3	1.3	1.6	1.7	1.5
	Neutral	9.9	17.5	13.7	15.3	15.1	15.0
	Agree	88.1	81.2	85.0	83.1	83.2	83.5
CAM is more natural than CM ^{A, B, C}							
	Disagree	8.5	15.4	8.7	13.9	8.4	13.7
	Neutral	32.5	50.7	36.0	46.5	36.1	46.0
	Agree	59.0	33.9	55.3	39.6	55.5	40.3
CAM has fewer side-effects than CM ^{A, B, C}							
	Disagree	20.0	25.8	17.8	24.8	15.9	24.8
	Neutral	43.4	55.0	45.2	52.6	45.6	52.2
	Agree	36.6	19.2	37.0	22.6	38.5	23.0
CAM is a better preventative measure than CM ^{A, B, C}							
	Disagree	19.8	30.4	19.1	28.1	18.0	27.9
	Neutral	41.7	53.0	46.2	50.4	46.0	50.2
	Agree	38.5	16.6	34.7	21.5	36.0	21.9
GPs should be able to advise their patients about commonly used CAM ^{A, B}							
	Disagree	3.0	2.8	4.6	2.5	4.0	2.8
	Neutral	5.6	16.3	10.2	14.6	12.8	14.0
	Agree	88.4	80.9	85.2	82.9	83.2	83.2
OBs should be able to advise their patients about commonly used CAM ^{A, B, C}							
	Disagree	3.4	2.4	5.1	2.3	5.0	2.4
	Neutral	9.6	17.3	11.1	15.5	11.3	15.3
	Agree	87.0	80.3	83.8	82.2	83.7	82.3

MWs should be able to advise their patients about commonly used CAM ^{A, B}							
	Disagree	4.1	4.1	4.1	4.1	5.0	4.0
	Neutral	8.4	19.1	10.7	16.5	11.4	16.1
	Agree	87.5	76.8	85.1	79.4	83.6	79.9

^A statistically significant association with herbal medicine use (p<0.05)

^B statistically significant association with aromatherapy use (p<0.05)

^C statistically significant association with homeopathy (p<0.05)

As shown in Table 6.2, chi-squared analysis found the following statements were significantly associated with the use of herbal medicine, aromatherapy and homeopathy during pregnancy: CAM boosts my immune system; CAM promotes a holistic approach to health; CAM gives me more control over my health and body; evidence of effectiveness is important to my choice of CAM; my personal experience of the effectiveness of CAM is more important than clinical evidence; CAM is more natural than CM; CAM has fewer side-effects than CM; and CAM is a better preventative measure than CM (all $p < 0.05$). Women who used herbal medicine and aromatherapy thought that general practitioners, obstetricians and midwives should be able to advise their patients about commonly used CAM, whilst women who utilised homeopathy thought that only midwives from across these maternity provider groups should be able to advise their patients about these products (all $p < 0.05$).

Table 6.3: Use of CAM products associated with attitudes towards CAM during pregnancy

Factors	Herbal medicines			Aromatherapy oils			Homeopathy		
	Odds ratio	95% C.I.	p-value	Odds ratio	95% C.I.	p-value	Odds ratio	95% C.I.	p-value
CAM gives me more control over my health/body	-	-	-	-	-	-	-	-	-
Disagree	0.84	0.57, 1.25	0.397	1.30	0.86, 1.97	0.215	1.49	0.92, 2.42	0.104
Neutral	1.64	1.05, 2.56	0.030	2.23	1.43, 3.46	<0.001	2.63	1.58, 4.36	<0.001
Agree	-	-	-	-	-	-	-	-	-
CAM is a better preventative measure than CM	-	-	-	-	-	-	-	-	-
Disagree	1.12	0.80, 1.58	0.507	-	-	-	-	-	-
Neutral	1.63	1.09, 2.43	0.017	-	-	-	-	-	-
Agree	-	-	-	-	-	-	-	-	-
CAM promotes a holistic approach to health	-	-	-	-	-	-	-	-	-
Disagree	1.14	0.67, 1.95	0.632	-	-	-	-	-	-
Neutral	1.83	1.06, 3.15	0.028	-	-	-	-	-	-
Agree	-	-	-	-	-	-	-	-	-
Evidence of efficacy is important to my choice of CAM	-	-	-	-	-	-	-	-	-
Disagree	-	-	-	-	-	-	-	-	-

Neutral Agree	1.13 2.10	0.61, 2.08 1.18, 3.73	0.704 0.011						
My personal experience of effectiveness of CAM is more important than clinical evidence									
Disagree	-	-	-	-	-	-	-	-	-
Neutral				1.29	0.89, 1.87	0.169	1.47	0.97, 2.23	0.072
Agree				1.68	1.15, 2.45	0.007	1.85	1.19, 2.87	0.006
OBs should be able to advise their patients about commonly used CAM									
Disagree	-	-	-	-	-	-	-	-	-
Neutral	0.62	0.21, 1.83	0.390	0.31	0.15, 0.66	0.002	0.30	0.13, 0.69	0.005
Agree	0.32	0.11, 0.87	0.027	0.29	0.16, 0.57	<0.001	0.34	0.16, 0.70	0.003

Logistic regression analysis (Table 6.3) demonstrated that women who agreed with the statement CAM gives me more control over my health and body were 2.23 (95% CI: 1.43, 3.46) times more likely to use aromatherapy ($p < 0.001$) and 2.63 (95% CI: 1.58, 4.36) times more likely to use homeopathy ($p < 0.001$) than those that did not agree. Women were more likely to use herbal medicine if they agreed that CAM is a better preventative measure than CM (OR=1.63; 95% CI: 1.09, 2.43) ($p = 0.017$), CAM promotes a holistic approach to health (OR=1.83; 95% CI: 1.06, 3.15) ($p = 0.028$) and evidence of effectiveness is important to my choice of CAM (OR=2.10; 95% CI: 1.18, 3.73) ($p = 0.011$). Participants that felt their personal experience of effectiveness of CAM is more important than clinical evidence were 1.68 (95% CI: 1.15, 2.45) times more likely to use aromatherapy ($p = 0.007$) and 1.85 (95% CI: 1.19, 2.87) times more likely to use homeopathy ($p = 0.006$) than those that did not agree. Women who agreed with the statement obstetricians should be able to advise their patients about commonly used CAM were significantly less likely to use herbal medicine (OR=0.32; 95% CI: 0.11, 0.87), ($p = 0.027$) aromatherapy (OR=0.29; 95% CI: 0.16, 0.57) ($p < 0.001$) and homeopathy (OR=0.34; 95% CI: 0.16, 0.70) ($p = 0.003$) as opposed to those that disagreed.

6.5 Discussion

This paper presents the results of the first nationally representative study of women's attitudes towards the use of CAM products, namely herbal medicine, aromatherapy and homeopathy during pregnancy. Those who used herbal medicines thought of CAM as a preventative measure and were interested in utilising a treatment that was

considered holistic—a system of medicine that addresses the whole body and not just one part or symptom (Bishop, Yardley, & Lewith, 2007). This is a common theme that occurs throughout the literature on both general CAM use (Bishop et al., 2007) and CAM use during pregnancy (Gaffney & Smith, 2004a; Warriner et al., 2014). A recent qualitative study showed that pregnant women were attracted to the idea of well-being and utilised CAM holistically as a way of investing in their health, of keeping themselves well and of maximising their health potential (Warriner et al., 2014). It is perhaps a modern construct of pregnancy that women should seek to actively increase their own wellbeing during this time and thus positively influence the health and wellbeing of their baby (Warriner et al., 2014).

Additionally our study found that women who used herbal medicines during pregnancy specified that evidence of effectiveness was important to them. Research into the efficacy of herbal medicine is an area that has undergone significant development and evolution in recent years and whilst many herbs have been found to be efficacious, there is very little research examining the safety and efficacy of herbal medicine during pregnancy (Forster et al., 2006). Currently much of the information pertaining to the safety of these products in pregnancy is derived from traditional use, which is substandard. It is integral that CAM practitioners engage in research to evaluate the safety and usefulness of these products during pregnancy.

Lack of evidence is coupled with the concern that many women self-prescribe herbal medicines during pregnancy and primarily glean their information about these medicines from friends and family as opposed to health professionals (Holst, Wright,

Haavik, & Nordeng, 2009b). Additionally many studies have found that women believe that 'natural' implies 'safe' (Holst, Wright, Nordeng, & Haavik, 2009c; Nordeng & Havnen, 2004; Warriner et al., 2014) and so do not disclose the use of herbal medicines to their maternity health care givers (Harrigan, 2011; Warriner et al., 2014). Therefore it may be that even though evidence of the effectiveness of CAM is important to women, in reality there is often an acceptance and inherent belief that herbal medicines are effective and safe in pregnancy even though very little data has evaluated this assertion. This deserves further research attention to examine and explore women's notions of safety in relation to non-prescription medications, including CAM, during pregnancy.

Our study found that women who use aromatherapy oils and homeopathy want more control over their health and body which is congruent with much of the literature in this field (Hall et al., 2011; Warriner et al., 2014). Some women find pregnancy stressful due to feelings of vulnerability and a perceived lack of control (Mitchell, 2010) which may be partly why women are attracted to a system of medicine that they feel is safe and gives them a sense of active participation, independence and control over their health and body. Warriner et al (2013) found that women perceive CAM as something that they could have control over rather than something they were instructed to do by their physician or midwife (Warriner et al., 2014). This attitude also extended to disclosure, as women were reluctant to disclose their use of CAM to doctors, obstetricians and midwives for fear of relinquishing control over decisions regarding their wellbeing (Warriner et al., 2014).

Women who use aromatherapy and homeopathy in our study were found to be concerned more about their personal experience of the effectiveness of these treatments rather than with clinical evidence of effectiveness. This may be due to the paucity of research examining the efficacy and safety of aromatherapy and homeopathy, both in general and in pregnancy, coupled with the belief that CAM is inherently safe. Further to this, some women may believe that clinical evidence of the efficacy and safety of CAM exists in regards to use during gestation.

Women are entitled to make decisions about their own health care and it is evident from our results that this is considered to be very important to women who utilise CAM. During pregnancy, this may be even more important to women who feel that many health care decisions are made for them, by health care professionals (Holst, Wright, Nordeng, & Haavik, 2009c). It is ideal that women's decisions, especially these pertaining to benefit and risk, are informed by correct and up to date information but this may not always be the case and it is important to enquire about women's use of CAM.

Women who utilised herbal medicine, aromatherapy and/or homeopathy during pregnancy were less likely to think that obstetricians should be able to advise their patients about commonly used CAM. Interestingly, a study of obstetricians found that 81% thought medical practitioners should have some knowledge of commonly used CAM (Gaffney & Smith, 2004b). Furthermore, this same Australian study found that 68% of obstetricians had formally referred a patient to a CAM modality for treatment. CAM treatments such as massage, acupuncture, vitamins, yoga, meditation

and hypnosis were considered to be useful and safe by over 60% of these obstetricians and nearly 50% of the obstetricians studied by Gaffney and Smith (2004) considered herbal medicine, aromatherapy and homeopathy as not useful or had no opinion whilst over one third felt that the safety of these products had not been established in pregnancy or had no opinion. Overall it appears that whilst obstetricians may generally hold positive views towards the use of CAM in pregnancy they may be generally more comfortable with external body treatments and movement therapies as opposed to the use of internal medicines such as herbal medicines and homeopathy (Furlow et al., 2008; Gaffney & Smith, 2004b; Samuels et al., 2013). Furthermore, one study found that obstetricians at an antenatal clinic in the UK had little understanding of CAM including a poor understanding of specific therapies, little knowledge of the different mechanistic actions of herbal medicines and homeopathic remedies and a limited appreciation of the pharmacological basis of aromatherapy (Tiran, 2006). However this UK study was only conducted in one centre and how nationally or internationally representative it may be is unknown. This may be one reason why women in our study who utilised herbal medicine products during pregnancy were less inclined to perceive their obstetrician as having a duty to advise them about this use.

Our study relies on self-reported data and therefore women's recall of information, a limitation that is countered by the opportunity to review a large nationally representative sample of pregnant women to examine details of CAM use during gestation.

6.6 Conclusion

This study presents the results of the first nationally representative study of women's attitudes towards the use of herbal medicine, aromatherapy and homeopathic remedies during pregnancy. Many women in our study using herbal medicine, aromatherapy and homeopathy value a holistic approach, choice, personal experience and autonomy when making decisions about CAM use during pregnancy. Given the high prevalence of CAM use by pregnant women, the attitudes of pregnant women who are CAM users are important issues with implications for practitioners and policymakers in their efforts to ensure safe, effective and coordinated maternity care.

6.7 Chapter Summary

The results from this chapter indicate that many women who use complementary medicine during pregnancy commonly have differing attitudes towards CAM use compared to women who do not use CAM during pregnancy. Women in this study who were using herbal medicine, aromatherapy and homeopathy were found to value a holistic approach to health care, a wider choice of health care options, their own personal experience and autonomy when making decisions about CAM use during pregnancy. It is important to understand these attitudes as they help to explain why women use CAM during pregnancy. These attitudes may possibly underpin the decisions women make in relation to CAM and additional research is required to explore the information sources women use to inform these health care decisions. The findings in this chapter in relation to autonomy are noteworthy in the context of

disclosure. Research is needed to evaluate to what extent women disclose their use of CAM during pregnancy to their maternity health care practitioners and to explore women's attitudes, perspectives and intentions in relation to disclosure.

7. Majority of women are influenced by non-professional information sources when deciding to consult a complementary and alternative medicine (CAM) practitioner during pregnancy

The results contained within this chapter have been published as follows:

Frawley J, Adams J, Steel A, Broom A, Gallois C, Sibbritt D. (2014) Majority of women are influenced by non-professional information sources when deciding to consult a complementary and alternative medicine (CAM) practitioner during pregnancy. *Journal of Alternative and Complementary Medicine*, 20(7): 571-577.

A copy of the manuscript is attached to this thesis as Appendix 5.

7.1 Introduction

7.1.1 Variable categorisation and rationale for this analysis within the broader research project

Chapter 4 demonstrated that approximately half of all pregnant women consult a CAM practitioner during pregnancy. Utilisation of these services were also shown in Chapter 4 to be associated with certain pregnancy health conditions such as back pain and neck

pain and to be more common for women who are employed. Prior consultations with CAM practitioners were shown to be predictive of use during pregnancy in Chapter 5, and Chapter 6 detailed women's attitudes towards CAM use during pregnancy. Exploration of the information sources that women find influential in their decisions about CAM practitioner utilisation during pregnancy is necessary to understand how women navigate available CAM services.

For these reasons, this chapter investigates the information sources that women trust when making decisions about CAM use. This was undertaken to answer Research Question 5 of this thesis. All analyses for this chapter were drawn from the pregnancy sub-survey where women answered questions about CAM practitioner use (Question 8) and pregnancy-related health concerns (Question 22). Data on the information sources that women found influential were sourced from Question 12 which asked women to indicate which sources of information were influential from the following list: partner/spouse; family or relatives; friends or colleagues; mass media (e.g. newspaper; television, radio); books/magazines; the Internet; their own personal experience; general practitioner; obstetrician; midwife; pharmacist; nurse; alternative health practitioner and 'other'. Some of these variables were recoded to maintain consistency with previous research in the field. For example family/relatives and friend/colleagues were combined to form a variable called 'friends and family'. Similarly, mass media and books/magazines are combined to a single variable (media). Demographic data was also included by utilising responses from Questions 77, 79, 81, 82, 83 and 84. Question 77, 79, 83 and 84 were recoded as described in Chapter 4. These particular information sources have been highlighted in previous work

investigating CAM use during pregnancy (Adams et al., 2009b), and as such were identified as important to include in our analysis.

7.2 Background

The prevalence of complementary and alternative medicine (CAM) use has reached substantial levels in many countries over recent years (Adams, Sibbritt, Broom, Loxton, et al., 2011c; Harris et al., 2012). It is well known that women of reproductive age are high consumers of CAM - a group of diverse medical and health care systems, practices, and products that are not generally considered part of conventional medicine (Adams et al., 2009b; Adams, Easthope, & Sibbritt, 2003a)—with emerging research highlighting the popularity of CAM use during pregnancy (Adams et al., 2009b; Hall et al., 2011).

7.2.1 CAM use in pregnancy

Research suggests that up to 87% of women are using some form of CAM during their pregnancy (Adams et al., 2009b; Hall et al., 2011), with one recent study showing that 48% of pregnant women consulted a CAM practitioner (Frawley et al., 2013). Most studies have identified between 20-60% prevalence of CAM use amongst pregnant women (Adams et al., 2009b; Cagayan & Oras, 2010; Hall et al., 2011) with herbal medicine, nutritional supplements, massage, acupuncture, homoeopathy, aromatherapy and yoga being particularly popular (Forster et al., 2006; Holst, Wright, Haavik, & Nordeng, 2009b; Holst, Wright, Nordeng, & Haavik, 2009c; Maats & Crowther, 2002; Nordeng & Havnen, 2004; Pettigrew et al., 2004).

CAM use in pregnancy appears to be partly mediated by some women's desire for a more 'natural' approach to health care that they see as safe and effective (Holst, Wright, Nordeng, & Haavik, 2009c; Westfall, 2003). Research has demonstrated that women are using these medicines to alleviate pregnancy-related symptoms such as nausea and vomiting, low back pain, extreme tiredness and urinary tract infections (Adams, Sibbritt, & Lui, 2011b; Frawley et al., 2013; Hollyer et al., 2002). In light of such use and given the concerns about the safety of CAM use during pregnancy (Adams, 2011; Adams, Lui, Sibbritt, Broom, et al., 2011a; Gossler, 2010; Mitchell, 2010; Nordeng et al., 2011), it is imperative that the key information sources influencing women's decision making in relation to CAM use during pregnancy are examined.

7.2.2 Sources of information utilised for the use of CAM in pregnancy

Previous investigation has identified up to 33% of pregnant women utilise conventional practitioners such as obstetricians, doctors, nurses, midwives and pharmacists for information on CAM (Cagayan & Oras, 2010; Forster et al., 2006; Hollyer et al., 2002; Holst, Wright, Haavik, & Nordeng, 2009b; Lapi et al., 2010; Nordeng & Havnen, 2004; Westfall, 2003). However some women tend to rely less on information about CAM from conventional medical practitioners, with past research showing that up to 71% of women utilise non-professional sources of information on CAM during pregnancy including a reliance on their own experience, friends, family, media, books, magazines, internet and health food shops (Cagayan & Oras, 2010; Forster et al., 2006; Hepner et al., 2002; Hollyer et al., 2002; Holst, Wright, Haavik, & Nordeng, 2009b; Holst, Wright, Nordeng, & Haavik, 2009c; Lapi et al., 2010; Maats & Crowther, 2002; Nordeng & Havnen, 2004; Pettigrew et al., 2004; Westfall, 2003). Of these information sources,

friends and family were found to be particularly popular across all studies (Cagayan & Oras, 2010; Forster et al., 2006; Hepner et al., 2002; Hollyer et al., 2002; Holst, Wright, Haavik, & Nordeng, 2009b; Holst, Wright, Nordeng, & Haavik, 2009c; Lapi et al., 2010; Maats & Crowther, 2002; Nordeng & Havnen, 2004; Pettigrew et al., 2004; Westfall, 2003). This earlier work, while providing insights from preliminary data on this topic has only drawn upon small-scale and localised populations of pregnant CAM users. As such, there is a need for examination of this area drawing upon large-scale population-based data. In response, this paper reports the findings from the first large, nationally representative study worldwide to examine the information sources women identify as influential in their decision-making regarding CAM use during pregnancy.

7.3 Methodology

7.3.1 Sample

The study sample was obtained via the Australian Longitudinal Study on Women's Health (ALSWH). The ALSWH is a longitudinal study of women in three age groups ("young" 18-23, "mid age" 45-50 and "older" 70-75 years) who were randomly selected from the national Medicare database to investigate multiple factors affecting health and wellbeing of women. These women were broadly representative of the national population of women in this target age group (Brown et al., 1999). The present study is based on a sub-study survey of 1,835 women, administered in 2010. Participants in the sub-study survey were identified as pregnant or had recently given birth in the 2009 ALSWH Survey 5 (n=2,445) of the young cohort. Ethics approval for

the sub-study reported here was gained from the relevant ethics committees at the University of Newcastle, University of Queensland and the University of Technology Sydney.

7.3.2 Demographic measures

Women were asked about marital status, education, income and employment. Postcode of residence was used to categorise urban or rural residence.

7.3.3 Pregnancy-related health concerns

Women were asked about their pregnancy-related health concerns in the sub-study questionnaire. Information was collected on a range of common pregnancy complaints including back pain and other musculoskeletal complaints, nausea, vomiting and other gastrointestinal complaints, headaches and migraines, sleeping problems, varicosities, fatigue, hypertension, pre-eclampsia and anaemia.

7.3.4 Use of complementary and alternative medicine

Women were asked about their use of CAM practitioners for pregnancy-related health complaints, as listed above. CAM practitioners included acupuncturist, chiropractor, herbalist/naturopath, massage therapist and other CAM practitioner.

7.3.5 Pregnancy-related health information seeking behaviour

Women were also asked about various sources of information that were influential in their decision to use CAM during pregnancy including general practitioner, obstetrician, midwife, pharmacist, friends and family, own personal experience, media, internet and other.

7.3.6 Statistical analysis

Influential information sources for women choosing to visit a CAM practitioner for pregnancy-related health concerns during their most recent pregnancy were investigated and bivariate relationships determined using a chi-square analysis. Identification of the significant information sources predicting CAM use for treatment of pregnancy-related health concerns was determined through multiple logistic regression modelling. All information sources were entered into a model to determine which ones predicted CAM use for common pregnancy-related symptoms. A stepwise backward elimination process was employed, using a likelihood ratio test, to eventually produce the most parsimonious model. Statistical significance was set at $p < 0.05$. All analyses were conducted using statistical program STATA 11.2.

7.4 Results

A total of 2,316 women were invited to participate in the sub-study and 1,835 women responded to the sub-study survey and were included in the analysis (79.2% response rate). Most respondents were married or living with a partner (96.3%, $n=1,760$), held a tertiary qualification (60.1%, $n=1,095$), were working before the baby was born or on maternity leave (full-time 31.5%, $n=574$; part-time 32.8%, $n=599$; and casual 28.9%, $n=529$) and were usually able to manage on available income (42.1%, $n=768$). The women more commonly had private health insurance (72.0%, $n=1,316$) but were only slightly more likely to give birth in a public hospital (48.7%, $n=882$ vs. 46.9%, $n=850$ for private hospitals).

The use of CAM in pregnancy was found to be widespread with 48.1% (n=623) of women consulting a CAM practitioner for a pregnancy-related health complaint. Table 7.1 shows that 48% (n=493) of respondents who used CAM were influenced by their own personal experience of using CAM in the past and 43% (n=423) by family and friends when making decisions about CAM use during gestation. Other popular sources of information on CAM use by women were general practitioners (27%, n=263), the media (television, radio, books, magazines, newspapers) (22%, n=220), obstetricians (21%, n=208) and midwives (19%, n=190). The Internet (11%, n= 113) and pharmacists (7%, n= 70) were less popular information sources for CAM amongst the women surveyed.

Table 7.1: Influential information sources for pregnant women regarding CAM use

Information source	Percentage of women influenced by the information source
Personal experience	48% (n=493)
Family and Friends	43% (n=423)
General practitioner	27% (n=263)
Media	22% (n=220)
Obstetrician	21% (n=208)
Midwives	19% (n=190)
Internet	11% (n=113)
Pharmacist	7% (n=70)
Other	2% (n=31)

Bivariate analyses showed (Table 7.2) that women were influenced by a variety of information sources when deciding to visit a CAM practitioner. Personal experience and friends and family were a positive influence about CAM use for women when deciding to visit a CAM practitioner for the treatment of back pain, sciatica, hip/pelvic pain, headaches/migraines, preparation for labour and nausea (all $p < 0.05$). Women, suffering from sciatica and headaches/migraines were positively influenced by their general practitioner when deciding to consult a CAM practitioner. However the women were not influenced by their general practitioner's opinion in relation to CAM use during pregnancy if they suffered from sleeping problems (all $p < 0.05$). Women found their obstetrician positively influential if they suffered from back pain, sciatica, hip/pelvic pain and headaches (all $p < 0.05$).

Table 7.2: The association between influential information sources and CAM practitioner consultations for pregnancy-related symptoms

		Back pain (65%; n=229)		Sciatica (57%; n=269)		Hip/pelvic pain (54%; n=249)		Headaches/ migraines (32%; n=110)		Preparation for labour (24%; n=129)		Sleeping problems (15%; n=45)		Nausea (11%; n=72)	
		Yes (n=)	No (n=)	Yes (n=)	No (n=)	Yes (n=)	No (n=)	Yes (n=)	No (n=)	Yes (n=)	No (n=)	Yes (n=)	No (n=)	Yes (n=)	No (n=)
Personal experience ^A BCDEFG	Yes	n=144	n=70	n=151	n=60	n=158	n=81	n=151	n=84	n=201	n=92	n=243	n=95	n=190	n=88
	No	n=208	n=282	n=201	n=289	n=194	n=271	n=201	n=268	n=151	n=260	n=109	n=257	n=165	n=264
Friends/ family ABCDEFG	Yes	n=109	n=63	n=123	n=67	n=116	n=70	n=137	n=81	n=176	n=99	n=155	n=102	n=215	n=84
	No	n=243	n=289	n=229	n=285	n=236	n=282	n=215	n=271	n=176	n=253	n=197	n=250	n=137	n=268
General practitioner ^C DF	Yes	n=63	n=53	n=74	n=46	n=70	n=63	n=95	n=56	n=49	n=63	n=25	n=67	n=42	n=60
	No	n=289	n=299	n=278	n=306	n=282	n=289	n=257	n=296	n=303	289	n=327	n=285	n=310	n=292
Obstetrician ABCDE	Yes	n=56	n=35	n=60	n=32	n=63	n=32	n=70	n=39	n=53	n=49	n=25	n=63	n=42	n=46
	No	n=296	n=317	n=292	n=320	n=289	n=320	n=282	n=313	n=299	n=197	n=327	n=289	n=310	n=306
Media ^{ABCE}	Yes	n=53	n=32	n=60	n=35	n=70	n=42	53 n=	n=49	n=102	n=56	n=56	n=60	n=60	n=49
	No	n=299	n=320	n=292	n=317	n=282	n=310	n=299	n=303	n=250	n=296	n=299	n=292	n=292	n=303

Midwife ^{CD}	Yes	n=46	n=35	n=46	n=28	n=63	n=32	n=70	n=39	n=84	n=60	n=63	n=56	n=63	n=42
	No	n=306	n=317	n=306	n=324	n=289	n=320	n=282	n=313	n=268	n=292	n=289	n=296	n=189	n=310
Internet ^{CEG}	Yes	n=28	n=18	n=25	n=32	n=42	n=21	n=32	n=18	n=74	n=25	n=39	n=25	n=53	n=21
	No	n=324	n=334	n=327	n=320	n=310	n=331	n=320	n=334	n=278	n=327	n=313	n=327	n=299	n=331
Pharmacist ^{A D}	Yes	n=21	n=11	n=25	n=11	n=21	n=14	n=28	n=7	n=7	n=18	n=25	n=25	n=14	n=14
	No	n=331	n=341	n=327	n=341	n=331	n=338	n=324	n=345	n=345	n=334	n=327	n=327	n=338	n=338

^A statistically significant association with back pain ($p < 0.05$)

^B statistically significant association with sciatica ($p < 0.05$)

^C statistically significant association with hip/ pelvic pain ($p < 0.05$)

^D statistically significant association with headaches/migraines ($p < 0.05$)

^E statistically significant association with preparation for labour ($p < 0.05$)

^F statistically significant association with sleep ($p < 0.05$)

^G statistically significant association with nausea ($p < 0.05$)

Various sources of information on the use of CAM were found to be influential for specific pregnancy-related complaints via multiple logistic regression modelling, as presented in Table 7.3. Women with back pain (OR=2.52; 95% CI: 1.80, 3.53; $p<0.001$) and/or sciatica (OR=3.21; 95% CI: 2.06, 5.00; $p<0.001$) were found to be positively influenced by their own personal experience with CAM use and friends and family (back pain OR=1.77; 95% CI: 1.24, 2.53; $p=0.002$; sciatica OR=2.00; 95% CI: 1.27, 3.14; $p=0.003$) when deciding to consult a CAM practitioner. Women with hip or pelvic pain were positively influenced by both their personal experience (OR=2.70; 95% CI: 1.79, 4.07; $p<0.001$) and their obstetrician (OR=2.13; 95% CI: 1.20, 3.80; $p=0.010$), when making decisions about using CAM during pregnancy.

Table 7.3: Logistic regression analyses demonstrating statistically significant information sources utilised by pregnant women for the use of CAM

	Back pain (65%; n=229)	Sciatica (57%; n=269)	Hip/pelvic pain (54%; n=249)	Headaches/ migraines (32%; n=110)	Preparation for labour (24%; n=129)	Sleeping problems (15%; n=45)	Nausea (11%; n=72)
Personal experience	OR 2.52 (95% CI: 1.80, 3.53) p<0.001	OR 3.21 (95% CI: 2.06, 5.00) p<0.001	OR 2.70 (95% CI: 1.79, 4.07) p<0.001	OR 2.32 (95% CI: 1.42, 3.80) p=0.001	OR 3.65 (95% CI: 2.36, 5.63) p<0.001	OR 6.97 (95% CI: 3.44, 14.09) p<0.001	OR 2.86 (95% CI: 1.68, 4.85) p<0.001
Friends/ Family	OR 1.77 (95% CI: 1.24, 2.53) p=0.002	OR 2.00 (95% CI: 1.27, 3.14) p<0.003			OR 1.86 (95% CI: 1.19, 2.91) p=0.006		OR 4.59 (95% CI: 2.69, 7.85) p<0.001
General Practitioner						OR 0.20 (95% CI: 0.06, 0.70) p=0.012	OR 0.39 (95% CI: 0.18, 0.85) p=0.017
Obstetrician			OR 2.13 (95% CI: 1.20, 3.80) p=0.010	OR 1.93 (95% CI: 1.02, 3.67) p= 0.043			
Internet					OR 3.21 (95% CI: 1.70, 6.04) p<0.001		
Pharmacist				OR 5.52 (95% CI: 1.62, 18.85) p=0.006			

Women with headaches were positively influenced by their own personal experience of CAM (OR=2.32; 95% CI: 1.42, 3.80; $p=0.001$) and by their obstetrician (OR=1.93; 95% CI: 1.02, 3.67; $p=0.043$) and pharmacist (OR=5.52; 95% CI: 1.62, 18.85; $p=0.006$) in relation to CAM use during pregnancy. Women were positively influenced by personal experience (OR=3.65; 95% CI: 2.36, 5.63; $p<0.001$), friends and family (OR=1.86; 95% CI: 1.19, 2.91; $p=0.006$), and the Internet (OR=3.21; 95% CI: 1.70, 6.04; $p<0.001$) when consulting a CAM practitioner to preparing for labour. When suffering from sleeping difficulties (OR=6.97; 95% CI: 3.44, 14.09; $p<0.001$) and nausea (OR=2.86; 95% CI: 1.68, 4.85; $p<0.001$) women were more likely to be influenced by their own personal experience of CAM and less influenced by advice from their general practitioner (sleeping problems OR=0.20; 95% CI: 0.06, 0.70; $p=0.012$; nausea OR 0.39; 95% CI: 0.18, 0.85; $p=0.017$) when deciding to visit a CAM practitioner. Women suffering from nausea were also likely to be positively influenced by advice from family and friends (OR=4.59; 95% CI: 2.69, 7.85; $p<0.001$) when deciding to visit a CAM practitioner.

7.5 Discussion

This is the first analysis of a large, nationally representative sample of pregnant women to investigate the information sources women identify as influential in their decision to visit a CAM practitioner for pregnancy-related health conditions. Our findings show that CAM practitioners are consulted by a majority of the women surveyed during pregnancy. Women appear to be influenced more by non-professional sources of

information such as personal experience, and friends and family, than by professional sources such as obstetricians, general practitioners and midwives when deciding to visit a CAM practitioner.

Nearly half of the women surveyed who visited a CAM practitioner were influenced by their own personal experience of CAM and 43% by family and friends, in line with results from previous research (Adams et al., 2009b; Cagayan & Oras, 2010; Forster et al., 2006; Hepner et al., 2002; Hollyer et al., 2002; Holst, Wright, Haavik, & Nordeng, 2009b; Holst, Wright, Nordeng, & Haavik, 2009c; Lapi et al., 2010; Maats & Crowther, 2002; Nordeng & Havnen, 2004; Pettigrew et al., 2004; Westfall, 2003). When making decisions about consulting a CAM practitioner women were significantly influenced by their own experience of CAM if they were seeking help for back pain, sciatica, hip/pelvic pain, headaches/migraines, sleeping problems, nausea and to prepare for labour. Additionally, women's decisions regarding CAM practitioners were also significantly influenced by advice from friends and family if they were seeking help for back pain, sciatica, nausea or to prepare for labour. Whilst it is not surprising that women are influenced to try treatments that have provided positive results for themselves or someone they trust in the past, it is noteworthy that women were not significantly influenced by professional maternity health care providers when deciding to consult a CAM practitioner during pregnancy.

Professional maternity care providers such as obstetricians, general practitioners and midwives appear to be under-utilised as a potential information source about the use of CAM during pregnancy, which appears to be consistent with

previous research in this area (Forster et al., 2006; Hollyer et al., 2002; Holst, Wright, Haavik, & Nordeng, 2009b). Studies from the United Kingdom, Canada and Australia have reported that less than 10% of women seek their physician's advice when making decisions about CAM use during pregnancy (Forster et al., 2006; Hollyer et al., 2002; Holst, Wright, Haavik, & Nordeng, 2009b). Conversely two European studies found that slightly more women consulted their physician for advice on CAM. An Italian study found that 33% of women consulted their gynaecologist and 20% their midwife (Lapi et al., 2010) about CAM use whilst a Norwegian study reported 59% of women sought advice from their doctor regarding using herbal medicines (Nordeng & Havnen, 2004). Most work previously has only looked at CAM product use in this regard and there would appear to be a need for further research exploring CAM practitioner use in these terms. Our research shows that some pregnant women are influenced by information from obstetricians (21%) in their decision-making regarding consulting CAM practitioners. However, our study found a significant correlation between women who are influenced by information from their obstetrician regarding CAM use, with only women seeking help for hip/pelvic pain and headaches. In general, women were not influenced by their obstetrician's advice any more than by any other maternity health professional, friend or family member, in relation to consulting a CAM practitioner for pregnancy-related health concerns. We also found that women were less likely to be influenced by advice they received from their general practitioner about CAM practitioner use if they suffered from sleeping problems or nausea. Possible concerns about a doctor's lack of knowledge or distain for CAM may underpin women's lack of

confidence in the guidance given to them about consulting with a CAM practitioner (Holst, Wright, Nordeng, & Haavik, 2009c).

Midwives were not found to be significantly influential in their advice about CAM use for women with any of the pregnancy-related health conditions. A recent paper reviewing the attitudes and referral practices of midwives with regard to CAM found that the majority of respondents reported practicing, recommending or referring pregnant women for CAM treatments or products (Adams, Sibbritt, Broom, Loxton, et al., 2011c). In light of this it is perhaps surprising that midwives were not considered to be a more influential source of information on CAM use and further research should explore the disparity between the perceptions and understandings of midwives and pregnant women regarding the role of the midwife in CAM use during pregnancy.

The notion that women may not be influenced by maternity health care professionals as sources of information on CAM use during pregnancy and instead favour personal experience and information from family and friends requires follow-up research to clarify women's opinions and behaviours around information searching when pregnant. The issue of pregnant women favouring such non-professional information sources in their CAM use decision-making is an issue of pertinence to those practicing and managing conventional maternity care as well as policy-makers interested in pregnancy and services for pregnant women. The safety implications of such information seeking behaviours are further amplified when considered within the context of a vacuum of clinical evidence evaluating CAM use during pregnancy (Adams et al., 2009b).

Our study has some limitations that need to be considered when interpreting the findings. We relied on self-reported data and women's recall of information from their most recent pregnancy, thus potentially introducing bias. However, this limitation is countered by the opportunity to examine a large nationally representative sample of pregnant women to investigate the use of CAM during gestation. Additionally, due to the small sample size for two of the pregnancy-related health concerns (headaches/migraines and sleeping problems), the logistic regression model produced estimates of odds ratio with wide confidence intervals therefore caution needs to be used when interpreting the findings for these two health concerns.

7.6 Conclusion

Overall, women appear to be largely influenced by non-professional sources of information when deciding to visit a CAM practitioner for a pregnancy-related health issue. Whilst it is acknowledged that informal information sharing is an ancient and exceedingly common way for women to pass on information about health and pregnancy, maternity health care professionals need to have a non-judgmental and open discussion with women about their CAM use during pregnancy in order to ensure safe maternal outcomes.

7.7 Chapter summary

Women utilise a wide variety of information sources to inform their decisions regarding CAM use during pregnancy. Non-professional sources of information were found to be

particularly influential and maternity health care professionals need to have a non-judgmental and open discussion with women about their CAM use during pregnancy in order to ensure safe and effective maternal outcomes. Further to this many women were guided by prior knowledge in relation to consultations with CAM practitioners. This somewhat aligns with the results found in Chapter 5, which reported that women were more likely to visit a CAM practitioner during pregnancy if they had utilised this service previously, prior to pregnancy. These findings require more explanation and detailed research is required to explore whether this also extends to CAM products.

These findings also highlight the need to determine the extent to which women rely on past experience as an information source, and prescribe these products for themselves during pregnancy.

8. Women's use and self-prescription of herbal medicine during pregnancy: An examination of 1,835 pregnant women

The results contained within this chapter have been published as follows:

Jane Frawley, David Sibbritt, Alex Broom, Cindy Gallois, Amie Steel, Jon Adams (under review). Women's Use and Self-Prescription of Herbal Medicine during Pregnancy: An Examination of 1,835 Pregnant Women. *Women's Health Issues* (doi: 10.1016/j.whi.2015.03.001 Epub ahead of print)

8.1 Introduction

8.1.1 Variable categorisation and rationale for this analysis within the broader research project

The findings presented in this thesis have demonstrated that many women are utilising complementary medicine during pregnancy, of which 52% are using CAM products (Frawley et al., 2013). Due to the distinct lack of evidence for the efficacy and safety of CAM products during pregnancy it is perhaps not surprising that many commentators have raised questions and concerns about this use, especially in relation to safety (Chuang et al., 2006; Nordeng & Havnen, 2004; Posadzki et al., 2013a). Whilst there is a lack of evidence pertaining to the safety of herbal medicine use during pregnancy it is important to remember that ethical considerations make it very difficult to study these

supplements in gestation. Additionally, many safety concerns are highly theoretical and are based on concerns about particular constituents (as opposed to the whole herb). The safety concerns may also be based on *in vivo* data, or the biological plausibility that a constituent or herb may affect pregnant women in a certain way; however randomised controlled trials to investigate this cannot be carried out.

Herbal medicine is undoubtedly one of the most common CAM products used during pregnancy; however, it is also one of the most questioned in terms of safety concerns (Chuang et al., 2006; Nordeng et al., 2011; Posadzki et al., 2013a; Posadzki, Watson, & Ernst, 2013b). Accordingly, this chapter investigates women's use of herbal medicine during gestation, and further to this, explores the extent to which this use is self-prescribed by women themselves. Recent research points to high levels of herbal medicine utilisation during pregnancy (Kennedy et al., 2013) and it is important to understand the drivers and nuances of this use in order to ensure safe antenatal care for women.

The analyses presented in this chapter were undertaken to answer Research Question 6 of this thesis. All analyses for this chapter were drawn from the pregnancy sub-survey. Question 10 that asked women to indicate which CAM products they used during pregnancy for a pregnancy-related health condition determined women's use of herbal medicine. The data was recoded to represent a binary variable whereby use of herbal medicine was categorised as 'yes' or 'no' as the identity of the prescribing practitioner was not important for this analysis. Variables relating to pregnancy-related health concerns were gathered from Question 22. The data from this question formed

a binary variable to represent either women who did use herbal medicine for a pregnancy health complaint or women who did not. Demographic factors that were associated with both the use and the self-prescription of herbal medicine were informed from Questions 77, 79, 81, 82, 83 and 84. Question 77, 79, 83 and 84 were recoded as described in Chapter 4.

8.2 Background

High levels of complementary and alternative medicine (CAM) are being utilised by Australian women (Adams et al., 2012; Adams, Easthope, & Sibbritt, 2003a), with recent research highlighting substantial use during pregnancy (Adams, Lui, Sibbritt, Broom, et al., 2011a; Frawley et al., 2013; Hope-Allan et al., 2004). Herbal medicine use appears to be particularly popular, with the majority of studies reporting a prevalence of between 18% and 36% of women use these products during pregnancy (Bercaw et al., 2010; Bishop et al., 2011a; Forster et al., 2006; Frawley et al., 2013). Women appear to be attracted to herbal medicine due to a desire to use natural substances, coupled with the perception that these medicines are safe, which is considered particularly important to many women during pregnancy (Holst, Wright, Nordeng, & Haavik, 2009c; Low Dog, 2009). However, many herbal products have not been adequately tested for their safety, particularly during gestation (Low Dog, 2009; Nordeng & Havnen, 2004). Various forms of risk relating to the use of herbal medicine in pregnancy have been described in the literature such as malformations to the unborn baby due to teratogenicity (Dugoua, 2010) miscarriage or pre-term delivery

due to effects on uterine activity (Dugoua, 2010) possible adverse outcomes from drug interactions with conventional medication (Louik et al., 2010) and the concern that the herbal medicine may not adequately resolve a complaint which in itself may have adverse maternal or infant outcomes (Nordeng & Havnen, 2004).

Women who use herbal medicine during pregnancy may do so following advice from a healthcare professional, or they may self-prescribe herbal medicine use. Research shows that many women self-prescribe herbal medicine during pregnancy (Forster et al., 2006; Nordeng & Havnen, 2004), often in the belief that they are innocuous (Holst, Wright, Nordeng, & Haavik, 2009c). Further, Forster et al (2006) revealed that the proportion of self-prescription varies depending on the particular herbal medicine used, with this 2006 Australian-based study showing 71% of women self-prescribing chamomile, 63% cranberry, 59% echinacea, 50% garlic, 42% ginger, 33% slippery elm and 22% raspberry leaf. Whilst some herbal medicine may be harmless for consumption during pregnancy, some are not safe, and most remain untested for use during gestation (Nordeng & Havnen, 2004). Additionally, issues relating to interactions with other medications and the quality of the herbal extract are unlikely to be competently evaluated by an untrained person (Nordeng & Havnen, 2004). Rates of disclosure to health professionals regarding herbal medicine use during pregnancy also appear to be low (Harrigan, 2011; Holst, Wright, Haavik, & Nordeng, 2009b; Warriner et al., 2014), with Holst et al finding that 76% of women did not disclose such use to their doctor or midwife (Holst, Wright, Haavik, & Nordeng, 2009b). Given that many women are using herbal medicine during pregnancy without seeking professional advice or disclosing this use to maternity health care professionals, it is

pertinent to explore and understand the characteristics of this use in order to deliver safe, coordinated maternity care.

Previous research has investigated the use of CAM as a whole during pregnancy (Adams, Lui, Sibbritt, Broom, et al., 2011a; Frawley et al., 2013) and the use of CAM practitioners during pregnancy (Steel et al., 2012), but to date there has been no large scale study investigating the use of herbal medicine for pregnancy-related health conditions and the self-prescription of herbal products. In response, the objectives of this study are to determine the prevalence and determinants of herbal medicine use and self-prescription, drawing from a large, nationally representative sample of pregnant women.

8.3 Methodology

8.3.1 Sample

The study sample was obtained via the Australian Longitudinal Study on Women's Health (ALSWH). The ALSWH is a longitudinal study of women in three age groups ('young' 18-23, 'mid age' 45-50 and 'older' 70-75 years) who were randomly selected from the national Medicare database in 1996 to investigate multiple factors affecting health and well-being of women over time. The present study is based on a sub-study survey of 1,835 women from the 'young' cohort, administered in 2010. Participants in the sub-study were those women identified as pregnant or had recently given birth in the 2009 ALSWH Survey 5 (n=2,445). Ethics approval for the sub-study reported here was gained from the relevant Human Research Ethics Committees at the University of Newcastle, University of Queensland and the University of Technology Sydney.

8.3.2 The Use and self-prescription of herbal medicine during pregnancy

Women were asked about their use of herbal medicine for pregnancy-related health complaints. Women were also asked whether they themselves self-prescribed the herbal medicine, or if a health professional prescribed the herbal medicine use for them.

8.3.3 Demographic measures

Postcode of residence was used to classify residence as urban or non-urban. Women were also asked about their employment status at the time they gave birth to their youngest child and the highest level of educational qualification they had completed.

8.3.4 Pregnancy-related health concerns and information sources on CAM

Women were asked questions about their pregnancy-related health concerns, including back pain and other musculoskeletal complaints, vomiting, constipation, headaches and migraines, sleeping problems, anxiety, depression, urinary tract infections, varicosities, fatigue, pre-eclampsia, anaemia and gestational diabetes. Women who self-prescribed herbal products for pregnancy-related health complaints were also asked to indicate which information sources (i.e. friends and family, media, general practitioner, obstetrician, midwife, alternative health practitioner) they found influential in their decisions about CAM use during pregnancy.

8.3.5 Statistical analysis

The associations between the characteristics (i.e. the demographic and pregnancy-related health concerns variables) of women and the use of prescribed herbal medicine and/or self-prescribed herbal medicine during their most recent pregnancy were

assessed using a chi-square test. To identify the most pertinent factors associated with the use of herbal medicine, all the demographic and symptom variables listed above were entered into a model, and then a stepwise backward elimination process was employed, using a likelihood ratio test, to eventually produce the most parsimonious model. This process was then repeated to determine the characteristics (i.e. the demographic, medical history and information sources variables) of women who choose to self-prescribe herbal medicine. Statistical significance was set at $p < 0.05$. All analyses were conducted using statistical program STATA 11.2.

8.4 Results

A total of 1,835 women responded to the sub-study survey and were included in the analysis (79.2% response rate).

8.4.1 Women's use of herbal medicine during pregnancy

Overall, 34.4% (588/1,835) of Australian women used herbal medicine during their most recent pregnancy. As seen in Table 8.1 and 8.2, the use of herbal medicine was associated with a higher level of education, full-time employment and living in an urban environment (all $p < 0.05$). In terms of pregnancy-related health conditions, the use of herbal medicine was associated with having anxiety, back pain, sleeping problems, preparing for labour, constipation, varicose veins, fatigue and anaemia (all $p < 0.05$).

Table 8.1: The association between women's use of herbal medicine in pregnancy and demographic characteristics

Demographic Characteristics	Herbal medicine use		
	Yes	No	<i>p</i> -value
	(n=588)	(n=1,119)	
Education	%	%	
High school	9	19	0.001
Trade diploma	24	24	
University	67	57	
Work			
Full-time	35	30	0.020
Part-time	31	34	
Casual	9	6	
Not working	25	30	
Area of residence			
Urban	69	59	0.001
Rural	29	37	
remote	2	4	

Table 8.2: The association between women’s use of herbal medicine during pregnancy and pregnancy-related health conditions

Condition		Herbal medicine use			Herbal medicine self-prescription		
		Yes (n=588) %	No (n=1,119) %	p-value	Yes (n=458) %	No (n=130) %	p-value
Depression	Yes	12	9	0.127	11	14	0.397
	No	88	91		89	86	
Anxiety	Yes	32	24	<0.001	32	35	0.525
	No	67	76		68	65	
Sciatica	Yes	23	22	0.557	24	20	0.363
	No	77	78		76	80	
Back pain	Yes	44	38	0.012	44	43	0.801
	No	56	62		56	57	
Headaches/migraines	Yes	18	15	0.158	17	22	0.238
	No	82	85		83	78	
Repeated vomiting	Yes	11	11	0.884	11	11	0.852
	No	89	89		89	89	
Nausea	Yes	33	33	0.885	34	36	0.468
	No	67	67		66	64	
Sleeping problems	Yes	21	13	<0.001	20	23	0.493
	No	79	87		80	77	
Preparation for labour	Yes	33	17		31	40	0.043

	No	67	83	<0.001	69	60	
Constipation	Yes	21	15		20	22	0.759
	No	79	85	0.005	80	78	
Urinary tract infection	Yes	5	5		5	5	0.787
	No	95	95	0.884	95	95	
Varicose veins	Yes	11	8		13	5	0.019
	No	89	92	0.046	87	95	
Reflux/heartburn	Yes	38	31		37	43	0.185
	No	62	66	0.083	63	57	
Fatigue	Yes	43	33		44	40	0.456
	No	57	67	<0.001	56	60	
Pre-eclampsia	Yes	3	3		2	6	0.020
	No	97	97	0.785	98	94	
Anaemia	Yes	6	6		9	8	0.803
	No	94	94	0.036	91	92	
Gestational diabetes	Yes	11	8		4	4	0.795
	No	89	92	0.316	96	96	

Women had certain health concerns were more likely to use herbal medicine (Table 8.3), namely anxiety (OR=1.30; 95% C.I 1.02-1.64; p=0.031), sleeping problems (OR=1.55; 95% C.I 1.15-2.11; p=0.005), fatigue (OR=1.32; 95% C.I 1.04-1.68; p=0.025) and if they were preparing for labour (OR=2.18; 95% C.I 1.71, 1.79; p<0.001). They were also more likely to use herbal medicine if they had a trade diploma (OR=2.02; 95% C.I 1.39, 2.93; p<0.001) or university education (OR=2.20; 95% C.I 1.57, 3.08; p<0.001) and less likely if they lived in a rural area of residence (OR=0.74, 95% C.I 0.59, 0.93; p=0.008) or suffered from nausea (OR=0.71; 95% C.I 0.56, 0.91; p=0.007)

Table 8.3: Factors associated with women’s use of herbal medicine during pregnancy

Factors	Use of herbal medicine		
	Odds Ratio (Adjusted)	95% C.I.	p-value
Education			
High school	1.00	-	-
Trade diploma	2.02	1.39, 2.93	<0.001
University	2.20	1.57, 3.08	<0.001
Area of residence			
Urban	1.00	-	-
Rural	0.74	0.59, 0.93	0.010
Remote	0.62	0.32, 1.20	0.157
Anxiety			
No	1.00	-	-
Yes	1.30	1.02, 1.64	0.031
Sleeping problems			
No	1.00	-	-
Yes	1.55	1.15, 2.11	0.005
Preparing for labor			
No	1.00	-	-
Yes	2.18	1.71, 1.79	<0.001
Nausea			
No	1.00	-	-
Yes	0.71	0.56, 0.91	0.007
Fatigue			
No	1.00	-	-
Yes	1.32	1.04, 1.68	0.025

Table 8.4: The association between women’s self-prescription of herbal medicine in pregnancy with demographic characteristics and influential information sources

Demographic Characteristics		Self-prescribed herbal medicine		
		Yes (n=458)	No (n=130)	p-value
Education		%	%	0.814
	High school	9	8	
	Trade diploma	25	22	
	University	66	69	
Work				0.388
	Full time	30	32	
	Part time	13	12	
	Casual No	43 14	47 9	
Residence				0.007
	Urban	66	78	
	Rural	32	18	
	Remote	2	4	
Influential information sources				
Friends and family				0.008
	Yes	46	33	
	No	54	67	
Media				0.040
	Yes	23	15	
	No	77	85	
Own personal experience				0.306
	Yes	42	37	
	No	58	63	
General practitioner				0.356
	Yes	17	86	
	No	83	14	
Obstetrician				0.034
	Yes	15	8	
	No	85	92	
Midwife				<0.001
	Yes	15	31	
	No	85	69	
Alternative health practitioner				<0.001
	Yes	12	31	
	No	88	69	

8.4.2 Women's self-prescription of herbal medicine during pregnancy

Of the women who used herbal medicine during pregnancy 77.9% (n=458/588) chose to self-prescribe these products. Table 8.4 shows that the self-prescription of herbal medicine by women was associated living in a non-urban environment (all $p < 0.05$). Women who self-prescribed herbal medicine in pregnancy were also found to be influenced by family and friends, media and their obstetrician, and less likely to be influenced by a midwife and alternative health practitioner (all $p < 0.05$) (Table 8.4). The increased self-prescription of herbal medicine was associated with women who reported suffering from varicose veins, while lower rates of self-prescription were significantly associated with pre-eclampsia and in the preparation for labour (all < 0.05) (Table 8.4).

Women who self-prescribed herbal medicine during pregnancy were more likely to suffer from varicose veins (OR=2.46; 95% C.I 1.04, 5.84; $p=0.041$) and less likely to suffer from pre-eclampsia (OR=0.23; 95% C.I 0.81, 0.63; $p=0.005$) (see Table 8.5). Women who self-prescribed herbal medicine during pregnancy were also more likely to live in a rural environment (OR=2.22; 95% C.I 1.32, 3.73; $p=0.003$) and be influenced by information from family and friends (OR=2.12, 95% C.I 0.35, 3.34; $p=0.001$) and less likely to be influenced by information from a midwife (OR=0.37; 95% C.I 0.22, 0.60 $p < 0.001$) or alternative health practitioner (OR=0.32; 95% C.I 0.19, 0.52; $p < 0.001$).

Table 8.5: Factors associated with women’s self-prescription of herbal medicine during pregnancy

Factors	Herbal medicine			
	Odds Ratio (Adjusted)	95% C.I.	<i>p</i> -value	
Area of residence	Urban	1.00	-	-
	Rural	2.22	1.32, 3.73	0.003
	Remote	0.49	0.14, 1.65	0.247
Influenced by information from friends and family	No	1.00	-	-
	Yes	2.12	0.35, 3.34	0.001
Influenced by information from midwife	No	1.00	-	-
	Yes	0.37	0.22, 0.60	<0.001
Influenced by information from an alternative health practitioner	No	1.00	-	-
	Yes	0.32	0.19, 0.52	<0.001
Varicose veins	No	1.00	-	-
	Yes	2.46	1.04, 5.84	0.041
Pre-eclampsia	No	1.00	-	-
	Yes	0.23	0.81, 0.63	0.005

8.5 Discussion

This study reports the findings from the first nationally representative study examining women’s use and self-prescription of herbal medicine for pregnancy-related health concerns and our analysis highlights a number of important findings.

8.5.1 Prevalence, predictors and characteristics of herbal medicine use during pregnancy

Research has reported a wide-ranging prevalence of herbal medicine use during pregnancy. Whilst the proportion of women who use herbal medicine during pregnancy varies across different cultures and geographical areas (Dugoua, 2010), a recent study examined women's use of herbal medicine across 23 countries and reported that prevalence ranged from 4.3% to 69% (Kennedy et al., 2013). It is difficult to accurately summarise these prevalence of herbal medicine use during pregnancy as many studies have drawn upon small and/or non-representative samples, however our study is in line with most previous findings showing that that over one third of Australian women are using herbal medicine during pregnancy. Only a small minority of women surveyed in our study were from a non-Western or indigenous background, which may have impacted on our prevalence rate finding. Notwithstanding, this amount of use is substantial and some authors have raised questions about the safe and effective utilisation of herbal medicine during pregnancy (Low Dog, 2009; Nordeng & Havnen, 2004). It is possible that women are using herbs such as ginger for nausea and vomiting (Viljoen, Visser, Koen, & Musekiwa, 2014), that have been found to be safe during pregnancy; further research is required to explore which herbal medicines women are choosing to use during pregnancy.

Women with a tertiary qualification are more likely than those women without a tertiary qualification to use herbal medicine during pregnancy in our study. This is consistent with previous CAM consumption research that demonstrates a higher prevalence of use with higher levels of education, both in the general community

(Frass et al., 2012) and during pregnancy (Adams et al., 2009b). Additionally, Forster et al (2006) found that a higher level of education was also associated with the use of herbal medicine in pregnancy. Women in our study who live in a rural area are also significantly less likely to use herbal medicine during pregnancy when compared to their urban counterparts; however, recent research shows that CAM use is high in rural populations more generally (beyond pregnancy) (Meurk, Broom, Adams, & Sibbritt, 2013; Wardle, Lui, & Adams, 2012a). Additionally, Adams et al (2013) reported no difference between the rates of consultation with a naturopath/herbalist for women residing in an urban compared to non-urban environment. If the majority of women using herbal medicine during pregnancy are self-prescribing these products, as suggested by our results, the lower prevalence of use in non-urban areas may be due to decreased availability, with fewer retail outlets offering herbal medicine in the rural community. Further in-depth investigation is needed to explore geographical variations and their relationship to herbal medicine use during pregnancy.

Twenty-six percent of women in our study reported experiencing anxiety during their most recent pregnancy (data not shown). This incidence is substantial, as antenatal anxiety is adversely associated with length of gestation, foetal neurodevelopment, child outcomes and postnatal depression (Dunkel, Schetter & Tanner, 2012; Skouteris, Wertheim, Rallis, Milgrom, & Paxton, 2009). Our results suggest that pregnant women in Australia are more likely to use herbal medicine if they suffer from anxiety. This raises questions about the safety of using untested herbal medicine during pregnancy. It is possible, however, that women are using herbal medicine for which some safety information exists, such as St. John's wort or

chamomile (Moretti, Maxson, Hanna, & Koren 2009; Moussally & Bérard, 2011). Some authors have voiced concern about the use of St. John's wort during pregnancy (Deligiannidis & Freeman, 2014), however an observational study has shown no differences in major malformations, live birth and prematurity rates between women who used St. John's wort, women who used a conventional treatment for depression, and healthy women who did not use any medication (Moretti, Maxson, Hanna, & Koren 2009). Whilst not yet unequivocal, (larger clinical studies are required), this previous work goes some way towards providing early clinical evidence of foetal safety with regards to St. John's wort.

Of further concern is the possibility that anxiety may be inadequately controlled in some women during pregnancy. If women are using alternative treatments for anxiety that are either not effective or not as effective as conventional treatment, they could face these serious maternal and child health issues. Meanwhile, it is well acknowledged that reduced adherence to medication during pregnancy is common (Matsui, 2012), and the decision to take medication during pregnancy may be particularly complex in the case of psychotropic drugs due to social pressure (Stepanuk, Fisher, Wittmann-Price, Posmontier, & Bhattacharya, 2013). Research suggests that pregnant women are concerned about the effects of medication on their unborn baby (Stepanuk et al., 2013) and may choose to try an alternative that they consider to be safer (Holst, Wright, Nordeng, & Haavik, 2009c). This may, at least partly, explain why the women in our study that suffered from anxiety were more likely to use herbal medicine during pregnancy as compared to those without anxiety.

Our results also show increased use of herbal medicine associated with sleep difficulties in pregnant women, which may in turn, be interweaved with antenatal anxiety (Skouteris et al., 2009). Our data does not indicate which herbs women are using to improve their sleep, however previous studies have reported that chamomile is one of the most popular herbs taken by women during pregnancy to aid relaxation and sleep (Forster et al., 2006; Holst, Wright, Haavik, & Nordeng, 2009b; Kennedy et al., 2013; Maats & Crowther, 2002; Nordeng & Havnen, 2004). Chamomile is generally considered to be safe during pregnancy and although this has not been scientifically established (Braun & Cohen, 2010), a recent case-control analysis of 8,505 women found no evidence of low birth weight for women who used chamomile, alone or in combination, during their last two trimesters (Moussally & Bérard, 2011). Studies have also reported that women are taking valerian, mother wort, lemon balm, and lavender during pregnancy to improve relaxation and sleep (Forster et al., 2006; Holst, Wright, Haavik, & Nordeng, 2009b; Kennedy et al., 2013); the safety of using these treatments during gestation has not been established (Braun & Cohen, 2010).

Fatigue is a common consequence of pregnancy with multifactorial causes including stress, anxiety, immunological changes and sleep difficulties (Cheng & Pickler, 2014; Gaston & Prapavessis, 2013). The results of our study show an increased use of herbal medicine by women with fatigue. Nordeng and Havnen (2004) found that a small number of women were taking ginseng, a herb commonly promoted to increase energy, during pregnancy. However, the safety of ginseng has not been established for use during pregnancy, and it is considered potentially harmful during this time (Nordeng & Havnen, 2004). More research is needed to quantify which herbal

medicine women are using to counteract fatigue during pregnancy, which may again be interwoven with anxiety and sleep difficulties.

More research is needed to tease out the intricacies of herbal medicine use for nausea during pregnancy, as our study found that even though 33% of women using herbal medicine suffered from nausea, women with this condition were less likely to use herbal medicine. This is a surprising result given that previous research has identified ginger as the most popular herbal medicine used during pregnancy, most commonly for the treatment of nausea (Forster et al., 2006; Holst, Wright, Haavik, & Nordeng, 2009b; Kennedy et al., 2013).

8.5.2 The self-prescription of herbal medicine during pregnancy

A small number of studies have examined the self-prescribed use of herbal medicine during pregnancy, reporting prevalence rates of between 23 and 54 percent (Hepner et al., 2002; Holst, Wright, Haavik, & Nordeng, 2009b; Nordeng & Havnen, 2004). Meanwhile, one study found that up to 71% of the 588 women who used herbal medicine during pregnancy were self-prescribing them (Forster et al., 2006). Self-prescription was most common for chamomile (71%), cranberry (63%), echinacea (59%) and ginger (42%). However, it is difficult to give a useful and accurate prevalence rate of self-prescription for the aim of comparison across these previous studies, due to their samples being small and lacking national-representativeness. Meanwhile, our study - drawing upon a large, nationally representative sample of pregnant women - found that most women using herbal medicine during pregnancy were self-prescribing (77.9%). Women are more likely to self-prescribe herbal medicine during pregnancy if

they suffered from varicose veins, and less likely if they had developed pre-eclampsia. Whilst we are unable, from our study data, to determine which herbal medicine women are self-prescribing for the treatment of varicose veins, one possible reason for such increased likelihood of self-prescription may be that common conventional treatments such as ablation, vein stripping and endovascular sclerotherapy are not routinely undertaken during pregnancy due to unknown risks (Nussbaum & Benedetto, 2006). In the absence of these treatments, other conventional approaches to preventing and/or minimising varicose veins include leg elevation or wearing elastic compression stockings (Nussbaum & Benedetto, 2006), and women may be self-prescribing herbal medicine in the hope of further reducing varicosities alongside these other treatments. Some herbal medicines used for varicose veins, may be safe during pregnancy. A small clinical trial evaluating the effects of French maritime pine for various types of pain during the third trimester, including varicose veins, found the treatment was safe to use during this trimester (Kohama, & Inque, 2006). Additionally, women may be using a cream that contains a herbal medicine such as horse chestnut. Whilst the safety of horse chestnut during pregnancy has not been demonstrated (Bamigboye & Smyth, 2007), it is possible that the transdermal utilisation may be safer.

Pre-eclampsia is a life threatening condition that remains a prominent cause of maternal and infant morbidity and mortality (Stegers, Dadelszen, Duvekot, & Pijnenborg, 2010). Mild cases are monitored closely if the gestation period is not sufficient for foetal survival although in all circumstances where the disease becomes severe timely delivery is paramount (Stegers et al., 2010). Our results found that women with pre-eclampsia were less likely to self-prescribe herbal medicine. One

reason for this may be that their medical practitioner closely monitors them. Furthermore, due to the severity of their disorder women may be very compliant with the advice from their primary maternity healthcare provider and less willing to take unknown risks (Jordan & Murphy, 2009) such as self-prescribing herbal medicine. In addition to the finding that women were less likely to use herbal medicine during pregnancy if they lived in a rural location, we found that rural women's consumption of herbal products were highly likely to be through self-prescription. Similarly, a study from the US found that non-urban pregnant women were commonly self-prescribing herbal medicine during pregnancy (Glover, Rybeck, & Tracy, 2004). A study of non-pregnant rural women found instances of drug interactions with non-prescribed herbal medicine (Glover et al., 2004). However, the extent to which such drug interactions are occurring in pregnant women is unknown and requires further investigation.

Women are influenced by friends and family when self-prescribing herbal medicine during pregnancy. Previous research shows that, despite substantial pockets of support for CAM amongst maternity care providers (Adams, Lui, Sibbritt, Broom, et al., 2011a), there is a low level of involvement of maternity health care professionals in women's decisions regarding the use of herbal medicine during pregnancy (Hall et al., 2011) coupled with limited knowledge of exactly what women are taking due to low rates of disclosure (Harrigan, 2011). Further to this, the use of friends and family as a primary information source when making decisions about the use of herbal medicine during pregnancy is an issue of concern. Many studies have found the use of non-professional sources of information regarding herbal medicine during pregnancy is substantial (Hall et al., 2011; Hepner et al., 2002; Nordeng & Havnen, 2004; Pettigrew

et al., 2004), with one study reporting that women's self-prescription of herbal medicine is guided by prior knowledge of herb use (32%), trusted sources of advice including friends and family (56%) and intuition (12%) (Westfall, 2003). Similarly, analysis of our large, nationally representative sample of pregnant women identifies those women who self-prescribe herbal medicine during pregnancy as influenced by friends and family in their decision-making regarding herbal medicine use. Further inquiry is required to understand why women are choosing to use non-professional sources over professional sources of information in their decision-making regarding herbal medicine use especially given the possible safety implications raised by this type of information seeking behaviour.

It is acknowledged that these results may not be generalizable to all pregnant women as women give birth across a much wider age range than that represented in our cohort (33-38 years), with the average age being 30 years in Australia (AIHW, 2011). Notwithstanding, the relevance of this is unknown, as recent research has failed to find any significant difference in CAM utilization between pregnant women aged less than 35 years as compared to those aged over 35 years (Hall & Jolly, 2013). Another limitation of our study is that it relies on self-reported information from women in relation to their most recent pregnancy, and as such, may suffer from recall bias due to the amount of elapsed time. A third limitation is that our study did not explore exactly which herbal medicine women were using during pregnancy, and further, did not gather information on dose. This is an interesting issue that requires further investigation in order to gauge the extent to which safety concerns exist. Nevertheless, these design limitations are countered by the opportunity to conduct the first

investigation of a large, nationally representative sample of pregnant women, to examine the predictors and characteristics of women who choose to use and self-prescribe herbal medicine during pregnancy.

8.6 Conclusion

Whilst many CAM are innocuous, the substantial level of self-prescription of herbal medicine amongst pregnant women is undoubtedly problematic due to, in many cases, the dearth of safety information for herbal medicine use in pregnancy and the poor information sources used to inform self-prescribing. Self-prescription and use of herbal medicine by pregnant women is an area that requires empirical investigation and maternity health care professionals should be cognisant of the importance of asking pregnant women specific questions relating to their use of herbal medicine in order to ensure the quality and safety of care provided.

8.7 Chapter summary

Many women are consuming herbal medicine during pregnancy. The self-prescription of herbal medicine by pregnant women is of particular concern due to potential safety issues for the mother and baby. It is important that maternity healthcare providers have an open and non-judgmental conversation with women about herbal medicine use during pregnancy and that women are encouraged to disclose the use of these

products. Chapter 7 demonstrated that women are primarily influenced by unprofessional sources of information when making decisions about CAM practitioner consultations during pregnancy and other research in this emerging field suggests that this extends to products as well, including herbal medicine (Holst, Wright, Haavik, & Nordeng, 2009b; Kennedy et al., 2013).

Further research is needed to evaluate the safety of common herbal medicines that are used by women during pregnancy in order to provide clear guidelines in relation to this use for both maternity care professionals and women themselves. Additionally, this chapter raises the question of why women are self-prescribing these products and not consulting a naturopath or herbalist to verify safety. Chapter 6 provides some insights to this as women who utilised herbal medicine products during pregnancy were more likely to agree that CAM is a better preventative measure than conventional medicine, CAM promotes a holistic approach to health and evidence of effectiveness is important to my choice of CAM. This does not answer the immediate question though of why pregnant women, who are generally very cautious about medication use during pregnancy, are willing to self-prescribe herbal medicine products without checking with a professional that they are safe for consumption at this time.

9. Discussion

9.1 Chapter introduction

Many discussion points have already been highlighted and deliberated in the published manuscripts that form the results' chapters of this thesis. The purpose of this section, therefore, is to examine the overall themes of this work in the broader context of modern maternity care in Australia. Additionally, this chapter explores the significance of the findings to the three primary stakeholder groups – pregnant women, health care professionals and policy makers, and outlines potential future directions for CAM-related research.

This body of work is innovative, and as such, contains important insights for contemporary maternity care in Australia. The data were collected from a nationally-representative cohort of Australian women who were pregnant or had recently given birth. This is the only study that has utilised a nationally representative sample of pregnant women to investigate CAM use during pregnancy; it is important to highlight these findings in the context of providing safe maternity care.

9.2 Primary findings from the study

There are three broad overarching and intertwined themes that emerge from this body of work. First, contemporary maternity care in Australia is pluralistic; second, women who use CAM during pregnancy have different attitudes to health care than non CAM users and these attitudes are influenced by a variety of information sources; and third, CAM is not a homogenous group of healthcare modalities, and some of these therapies

may be seen as mainstream by pregnant women. These three themes are discussed in turn below.

9.2.1 Contemporary Australian maternity care is pluralistic

Use of CAM is widespread (Xue et al., 2007) and this thesis demonstrates that this popularity extends to pregnancy. Further to this, many women are choosing to use CAM products and services alongside conventional maternity services (Steel et al., 2013). Findings presented in this thesis show that women are more likely to consult a CAM practitioner if they suffer from back and/or neck pain. Women experiencing fatigue are more likely to use CAM, whilst women who use herbal medicine during pregnancy are more likely to have certain health concerns namely anxiety, sleeping problems and fatigue. Women also commonly use CAM products and practices whilst not pregnant (Adams, Easthope, & Sibbritt, 2003a); however, CAM use during pregnancy needs to be closely considered in the context of safety, perhaps more urgently than non-pregnant CAM utilisation.

To further highlight the pluralistic nature of maternity care in Australia, many women are accessing supplementary birth services during the antenatal period, in preparation for the perinatal period. Examples include alternative birthing classes such as HypnoBirthing® (Phillips-Moore, 2005), Calmbirth® (Newman, 2005), Lamaze classes (Bailey, Crane, & Nugent, 2008), doula services (Steel, Frawley, Adams, & Diezel, 2014c; Steel, Frawley, Sibbritt, & Adams, 2013) and numerous other natural birth options (Bailey et al., 2008). All of these services are part of the maternity care landscape in Australia, and many women incorporate these classes with their standard obstetric

care, and CAM use, to suit their individual ideology and health care needs. It has been proposed that women attend these classes in order to feel more prepared for any eventuality during birth and thus more in control. Further to this, studies have shown that women who take personal responsibility to prepare for any birth experience, feel more confident and less anxious (Howarth, Swain, & Treharne, 2011).

Research indicates that many women desire the least intrusive medical solution for health complaints during pregnancy (Holst, Wright, Nordeng, & Haavik, 2009c; Warriner et al., 2014). Women want medicine that is safe, side-effect free, and natural (Westfall, 2003; Holst et al., 2009; Warriner et al. 2014). Additionally, research demonstrates that women who use CAM during pregnancy believe it is safer and more natural when compared to conventional pharmaceutical medications (Westfall, 2003). There are, however, direct and indirect risks associated with the use of CAM products and services during gestation that need to be considered. Direct risk includes risk from the medications themselves, including both medicines that are teratogens, causing birth defects, and medicines that are abortifacient, which may increase the likelihood of miscarriage. There is also concern in some countries about access to adulterated or contaminated complementary medicines (Koh & Woo, 2000; Navarro & Seeff, 2013; Sawalha, 2007). Indirect risk includes risk associated with poor diagnosis and ineffectual, delayed or incorrect treatment. These risks are of serious concern as delayed and/or unsuccessful treatment of a common pregnancy health concern may escalate the health problem, and in some cases, could affect the health of the baby (Sibbritt et al., 2014).

In sharp contrast to the past, women in contemporary society are more likely to make decisions, related to their own health, themselves (Passmore, 2008). Unbridled access to multiple sources of information regarding health, including the Internet, make it very easy for women to navigate various health care options and determine their own health care needs. This extends to pregnancy, where women have access to an enormous amount of information regarding pregnancy health care and birthing. In present-day society, an increasing number of women feel confident to search for information themselves and many may feel entitled to make informed decisions about their own health care needs (Passmore, 2008; Epstein, 2010). Prior to the mid-twentieth century, women may have been more likely to conform to the dominant medical wisdom of the day and follow the guidance of their GP or specialist unflinchingly (Epstein, 2010). Women may have been less inclined to question science, including medical science and medical professionals, believing that they had no grounds to do so (Epstein, 2010). Further to this, modern ideas about health acknowledge that the determinants of health and illness are highly individual, constructed through a kaleidoscope of physical, social, cultural and economic factors (Brown, Bannigan, & Gill, 2009). Whilst in the past, the care that women received during the antenatal period was relatively standardised, and thus similar for most women, modern maternity care offers a suite of options for both contemporary care and more unconventional care (Passmore, 2008). Women choose their preferred model of maternity care based on medical need, location, ideology and personal preference, and in addition, many women are choosing various CAM therapies and products to enhance and complement maternity care. There are undoubtedly a variety of reasons for this but it does not

appear to be due to dissatisfaction with conventional medical care (Gaffney & Smith, 2004a).

Many women believe it is optimal to increase general health and wellbeing during pregnancy, and this conviction may be encouraging women to pursue CAM products and services (Holst, Wright, Nordeng, & Haavik, 2009c; Low Dog, 2009; Warriner et al., 2014). It may also be that women feel the health of the baby can be influenced by the increased “wellness” or “wellbeing” of the mother. Wellness embodies the belief that healthy people can further improve their health in order to achieve greater health benefits and reduce their chance of poor health outcomes (Corchia & Mastroiacovo, 2013; Alexander, 2012). In the modern Western world context of high-quality health care and low rates of maternal and infant morbidity and mortality, the notion of wellness may have become even more significant for women as they do not need to worry about more serious maternal and/or infant outcomes (Epstein, 2010). Further to this, many midwives focus on promoting wellness during pregnancy in an attempt to deflect from an emphasis on fear and decrease antenatal anxiety (Browne, O’Brian, Taylor, Bowman & Davis, 2014).

Women associated self-management techniques, specifically taking control, and working towards a desired outcome (life satisfaction, increased energy, peace, happiness), with the notion of wellbeing in a recent study (McMahon, O’Shea, Tapsell, & Williams, 2014). This concept of wellbeing and the desire to be as healthy as possible during pregnancy to provide your child with the best start in life, may underpin the use of self-management techniques such as CAM for some women.

The wish to increase health and wellbeing is associated with CAM use in general (Adams et al., 2012; Adams, Easthope, & Sibbritt, 2003a) with a review highlighting that CAM users are more likely to hold post-modern views and value non-toxic, holistic approaches to health (Bishop et al., 2007). Recent studies demonstrate that these beliefs extend to women who use CAM during pregnancy (Holst, Wright, Nordeng, & Haavik, 2009c; Low Dog, 2009; Warriner et al., 2014). Warriner et al (2013) explains this phenomenon as such: “the notion of well-being encapsulates a demand for being recognised as an active, empowered and knowledgeable agent on the part of those using alternative and complementary medicines. Certainly for [pregnant] women interviewed in this study, CAM provided a way of investing in their bodies, not just to prevent ill health but as a way of fulfilling and optimising potential.”

Commentators have also raised the recently overt construct of the “good mother” (McDonald, Amir, & Davey, 2011), which in contemporary society is intertwined with the concept of “intense mothering” — the notion that women must mother their children intensively in order to be considered a “good mother” (Johnston & Swanson, 2006; Marshall, Godfrey, & Renfrew, 2007). This incorporates the belief that women have an explicit responsibility to do everything possible to produce “perfect offspring” (McDonald et al., 2011). In the modern context of promoting self-responsibility for health and wellbeing, this idea has gained momentum, and many women aspire to have a perfect pregnancy (including the avoidance of any risk such as medicines and environmental toxins) in order to attain a perfect child (McDonald et al., 2011). The conviction of some women that CAM products are safer than orthodox medications during pregnancy may be one reason CAM is commonly utilised during

this time (Holst, Wright, Nordeng, & Haavik, 2009c; Nordeng & Havnen, 2004; Warriner et al., 2014).

9.2.2 Women who use CAM during pregnancy have distinctive attitudes to health care and are influenced by a variety of different information sources

This thesis has highlighted the important point that women who use CAM during pregnancy have different attitudes to health care than women who do not use CAM. Understanding the attitudes of women who utilise CAM during pregnancy is crucial to identifying the underpinning reasons behind CAM use.

A systematic review of 94 studies published between 1995 and 2005 on health care beliefs of adult CAM users found that certain attitudes and beliefs were consistent across many studies, namely: control and participation; illness perceptions; holism and natural treatments, and philosophical beliefs (spirituality) (Bishop et al., 2007). Whilst some studies found a relationship between internal loci of control - the belief that an individual possesses control over their own health - most did not. However, the review demonstrated a relationship between CAM use and patients who expressed a desire to participate actively in their medical treatment. Additionally, this may be even more evident in the case of a serious medical condition where the patient feels that most of the medical decisions are being made on their behalf, and are perhaps, out of their control. The majority of studies reporting on control and participation in this review were conducted in cohorts of patients with chronic health conditions such as cancer, HIV, multiple sclerosis, inflammatory bowel disease and depression. The use of CAM

was seen as part of the patient's self-management of the condition, an active coping strategy and a way of gaining a sense of control (Bishop et al., 2007).

This notion of control appears to be central to many discussions about CAM utilisation, including gestational use. Pregnant women who utilised CAM products were significantly more likely to agree with the statement "CAM gives me more control over my health/body" (Chapter 6). Further, the significance of the relationship between desire for control and use of individual CAM products was tested and found to correlate positively with the use of herbal medicine, aromatherapy and homeopathy during pregnancy. Similar results were found in a recent qualitative study that detailed women's attitudes and beliefs about CAM use during pregnancy (Warriner et al., 2014). Women described an inter-related desire for control and choice in health care decisions during pregnancy. Some women described a perception of unequal footing when dealing with maternity professionals and felt more comfortable participating in treatment decisions with CAM professionals. One woman stated that her normal feeling of control and order disappeared with pregnancy, whilst another woman described the feeling of disassociating herself from her body and "handing it over" to medical professionals, accepting any treatment recommended (Warriner et al., 2014). Other women described a contrasting sense of autonomy in relation to using CAM during pregnancy. It is relatively well established that many women have feelings of vulnerability and uncertainty when pregnant (Mitchell, 2010), possibly due to the unknown nature of labour and birth coupled with the desire for the best possible outcome. Mitchell (2010) argues that women's use of CAM may be underpinned by a need for active participation and autonomy in decision-making during pregnancy as a

result of the “risk society.” Mitchell (2010) further explains that the three interrelated discourses - globalisation, scepticism about expert authority and knowledge, and the reduced ability to determine our own life choices due to the demise of traditional society - have resulted in the dominance of anxiety and uncertainty. These aspects may be partly why some women feel tentative and vulnerable during pregnancy, emotions that may be more pronounced in primiparous women (Warriner et al., 2014). Further research is needed to explore these phenomena and elucidate why some women who use CAM during pregnancy may be experiencing a feeling of loss of control.

Women who used CAM for pregnancy-related health complaints were more likely, than women who did not use CAM, to agree with the statement “CAM promotes a holistic approach to health.” The notion of holism is a relatively modern construct, which emphasises the treatment of the entire body in contrast to the treatment of symptoms only (Bishop et al., 2007). Proponents of this philosophy believe that many different illnesses and symptoms are inter-related, often preferring to treat the whole person (body, mind and soul) (Bishop et al., 2007). Research has shown that the notion of holism, and the desire for natural treatments in a holistic context, is associated with CAM utilisation in both pregnant (Gaffney & Smith, 2004a) and non-pregnant cohorts (Bishop et al., 2007). The holistic nature of many CAM treatments might be even more attractive during pregnancy – a time when women typically desire the safest and most natural medical interventions (Holst et al., 2009; Warriner et al., 2014; Westfall, 2003). Whilst most CAM products are natural, this is often overlaid with the notion that therefore, they are safe (Holst et al., 2009; Lapi et al., 2010; Westfall, 2003). Many CAM products are very safe; however, others are not, and whilst women desire a holistic

approach to health care during pregnancy, the unknown safety of many CAM products and practices needs to be considered.

Personal experience of the effectiveness of CAM was more important than clinical evidence for women who used aromatherapy and homeopathy during pregnancy (Chapter 6). Own experience was also a primary source of information for women making decisions about CAM use during pregnancy. When women were deciding which CAM practitioner(s) to consult almost half of all the women in this study (48%) said that their personal experience of CAM was influential in their decision. Further to this, 43% of women also said they were influenced by friends and family when making decisions relating to CAM use during pregnancy. Professional sources of information, including GPs, obstetricians and midwives were not largely influential. Research has demonstrated that many women are concerned about a medical professional's knowledge of CAM treatments and products (Gaffney & Smith, 2004a). Gaffney and Smith (2004a) found that women believe the two systems of medicine (complementary and conventional) are juxtaposed and therefore, a GP or obstetrician would not be able to adequately answer their questions about CAM or refer them to an appropriate CAM practitioner. It is well recognised that many women exchange information about health, pregnancy, childbirth and child rearing and this is a very common way of sharing advice, wisdom and knowledge (Holst, Wright, Nordeng, & Haavik, 2009c). In many cases this is probably safe and innocuous. Nevertheless the concern that an untrained person may pass on incorrect information or that a woman may delay adequate treatment or diagnosis to try a natural alternative first, is more pertinent during pregnancy. It is normal and reasonable for women to share

information in this way and for pregnant women to engage actively in their health care decisions; however, it is generally advisable for women to discuss their use of CAM with a trained health professional.

Research has shown that media sources, and the Internet are also utilised by pregnant women when looking for guidance on self-medication (Holst, Wright, Haavik, & Nordeng, 2009b; Nordeng & Havnen, 2004; Pettigrew et al., 2004; Westfall, 2003). This is a concern due to the unregulated nature of Internet reporting and the superficial nature of often financially motivated media commentary. Internet reporting is frequently inaccurate and commonly erroneous (Hart & Dey, 2009) which could be potentially dangerous if it results in women taking unsafe products during pregnancy. Similarly, other popular media such as newspapers and magazines often portray CAM superficially as always safe; the last hope when confronted with a serious health condition and popular with celebrities (Dunne & Phillips, 2010; Weeks & Strudsholm, 2008). Perhaps surprisingly, this thesis shows that when deciding to see a CAM practitioner, the Internet only influenced 11% of women. This is conceivably unanticipated in the context of Internet popularity and the ascendancy of social media. However, it may be possible that women are finding information online but possibly not identifying it as a trustworthy resource. It may also be possible that women are more cautious about health information related to pregnancy that they find on the Internet in contrast to general health information. Additionally, women indicated that they do not utilise CAM practitioners for information about CAM use during pregnancy (Chapter 7). Whilst this appears to be counterintuitive, it seems to be relatively consistent with published research from around the world (Kennedy et al., 2013;

Hollyer et al., 2002; Holst et al., 2009c; Lapi et al., 2008; Westfall, 2003). Women in this study value information they receive from a friend or family member, that is, someone they have a relationship with and trust. Advice from another source may be impersonal; however, a recommendation from a family member or friend who has tried the treatment and has a positive anecdote to relay may be a more influential recommendation.

Many women do not disclose their use of CAM to their conventional maternity care practitioners (Hall & Jolly, 2014); further compounding apprehension about unprofessional sources of advice that may inform these decisions. This adds another layer of unease, as women may be accessing inappropriate treatments and not communicating these health care decisions. Research has shown that the primary reasons women do not disclose their use of CAM to their doctors, and conventional health care staff are threefold; fear of ridicule (Holst, Wright, Haavik, & Nordeng, 2009b), belief that medical professionals are not knowledgeable about CAM (Gaffney & Smith, 2004a), and because they have not been asked (Hall & Jolly, 2014). An open and nonjudgmental conversation with women about CAM use is paramount to ensuring safe maternity care for women and healthy birth outcomes for babies.

9.2.3 CAM is not a homogenous group and some CAM therapies may be seen as mainstream by pregnant women

To date, most of the previous research conducted to examine CAM use during pregnancy has regarded CAM as a uniform group. Apart from some work examining herbal medicine use, the majority of research investigating predictors and

determinants of utilisation, and attitudes and information sources used to enlighten these treatment decisions, has investigated CAM as a group combining all modalities and/or products together. Some researchers have investigated only CAM practitioners, and some only CAM products, but within these parameters, all modalities have been examined conjointly as a single entity. CAM is an umbrella term and as discussed in the introduction of this thesis (Chapter 1), there are many different definitions, together with many distinct ideas, of which therapies and products are incorporated into this overarching term. Recently, commentators stated that CAM was not a homogenous group (Adams et al., 2012); instead, it is a heterogeneous collection of products and practitioner groups that are exceptionally diverse.

Moreover, differences of opinion occur as to whether some practices and modalities for example, exercise, prayer, dietary changes and relaxation, fall under the CAM umbrella (Bishop et al., 2011a; Eardley et al., 2012). In the context of safety, the difference between exploring the use of prayer or exercise for a health condition, and investigating biological substances that are ingested such as herbal medicine, or a treatment such as acupuncture or osteopathy is immense.

Another aspect worth considering is related to medical professionals and/or pregnant women who may not view certain products, once considered CAM, to be CAM anymore. This may happen when a treatment, formerly considered outside the scope of conventional health care, is incorporated into mainstream medicine because of evidence of efficacy for a particular condition. An example of this is the prenatal and early pregnancy use of folate to reduce the likelihood of spina bifida (Wilson et al., 2003; Wilson et al., 2007). This may also be true for diet and lifestyle interventions,

many of which are now supported by scientific evidence, for example, weight management to assist in the treatment of gestational diabetes (Morisset et al., 2010; Blumer et al. 2013).

Research has shown that some CAM products and services are efficacious (Adams et al., 2012), possibly leading a number of women to view them as viable treatment options during pregnancy. CAM intervention studies that have reported positive results frequently receive reasonable media representation but often with an overall lack of scientific critique and methodological understanding (Lewis, Orrock, & Myers 2010). This distorted media attention may lead women to view CAM as safe and effective. Women may also be more likely to think that conventional medical practitioners accept these products, or that research showing some degree of efficacy means they are now considered more mainstream.

Furthermore, some maternity care professionals do accept and/or incorporate a certain amount of CAM into their practice. A recent review of 13 studies conducted between 2000 and 2009 found that the recommendation and use of CAM by midwives was widespread (Hall, McKenna, & Griffiths, 2012b). Between 65% and 100% of midwives were estimated to support the use of CAM by pregnant women and a further 78% – 96% were estimated to refer clients to CAM practitioners. The use of CAM was commonly recommended for labour induction and augmentation, along with conditions such as perineal discomfort, mal-presentation, nausea and vomiting, back pain and anaemia. The most common treatments recommended by midwives were massage, herbal medicine, relaxation techniques, nutritional supplements, aromatherapy, homeopathy and acupuncture. Additionally, Australian research found

that over 90% of midwives and obstetricians felt they should have some knowledge about CAM whilst 78% of midwives and 68% of obstetricians had referred a client to a CAM practitioner (Gaffney & Smith 2004b). This acceptance of CAM by maternity care professionals may further lead women to consider CAM safe and more generally accepted in the contemporary healthcare system. This may in turn enable women to feel safe about navigating many of these services themselves, as well as, self-prescribing CAM products.

The research presented in this thesis shows very clearly that different CAM products and modalities need to be investigated separately. Women who use certain CAM products during pregnancy have different attitudes to health care than women who do not, as demonstrated in this thesis. Additionally, due to the increasing popularisation of CAM together with skewed media reporting and the incorporation of some products into conventional models of healthcare, women may be beginning to view CAM as mainstream. In the modern context of abundant health care choice, it is important to examine further these nuances and explore predictors and usage patterns for commonly used CAM products and frequently visited CAM practitioners during pregnancy.

9.3 Implications for pregnant women

The primary message for pregnant women to arise from this body of work pertains to safety. Many women desire a natural approach to health care during pregnancy believing this to be more gentle and appropriate. Most women are careful about food

and drink choices during pregnancy, as well as exposure to everyday chemicals in convenience food, plastics and the environment, as they are cautious about adversely affecting the pregnancy or baby (Barrett et al., 2014). This is understandable, especially in the context of a risk society where all perceived risks are reduced or avoided where possible to improve maternal outcomes (Mitchell, 2010). There is also an enormous amount of information available, from various sources, advocating the benefits of optimising health during pregnancy (Department of Health, nd).

Research has shown some women believe natural implies safe and that CAM treatments and products have very few, if any, side effects (Bercaw et al., 2010). Conversely, other research has found women are aware natural does not always mean safe but believe natural medicines are still safer than conventional medications (Westfall, 2003). Whilst many women may be conscious of some safety issues in relation to CAM use, other potential consequences such as delayed or ineffectual treatment may not be considered. Additionally, some studies have found that women are aware that natural is not always safe but still utilise CAM without discussing it with a health professional, relying on family and friends to inform these decisions (Holst et al., 2009b; Nordeng et al., 2004; Hall & Jolly, 2013; Forster, 2006).

It is recommended that women exercise more discretion in relation to the information sources they utilise and trust when making decisions about CAM use during pregnancy. Whilst informal information sharing between women is common, decisions about health care and medicine utilisation are important, and it would be advantageous for women to become more selective and discriminating about the advice that they seek and receive during pregnancy. It is also important for women to

consider health and medical information in this context when they are passing information on to other women. The suitability of a treatment for any health condition is complex and highly individual. It is strongly advised that women consult a health care professional in relation to these decisions.

Research has demonstrated that many women do not disclose their use of CAM to their medical practitioner during pregnancy (Harrigan, 2011). Along with being more discerning about information sources, it would be beneficial to safe maternal outcomes if women discussed their CAM use with maternity health professionals. Women are concerned about encountering judgmental attitudes from medical professionals (Holst, Wright, Haavik, & Nordeng, 2009b); however, research has shown that, whilst some obstetricians and general practitioners have negative opinions of CAM, many do not (Dayhew et al., 2009; Furlow et al., 2008). Moreover, research has established that many midwives have positive views regarding CAM use during pregnancy and commonly refer clients to CAM practitioners (Hall, McKenna, & Griffiths, & 2012b; Gaffney & Smith 2004b). Whilst women are entitled to make their own health care decisions, it is important to safe maternity care that women discuss these decisions with their health care providers. This highlights the importance for women to engage health care professionals whose opinions, ideology and style of consulting align with their needs and ideals.

9.4 Implications for maternity care providers

The primary message for maternity care providers is most women use CAM during pregnancy, and it is important to be aware of the details and nuances of this use. Some

women use a very limited amount of CAM during pregnancy, for example, massage for back pain, and may fully disclose this to a maternity health professional. Of greater concern, is the use and self-prescription of products such as herbal medicine, or the use of multiple CAM therapies, often in combination, and sometimes in place of conventional medicines without informing a medical professional. Additionally, women are influenced by a variety of information sources when making decisions about CAM use during pregnancy and many of these sources are informal, such as friends and family, media and the Internet. The majority of women in this study were influenced by their own experience of CAM when making treatment decisions during pregnancy. Women may not be cognisant of an added layer of concern related to the safety of these products and services during pregnancy. Whilst women are aware that many medications are considered harmful during pregnancy and are generally careful about what medications they use during this time (Nordeng & Koren 2010), not all women believe that CAM products are drugs, and many view them as natural and therefore, safe (Bercaw et al., 2010; Lapi et al., 2008; Westfall, 2003).

Of the total cohort surveyed in the ALSWH sub-study, only 27% of women were influenced by their GP when making decisions about CAM practitioner use. An obstetrician influenced a further 21%, a midwife 19% and a pharmacist 7%. The reason few women are influenced by medical professionals in relation to CAM use is unclear from this study; however, other research has highlighted women's concerns about their doctor's poor knowledge of CAM and the negative attitudes of some conventional health practitioners towards CAM (Gaffney & Smith 2004a; Holst, Wright, Haavik, & Nordeng, 2009b). Interestingly, the ALSWH sub-study also asked women if CAM

practitioners were influential information sources on CAM use during pregnancy and found that few women were utilising this source either. The reasons for this are unclear; nevertheless, it is important that CAM practitioners are aware of this nuance and initiate conversations with women planning pregnancy to ensure safe use of CAM during gestation.

Whilst some research shows that many general practitioners, obstetricians, midwives and pharmacists have positive views concerning CAM use (Gaffney & Smith 2004b), further research shows that most women do not disclose their use of CAM during pregnancy to these health care professionals (Harrigan, 2011). This highlights the need to ask women about their CAM use during routine antenatal visits. A recent study investigating pregnant women's disclosure of CAM use found that the primary reason women do not disclose is because they are not asked (Hall & Jolly, 2014). Although the reasons for this require more research and elucidation, it may be possible that doctors, obstetricians and midwives are reluctant to ask women about their gestational CAM use due to a lack of understanding of these treatments and uncertainty about how to advise women. Medical professionals need to become a more influential source of information on CAM use and may need to gain increased understanding of this area. One study found that women were reluctant to disclose their use of herbal medicine during pregnancy to their physician due to concern they may be ignorant of their use or for fear of offending the doctor (Low Dog, 2009).

Findings reported in this thesis show that women perceive that general practitioners, obstetricians and midwives should advise women in their care about commonly used CAM. This is a reasonable expectation, however the CAM field is very

diverse and gaining additional insight into these products and practices may create an added burden for health professionals with demanding work schedules (van den Hombergh et al., 2009). The incorporation of information about commonly used CAM modalities and products into undergraduate medical, nursing and midwifery training would be ideal in the interests of women's care and safety. In the meantime, one possible avenue may be for conventional maternity care practitioners to attend workshops and seminars on CAM in order to gain an insight into common treatments.

Whilst many CAM products and practices have not been incorporated into mainstream medical care, this thesis demonstrates that many are considered commonplace by women and are used frequently during pregnancy (i.e. massage, acupuncture, vitamins and minerals and herbal medicine). As most women are already using CAM products and services during pregnancy it is crucial for medical practitioners to understand, not only the drivers of this utilisation, but also, the products and services women are using. Women may be more likely to disclose their use of CAM during pregnancy if they felt conventional practitioners had a better understanding of commonly used CAM.

In the light of high self-prescription of CAM during pregnancy and poor sources used to inform this use, as identified in this thesis, it is important that medical practitioners have an open and non-judgmental conversation with women about their CAM use. It is essential for women to feel that their conventional medical practitioner does not dismiss the health care decisions they make for themselves involving CAM because they are outside of the realm of biomedicine. Women have a desire to maintain control over decisions related to holistic health care and wellbeing during

pregnancy (Warriner et al., 2014). If safety concerns arise in relation to CAM use, these need to be communicated in a clear and non-disparaging way by the maternity care professional. Open communication between women and their conventional maternity health care providers is an important factor in encouraging and building a relationship of trust.

It may be difficult for medical professionals to acknowledge CAM as valuable due to the relative lack of research. An evidence base for many treatments is building (Sibbritt, 2014); however, information relating to the efficacy and safety of many CAM products and services is deficient, especially in relation to pregnancy. In light of this, it is even more important that maternity care professionals discuss CAM use with women in their care during antenatal visits. This thesis has demonstrated that women self-prescribe CAM products for pregnancy-related health conditions; if the CAM treatment is ineffective in relieving symptoms, women may be more likely to seek further help from a medical professional if a relationship of trust has been built.

The body of work presented in this thesis has clearly determined factors that predict CAM use during pregnancy, whereby assisting maternity care professionals to identify women who are more likely to use CAM at this time. Women who visit CAM practitioners during pregnancy are more likely to have a higher level of education and be employed full-time, part-time or casually. They are more likely to suffer from certain pregnancy-related health complaints such as back pain or backache, and neck pain and are wishing to prepare for labour. They are also more likely to have visited a CAM practitioner prior to pregnancy. Women who use CAM products during pregnancy are more likely to suffer from tiredness and fatigue than women who do not and many

want to prepare for labour. They are also more likely to have a university education and use aromatherapy and homeopathy if they agreed with the statements “CAM gives me more control over my health and body” and “my experience of effectiveness of CAM is more important than clinical evidence” than those that did not agree. Women were more likely to use herbal medicine if they agreed with the statement “CAM is a better preventative measure than CM’ and ‘CAM promotes a holistic approach to health” and “evidence of effectiveness is important to my choice of CAM.” These findings provide a useful insight for medical professionals into the type of women who may choose to use CAM during pregnancy.

9.5 Implications for policy makers

This body of work has implications for a range of policy makers in Australia.

9.5.1 Implications for maternity care policy makers

As outlined above, large numbers of women are using CAM during pregnancy; many without disclosing this use to maternity care professionals. Research has demonstrated that discouragement of CAM use by medical care providers does very little to attenuate CAM use and further contributes to poorer rates of disclosure (Robinson & McGrail, 2004). Other research, including that presented in this thesis, has shown that women value choice and are strong in their conviction that CAM is useful for many common symptoms of pregnancy (Holst, Wright, Nordeng, & Haavik, 2009c; Steel, Adams, Sibbritt, Broom, Gallois, et al., 2014b; Warriner et al., 2014). Pregnant women could potentially be at risk if their medical providers are not aware of all the medications and products they are using. In view of this, it is important that hospital and private

maternity care policy guidelines incorporate the recommendation to ask women about their use of CAM practitioners and products during pregnancy. In the context of CAM use during a future pregnancy, it would be advantageous for this recommendation to include the suggestion that GPs, obstetricians and midwives have a general conversation about CAM use with women planning pregnancy to discuss the safe utilisation of these products and services along with the need to disclose this use to their maternity health providers.

9.5.2 Regulation of the CAM field and minimum standard of practice

This thesis demonstrates that a considerable number of women are using CAM during pregnancy. CAM is a largely unregulated profession in Australia with no clearly defined boundaries and differing education standards. With few disciplines currently registered (osteopaths, chiropractors and traditional Chinese medical practitioners) with the Australian Health Practitioner Regulation Agency (AHPRA), people without suitable qualifications are able to advertise the provision of many CAM services, leading to much public confusion (Wardle, 2010). This problem is considerable given the amount of CAM services utilised by more vulnerable clientele such as pregnant women. Whilst there are a number of undergraduate degree courses available for some of the more common CAM modalities such as naturopathy, nutrition, and herbal medicine, these qualifications are not required to work as a naturopath, nutritionist or Western herbalist in Australia. Further to this, most CAM professions are, to some degree, self-regulated by professional associations and many problems exist with this model due to differing education and professional standards (Wardle, 2010; Wardle, Steel, & Adams 2012b). The use of vague terms like 'complementary therapist' or 'natural therapist' by

some practitioners adds another layer of confusion for the general public, as it is hard to decipher the practitioners' scope of practice.

It is possible that individuals, including pregnant women, believe all CAM practitioners have undergone formal training in order to practice in their discipline, but this is not the case. Statutory registration of the primary CAM disciplines is necessary to standardise educational and practice standards. This is a critical safety issue; one that is particularly highlighted in pregnant women.

9.6 Future directions in research

Many areas for future research attention have emerged from this body of work; broadly falling into two categories: health services research and clinical research. Both are dealt with in turn below.

9.6.1 Health services research

As discussed in the introduction to this work, there is an immense value in utilising a health services research approach, including epidemiological and sociological perspectives, to understand important aspects of CAM utilisation during pregnancy. It is crucial, given the high use of CAM during gestation, that a better understanding of CAM modalities and practices in relation to the care of pregnant women is gleaned through workforce surveys. To date, there has been a small amount of research describing the CAM workforce in Australia (Leach, McIntyre & Frawley, 2014; Bensoussan & Myers, 1996; Bensoussan, Myers, Wu, & O'Connor, 2004), however, research examining the CAM workforce's approach to maternity care is lacking. There is

a need to explore all CAM modalities that pregnant women commonly access, as shown in this thesis, to more fully understand the care these health professionals provide pregnant women. This research need has been partly identified by the finding in this thesis that 48.1% of women consult a CAM practitioner during pregnancy. Due to the heterogeneity of this workforce, it is necessary to investigate the different approaches taken to maternity care by all the main modalities, including naturopathy, Western herbal medicine, traditional Chinese medicine, homeopathy, osteopathy and chiropractic care.

Another area for future research exploration is an investigation of the ways in which CAM practitioners refer clients who need further care during pregnancy. Women were more likely to visit a massage therapist during pregnancy, as evidenced by this thesis, if they consulted with a massage therapist, chiropractor or acupuncturist prior to pregnancy. This highlights questions about how CAM practitioners make decisions in relation to referring clients to other CAM therapists and medical professionals. This research is needed in both a maternity and non-maternity context; however, it is vital to understand the nuances of inter-practitioner recommendations for pregnant women to further elucidate this aspect of women's decision making in relation to maternity health care. Whilst some integrated medical clinics exist wherein conventional medical practitioners and CAM practitioners consult from the same clinic, many CAM professionals work in isolation, in their own clinic (Bensoussan et al., 2004; Hale 2002), and the degree to which they refer to other practitioners is currently unknown. Many women are consulting CAM practitioners during pregnancy and it is necessary to

understand how, and the extent to which, these practitioners refer women in their care to another practitioner if their treatment is ineffective.

It is also necessary to explore maternity care practitioner attitudes to women's gestational CAM utilisation and to research what policies exist in relation to counselling women about CAM use. Our finding that 52% of women use CAM products during pregnancy, and 48.1% consult a CAM practitioner highlights a high prevalence of CAM use. Additionally, women stated that they believed conventional maternity care professionals such as general practitioners (79%), obstetricians (77%) and midwives (73%) should be able to advise women about commonly used CAM. To date, there has been some exploration of medical professionals' attitudes to CAM use during pregnancy but this research is dated and has only occurred in small groups of professionals (Gaffney & Smith 2004). It is important to utilise a large cohort of midwives, general practitioners, nurses and obstetricians to more thoroughly investigate attitudes and counselling practices in relation to CAM use, as well as, referral practices and information sources used to access information on commonly used CAM for pregnancy.

Further research is needed to explore why women self-prescribe CAM products such as herbal medicine without consulting a CAM practitioner or medical professional to verify safety. Whilst Chapter 6 provided some insights into why women utilise CAM products during pregnancy, highlighting that women prefer a holistic approach to health care and believe that CAM is a more natural and safe option, it does not explain why women seek little guidance from a health professional in relation to CAM use. Pregnant women are generally very cautious about medication use during gestation

(Nordeng & Koren 2010), and this is incongruent with the high level of self-prescription of CAM products, most of which lack evidence of efficacy and safety.

Interrelated with concerns regarding pregnant women's self-prescription of CAM products is the finding that women favour personal experience and information from family and friends when self-prescribing CAM products and making decisions in relation to consulting CAM practitioners. This requires follow-up research to elucidate women's behaviours and attitudes in relation to information searching to understand why women trust certain sources of information more than others during pregnancy. Given the lack of research evaluating the safety of CAM use during pregnancy, it is even more crucial to explore women's decision-making in relation to CAM along with their navigation of these services. This is an issue of pertinence to maternity care professionals, as well as policy-makers interested in health service utilisation for pregnant women.

Finally, it is important to investigate women's communication with their conventional health practitioner in relation to their CAM use to determine the extent to which women's use of CAM is disclosed and discussed. The finding, from this body of work, that over 50% of pregnant women are using CAM products during pregnancy, is significant and communication patterns between women and their midwives, doctors and obstetricians are largely unknown. Some Australian and international research has addressed this question, but the individual studies have been small and non-representative. Further, given the increase in CAM utilisation by pregnant women coupled with increased acceptance by some maternity professionals over recent years

(Hall, McKenna, & Griffiths, 2012b) it is important that issues related to disclosure of CAM use during pregnancy are investigated.

9.6.2 Clinical research

There is limited clinical research pertaining to the use of many CAM products and treatments during pregnancy and whilst there is an urgent need to investigate the efficacy and safety of CAM use during pregnancy, obvious difficulties abound. Pregnant women are a vulnerable group and conducting randomised controlled trials of many CAM products and treatments is unethical. Conducting clinical trials of CAM medicines and procedures that are known to be safe and highly utilised during pregnancy could be one way forward, for example, ginger or acupuncture for the relief of nausea in the first trimester and massage for the relief of pregnancy related back pain. A small amount of clinical research has been conducted to investigate these treatments however the evidence base is still very limited (Streitberger, Ezzo, & Schneider, 2006). Whilst a PubMed search of CAM treatments used in pregnancy in the last 10 years returned 1,833 articles only 303 (16.5%) of these were clinical trials. As stated, the ethical and practical difficulties of conducting research during pregnancy are obvious, however women are using these treatments and products and it is important to investigate their efficacy and safety.

Case studies and case series may be one possible approach to documenting the safety and efficacy of CAM products and services commonly used during pregnancy. As the evidence base for many CAM treatments is in its infancy (Sibbritt, 2014), case studies may be a valuable way to contribute clinical knowledge of efficacy and safety (Frawley & Finney-Brown, 2013).

9.7 limitations

This thesis utilised a large nationally-representative cohort of pregnant women to investigate the use of CAM; however, several study limitations should be noted. The work relied on self-reported data, and as such, may be affected by recall bias in some instances. Women were asked questions in relation to their current or most-recent pregnancy, which was up to 12 months prior. This may have contributed to potential recall bias, especially for women whose pregnancy was less recent. Research appears to support this notion with studies demonstrating that the amount of time elapsed since the pregnancy symptom occurred, affects the accuracy of recall (Koren, Maltepe, Navioz & Wolpin 2004; Bryant, Visser & Love 1989). However, it is important to note that the incidence of recall bias is expected to be similar for both CAM and non-CAM users and thus should not have an appreciable effect on the analysis provided in this thesis. Additionally, the symptoms and conditions that women recalled were not necessarily diagnosed or confirmed by a medical professional; possibly leading to further bias. Despite this concern, research has shown that the self-report of symptoms is valid and compares favourably with more objectively measured methods (Katz, Punnett, Simmons, Fossil, Mooney, & Keller 1996).

A further limitation of the research presented in this thesis relates to the prevalence of CAM use in pregnancy, which may have been under-estimated due to the exclusion of all vitamins and minerals in the analysis. This study did not ask women about their use of individual vitamins and minerals and thus it was impossible to differentiate between common nutrients such as iron and folate that are routinely

utilised during pregnancy, and other vitamins and minerals that may be considered by women to be CAM products. The study questionnaire also did not enquire about the use of other individual CAM products such as specific herbal medicines and aromatherapy oils. These products were highly utilised by pregnant women from this study, and due to safety concerns associated with some of these products, it would have been useful to ask women which herbal medicines and aromatherapy oils they were using, and in what form. Future studies should attempt to explore these questions.

This study did not collect information on women's disclosure of CAM use to their maternity care professionals. It appears from the literature that women's disclosure of CAM use is generally poor (Harrigan, 2011) and it would have been advantageous to determine the rate of disclosure of CAM use by pregnant women in this study. Additionally, furthering our understanding of the reasons women are reluctant to discuss their CAM use would have been beneficial.

Finally, the potential limitations due to a cohort study design need to be considered. The cohort of women in this study was aged 18-23 at the time of recruitment and 33-38 at the time that the pregnancy sub-study was completed. It is acknowledged that women give birth within a much wider age range, with the average maternal age in Australia in 2009 being 30 (AIHW, 2011). Thirty years of age is younger than the cohort of women in this study, however, women commonly have more than one pregnancy in Australia and thus give birth across a wider age range.

Overall, the opportunity to utilise a large, long-standing, nationally-representative data set of pregnant women goes some way to counter these

limitations. The ALSWH has strong internal and external validity and it is believed that the findings presented here are representative of birthing mothers in Australia.

9.8 Chapter summary

Chapter 9 outlines the key discussion points that have arisen from this research, namely that maternity care in Australia is pluralistic; women who use CAM have different attitudes towards health care than non CAM users and these attitudes are influenced by a variety of information sources; and CAM is not a homogenous group of healthcare modalities, and some of these therapies may be seen as mainstream by pregnant women. Future areas for research were also identified and limitations of the study were defined.

10. Conclusion

This thesis has examined the use of CAM by women for pregnancy-related health conditions. The data for this project came from the ALSWH and this thesis has applied a health service research approach to identify a number of significant findings.

First, a considerable number of Australian women use CAM products and visit CAM practitioners for a range of pregnancy-related health conditions. The percentage of women using CAM during pregnancy is over 90% when all commonly used CAM products are accounted for. Contemporary Australian maternity care is pluralistic and women are using these services alongside conventional services.

Second, numerous factors influence women's use of CAM during pregnancy, including socio-demographic factors such as level of education, area of residence, employment status, private health insurance and income, and health conditions such as back pain, neck pain and fatigue. Women were also more likely to visit a CAM practitioner during pregnancy if they had used CAM prior to pregnancy. It was further revealed that women were increasingly likely to consult with the same practitioner group they consulted pre-pregnancy indicating they may be more likely to utilise services they are familiar with.

Third, women who used CAM products, specifically herbal medicine, homeopathy and aromatherapy, during pregnancy have different attitudes to health care than women who do not. They were more likely to believe that CAM boosts their immune system; CAM promotes a holistic approach to health; CAM affords more control over their health and body; CAM is more natural than conventional medicine; CAM has fewer side-effects than CM; and CAM is a better preventative measure than

conventional medicine. Women were also more likely to believe that their personal experience of the effectiveness of CAM was more important than clinical evidence, and women who used herbal medicine and aromatherapy were more likely to believe that general practitioners, obstetricians and midwives should be able to advise their women about commonly used CAM.

Finally, this study investigated the information sources women use when making decisions about CAM use during pregnancy. Women were influenced by non-professional sources of information (their own knowledge, friends and family) more commonly than professional sources (GP, obstetrician, midwife), when deciding to consult a CAM therapist. Additionally, this thesis demonstrated that women were highly likely to self-prescribe herbal medicine products without consulting a CAM practitioner or a conventional medical practitioner. Women who self-prescribe herbal medicine during pregnancy are more likely to live in a rural environment and be influenced by information from family and friends and less likely to be influenced by information from a midwife or alternative health practitioner.

This thesis has contributed to the field of health service's research by investigating many predictors, drivers and characteristics of CAM utilisation by pregnant women as well as determining attitudes, information sources and the likelihood of self-prescription. This thesis also clearly outlines areas for future research attention to build upon these findings and continue to develop our understanding of this emerging research topic. The opportunity to utilise a nationally-representative

sample of pregnant women for this thesis has provided future researchers with a cohesive and robust foundation on which to build.

11. References

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12. Appendices

Appendix 1: Australian Longitudinal Study on Women's Health (ALSWH) Pregnancy Sub-survey of the 1973-1978 cohort

women's health australia



This survey is for women who have given birth after July 2007. If this does not apply to you, please tick the box below and return the survey in the reply paid envelope enclosed. Alternatively, you can call us on Freecall 1800 068 081.

This survey does not apply to me

INSTRUCTIONS:

- **Cross the boxes like this:**
 - Use a black or blue biro
 - Do not fold or bend this survey

In general, would you say your health is: (Mark one only)

Excellent
Very good
Good ← You would cross this box if you think your health is good
Fair
Poor

- **Print clearly in the boxes like this:**

What is your postcode?
(Print clearly in the boxes)

2	3	0	8
---	---	---	---
- **Correct mistakes like this:**

When you go to a General Practitioner:
(Mark one on each line)
Do you go to the same place?

Always	Most of the time	Sometimes	Rarely or never
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

↑ ↑
If you make a mistake simply scribble it out and clearly mark the correct answer with a cross

*If you need help to answer any questions, please ring 1800 068 081
(This is a FREECALL number)*

**Q1 Please write down the dates of birth of all of your children born after February 2009 (you have already told us about the dates of birth of children born before this date).
(If you had twins, please write the date twice.)**

D	D	M	M	Y	Y	Y	Y	D	D	M	M	Y	Y	Y	Y	D	D	M	M	Y	Y	Y	Y
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Q2 Do any of your children have special needs or disorders?
(Mark all that apply)

Yes, my youngest child	Yes, child / children other than my youngest child	No
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q3 Have you experienced any of the following since February 2009?
(Mark one on each line. If none, leave blank.)

	Yes
a Stillbirth	<input type="checkbox"/>
b Miscarriage	<input type="checkbox"/>
c Termination (abortion) for medical reasons (eg fetal abnormalities)	<input type="checkbox"/>
d Termination (abortion) for other reasons	<input type="checkbox"/>
e Ectopic pregnancy (tubal pregnancy)	<input type="checkbox"/>

Q4 Are you currently pregnant?
(Mark one only)

Yes
 Don't know
 No



If you are currently pregnant, please do NOT answer the following questions for that pregnancy. Please answer the questions for your pregnancy related to your youngest child.

Please answer all of the questions in this survey for your youngest child, and the pregnancy for that child.

Q5 For your youngest child, did the following apply to you?
(Mark all that apply)

I used fertility hormones (eg Clomid)	I used In Vitro Fertilisation (IVF)	None of these
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q6 How many times did you visit each of these health practitioners during the pregnancy for your youngest child, specifically for pregnancy-related issues?
(Mark one on each line)

	None	1 or 2	3 or 4	5 or 6	7 or more
a General Practitioner (GP)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b Obstetrician	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c Midwife	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q7 If you did consult with any of the health practitioners listed in Q6 during the pregnancy for your youngest child, how much did you spend in total (out-of-pocket expenses) on these consultations including prescribed or recommended treatments / medications?
(Mark one only)

Less than \$100	\$100 - \$499	\$500 - \$999	\$1000 - \$1499	\$1500 or above
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The following questions are about the pregnancy for your youngest child



Q8 During the pregnancy for your youngest child, how many times did you visit each of these alternative health practitioners specifically for pregnancy-related issues?

(Mark one on each line)

		None	1 or 2	3 or 4	5 or 6	7 or more
a	Acupuncturist	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b	Aromatherapist	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c	Chiropractor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d	Herbalist / Naturopath	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e	Doula	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f	Massage therapist	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g	Meditation / Yoga classes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h	Osteopath	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i	Other alternative health practitioner (please specify):	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q9 If you did consult with any of the alternative health practitioners listed in Q8 during the pregnancy for your youngest child, how much did you spend in total (out-of-pocket expenses) on these consultations including prescribed or recommended treatments / medications? (Mark one only)

Less than \$100	\$100 - \$499	\$500 - \$999	\$1000 - \$1499	\$1500 or above
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q10 With regard to your use of the following treatments (if applicable) during the pregnancy for your youngest child specifically for pregnancy-related issues, who prescribed these treatments?

(Mark all that apply on each line)

	Self-prescribed	GP	Obstetrician	Midwife	Alternative Health Practitioner	Did not use
a	Western or Chinese herbal medicines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b	Vitamins / Minerals	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c	Meditation / Yoga at home	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d	Aromatherapy oils	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e	Homeopathy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f	Herbal teas	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g	Flower essences (eg Rescue Remedy)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h	Other treatments (please specify):	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q11 If you did take any of the treatments listed in Q10 during the pregnancy for your youngest child, how much did you spend in total (out-of-pocket expenses) on these treatments? (Mark one only)

Less than \$100	\$100 - \$499	\$500 - \$999	\$1000 - \$1499	\$1500 or above
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



The following questions are about the pregnancy for your youngest child

Q12 If you did use alternative medicine during the pregnancy for your youngest child, which of the following information sources were influential in your decision to use alternative medicine? (Mark all that apply)

- Did not use alternative medicine
- Partner / Spouse Books or magazines GP Nurse
- Family or relatives Internet Obstetrician Alternative health practitioner
- Friends or colleagues Own personal experience Midwife Other
- Mass media (eg newspaper, TV, radio) Pharmacist

Q13 During the pregnancy for your youngest child, who did you seek advice from about the use of alternative medicine for pregnancy-related symptoms?

(Mark one on each line)

		Always	Often	Sometimes	Rarely
a	GP	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b	Obstetrician	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c	Midwife	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d	Pharmacist	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e	Alternative health practitioner	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f	Family / friends	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g	Internet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q14 How much do you agree or disagree with the following statements?

(Mark one on each line)

		Strongly agree	Agree	Neutral	Disagree	Strongly disagree
a	Alternative medicine is more natural than conventional medicine	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b	Alternative medicine boosts my immune system / resistance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c	Alternative medicine has fewer side effects than conventional medicine	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d	Alternative medicine is a better preventative measure than conventional medicine	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e	Alternative medicine promotes a holistic approach to health	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f	Alternative medicine gives me more control over my health / body	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g	Knowledge about the evidence of alternative medicine is important to me as a patient	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h	My personal experience of the effectiveness of alternative medicine is more important than clinical evidence	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i	Alternative medicine needs to be tested for safety / side effects	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The following questions are about the pregnancy for your youngest child



Q15 How much do you agree or disagree with the following statements?

(Mark one on each line)

		Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Not applicable
a	An alternative health practitioner spends a longer time with me in consultations when compared with a GP	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b	An alternative health practitioner spends a longer time with me in consultations when compared with an obstetrician	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c	An alternative health practitioner spends a longer time with me in consultations when compared with a midwife	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d	An alternative health practitioner provides more support to me than a GP does	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e	An alternative health practitioner provides more support to me than an obstetrician does	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f	An alternative health practitioner provides more support to me than a midwife does	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g	I find it easier to talk to an alternative health practitioner than to a GP	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h	I find it easier to talk to an alternative health practitioner than to an obstetrician	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i	I find it easier to talk to an alternative health practitioner than to a midwife	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j	I have a more equal relationship with alternative health practitioners than with GPs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
k	I have a more equal relationship with alternative health practitioners than with obstetricians	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
l	I have a more equal relationship with alternative health practitioners than with midwives	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
m	GPs should be able to advise their patients about commonly used alternative medicine	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
n	Obstetricians should be able to advise their patients about commonly used alternative medicine	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
o	Midwives should be able to advise their patients about commonly used alternative medicine	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
p	My preferred birth choices were respected and supported by my primary maternity carer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
q	I felt more comfortable discussing my expectations of birth with an obstetrician than a midwife	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
r	I felt more comfortable discussing my expectations of birth with a GP than a midwife	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
s	It is important to me that my preferred birth choices are respected and supported by my maternity carer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
t	I feel safer during birthing knowing that I have a specialist obstetrician supporting me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
u	It is not important to me that I have support from my maternity carer in the first few weeks after birth	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



The following questions are about the pregnancy for your youngest child

Q16 During the pregnancy for your youngest child, were you:

		Yes, in the first half of pregnancy, by:				Yes, in the second half of pregnancy, by:			
		GP	Obstetrician	Midwife	Other practitioner	GP	Obstetrician	Midwife	Other practitioner
<i>(Mark all that apply. If none, leave blank.)</i>									
a	given any information about emotional well-being during pregnancy and early parenthood (eg about depression, anxiety, parenting stress)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b	asked any questions about your emotional wellbeing (eg given a questionnaire to complete)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c	asked about feeling sad or depressed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d	asked about feeling worried or anxious?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e	asked about feeling stressed or distressed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f	asked about your mental health history?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g	asked about your level of support?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h	asked about your drug and alcohol use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i	asked about your experience of domestic violence or abuse?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j	given a referral for additional treatment, help or support for emotional issues?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q17 During the pregnancy for your youngest child, did you experience any of the following emotional issues?

		Yes, in the first half of pregnancy	Yes, in the second half of pregnancy	If yes to any:	
				did this interfere with your ability to get things done or with your relationships with friends / family?	is this something you felt you needed or wanted help with?
				Yes	Yes
<i>(Mark all that apply. If none, leave blank.)</i>					
a	Depression	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b	Anxiety	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c	Stress or distress	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d	Sadness or low mood	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e	Lack of enjoyment or interest in things	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f	Feelings of guilt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g	Excessive worry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h	Other emotional issue <i>(please specify):</i> _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The following questions are about the pregnancy for your youngest child



Q18 During the pregnancy for your youngest child, were you **told by a health practitioner** that you had:

(Mark all that apply. If none, leave blank.)

		Yes, in the first half of pregnancy	Yes, in the second half of pregnancy
a	depression?	<input type="checkbox"/>	<input type="checkbox"/>
b	anxiety?	<input type="checkbox"/>	<input type="checkbox"/>
c	other emotional issue? (please specify): _____	<input type="checkbox"/>	<input type="checkbox"/>

Q19 During the pregnancy for your youngest child, how many times did you consult or use any of the following for additional treatment, help or support for **emotional issues**?

Print the number of times you saw each of the following. If none, write '0')

		First half of pregnancy	Second half of pregnancy
a	GP	<input type="text"/>	<input type="text"/>
b	Mental health professional (eg counsellor, psychologist, psychiatrist)	<input type="text"/>	<input type="text"/>
c	Midwife / nurse	<input type="text"/>	<input type="text"/>

Q20 During the pregnancy for your youngest child, did you consult or use any of the following for additional treatment, help or support for **emotional issues**?

(Mark all that apply. If none, leave blank.)

		Yes, in the first half of pregnancy	Yes, in the second half of pregnancy
a	Partner	<input type="checkbox"/>	<input type="checkbox"/>
b	Family / friends / social networks	<input type="checkbox"/>	<input type="checkbox"/>
c	Phone help line (eg Lifeline, PANDA)	<input type="checkbox"/>	<input type="checkbox"/>
d	Internet (eg beyondblue)	<input type="checkbox"/>	<input type="checkbox"/>
e	I went to an emergency department	<input type="checkbox"/>	<input type="checkbox"/>
f	I was admitted to hospital	<input type="checkbox"/>	<input type="checkbox"/>
g	Other (please specify): _____	<input type="checkbox"/>	<input type="checkbox"/>

Q21 During the pregnancy for your youngest child, did you use prescription medications (eg tablets or medicine) that were:

(Mark all that apply. If none, leave blank)

		Yes, in the first half of pregnancy	Yes, in the second half of pregnancy
a	for your nerves / anxiety (eg Valium, Serepax, Kalma, Ducene etc)?	<input type="checkbox"/>	<input type="checkbox"/>
b	to help you sleep (eg Temaze, Normison, Mogadon, Stilnox etc)?	<input type="checkbox"/>	<input type="checkbox"/>
c	for depression (eg Zoloft, Aropax, Lexapro, Cipramil etc)?	<input type="checkbox"/>	<input type="checkbox"/>
d	to help stabilise your mood (eg Epilim, Lithium)?	<input type="checkbox"/>	<input type="checkbox"/>
e	other medication for emotional issues? (please specify): _____	<input type="checkbox"/>	<input type="checkbox"/>



The following questions are about the labour and birth of your youngest child

Q22 During the pregnancy for your youngest child, did you seek help for any of the following symptoms or conditions related to pregnancy? Please indicate who you sought help from, where applicable.

(Mark one on each line. If none, leave blank.)

	Yes, I had this condition	GP	Obstetrician	Midwife	Chiropractor	Acupuncturist	Herbalist / Naturopath	Massage therapist	Other alternative health practitioner
a Sciatica (pain down the back of your legs)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b Hip or pelvic pain (SPD)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c Back pain or backache	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d Neck pain	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e Headaches / migraines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f Repeated vomiting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g Nausea (feeling sick)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h Sleeping problems	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i Vaginal bleeding	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j Preparing for labour	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
k Constipation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
l Haemorrhoids (piles)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
m Urinary tract infection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
n Varicose veins	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
o Leg cramps	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
p Reflux or heartburn (indigestion)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
q Tiredness or fatigue	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
r High blood pressure (hypertension)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
s Pre-eclampsia	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
t Fluid retention	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
u Anaemia	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
v Gestational diabetes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
w Dizziness or fainting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
x Cravings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
y Weight management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The following questions are about the labour and birth of your youngest child



Q23 At the time of the birth of your youngest child were you employed (even if you were on leave)? *(Mark one only)*

- Yes, full time work (35 or more hours per week)
- Yes, part time work (less than 35 hours per week)
- Yes, casual / temp work (irregular hours)
- Looking for work
- Not in the paid work force

Q24 At the time of the birth of your youngest child did you have a Health Care Card? This is a card that entitles you to discounts and assistance with medical expenses. This is not the same as a Medicare card. *(Mark one only)*

- Yes
- No

Q25 At the time of the birth of your youngest child did you have private health insurance for hospital cover? *(Mark one only)*

- Yes full coverage including pregnancy-related care
- Yes, not including pregnancy-related care
- No

Q26 Which of the following, if any, did you find useful to relieve discomfort or pain during labour and / or birth?

(Mark one on each line)

		Very helpful	Somewhat helpful	Not at all helpful	Did not use
a	Breathing techniques	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b	Massage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c	Hypnotherapy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d	TENS machine (with pads on your back)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e	Using a bath, birthing pool or shower	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f	Acupressure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g	Acupuncture	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h	Gas (breathing through a mask)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i	Injection of pethidine or a similar painkiller	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j	Epidural or spinal (injection in your back)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
k	Local anaesthetic to perineum (near your vagina)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
l	General anaesthetic (puts you to sleep)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
m	Other <i>(please specify)</i> : _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q27 Please indicate the environment where you gave birth to your youngest child:

(Mark all that apply)

- Public Hospital
- Private Hospital
- Private patient at public hospital
- Birthing Centre
- At home
- Other



The following questions are about the labour and birth of your youngest child

Q28 Altogether, how many people from each of these types of care providers cared for you during the labour and birth of your youngest child?

(Mark one on each line. If none, write "0".)

		Number of care providers	Don't know
a	Midwives	<input type="text"/> <input type="text"/>	<input type="checkbox"/>
b	Obstetricians	<input type="text"/> <input type="text"/>	<input type="checkbox"/>
c	General Practitioners	<input type="text"/> <input type="text"/>	<input type="checkbox"/>
d	Nurses	<input type="text"/> <input type="text"/>	<input type="checkbox"/>
e	Doulas (a person trained to provide non-medical support during birth)	<input type="text"/> <input type="text"/>	<input type="checkbox"/>
f	Anaesthetists (for an epidural or general anaesthetic)	<input type="text"/> <input type="text"/>	<input type="checkbox"/>
g	Paediatricians (specialist for babies and children)	<input type="text"/> <input type="text"/>	<input type="checkbox"/>
h	Other care providers	<input type="text"/> <input type="text"/>	<input type="checkbox"/>

Q29 For the birth of your youngest child, did you experience any of the following?

(Mark all that apply. If none, leave blank.)

	Yes
Premature birth	<input type="checkbox"/>
Caesarean section before going into labour	<input type="checkbox"/>
Caesarean section after labour started	<input type="checkbox"/>
Induction of labour	<input type="checkbox"/>
Labour lasting more than 36 hours	<input type="checkbox"/>
Episiotomy (cutting of vagina)	<input type="checkbox"/>
A vaginal tear requiring stitches	<input type="checkbox"/>
Forceps or Ventouse suction ('vacuum')	<input type="checkbox"/>
Medical removal of placenta and / or blood clots by hand	<input type="checkbox"/>
Excessive blood loss requiring extra blood or fluid by drip (IV infusion)	<input type="checkbox"/>
A low birth weight baby (weighing less than 2500 grams or 5 ½ pounds)	<input type="checkbox"/>
Emotional distress	<input type="checkbox"/>
Baby admitted to special care nursery	<input type="checkbox"/>

The following questions are about the three years after the birth of your youngest child

** If the time categories in the following questions do not apply to your child, then please leave blank*



Q30 After the birth of your youngest child, how many weeks of each of the following types of leave did you take? (Please write the number of WEEKS in the boxes)

- Count all the leave you took from when you left work before the birth of your youngest child until you returned to work or resigned.
- If you are still on leave, enter the number of weeks leave you have taken so far, and mark the box for 'currently on maternity leave'.

Paid maternity leave	<input type="text"/>	<input type="text"/>	weeks	Paid long service leave	<input type="text"/>	<input type="text"/>	weeks
Unpaid maternity leave	<input type="text"/>	<input type="text"/>	weeks	Paid sick leave	<input type="text"/>	<input type="text"/>	weeks
Other leave without pay	<input type="text"/>	<input type="text"/>	weeks	Other paid leave	<input type="text"/>	<input type="text"/>	weeks
Paid holiday / annual leave	<input type="text"/>	<input type="text"/>	weeks	Was not employed at the time	<input type="checkbox"/>		
				Currently on maternity leave	<input type="checkbox"/>		

Q31 After the birth of your youngest child, did you return to work? (Mark one only)
(If you are currently on maternity leave, answer for what you intend to do)

- Yes, full time (35 or more hours per week)
- Yes, part time (less than 35 hours per week)
- Yes, casual / temp work (irregular hours)
- No

Q32 Since the birth of your youngest child how satisfied were you with the following arrangements?

(Mark one on each line)

		Very satisfied	Satisfied	Dissatisfied	Very dissatisfied
a	Maternity leave arrangements	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b	Return to work arrangements	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q33 If you have any comments about your maternity leave arrangements or return to work arrangements, please write them on the lines below.

Q34 If you have breastfed your youngest child, how long did you breastfeed?
(Please write the number of WEEKS or MONTHS in the boxes)
If you did not breastfeed, write 0 in the box.

weeks OR months OR Currently breastfeeding [Go to Q36](#)

Q35 What were your reasons for stopping breastfeeding? Please write down all of the reasons, but underline the main reason.

Q36 If you experienced any problems with breastfeeding, please describe.



The following questions are about the three years after the birth of your youngest child
 * If the time categories in the following questions do not apply to your child, then please leave blank

Q37 Thinking about your experience of parenting your youngest child:

(Mark one on each line)

	Strongly agree	Agree	Not sure	Disagree	Strongly disagree
a I often have the feeling that I cannot handle things very well	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b I find myself giving up more of my life to meet my child's needs than I ever expected	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c I feel trapped by my responsibilities as a parent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d Since having this child, I have been unable to do new and different things	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e Since having this child, I feel that I am almost never able to do things that I like to do	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f I am unhappy with the last purchase of clothing I made for myself	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g There are quite a few things that bother me about my life	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h Having this child has caused more problems than I expected in my relationship with my partner / spouse	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i I feel alone and without friends	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j When I go to a party, I usually expect not to enjoy myself	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
k I am not as interested in people as I used to be	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
l I don't enjoy things as I used to	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
m My child rarely does things for me that make me feel good	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
n Sometimes I feel my child doesn't like me and doesn't want to be close to me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
o My child smiles at me much less than I expected	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
p When I do things for my child, I get the feeling that my efforts are not appreciated very much	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
q When playing, my child doesn't often giggle or laugh	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
r My child doesn't seem to learn as quickly as most children	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
s My child doesn't seem to smile as much as most children	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
t My child is not able to do as much as I expected	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
u It takes a long time and it is very hard for my child to get used to new things	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
v I expected to have closer and warmer feelings for my child than I do and this bothers me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
w Sometimes my child does things that bother me just to be mean	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
x My child seems to cry or fuss more often than most children	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
y My child generally wakes up in a bad mood	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
z I feel that my child is very moody and easily upset	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
aa My child does a few things which bother me a great deal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
bb My child reacts very strongly when something happens that my child doesn't like	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
cc My child gets upset easily over the smallest thing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
dd My child's sleeping or eating schedule was much harder to establish than I expected	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ee There are some things that my child does that really bother me a lot	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ff My child turned out to be more of a problem than I had expected	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
gg My child makes more demands on me than most children	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The following questions are about the three years after the birth of your youngest child
 * If the time categories in the following questions do not apply to your child, then please leave blank



Q38 I feel that I am: *(Mark one only)*

Not very good at being a parent	A person who has some trouble being a parent	An average parent	A better than average parent	A very good parent
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q39 I have found that getting my youngest child to do something or stop doing something is:
(Mark one only)

Much harder than I expected	Somewhat harder than I expected	About as hard as I expected	Somewhat easier than I expected	Much easier than I expected
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q40 Think carefully and count the number of things which your youngest child does that bother you (eg dawdles, refuses to listen, overactive, cries, interrupts, fights, whines etc). *(Mark one only)*

1-3	4-5	6-7	8-9	10 or more
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q41 How would you rate the help you had in the FIRST 3 MONTHS after the birth of your youngest child from the following:
(Mark one on each line)

	Excellent	Very good	Good	Fair	Poor	Not applicable	Not needed
a partner?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b family?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c friends?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d health services?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q42 Thinking about the time since the birth of your youngest child, were you:
(Mark all that apply. If none, leave blank.)

	Yes, 0-3 months after the birth, by:				Yes, 4-12 months after the birth, by:			Yes, 13 or more months after the birth, by:		
	Nurse	Obstetrician	GP	Other practitioner	Nurse	GP	Other practitioner	Nurse	GP	Other practitioner
a given any information about emotional well-being during early parenthood (eg about depression, anxiety, parenting stress)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b asked any questions about your emotional wellbeing (eg given a questionnaire to complete)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c asked about feeling sad or depressed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d asked about feeling worried or anxious?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e asked about feeling stressed or distressed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f asked about recent stressful events?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g asked about your own mental health history?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h asked about your level of support?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i asked about your drug and alcohol use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j asked about your experience of domestic violence or abuse?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
k given a referral for additional treatment, help or support for emotional issues?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



The following questions are about the three years after the birth of your youngest child
 * If the time categories in the following questions do not apply to your child, then please leave blank

Q43 Since the birth of your youngest child, have you **experienced** any of the following **emotional issues**?

	0-3 months after the birth	4-12 months after the birth	13 months or more after the birth	If yes to any:	
				Did this interfere with your ability to get things done or with your relationships with friends / family?	Is this something you felt you needed or wanted help with?
				Yes	Yes
<i>(Mark all that apply. If none, leave blank.)</i>					
a Baby blues	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>
b Depression or postnatal depression	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c Anxiety	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d Stress or distress	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e Sadness or low mood	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f Lack of enjoyment or interest in things	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g Feelings of guilt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h Excessive worry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i Other emotional issue <i>(please specify):</i> _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q44 Since the birth of your youngest child, have you been **told by a health practitioner** that you have:

	0-3 months after the birth	4-12 months after the birth	13 months or more after the birth
a depression or postnatal depression?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b anxiety?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c other emotional problem? <i>(please specify):</i> _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q45 Since the birth of your youngest child, how many times have you consulted or used any of the following for additional treatment, help or support **for emotional issues**?

	0-3 months after the birth	4-12 months after the birth	13 months or more after the birth
a GP	<input type="text"/>	<input type="text"/>	<input type="text"/>
b Mental health professional (eg counsellor, psychologist, psychiatrist)	<input type="text"/>	<input type="text"/>	<input type="text"/>
c Child health nurse	<input type="text"/>	<input type="text"/>	<input type="text"/>

The following questions are about the three years after the birth of your youngest child
 * If the time categories in the following questions do not apply to your child, then please leave blank



Q46 Since the birth of your youngest child, have you consulted or used any of the following for additional treatment, help or support with emotional issues?

(Mark all that apply on each line. If none, leave blank)

		0-3 months after the birth	4-12 months after the birth	13 months or more after the birth
a	Partner	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b	Family / friends / social networks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c	Phone help line (eg Lifeline, PANDA)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d	Internet (eg beyondblue)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e	Day stay parenting service	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f	Residential parenting service	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g	Parenting group (eg Mothers Group)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h	I went to an emergency department	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i	I was admitted to hospital	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j	Other (please specify): _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q47 Since the birth of your youngest child, have you used prescription medications (eg tablets or medicine) that were:

(Mark all that apply on each line. If none, leave blank)

		Yes, 0-3 months after the birth	Yes, 4-12 months after the birth	Yes, 13 or more months after the birth
a	for your nerves / anxiety (eg Valium, Serepax, Kalma, Ducene etc)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b	to help you sleep (eg Temaze, Normison, Mogadon, Stilnox etc)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c	for depression (eg Zoloft, Aropax, Lexapro, Cipramil etc)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d	to help stabilise your mood (eg Epilim, Lithium)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e	other medication for emotional issues ? (please specify): _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q48 Since the birth of your youngest child, have you ever deliberately hurt yourself or done anything that you knew might have harmed or even killed you?
 (Mark one only)

Yes
 No

If you answered yes to the last question, you might like to talk to someone about how you are feeling. You could ring Lifeline on 131114 (local call).



The following questions are about the pregnancy AND first three years for your youngest child

Q49 Overall, how comfortable were you in being asked questions about emotional issues by your health practitioner (eg about depression, anxiety, stress, drug and alcohol use, domestic violence, etc)? (Mark one only)

- Very comfortable
- Somewhat comfortable
- Not very comfortable
- Not at all comfortable
- Was not asked about emotional issues

Q50 Did you answer the questions about your emotional issues honestly? (Mark one only)

- Was not asked about emotional issues
- Yes, every time
- Yes, most of the time
- Yes, some of the time
- No, never

Go to Q52

Q51 If you didn't answer the questions honestly, what were your reasons?

Q52 How important do you think it is to be asked about emotional issues:

(Mark one on each line)

Extremely important Very important Somewhat important Not at all important

- | | | | | | |
|----------|--|--------------------------|--------------------------|--------------------------|--------------------------|
| a | During pregnancy? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b | In the first 12 months after the baby is born? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Q53 If you were experiencing emotional issues, how likely is it that the following people would encourage and support you to seek professional help?

(Mark one on each line)

Extremely unlikely

Extremely likely

- | | | | | | | | |
|----------|---------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| a | Partner / Spouse | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b | Other family member | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| c | Friend | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Q54 If you did experience emotional issues during the pregnancy or since the birth of your youngest child but did not seek help OR delayed seeking help, what were the reasons for this? (Mark all that apply)

- I wasn't aware of what services were available
- I thought it was normal to experience these emotional issues
- I was concerned that asking for help would make me feel like I failed as a mother
- I was worried that people would judge me if I told them I wasn't coping (eg label me as depressed, or think I was a bad mother)
- I was concerned about the side effects of treatment
- I could not arrange transport or childcare
- I could not afford it
- Other reasons (please specify) _____
- I did not have emotional issues OR did not delay seeking help

The following questions are about the pregnancy AND first three years for your youngest child



Q55 Thinking about access to GPs for you and your baby, how would you rate the following during the pregnancy and since the birth of your youngest child?

(Mark one on each line)

		Excellent	Very good	Good	Fair	Poor	Don't know
a	Access to a GP if you need them	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b	Access to a GP who bulk bills	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c	Access to a female GP	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d	Hours when a GP is available	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e	Number of GPs you have to choose from	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f	Ease of seeing the GP of your choice	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g	How long you waited to get a GP appointment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h	Quality of care provided by your GP	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i	Amount of time for a GP consultation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j	Amount of information sharing by GP	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
k	The outcomes of your medical care (how much you are helped) by your GP	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
l	The personal manner (courtesy, respect, sensitivity, friendliness) of your GP	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
m	The technical skills (thoroughness, carefulness, competence) of your GP	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
n	The attention your GP gave to your emotional health	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q56 Thinking about access to obstetricians for you and your baby, how would you rate the following during the pregnancy and since the birth of your youngest child?

(Mark one on each line)

		Excellent	Very good	Good	Fair	Poor	Don't know
a	Access to an obstetrician if you need them	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b	Access to a female obstetrician	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c	Hours when an obstetrician is available	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d	Number of obstetricians you have to choose from	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e	Ease of seeing the obstetrician of your choice	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f	How long you waited to get an obstetrician appointment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g	Quality of care provided by your obstetrician	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h	Amount of time for an obstetrician consultation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i	Amount of information sharing by obstetricians	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j	The outcomes of your medical care (how much you are helped) by your obstetrician	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
k	The personal manner (courtesy, respect, sensitivity, friendliness) of your obstetrician	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
l	The technical skills (thoroughness, carefulness, competence) of your obstetrician	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
m	The attention your obstetrician gave to your emotional health	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



The following questions are about the pregnancy AND first three years for your youngest child

Q57 Thinking about access to midwives for you and your baby, how would you rate the following during the pregnancy and since the birth of your youngest child?

(Mark one on each line)

		Excellent	Very good	Good	Fair	Poor	Don't know
a	Access to a midwife if you need them	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b	Access to a female midwife	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c	Hours when a midwife is available	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d	Number of midwives you have to choose from	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e	Ease of seeing the midwife of your choice	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f	How long you waited to get a midwife appointment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g	Quality of care provided by your midwife	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h	Amount of time for a midwife consultation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i	Amount of information sharing by midwives	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j	The outcomes of your medical care (how much you are helped) by your midwife	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
k	The personal manner (courtesy, respect, sensitivity, friendliness) of your midwife	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
l	The technical skills (thoroughness, carefulness, competence) of your midwife	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
m	The attention your midwife gave to your emotional health	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q58 Thinking about access to health care for you and your baby, how would you rate the following during the pregnancy and since the birth of your youngest child?

(Mark one on each line)

		Excellent	Very good	Good	Fair	Poor	Don't know
a	Access to hospital if you need it	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b	Access to after-hours medical care	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c	Availability of alternative health practitioners in your community	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d	Ease of seeing the alternative practitioner of your choice	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e	Access to information about alternative medicine	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f	Access to midwife-supported birth centres	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g	Ease of accessing the type of birth you wanted	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h	Access to counselling or psychological services	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i	Access to child health services (eg to weigh your baby)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j	Access to early parenting services (eg Karitane, Tresillian, Tweedle)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
k	Access to home consultation for early parenting advice (eg sleep or settling)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
l	Access to a lactation consultant or breastfeeding support services	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The following questions are about you



Please answer for the time period indicated even if you are pregnant or your circumstances are unusual in some way (unless the question states otherwise).

The questions on this page ask only about now - how your health is now and about how your health limits certain activities now.

Q59 In general, would you say your health is:
(Mark one only)

- | | |
|-----------|--------------------------|
| Excellent | <input type="checkbox"/> |
| Very good | <input type="checkbox"/> |
| Good | <input type="checkbox"/> |
| Fair | <input type="checkbox"/> |
| Poor | <input type="checkbox"/> |

Q60 Compared to one year ago, how would you rate your health in general now?
(Mark one only)

- | | |
|---------------------------------------|--------------------------|
| Much better now than one year ago | <input type="checkbox"/> |
| Somewhat better now than one year ago | <input type="checkbox"/> |
| About the same as one year ago | <input type="checkbox"/> |
| Somewhat worse now than one year ago | <input type="checkbox"/> |
| Much worse now than one year ago | <input type="checkbox"/> |

Q61 The following questions are about activities you might do during a typical day. Does your health now limit you in these activities? If so, how much?

<i>(Mark one on each line)</i>		Yes, limited a lot	Yes, limited a little	No, not limited at all
a	Vigorous activities such as running, lifting heavy objects, participating in strenuous sports	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b	Moderate activities, such as moving a table, pushing a vacuum cleaner, bowling or playing golf	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c	Lifting or carrying groceries	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d	Climbing several flights of stairs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e	Climbing one flight of stairs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f	Bending, kneeling or stooping	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g	Walking more than one kilometre	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h	Walking half a kilometre	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i	Walking 100 metres	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j	Bathing or dressing yourself	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q62 During the past 4 weeks, have you had any of the following problems with your work (including your work outside the home and housework) or other regular daily activities as a result of your physical health?

<i>(Mark one on each line)</i>		Yes	No
a	Cut down on the amount of time you spent on work or other activities	<input type="checkbox"/>	<input type="checkbox"/>
b	Accomplished less than you would like	<input type="checkbox"/>	<input type="checkbox"/>
c	Were limited in the kind of work or other activities	<input type="checkbox"/>	<input type="checkbox"/>
d	Had difficulty performing the work or other activities (for example it took extra effort)	<input type="checkbox"/>	<input type="checkbox"/>



The following questions are about you

Q63 During the past 4 weeks, have you had any of the following problems with your work or other regular daily activities as a result of any emotional problems (such as feeling depressed or anxious)?

(Mark one on each line)

		Yes	No
a	Cut down on the amount of time you spent on work or other activities	<input type="checkbox"/>	<input type="checkbox"/>
b	Accomplished less than you would like	<input type="checkbox"/>	<input type="checkbox"/>
c	Didn't do work or other activities as carefully as usual	<input type="checkbox"/>	<input type="checkbox"/>

Q64 During the past 4 weeks, to what extent has your physical health or emotional problems interfered with your normal social activities with family, friends, neighbours or groups?

(Mark one only)

Not at all	<input type="checkbox"/>
Slightly	<input type="checkbox"/>
Moderately	<input type="checkbox"/>
Quite a bit	<input type="checkbox"/>
Extremely	<input type="checkbox"/>

Q65 How much bodily pain have you had during the past 4 weeks? (Mark one only)

None	<input type="checkbox"/>
Very mild	<input type="checkbox"/>
Mild	<input type="checkbox"/>
Moderate	<input type="checkbox"/>
Severe	<input type="checkbox"/>
Very severe	<input type="checkbox"/>

Q66 During the past 4 weeks, how much did pain interfere with your normal work (including both work outside the home and housework)? (Mark one only)

Not at all	<input type="checkbox"/>
Slightly	<input type="checkbox"/>
Moderately	<input type="checkbox"/>
Quite a bit	<input type="checkbox"/>
Extremely	<input type="checkbox"/>

Q67 For each question, please give the one answer that comes closest to the way you have been feeling. How much of the time during the past 4 weeks:

(Mark one on each line)

		All of the time	Most of the time	A good bit of the time	Some of the time	A little of the time	None of the time
a	Did you feel full of life?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b	Have you been a very nervous person?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c	Have you felt so down in the dumps that nothing could cheer you up?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d	Have you felt calm and peaceful?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e	Did you have a lot of energy?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f	Have you felt down?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g	Did you feel worn out?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h	Have you been a happy person?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i	Did you feel tired?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The following questions are about you



Q68 During the past 4 weeks, how much of the time has your physical health or emotional problems interfered with your social activities (like visiting friends, relatives etc)?
(Mark one only)

- All of the time
- Most of the time
- Some of the time
- A little of the time
- None of the time

Q69 How true or false is each of the following statements for you?

(Mark one on each line)

	Definitely true	Mostly true	Don't know	Mostly false	Definitely false
a I seem to get sick a little easier than other people	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b I am as healthy as anybody I know	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c I expect my health to get worse	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d My health is excellent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q70 In general, how satisfied are you with what you have achieved in each of the following areas of your life?

(Mark one on each line)

	Very satisfied	Satisfied	Dissatisfied	Very dissatisfied
a Work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b Career	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c Study	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d Family relationships	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e Partner / closest personal relationship	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f Friendships	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g Social activities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h Motherhood / children	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q71 Over the last 12 months, how stressed have you felt about the following areas of your life?

(Mark one on each line)

	Not applicable	Not at all stressed	Somewhat stressed	Moderately stressed	Very stressed	Extremely stressed
a Own health	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b Health of family members	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c Work / employment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d Living arrangements	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e Study	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f Money	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g Relationship with parents	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h Relationship with partner / spouse	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i Relationship with other family members	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j Relationship with friends	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
k Motherhood / children	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



The following questions are about you

Q72 Below is a list of the ways you might have felt or behaved. Please indicate how often you have felt this way during the last week.

(Mark one on each line)

		Rarely or none of the time (less than 1 day)	Some or a little of the time (1-2 days)	Occasionally or a moderate amount of the time (3-4 days)	Most or all of the time (5-7 days)
a	I was bothered by things that don't usually bother me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b	I had trouble keeping my mind on what I was doing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c	I felt depressed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d	I felt that everything I did was an effort	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e	I felt hopeful about the future	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f	I felt fearful	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g	My sleep was restless	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h	I was happy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i	I felt lonely	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j	I could not 'get going'	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The following questions ask about difficult situations you may have experienced. Some people prefer not to answer questions of this nature. If this is true for you, please go to Question 75

Q73 This question asks about situations you may have experienced with current or past partners. (Mark as many as apply on each line)

My Partner:

		In the last 12 months	More than 12 months ago but less than 2 years ago	Never
a	Told me that I was ugly, stupid or crazy, or that I wasn't good enough or that no one would ever want me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b	Followed me or harassed me around my neighbourhood / work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c	Tried to turn my family, friends or children against me or tried to convince them I was crazy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d	Kicked, bit, slapped or hit me with a fist or tried to hit me with something	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e	Forced me to take part in unwanted sexual activity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f	Tried to keep me from seeing or talking to my family, friends or children, or didn't want me to socialise	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g	Pushed, grabbed, shoved, shook or threw me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h	Blamed me for causing their violent behaviour	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i	Harassed me over the telephone, email, Facebook or internet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j	Used a knife or gun or other weapon or beat me up	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
k	Became upset if dinner / housework wasn't done when they thought it should be	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
l	Refused to let me work outside the home or took my wallet and left me stranded	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q74 Since February 2009 have you been in a violent relationship with a partner / spouse?

(Mark one only)

Yes No

If you feel distressed about any experiences of violence and abuse and would like some help to deal with this, please consider contacting one of the following:
 * Your nearest Women's Health Centre or Community Health Centre
 * Your General Practitioner for advice about who would be the best person in your community to talk to
 * A Lifeline counsellor on 13 11 14 (local call)

The following questions are about you



Q75 How much has the following applied to you during the last week?

(Mark one on each line)

		Not at all	Some of the time	A good part of the time	Most of the time
a	I found it hard to wind down	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b	I was aware of dryness of my mouth	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c	I couldn't seem to experience any positive feeling at all	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d	I experienced breathing difficulty (eg excessively rapid breathing, breathlessness in the absence of physical exertion)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e	I found it difficult to work up the initiative to do things	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f	I tended to over-react to situations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g	I experienced trembling (eg in the hands)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h	I felt that I was using a lot of nervous energy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i	I was worried about situations in which I might panic and make a fool of myself	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j	I felt that I had nothing to look forward to	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
k	I found myself getting agitated	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
l	I found it difficult to relax	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
m	I felt down-hearted and blue	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
n	I was intolerant of anything that kept me from getting on with what I was doing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
o	I felt I was close to panic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
p	I was unable to become enthusiastic about anything	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
q	I felt I wasn't worth much as a person	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
r	I felt that I was rather touchy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
s	I was aware of the action of my heart in the absence of physical exertion (eg sense of heart rate increase, heart missing a beat)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
t	I felt scared without any good reason	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
u	I felt that life was meaningless	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



The following questions are about you

Q76 People sometimes look to others for companionship, assistance, or other types of support. How often is each of the following kind of support available to you if you need it?

(Mark one on each line)

None of the time A little of the time Some of the time Most of the time All of the time

Table with 5 columns: Question (a-s), and five frequency options (None of the time, A little of the time, Some of the time, Most of the time, All of the time) with checkboxes.

Q77 What is your present marital status?

(Mark one only)

- Never married [] Separated []
Married [] Divorced []
De facto (opposite sex) [] Widowed []
De facto (same sex) []

Q78 What is your postcode?

(Mark one only)

- a What is your RESIDENTIAL postcode? (where you live) [][][][] Mark here if living overseas []
b What is the postcode of your POSTAL ADDRESS? (if different from residential) [][][][]

The following questions are about you



Q79 How do you manage on the income you have available?
(Mark one only)

- It is impossible
- It is difficult all the time
- It is difficult some of the time
- It is not too bad
- It is easy

Q80 Do you currently have a Health Care Card?
This is a card that entitles you to discounts and assistance with medical expenses. This is not the same as a Medicare card.
(Mark one only)

- Yes
- No

Q81 Do you currently have private health insurance for hospital cover?
(Mark one only)

- Yes full coverage including pregnancy-related care
- Yes, not including pregnancy-related care
- No

Q82 If you currently have private health insurance for ancillary services, please indicate which services are covered:
(Mark all that apply)

- | | | | |
|-----------------------------|--------------------------|------------------------------------|--------------------------|
| Yoga / Pilates / Meditation | <input type="checkbox"/> | Homeopathy | <input type="checkbox"/> |
| Physiotherapy | <input type="checkbox"/> | Naturopathy | <input type="checkbox"/> |
| Psychology services | <input type="checkbox"/> | Remedial massage / Massage therapy | <input type="checkbox"/> |
| Chiropractic | <input type="checkbox"/> | Nutrition / Dietetics | <input type="checkbox"/> |
| Osteopathy | <input type="checkbox"/> | Hydrotherapy | <input type="checkbox"/> |
| Acupuncture | <input type="checkbox"/> | Hypnotherapy | <input type="checkbox"/> |
| Chinese medicine / herbs | <input type="checkbox"/> | | |

Q83 Which best describes your current employment status?
(Mark one only)

- Full time work (35 or more hours per week)
- Part time work (less than 35 hours per week)
- Casual / temp work (irregular hours)
- Looking for work
- Not currently in the paid work force

Q84 What is the highest qualification you have completed?
(Mark one only)

- No formal qualifications
- Year 10 or equivalent (eg School Certificate)
- Year 12 or equivalent (eg Higher School Certificate)
- Trade / apprenticeship (eg hairdresser, chef)
- Certificate / diploma (eg child care, technician)
- University degree
- Higher university degree (eg Grad Dip, Masters, PhD)

This questionnaire represents Stage 1 of this project. In Stage 2 we would like to interview a small number of women in more detail. We are interested in their experiences and communication with obstetricians, midwives and alternative health practitioners regarding their most recent pregnancy. Please indicate below whether you are willing to be interviewed for Stage 2 of the project. Your participation is voluntary and will not affect your ongoing participation in the Women's Health Australia project.

- Yes I am willing to receive further information about participating in a Stage 2 interview about my experience and communication with obstetricians, midwives and alternative medicine practitioners regarding my most recent pregnancy
- No I would prefer not to participate in a Stage 2 interview

Consent

Please sign below and send the completed survey back to us in the envelope provided as soon as possible. We will detach the consent form and store it in a separate locked room.

I consent to the researchers 'matching' the information provided in this survey with that given in previous surveys so that any change in my health can be noted.

Signature: Date: / /

Help us keep in touch

Sometimes we lose touch with our participants. It would be helpful if you could give us your mobile phone number and email address.

Mobile:

Email:

It would be helpful also, if you could give us details of parents, a relative or friend who will be able to help us find you, after checking that the relative is happy for you to provide these details.

Name:

Address:

Town/ Suburb: State: Postcode:

Phone: () Relationship to you:

Name:

Address:

Town/ Suburb: State: Postcode:

Phone: () Relationship to you:

Motherhood Substudy 2010

women's health *a u s t r a l i a*



Please post this back in the Reply Paid envelope provided.



Please let us know your new details if you move, change your name or your telephone number.



Australian Longitudinal Study on Women's Health
University of Newcastle, Callaghan NSW 2308.
Freecall: 1800 068 081
Phone: 02 4913 8872 Fax: 02 4913 8888
Email: whasec@newcastle.edu.au
Web: www.alswh.org.au



THE UNIVERSITY
OF QUEENSLAND
AUSTRALIA

Appendix 2: Australian Longitudinal Study on Women's Health Fifth Survey of the 1973-1978 cohort (Survey 5)

How to complete this survey

This is the fifth survey for the women of the 1973-78 cohort. As the purpose of the project is to look at changes over time, some of the questions are the same as those in previous surveys.

Please answer every question you can. If you are unsure about how to answer a question, mark the response for the closest answer to how you feel.

Please answer the survey for the time period indicated even if you are pregnant or your circumstances are unusual in some way (unless the question states otherwise).

Please read the instructions above each question carefully. Some require you to answer only those options which are applicable to you. Other questions require you to mark one answer on each line. The questions may also refer to different time periods.

INSTRUCTIONS:

- Use a black or blue biro
- Do not fold or bend this survey

Cross the boxes like this:

In general, would you say your health is: (Mark *one only*)

- Excellent
Very good
Good ← You would cross this box if you think your health is good
Fair
Poor

Print clearly in the boxes like this:

What is your postcode?
(PRINT clearly in the boxes)

2 3 0 8

Correct mistakes like this:

When you go to a General Practitioner:
(Mark *one on each line*)

	Always	Most of the time	Some-times	Rarely or never
Do you go to the same place?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If you make a mistake simply scribble it out and clearly mark the correct answer with a cross.

If you need help to answer any questions, please ring 1800 068 081
(This is a FREECALL number)

- * If you are concerned about any of your health experiences and would like some help, you may like to contact:
 - your nearest Women's Health Centre or Community Health Centre
 - your General Practitioner for advice about who would be the best person in your community for you to talk to.
- * If you feel distressed *now* and would like someone to talk to, you could ring Lifeline on 13 11 14 (local call).

■ *women's health*

Q1 How many times have you consulted the following people for *your own health* in the *last 12 months*? (Mark one on each line)

	None	1-2 times	3-4 times	5-6 times	7-9 times	10-12 times	More than 12 times
a	A family doctor or another General Practitioner (GP)						
b	A specialist doctor						
c	A dentist						

Q2 Have you consulted the following services for *your own health* in the *last 12 months*? (Mark one on each line)

	Yes	No
a	A hospital doctor (eg in outpatients or casualty)	
b	A midwife	
c	A counsellor or other mental health worker	
d	A chiropractor	
e	An osteopath	
f	A massage therapist	
g	An acupuncturist	
h	A naturopath / herbalist	
i	Another alternative health practitioner (eg aromatherapist, homeopath, reflexologist, iridologist)	
j	A community nurse, practice nurse or nurse practitioner	
k	A physiotherapist	

Q3 How often have you used the following therapies for *your own health* in the *last 12 months*? (Mark one on each line)

	Never	Rarely	Sometimes	Often
a	Vitamins / minerals			
b	Yoga or meditation			
c	Herbal medicines			
d	Aromatherapy oils			
e	Chinese medicines			
f	Prayer or spiritual healing			
g	Other alternative therapies			

Q4 Have you been admitted to hospital in the *last 12 months* for any of these reasons? (Mark one on each line)

	Yes	No
a	Normal childbirth	
b	Problems during pregnancy	
c	All other reasons	

Q5 When you go to a General Practitioner:

(Mark one on each line)

		Always	Most of the time	Sometimes	Rarely or never
a	Do you go to the same place?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b	Do you usually see the same doctor?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q6 Here are some questions about your *most recent visit* to a General Practitioner.

In terms of your *satisfaction*, how would you rate each of the following?

(Mark one on each line)

		Excellent	Very good	Good	Fair	Poor
a	The amount of time you spent with the doctor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b	The doctor's explanation of your problem and treatment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c	The doctor's interest in how you felt about having the tests, treatment or the advice given	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d	Your opportunity to ask all the questions you wanted	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e	The technical skills (thoroughness, carefulness, competence) of the doctor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f	The personal manner (courtesy, respect, sensitivity, friendliness) of the doctor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g	The cost to you of the visit	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mark here if No Cost →		<input type="checkbox"/>				

Q7 In general, do you prefer to see a female doctor? (Mark one only)

- Yes, always
- Yes, but only for certain things
- No
- Don't care

Q8 Thinking about *your own health care*, how would you rate the following now?

(Mark one on each line)

		Excellent	Very good	Good	Fair	Poor	Don't know
a	Access to medical specialists if you need them	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b	Access to a hospital if you need it	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c	Access to after-hours medical care	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d	Access to a GP who bulk bills	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e	Access to a female GP	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f	Hours when a GP is available	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g	Number of GPs you have to choose from	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h	Ease of seeing the GP of your choice	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i	Ease of obtaining a Pap test	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j	Access to Women's Health or Family Planning services	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
k	Access to maternal and child health services	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q9 Do you have a Health Care Card? *This is a card that entitles you to discounts and assistance with medical expenses. This is not the same as a Medicare card. (Mark one only)*

- Yes
No

Q10 Do you have private health insurance for *hospital cover*? If not, mark the main reason why. *(Mark one only)*

- Yes
No – because I can't afford the cost
No – because I don't think you get value for money
No – because I don't think I need it
No – another reason

Q11 Do you have private health insurance for *ancillary services* (eg dental, physiotherapy)? If not, mark the main reason why. *(Mark one only)*

- Yes
No – because I can't afford the cost
No – because I don't think you get value for money
No – because I don't think I need it
No – because the services are not available where I live
No – another reason

Q12 In the *last 3 years*, have you been diagnosed or treated for: *(Mark all that apply)*

Please record conditions related to pregnancy (gestational diabetes, hypertension during pregnancy, antenatal depression and postnatal depression) in the section relating to pregnancy later in the survey.

	Yes, in the last 3 years
a	Insulin dependent (Type 1) diabetes <input type="checkbox"/>
b	Non-insulin dependent (Type 2) diabetes <input type="checkbox"/>
c	Heart disease <input type="checkbox"/>
d	Hypertension (high blood pressure) <input type="checkbox"/>
e	Low iron (iron deficiency or anaemia) <input type="checkbox"/>
f	Asthma <input type="checkbox"/>
g	Bronchitis <input type="checkbox"/>
h	Depression <input type="checkbox"/>
i	Anxiety disorder <input type="checkbox"/>
j	Endometriosis <input type="checkbox"/>
k	Polycystic Ovary Syndrome <input type="checkbox"/>
l	Urinary tract infection <input type="checkbox"/>
m	Chlamydia <input type="checkbox"/>
n	Genital herpes <input type="checkbox"/>
o	Genital warts (HPV) <input type="checkbox"/>
p	HIV or AIDS <input type="checkbox"/>
q	Hepatitis B or C <input type="checkbox"/>
r	Skin cancer <input type="checkbox"/>
s	Other cancer <i>(Please specify on page 30)</i> <input type="checkbox"/>
t	Other major physical illness <i>(Please specify on page 30)</i> <input type="checkbox"/>
u	Other major mental illness <i>(Please specify on page 30)</i> <input type="checkbox"/>
v	Other sexually transmitted infection <i>(Please specify on page 30)</i> <input type="checkbox"/>
w	Other <i>(Please specify on page 30)</i> <input type="checkbox"/>
x	None of these conditions <input type="checkbox"/>

■ **women's health**

Q13 In the *last 12 months*, have you had any of the following:
(Mark one on each line. For all that apply, also answer columns B and C).

		A				B	C
		Never	Rarely	Some-times	Often	Mark here if you did seek help	Mark here if you were not satisfied
a	Allergies, hay fever, sinusitis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b	Headaches / migraines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c	Severe tiredness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d	Indigestion (heart burn)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e	Breathing difficulties	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f	Stiff or painful joints	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g	Back pain	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h	Problems with one or both feet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i	Urine that burns or stings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j	Leaking urine	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
k	Constipation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
l	Haemorrhoids (piles)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
m	Other bowel problems	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
n	Vaginal discharge or irritation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
o	Premenstrual tension	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
p	Irregular periods	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
q	Heavy periods	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
r	Severe period pain	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
s	Skin problems	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
t	Difficulty sleeping	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
u	Depression	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
v	Episodes of intense anxiety (eg panic attacks)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
w	Other mental health problems	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
x	Palpitations (feeling that your heart is racing or fluttering in your chest)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q14 What is your date of birth?
(Write date in boxes)

D	D	M	M	1	9	Y	Y
Day		Month				Year	

Q15 What is your postcode?

a What is your RESIDENTIAL postcode?
(where you live)

--	--	--	--	--

Mark here if living overseas

b What is the postcode of your POSTAL ADDRESS?
(if different from residential)

--	--	--	--	--

Q16 When you are outside on a typical summer day, how often do you do the following things to protect yourself from the sun? (Mark one on each line)

	Never	Rarely	Sometimes	Usually	Always
a Wear a hat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b Wear clothing that protects your skin	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c Wear sunglasses	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d Stay in the shade when outdoors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e Apply sunscreen to face	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f Apply sunscreen to exposed body parts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q17 When did you last have:
(Mark one on each line)

	Less than two years ago	2 to less than 3 years ago	3-5 years ago	More than five years ago	Never	Not sure
a A Pap test?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b Your blood pressure checked?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c Your skin checked (eg spots, lesions, moles)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q18 Have you ever had a vaccination for HPV (genital warts, cervical cancer)? (Mark one only)

Yes
No

Q19 Please write down the names of all your medications, vitamins, supplements or herbal therapies that you have taken in the **last 4 weeks**. Where possible, copy names from the packets.
(Please write in block letters)

None

a	<input type="text"/>	h	<input type="text"/>
b	<input type="text"/>	i	<input type="text"/>
c	<input type="text"/>	j	<input type="text"/>
d	<input type="text"/>	k	<input type="text"/>
e	<input type="text"/>	l	<input type="text"/>
f	<input type="text"/>	m	<input type="text"/>
g	<input type="text"/>	n	<input type="text"/>

■ **women's health**

The questions on this page ask only about **now** - how your health is now and about how your health limits certain activities now.

Q20 In general, would you say your health is:

(Mark one only)

- Excellent
 Very good
 Good
 Fair
 Poor

Q21 Compared to one year ago, how would you rate your health in general now? (Mark one only)

- Much better now than one year ago
 Somewhat better now than one year ago
 About the same as one year ago
 Somewhat worse now than one year ago
 Much worse now than one year ago

Q22 The following questions are about activities you might do during a typical day.

Does **your health now limit you** in these activities? If so, how much? (Mark one on each line)

	Yes, limited a lot	Yes, limited a little	No, not limited at all
a Vigorous activities such as running, lifting heavy objects, participating in strenuous sports	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b Moderate activities, such as moving a table, pushing a vacuum cleaner, bowling or playing golf	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c Lifting or carrying groceries	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d Climbing <u>several</u> flights of stairs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e Climbing <u>one</u> flight of stairs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f Bending, kneeling or stooping	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g Walking <u>more than one</u> kilometre	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h Walking <u>half</u> a kilometre	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i Walking 100 metres	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j Bathing or dressing yourself	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q23 During the **past 4 weeks**, have you had any of the following problems with your work (including your work outside the home and housework) or other regular daily activities as a result of your physical health? (Mark one on each line)

	Yes	No
a Cut down on the amount of time you spent on work or other activities	<input type="checkbox"/>	<input type="checkbox"/>
b Accomplished less than you would like	<input type="checkbox"/>	<input type="checkbox"/>
c Were limited in the kind of work or other activities	<input type="checkbox"/>	<input type="checkbox"/>
d Had difficulty performing the work or other activities (for example it took extra effort)	<input type="checkbox"/>	<input type="checkbox"/>

Q24 During the *past 4 weeks*, have you had any of the following problems with your work or other regular daily activities *as a result of any emotional problems* (such as feeling depressed or anxious)? (Mark *one on each line*)

		Yes	No
a	Cut down on the amount of time you spent on work or other activities	<input type="checkbox"/>	<input type="checkbox"/>
b	Accomplished less than you would like	<input type="checkbox"/>	<input type="checkbox"/>
c	Didn't do work or other activities as carefully as usual	<input type="checkbox"/>	<input type="checkbox"/>

Q25 During the *past 4 weeks*, to what extent has your *physical health or emotional problems* interfered with your normal social activities with family, friends, neighbours or groups? (Mark *one only*)

- Not at all
- Slightly
- Moderately
- Quite a bit
- Extremely

Q26 How much *bodily pain* have you had during the *past 4 weeks*? (Mark *one only*)

- None
- Very mild
- Mild
- Moderate
- Severe
- Very severe

Q27 During the *past 4 weeks*, how much did *pain* interfere with your normal work (including both work outside the home and housework)? (Mark *one only*)

- Not at all
- A little bit
- Moderately
- Quite a bit
- Extremely

Q28 For each question, please give the one answer that comes closest to the way you have been feeling. How much of the time during the *past 4 weeks*: (Mark *one on each line*)

		All of the time	Most of the time	A good bit of the time	Some of the time	A little of the time	None of the time
a	Did you feel full of life?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b	Have you been a very nervous person?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c	Have you felt so down in the dumps that nothing could cheer you up?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d	Have you felt calm and peaceful?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e	Did you have a lot of energy?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f	Have you felt down?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g	Did you feel worn out?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h	Have you been a happy person?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i	Did you feel tired?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q29 During the *past 4 weeks*, how much of the time has your *physical health or emotional problems* interfered with your social activities (like visiting friends, relatives etc)? (Mark *one only*)

- | | | | |
|------------------|--------------------------|----------------------|--------------------------|
| All of the time | <input type="checkbox"/> | A little of the time | <input type="checkbox"/> |
| Most of the time | <input type="checkbox"/> | None of the time | <input type="checkbox"/> |
| Some of the time | <input type="checkbox"/> | | |

Q30 How *true or false* is *each of the following statements* for you? (Mark *one on each line*)

		Definitely true	Mostly true	Don't know	Mostly false	Definitely false
a	I seem to get sick a little easier than other people	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b	I am as healthy as anybody I know	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c	I expect my health to get worse	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d	My health is excellent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q31 Have you and your partner (current or previous) ever had problems with fertility - that is, tried unsuccessfully for 12 months or more to get pregnant? (Mark *one only*)

- No, have never tried to get pregnant
- No, have had no problem with fertility
- Yes, but have not sought help / treatment
- Yes, and have sought help / treatment

Q32 Have you ever had any of the following operations or procedures? (Mark *one on each line*)

		Yes	No
a	Hysterectomy	<input type="checkbox"/>	<input type="checkbox"/>
b	One ovary removed	<input type="checkbox"/>	<input type="checkbox"/>
c	Both ovaries removed	<input type="checkbox"/>	<input type="checkbox"/>
d	Repair of prolapsed vagina, bladder or bowel	<input type="checkbox"/>	<input type="checkbox"/>
e	Lumpectomy (removal of lump from breasts)	<input type="checkbox"/>	<input type="checkbox"/>
f	Breast biopsy (taking a sample of breast tissue)	<input type="checkbox"/>	<input type="checkbox"/>
g	Cholecystectomy (gall bladder removed)	<input type="checkbox"/>	<input type="checkbox"/>
h	Gastric banding	<input type="checkbox"/>	<input type="checkbox"/>
i	Cosmetic surgery	<input type="checkbox"/>	<input type="checkbox"/>

Q33 Do any of the following apply to you? (Mark *one on each line*)

		Yes	No
a	I am pregnant now / have recently had a baby	<input type="checkbox"/>	<input type="checkbox"/>
b	I am trying to become pregnant	<input type="checkbox"/>	<input type="checkbox"/>
c	I have had a tubal ligation	<input type="checkbox"/>	<input type="checkbox"/>
d	I have had a hysterectomy	<input type="checkbox"/>	<input type="checkbox"/>
e	My partner has had a vasectomy	<input type="checkbox"/>	<input type="checkbox"/>
f	I cannot have children	<input type="checkbox"/>	<input type="checkbox"/>
g	My partner cannot have children	<input type="checkbox"/>	<input type="checkbox"/>
h	My partner has a low or zero sperm count	<input type="checkbox"/>	<input type="checkbox"/>
i	I have no male sexual partners now	<input type="checkbox"/>	<input type="checkbox"/>
j	I am using / have used In Vitro Fertilisation (IVF)	<input type="checkbox"/>	<input type="checkbox"/>
k	I am using / have used fertility hormones (eg Clomid)	<input type="checkbox"/>	<input type="checkbox"/>

Q34 What forms of contraception do you use now? (Mark all that apply)

a	I use a combined oral contraceptive pill (The Pill)	<input type="checkbox"/>
b	I use a progestogen only oral contraceptive pill (The Mini Pill)	<input type="checkbox"/>
c	I use the oral contraceptive pill but I don't know what type	<input type="checkbox"/>
d	I use condoms	<input type="checkbox"/>
e	I use emergency contraception (eg morning after pill)	<input type="checkbox"/>
f	I use an implant (eg Implanon)	<input type="checkbox"/>
g	I use the withdrawal method	<input type="checkbox"/>
h	I use a copper intrauterine device (IUD)	<input type="checkbox"/>
i	I use a progestogen intrauterine device (IUD) (eg Mirena)	<input type="checkbox"/>
j	I use an injection (eg Depo-provera)	<input type="checkbox"/>
k	I use a safe period method (eg natural family planning, rhythm method, Billings method, body temperature method, periodic abstinence)	<input type="checkbox"/>
l	I use a vaginal ring (eg Nuvaring)	<input type="checkbox"/>
m	I use another method of contraception	<input type="checkbox"/>
n	I don't use contraception	<input type="checkbox"/>

Q35 Are you currently pregnant? (Mark one only)

No	<input type="checkbox"/>	More than 6 months	<input type="checkbox"/>
Less than 3 months	<input type="checkbox"/>	Don't know	<input type="checkbox"/>
3 to 6 months	<input type="checkbox"/>		

Q36 Have you ever been pregnant?

Yes

No → **If no, go to Q48**

Q37 How many times have you had each of the following? (Mark one on each line)

		None	One	Two	Three	Four	5 or more
a	Live birth	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b	Stillbirth	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c	Miscarriage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d	Termination (abortion) for medical reasons (eg fetal abnormalities)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e	Termination (abortion) for other reasons	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f	Ectopic pregnancy (tubal pregnancy)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q38 For your most recent pregnancy, were you: (Mark one on each line)

		Never	Yes, during pregnancy	Yes, following birth	Yes, both during pregnancy and following birth
a	Given any information about emotional well being during pregnancy and early parenthood (eg about depression, anxiety, parenting stress)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b	Asked any questions by a midwife, GP, child health nurse or other professional about your emotional well being (eg given a questionnaire to complete)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q39 Have you ever given birth to a child?

Yes

No → If no, go to Q48

Q40 If you have ever given birth to a child, please write the date of each birth in the box.

(If you had twins, please write the date twice)

1 st	2 nd	3 rd
D D M M Y Y Y Y	D D M M Y Y Y Y	D D M M Y Y Y Y
4 th	5 th	6 th
D D M M Y Y Y Y	D D M M Y Y Y Y	D D M M Y Y Y Y
7 th	8 th	9 th
D D M M Y Y Y Y	D D M M Y Y Y Y	D D M M Y Y Y Y

Q41 Did you experience any of the following?
(Mark all that apply on each line)

	Never experienced this	1 st Child	2 nd Child	3 rd Child	4 th Child	5 th Child	6 th Child	7 th Child	8 th Child	9 th Child
a Premature birth	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b Caesarean section before going into labour	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c Caesarean section after labour started	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d Labour lasting more than 36 hours	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e Episiotomy (cutting of vagina)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f A vaginal tear requiring stitches	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g Forceps or Ventouse suction ('vacuum')	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h Medical removal of placenta and / or blood clots by hand	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i Excessive blood loss requiring extra blood or fluid by drip (IV infusion)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j A low birth weight baby (weighing less than 2500 grams or 5 ½ pounds)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
k Epidural or spinal block	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
l Gas or injection for pain relief	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
m Emotional distress	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q42 Were you diagnosed or treated for:

(Mark all that apply on each line)

	Never experienced this	1 st Child	2 nd Child	3 rd Child	4 th Child	5 th Child	6 th Child	7 th Child	8 th Child	9 th Child
a Antenatal depression?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b Postnatal depression?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c Antenatal anxiety?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d Postnatal anxiety?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e Gestational diabetes?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f Hypertension (high blood pressure) during pregnancy?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q43 How many complete months have you breastfed each of your children?

(Please write the number of MONTHS in the boxes)

1 st Child	2 nd Child	3 rd Child	4 th Child	5 th Child	6 th Child	7 th Child	8 th Child	9 th Child
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Q44 At the time of the birth of your last child were you employed (even if you were on leave)?
(Mark *one only*)

Yes
No

Q45 If you went back to paid work after the birth of your last child, how soon did you go back?
(Please write the number of MONTHS in the boxes)

Months Not applicable

Q46 If you did NOT go back to paid work after the birth of your last child: Yes No
(Mark *one on each line*)

a	Are you currently on maternity leave?	<input type="checkbox"/>	<input type="checkbox"/>
b	Are you planning to go back to paid work?	<input type="checkbox"/>	<input type="checkbox"/>

Q47 Thinking about the birth of your last child: (Mark *one on each line*) Yes No

a	Did you take <u>paid</u> maternity leave?	<input type="checkbox"/>	<input type="checkbox"/>
b	Did you take <u>unpaid</u> maternity leave?	<input type="checkbox"/>	<input type="checkbox"/>

Q48 Do you have children living with you (your own, your partner's, fostered etc)? (Mark *one only*)

Yes
No → If no, go to Q52

Q49 If you have children living with you (your own, your partner's, fostered etc), how many are:
(Mark *one on each line*)

		None	One	Two	Three	Four or more
a	Under 12 months?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b	12 months - 5 years?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c	6 - 12 years?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d	13 - 16 years?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

*Most parents need someone to care for their children when they cannot.
Formal child care includes before and / or after school care, long day care, family day care, occasional care and preschool. Informal child care includes care by family, friends (paid or unpaid) and a paid babysitter.*

Q50 Whether you use child care or not, please answer the following questions.
(Mark *one on each line*)

		Yes	No	Don't know
a	Is formal child care located in an area convenient to you?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b	Are formal child care places available to you?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c	Is the cost of formal child care a problem for you?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d	Is informal child care available to you?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q51 In a normal week, how often do you usually use child care? (Mark *one on each line*)

		Do not use this type of child care	Less than 5 hrs	5-10 hrs	11-20 hrs	21-30 hrs	31-40 hrs	More than 40 hrs
a	Formal care	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b	Informal care	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q52 How tall are you without shoes? (If you are not sure, please estimate) cms

Q53 How much do you weigh without clothes or shoes? If you are pregnant now, write in the weight you were in the month prior to pregnancy. (If you are not sure, please estimate) kgs

Q54 What is your waist measurement?
Please measure your waist while in your underwear. If possible, get someone to help you take the measurement. Find your navel (belly button) and measure at that level. Be careful not to have the tape too tight. You should be able to slip your little finger under it comfortably. Write the measurement to the nearest centimetre.
If you are pregnant now, write in your waist measurement for the month prior to your pregnancy.

cms

Q55 Have you used any of these methods to lose weight or to control your weight or shape in the last twelve months? (Mark one on each line)

	Yes	No
a Commercial weight loss programs (eg Weight Watchers®, Lite n' Easy®, Sureslim®, Jenny Craig®)	<input type="checkbox"/>	<input type="checkbox"/>
b Meal replacements or slimming products (eg OPTIFAST®, Herbalife®)	<input type="checkbox"/>	<input type="checkbox"/>
c Exercise	<input type="checkbox"/>	<input type="checkbox"/>
d Cut down on the size of meals or between meal snacks	<input type="checkbox"/>	<input type="checkbox"/>
e Cut down on fats (low fat) and / or sugars	<input type="checkbox"/>	<input type="checkbox"/>
f Low glycaemic index (GI) diet	<input type="checkbox"/>	<input type="checkbox"/>
g Diet book diets (eg Atkins, Zone, CSIRO diet, Liver Cleansing diet)	<input type="checkbox"/>	<input type="checkbox"/>
h Laxatives, diuretics or diet pills (eg Xenical®, Reductil®)	<input type="checkbox"/>	<input type="checkbox"/>
i Fasting	<input type="checkbox"/>	<input type="checkbox"/>
j Smoking	<input type="checkbox"/>	<input type="checkbox"/>
k Other	<input type="checkbox"/>	<input type="checkbox"/>

Q56 How much would you like to weigh now? (Mark one only)

- Happy as I am
- 1 – 5 kg more
- Over 5 kg more
- 1 – 5 kg less
- 6 – 10 kg less
- Over 10 kg less

Q57 In the past month, how dissatisfied have you felt about:
(Mark one on each line)

	Not at all dissatisfied	Slightly dissatisfied	Moderately dissatisfied	Markedly dissatisfied
a Your weight	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b Your shape	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

■
Q58 How often do you currently smoke cigarettes or any tobacco products? (Mark one only)

- Daily → Go to Q59a
At least weekly (but not daily) → Go to Q59b
Less often than weekly } → Go to Q60
Not at all }

Q59 a. If you smoke daily, on average how many cigarettes do you smoke each day?

PRINT the number in the box cigarettes per day → Go to Q63

b. If you smoke, but not daily, on average how many cigarettes do you smoke per week?

PRINT the number in the box cigarettes per week

Q60 In your lifetime, would you have smoked at least 100 cigarettes (or equivalent)? (Mark one only) Yes No → If no, go to Q64

Q61 Have you ever smoked daily? (Mark one only) Yes No → If no, go to Q64

Q62 At what age did you finally stop smoking daily? (Write age in boxes) years old ■

Q63 Have you tried to quit smoking in the last six months? (Mark one only) Yes No

Q64 How often do you usually drink alcohol? (Mark one only)

- I never drink alcohol → Go to Q67
Less than once a month
Less than once a week
On 1 or 2 days a week
On 3 or 4 days a week
On 5 or 6 days a week
Every day

Q65 On a day when you drink alcohol, how many standard drinks do you usually have? (Mark one only)

- 1 or 2 drinks per day 5 or 8 drinks per day
3 or 4 drinks per day 9 or more drinks per day

Q66 How often do you have five or more standard drinks of alcohol on one occasion? (Mark one only)

- Never About once a week
Less than once a month More than once a week
About once a month

Q67 At what age did you first have five or more drinks on one occasion? (Write age in boxes)

years old Have never drunk five or more drinks on one occasion

Q68 How often did you have five or more drinks on one occasion when you were:

		Never	Less than once a month	About once a month	About once a week	More than once a week
a	Sixteen years old	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b	Seventeen years old	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c	Eighteen years old	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d	Nineteen years old	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e	Twenty years old	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f	Twenty one years old	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Remember that any information you give us is kept confidential.

Q69 The following question asks about the use of drugs for *non-medical* purposes. We want to know about general patterns of use. Please do not give details of specific instances of use. (Mark all that apply)

		In the last 12 months	More than 12 months ago	Never
a	Have you tried Marijuana (cannabis, hash, grass, dope, pot, yandi)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b	Have you tried any other illicit drugs (amphetamines, LSD, natural hallucinogens, tranquilisers, cocaine, ecstasy, inhalants, heroin or barbiturates)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The next question is about the amount of physical activity you did *last week*.

Q70 Please state how many times you did each type of activity and how much time you spent altogether doing each type of activity *last week*. Only count activities that lasted for 10 minutes or more; add up all the times you spent in each activity to get the total time for each activity. (If you did *not* do an activity, please write '0' in the boxes)

		Number of times	Total time in this activity	
			hours	minutes
a	Walking briskly (for recreation or exercise, or to get from place to place)	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>
b	Moderate leisure activity (like social tennis, moderate exercise classes, recreational swimming, dancing)	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>
c	Vigorous leisure activity (that makes you breathe harder or puff and pant like aerobics, competitive sport, vigorous cycling, running, swimming)	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>
d	Vigorous household or garden chores (that make you breathe harder or puff and pant)	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>

Now think about all of the time you spend sitting during *each day* while at home, at work, while getting from place to place or during your spare time.

Q71 How many hours in total do you typically spend sitting down while doing things like visiting friends, driving, reading, watching television, or working at a desk or computer?

a	On a usual week day	<input type="text"/> <input type="text"/>	hours	<input type="text"/> <input type="text"/>	minutes
b	On a usual weekend day	<input type="text"/> <input type="text"/>	hours	<input type="text"/> <input type="text"/>	minutes

This section is about your **usual eating habits over the past 12 months**. Where possible give only **one answer per question** for the type of food you eat **most often**. (If you can't decide which type you have most often, answer for the types you usually eat.)

Q72 How many pieces of fresh fruit do you usually eat per day? (Count ½ cup of diced fruit, berries or grapes as one piece) (Mark *one only*)

- I don't eat fruit
- Less than 1 piece of fruit per day
- 1 piece of fruit per day
- 2 pieces of fruit per day
- 3 pieces of fruit per day
- 4 or more pieces of fruit per day

Q73 How many different vegetables do you usually eat per day? (Count all types, fresh, frozen or tinned) (Mark *one only*)

- Less than 1 vegetable per day
- 1 vegetable per day
- 2 vegetables per day
- 3 vegetables per day
- 4 vegetables per day
- 5 vegetables per day
- 6 or more vegetables per day

Q74 What type of milk do you usually use? (Mark *all that apply*)

- a None
- b Full cream milk
- c Reduced fat milk
- d Skim milk
- e Soya milk

Q75 How much milk do you usually use per day? (Include flavoured milk and milk added to tea, coffee, cereal etc) (Mark *one only*)

- None
- Less than 250 ml (1 large cup or mug)
- Between 250 and 500 ml (1-2 cups)
- Between 500 and 750 ml (2-3 cups)
- 750 ml (3 cups) or more

Q76 What type of bread do you usually eat? (Mark *all that apply*)

- a I don't eat bread
- b High fibre white bread
- c White bread
- d Wholemeal bread
- e Rye bread
- f Multi-grain bread

Q77 How many slices of bread do you usually eat per day? (Include all types, fresh or toasted and count one bread roll as 2 slices) (Mark *one only*)

- Less than 1 slice per day
- 1 slice per day
- 2 slices per day
- 3 slices per day
- 4 slices per day
- 5-7 slices per day
- 8 or more slices per day

Q78 Which spread do you usually put on bread? (Mark *all that apply*)

- a I don't usually use any fat spread
- b Margarine of any kind
- c Polyunsaturated margarine
- d Monounsaturated margarine
- e Butter and margarine blends
- f Butter

Q79 On average, how many teaspoons of sugar do you usually use per day? (Include sugar taken with tea and coffee and on breakfast cereal etc) (Mark *one only*)

- None
- 1 to 4 teaspoons per day
- 5 to 8 teaspoons per day
- 9 to 12 teaspoons per day
- More than 12 teaspoons per day

Q80 On average, how many eggs do you usually eat per week? (Mark *one only*)

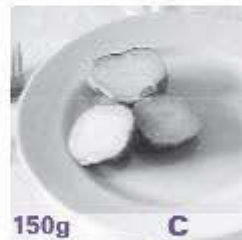
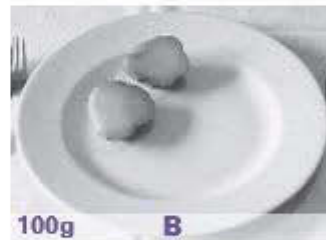
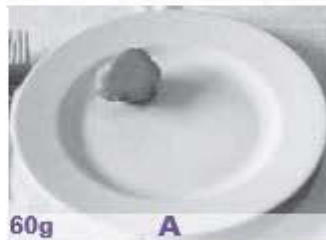
- I don't eat eggs
- Less than 1 egg per week
- 1 to 2 eggs per week
- 3 to 5 eggs per week
- 6 or more eggs per week

Q81 What types of cheese do you usually eat? (Mark *all that apply*)

- a I don't eat cheese
- b Hard cheeses, eg parmesan, romano
- c Firm cheeses, eg cheddar, edam
- d Soft cheeses, eg camembert, brie
- e Ricotta or cottage cheese
- f Cream cheese
- g Low fat cheese

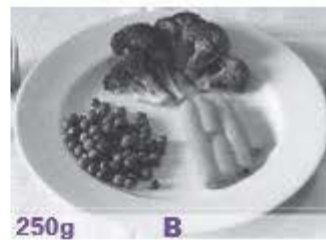
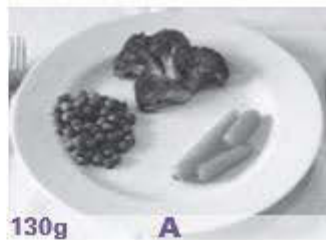
For each food shown on this page, indicate **how much on average you would usually have eaten at main meals during the *past 12 months***. When answering each question, think of the **amount** of that food you usually ate, even though you may rarely have eaten the food on your own. If you usually ate more than one helping, mark the box for the serving size closest to the **total amount** you ate.

Q82 When you ate potato, did you usually eat: I never ate potato



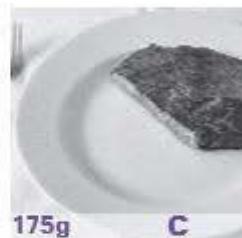
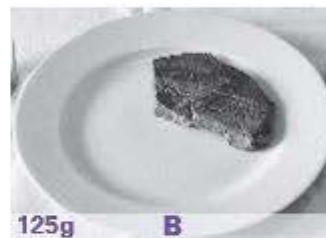
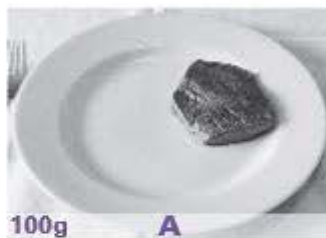
- Less than A
 A
 Between A & B
 B
 Between B & C
 C

Q83 When you ate vegetables, did you usually eat: I never ate vegetables



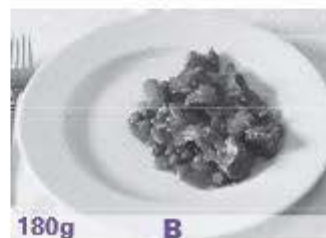
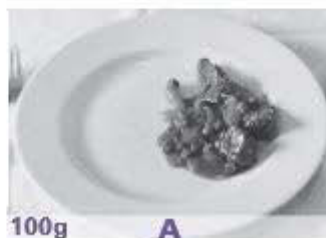
- Less than A
 A
 Between A & B
 B
 Between B & C
 C

Q84 When you ate steak, did you usually eat: I never ate steak



- Less than A
 A
 Between A & B
 B
 Between B & C
 C

Q85 When you ate meat or vegetable casserole, did you usually eat: I never ate casserole



- Less than A
 A
 Between A & B
 B
 Between B & C
 C

Q86 Over the *last 12 months*, on average, how often did you eat the following foods?
(Mark one on each line)

		Never	Less than 1 to 3		1	2	3 to 4	5 to 6	1	2	3 or more
			once	times	time	times	times	times	time	times	times
TIMES YOU HAVE EATEN			per month	per week			per day				
Cereal, Foods, Sweets & Snacks											
a	All Bran™	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b	Sultana Bran™, FibrePlus™, Branflakes™	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c	Weet Bix™, Vita Brits™, Weeties™	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d	Cornflakes, Nutrigrain™, Special K™	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e	Porridge	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f	Muesli	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g	Rice	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h	Pasta or noodles (include lasagne)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i	Crackers, crispbreads, dry biscuits	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j	Sweet biscuits	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
k	Cakes, sweet pies, tarts and other sweet pastries	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
l	Meat pies, pasties, quiche and other savoury pastries	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
m	Pizza	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
n	Hamburger with a bun	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
o	Chocolate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
p	Flavoured milk drink (cocoa, Milo™ etc)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
q	Nuts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
r	Peanut butter or peanut paste	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
s	Corn chips, potato crisps, Twisties™ etc	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
t	Jam, marmalade, honey or syrups	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
u	Vegemite™, Marmite™ or Promite™	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dairy Products, Meat & Fish											
a	Cheese	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b	Ice-cream	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c	Yoghurt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d	Beef	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e	Veal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f	Chicken	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g	Lamb	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h	Pork	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i	Bacon	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j	Ham	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
k	Corned beef, luncheon meats or salami	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
l	Sausages or frankfurters	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
m	Fish, steamed, grilled or baked	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
n	Fish, fried (include take-away)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
o	Fish, tinned (salmon, tuna, sardines etc)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fruit											
a	Tinned or frozen fruit (any kind)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b	Fruit juice	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c	Oranges or other citrus fruit	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d	Apples	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e	Pears	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f	Bananas	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

TIMES YOU HAVE EATEN
CONTINUED

	Never	Less than once	1 to 3 times	1 time	2 times	3 to 4 times	5 to 6 times	1 time	2 times	3 or more times
		per month	per month	per week	per week	per week	per week	per day	per day	per day
Fruit										
g										
h										
i										
j										
k										
l										
m										
Vegetables (including fresh, frozen and tinned)										
a										
b										
c										
d										
e										
f										
g										
h										
i										
j										
k										
l										
m										
n										
o										
p										
q										
r										
s										
t										
u										
v										
w										
x										
y										

Q87 Over the last 12 months, how often did you drink beer, wine and / or spirits? (Mark one on each line)

If you do NOT drink alcohol, mark here and go to Q89.

I do not drink alcohol

	Never	Less than once	1 to 3 days	1 day	2 days	3 days	4 days	5 days	6 days	every day
		per month	per month	per week	per week	per week	per week	per week	per week	per week
a										
b										
c										
d										
e										
f										

When answering the next two questions, please convert the amounts you drink into glasses using the examples given below. For spirits, liqueurs and mixed drinks containing spirits, please count each nip (30 ml) as one glass.
 1 can or stubby of beer = 2 glasses 1 bottle wine (750 ml) = 6 glasses
 1 large bottle beer (750 ml) = 4 glasses 1 bottle of port or sherry (750 ml) = 12 glasses

Q88 Over the *last 12 months*, on days when you were drinking, how many glasses of beer, wine and / or spirits altogether did you usually drink?
 (Mark *one only*)

	One	Two	Three	Four	Five	Six	Seven	Eight	Nine	Ten or more
Total number of glasses per day	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q89 Over the *last 12 months*, what was the maximum number of glasses of beer, wine and / or spirits that you drank in 24 hours?
 (Mark *one only*)

	1-2	3-4	5-6	7-8	9-10	11-12	13-14	15-16	17-18	19 or more
Maximum number of glasses per 24 hours	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Questions 72 to 89 are from the Cancer Council of Victoria Food Frequency Questionnaire and are used with their permission.

Q90 Over the *last 12 months*, on average, how often did you drink the following?
 (Mark *one on each line*)

	Never	Less than once per month	1 to 3 times per month	1 time per week	2 times per week	3 to 4 times per week	5 to 6 times per week	1 time per day	2 times per day	3 or more times per day
a Cola drinks - not diet (eg Coke)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b Diet cola drinks (eg Diet Coke™)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c Other carbonated (eg fizzy / soft drinks)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d Cordials, fruit or sport drinks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e Milk or soya milk (including flavoured varieties)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f Fruit or vegetable juices	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g Tea	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h Herbal tea	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i Coffee	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j Water (including soda or plain mineral water)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q91 Over the *last 12 months*, how stressed have you felt about the following areas of your life?
 (Mark *one on each line*)

	Not applicable	Not at all stressed	Somewhat stressed	Moderately stressed	Very stressed	Extremely stressed
a Own health	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b Health of family members	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c Work / employment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d Living arrangements	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e Study	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f Money	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g Relationship with parents	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h Relationship with partner / spouse	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i Relationship with other family members	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j Relationship with friends	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
k Motherhood / children	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

■ *women's health*

Q92 People sometimes look to others for companionship, assistance, or other types of support. How often is each of the following kind of support available to you if you need it?

(Mark one on each line)

		None of the time	A little of the time	Some of the time	Most of the time	All of the time
a	Someone to help you if you are confined to bed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b	Someone you can count on to listen to you when you need to talk	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c	Someone to give you good advice about a crisis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d	Someone to take you to the doctor if you need it	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e	Someone who shows you love and affection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f	Someone to have a good time with	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g	Someone to give you information to help you understand a situation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h	Someone to confide in or talk to about yourself or your problems	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i	Someone who hugs you	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j	Someone to get together with for relaxation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
k	Someone to prepare your meals if you are unable to do it yourself	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
l	Someone whose advice you really want	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
m	Someone to do things with to help you get your mind off things	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
n	Someone to help with daily chores if you are sick	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
o	Someone to share your most private worries and fears with	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
p	Someone to turn to for suggestions about how to deal with a personal problem	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
q	Someone to do something enjoyable with	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
r	Someone who understands your problems	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
s	Someone to love and make you feel wanted	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q93 Thinking about your current approach to life, please indicate how much you think each statement describes you:

(Mark one on each line)

		Strongly disagree	Disagree	Neutral	Agree	Strongly agree
a	In uncertain times, I usually expect the best	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b	If something can go wrong for me, it will	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c	I'm always optimistic about my future	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d	I hardly ever expect things to go my way	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e	I rarely count on good things happening to me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f	Overall, I expect more good things to happen to me than bad	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

women's health

Q94 Have you experienced any of the following events?
(Mark *all that apply*)

		A Yes – In the last 12 months	B Yes – More than 12 months ago
a	Major personal illness	<input type="checkbox"/>	<input type="checkbox"/>
b	Major personal injury	<input type="checkbox"/>	<input type="checkbox"/>
c	Major surgery (not including dental work)	<input type="checkbox"/>	<input type="checkbox"/>
d	Birth of a child	<input type="checkbox"/>	<input type="checkbox"/>
e	Having a child with a disability or serious illness	<input type="checkbox"/>	<input type="checkbox"/>
f	Starting a new, close personal relationship	<input type="checkbox"/>	<input type="checkbox"/>
g	Getting married (or starting to live with someone)	<input type="checkbox"/>	<input type="checkbox"/>
h	Problem or break-up in a close personal relationship	<input type="checkbox"/>	<input type="checkbox"/>
i	Divorce or separation	<input type="checkbox"/>	<input type="checkbox"/>
j	Becoming a sole parent	<input type="checkbox"/>	<input type="checkbox"/>
k	Increased hassles with parents	<input type="checkbox"/>	<input type="checkbox"/>
l	Serious conflict between members of your family	<input type="checkbox"/>	<input type="checkbox"/>
m	Parents getting divorced, separated or remarried	<input type="checkbox"/>	<input type="checkbox"/>
n	Death of partner or close family member	<input type="checkbox"/>	<input type="checkbox"/>
o	Death of a child	<input type="checkbox"/>	<input type="checkbox"/>
p	Stillbirth of a child	<input type="checkbox"/>	<input type="checkbox"/>
q	Miscarriage	<input type="checkbox"/>	<input type="checkbox"/>
r	Death of a close friend	<input type="checkbox"/>	<input type="checkbox"/>
s	Difficulty finding a job	<input type="checkbox"/>	<input type="checkbox"/>
t	Return to study	<input type="checkbox"/>	<input type="checkbox"/>
u	Beginning / resuming work outside the home	<input type="checkbox"/>	<input type="checkbox"/>
v	Distressing harassment at work	<input type="checkbox"/>	<input type="checkbox"/>
w	Loss of job	<input type="checkbox"/>	<input type="checkbox"/>
x	Partner losing a job	<input type="checkbox"/>	<input type="checkbox"/>
y	Decreased income	<input type="checkbox"/>	<input type="checkbox"/>
z	Natural disaster (fire, flood, drought, earthquake etc) or house fire	<input type="checkbox"/>	<input type="checkbox"/>
aa	Major loss or damage to personal property	<input type="checkbox"/>	<input type="checkbox"/>
bb	Being robbed	<input type="checkbox"/>	<input type="checkbox"/>
cc	Involvement in a serious accident	<input type="checkbox"/>	<input type="checkbox"/>
dd	Being pushed, grabbed, shoved, kicked or hit	<input type="checkbox"/>	<input type="checkbox"/>
ee	Being forced to take part in unwanted sexual activity	<input type="checkbox"/>	<input type="checkbox"/>
ff	Legal troubles or involvement in a court case	<input type="checkbox"/>	<input type="checkbox"/>
gg	Family member / close friend being arrested / in gaol	<input type="checkbox"/>	<input type="checkbox"/>
hh	You or a family member involved in problem gambling	<input type="checkbox"/>	<input type="checkbox"/>
ii	None of these events	<input type="checkbox"/>	

Q95 In the *past week*, have you been feeling that life isn't worth living? (Mark *one only*)

Yes No

Q96 In the *past 6 months*, have you *ever* deliberately hurt yourself or done anything that you knew might have harmed or even killed you? (Mark *one only*)

Yes No

If you answered yes to either of the last 2 questions, you might like to talk to someone about how you are feeling. You could ring Lifeline on 13 11 14 (local call).

Q97 Below is a list of the ways you might have felt or behaved. Please indicate how often you have felt this way *during the last week*. (Mark *one on each line*)

		Rarely or none of the time (less than 1 day)	Some or a little of the time (1-2 days)	Occasionally or a moderate amount of the time (3-4 days)	Most or all of the time (5-7 days)
a	I was bothered by things that don't usually bother me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b	I had trouble keeping my mind on what I was doing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c	I felt depressed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d	I felt that everything I did was an effort	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e	I felt hopeful about the future	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f	I felt fearful	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g	My sleep was restless	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h	I was happy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i	I felt lonely	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j	I could not 'get going'	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
k	I felt terrific	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q98 Next are some specific questions about your health and how you have been feeling in the *past month*. (Mark *one on each line*)

		Yes	No
a	Have you felt keyed up or on edge?	<input type="checkbox"/>	<input type="checkbox"/>
b	Have you been worrying a lot?	<input type="checkbox"/>	<input type="checkbox"/>
c	Have you been irritable?	<input type="checkbox"/>	<input type="checkbox"/>
d	Have you had difficulty relaxing?	<input type="checkbox"/>	<input type="checkbox"/>
e	Have you been sleeping poorly?	<input type="checkbox"/>	<input type="checkbox"/>
f	Have you had headaches or neck aches?	<input type="checkbox"/>	<input type="checkbox"/>
g	Have you had any of the following: trembling, tingling, dizzy spells, sweating, diarrhoea or needing to pass urine more often than usual?	<input type="checkbox"/>	<input type="checkbox"/>
h	Have you been worried about your health?	<input type="checkbox"/>	<input type="checkbox"/>
i	Have you had difficulty falling asleep?	<input type="checkbox"/>	<input type="checkbox"/>

Q99 Do you regularly *provide* unpaid care or assistance (eg personal care, transport) to any other person because of their long-term illness, disability or frailty? (Mark *one only*)

Yes No

Q100 Do you regularly *need* help with daily tasks because of a long-term illness or disability (eg help with personal care, getting around, preparing meals etc)? (Mark *one only*)

Yes No

The following questions ask about difficult situations you may have experienced.
Some people prefer not to answer questions of this nature.
If this is true for you, please go to **Question 104**.

Q101 Have you ever had a partner or spouse? (Mark *one only*) Yes No → If no, go to Q104

Q102 This question asks about situations you may have experienced with *current or past* partners.
(Mark *as many as apply on each line*)

My Partner:		In the last 12 months	More than 12 months ago	Never
a	Told me that I wasn't good enough	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b	Kept me from medical care	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c	Followed me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d	Tried to turn my family, friends and children against me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e	Locked me in the bedroom	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f	Slapped me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g	Forced me to take part in unwanted sexual activity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h	Told me that I was ugly	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i	Tried to keep me from seeing or talking to my family	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j	Threw me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
k	Hung around outside my house	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
l	Blamed me for causing their violent behaviour	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
m	Harassed me over the telephone	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
n	Shook me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
o	Harassed me at work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
p	Pushed, grabbed or shoved me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
q	Used a knife or gun or other weapon	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
r	Became upset if dinner / housework wasn't done when they thought it should be	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
s	Told me that I was crazy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
t	Told me that no one would ever want me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
u	Took my wallet and left me stranded	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
v	Hit or tried to hit me with something	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
w	Did not want me to socialise with my female friends	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
x	Refused to let me work outside the home	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
y	Kicked me, bit me or hit me with a fist	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
z	Tried to convince my friends, family or children that I was crazy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
aa	Told me that I was stupid	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
bb	Beat me up	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q103 Have you ever been in a violent relationship with a partner / spouse? (Mark *one only*) Yes No

If you feel distressed about any experiences of violence and abuse and would like some help to deal with this, please consider contacting one of the following:
* Your nearest Women's Health Centre or Community Health Centre
* Your General Practitioner for advice about who would be the best person in your community to talk to
* A Lifeline counsellor on 13 11 14 (local call).

The following questions ask about how you use your time

Q104 Managing time is often difficult. How often do you feel:

(Mark one on each line)

		Every day	A few times a week	About once a week	About once a month	Never
a	That you are rushed, pressured, too busy?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b	That you have time on your hands that you don't know what to do with?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q105 In a usual week, how much time in total do you spend doing the following things?

(Mark one on each line)

	I don't do this activity	1-15 hours	16-24 hours	25-34 hours	35-40 hours	41-48 hours	49 hours or more
a	Active leisure (eg walking, exercise, sport)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b	Passive leisure (eg TV, music, reading, relaxation)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c	Full-time permanent paid work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d	Part-time permanent paid work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e	Casual paid work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f	Work without pay (eg family business)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g	Studying	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h	Unpaid voluntary work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i	Home duties (own / family home)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j	Looking after your / your partner's children	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q106 In a seven day week, on how many DAYS would you say you are AT WORK (paid or unpaid)?

Number of days

Q107 On average, on days when you are AT WORK (paid or unpaid), how many hours per day do you work?

Number of hours

Q108 Please estimate how much time you spent SITTING in each of the following activities on your last WORKING day and on your last NON-WORKING day (weekend day or day off).

		WORK DAY		NON-WORK DAY	
		hours	minutes	hours	minutes
a	For TRANSPORT (eg in car, bus, train etc)	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
b	At WORK (eg sitting at a desk or using a computer)	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
c	Watching TV	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
d	Using a computer at home (email, games, information, chatting)	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
e	Other leisure activities (socializing, movies, etc, but NOT including TV or computer use)	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Q109 How much time did you spend SLEEPING on each of these days?

hours	minutes	hours	minutes
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Q110 Do you normally do any of the following kinds of paid work? (Mark all that apply)

a	I don't do any paid work	<input type="checkbox"/>	→ Go to Q112
b	Paid shift work	<input type="checkbox"/>	
c	Paid work with irregular hours	<input type="checkbox"/>	
d	Paid work on short-term contract (less than one year)	<input type="checkbox"/>	
e	Paid work in more than one job	<input type="checkbox"/>	
f	Paid work at night	<input type="checkbox"/>	
g	Paid work from home	<input type="checkbox"/>	
h	Self employment	<input type="checkbox"/>	
i	None of the above	<input type="checkbox"/>	

Q111 How secure or insecure do you feel about your paid job or jobs? (Mark one only)

- I worry all the time about losing my job
- Sometimes I worry about losing my job
- I rarely or never worry about losing my job
- Don't know

Q112 Are you happy with the number of hours of paid work you do?

(Mark one only, even if you have no paid work)

- Yes, happy as is
- No, would like to do more
- No, would like to do less

Q113 We would like to know your main occupation **now** (Mark one only)

Manager or administrator (eg magistrate, farm manager, general manager, director of nursing, school principal)	<input type="checkbox"/>
Professional (eg scientist, doctor, registered nurse, allied health professional, teacher, artist)	<input type="checkbox"/>
Associate professional (eg technician, manager, youth worker, police officer)	<input type="checkbox"/>
Tradesperson or related worker (eg hairdresser, gardener, florist)	<input type="checkbox"/>
Advanced clerical or service worker (eg secretary, personal assistant, flight attendant, law clerk)	<input type="checkbox"/>
Intermediate clerical, sales or service worker (eg typist, word processing / data entry operator, receptionist, child care worker, nursing assistant, hospitality worker)	<input type="checkbox"/>
Intermediate production or transport worker (eg sewing machinist, machine operator, bus driver)	<input type="checkbox"/>
Elementary clerical, sales or service worker (eg filing / mail clerk, parking inspector, sales assistant, telemarketer, housekeeper)	<input type="checkbox"/>
Labourer or related worker (eg cleaner, factory worker, general farm hand, kitchenhand)	<input type="checkbox"/>
No paid job	<input type="checkbox"/>

Q114 Are you currently unemployed **and actively seeking work**? (Mark one only)

- No
- Yes, unemployed for less than 6 months
- Yes, unemployed for 6 months or more

Q115 What is the highest qualification you have completed? (Mark *one* only)

- No formal qualifications
- Year 10 or equivalent (eg School Certificate)
- Year 12 or equivalent (eg Higher School Certificate)
- Trade / apprenticeship (eg hairdresser, chef)
- Certificate / diploma (eg child care, technician)
- University degree
- Higher university degree (eg Grad Dip, Masters, PhD)

Q116 a What is the average gross (before tax) income that you receive each week, including pensions, allowances and financial support from parents?

b What is the average gross (before tax) income of your household each week (eg you and your partner, or you and your parents sharing a house?)
(Mark *one* for *yourself* and *one* for your *household*)

	a. Self	b. Household
No income	<input type="checkbox"/>	<input type="checkbox"/>
\$1-\$119 (\$1-\$6,239 annually)	<input type="checkbox"/>	<input type="checkbox"/>
\$120-\$299 (\$6,240-\$15,599 annually)	<input type="checkbox"/>	<input type="checkbox"/>
\$300-\$499 (\$15,600-\$25,999 annually)	<input type="checkbox"/>	<input type="checkbox"/>
\$500-\$699 (\$26,000-\$36,399 annually)	<input type="checkbox"/>	<input type="checkbox"/>
\$700-\$999 (\$36,400-\$51,999 annually)	<input type="checkbox"/>	<input type="checkbox"/>
\$1,000-\$1,499 (\$52,000-\$77,999 annually)	<input type="checkbox"/>	<input type="checkbox"/>
\$1,500-\$1,999 (\$78,000-\$103,999 annually)	<input type="checkbox"/>	<input type="checkbox"/>
\$2,000-\$2,499 (\$104,000-\$129,999 annually)	<input type="checkbox"/>	<input type="checkbox"/>
\$2,500-\$2,999 (\$130,000-\$155,999 annually)	<input type="checkbox"/>	<input type="checkbox"/>
\$3,000 or more (\$156,000 or more annually)	<input type="checkbox"/>	<input type="checkbox"/>
Don't know	<input type="checkbox"/>	<input type="checkbox"/>
Don't want to answer	<input type="checkbox"/>	<input type="checkbox"/>
I live alone (household income is the same as mine)	<input type="checkbox"/>	<input type="checkbox"/>

Q117 How many people (including yourself), are dependent on this household income? (Write number in boxes)

Q118 How do you manage on the income you have available? (Mark *one* only)

- It is impossible
- It is difficult all the time
- It is difficult some of the time
- It is not too bad
- It is easy

Q119 How much of your gross (before tax) household income do you spend on your housing (eg rent, mortgage repayments)? (Write percentage in boxes)

Q120 Which one of the following best describes your housing situation? (Mark one only)

- Private rental (including rent paid to real estate agents)
- State Department of Housing public rental
- Housing that comes with employment (eg Department of Defence, Department of Education, mining company etc)
- Owned home (with or without mortgage)
- Living with parents / in-laws

Q121 What is your present marital status? (Mark one only)

- Never married
- Married
- De facto (opposite sex)
- De facto (same sex)
- Separated
- Divorced
- Widowed

Q122 Who lives with you? (Mark all that apply)

- | | | |
|---|-------------------------|--------------------------|
| a | No one, I live alone | <input type="checkbox"/> |
| b | Partner / spouse | <input type="checkbox"/> |
| c | Own children | <input type="checkbox"/> |
| d | Someone else's children | <input type="checkbox"/> |
| e | Parents | <input type="checkbox"/> |
| f | Other adults | <input type="checkbox"/> |

Q123 In general, how satisfied are you with what you have achieved in each of the following areas of your life? (Mark one on each line)

		Very satisfied	Satisfied	Dissatisfied	Very dissatisfied
a	Work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b	Career	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c	Study	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d	Family relationships	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e	Partner / closest personal relationship	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f	Friendships	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g	Social activities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h	Motherhood / children <input type="checkbox"/> Not applicable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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*Australian Longitudinal Study
on Women's Health*

The University of Newcastle, Callaghan NSW 2308.
Phone: 02 4913 8872 Fax: 02 4913 8888
Email: whasec@newcastle.edu.au
Web: www.alswh.org.au



Appendix 3: Human research ethics committee (HREC) approval for research project



THE UNIVERSITY OF QUEENSLAND
Institutional Approval Form For Experiments On Humans
Including Behavioural Research

Chief Investigator: A/Prof Jon Adams
Project Title: Therapeutic Pluralism In Pregnancy, Labour And Birthing: Decision-Making, Communication And Interprofessional Dynamics
Supervisor: A/Prof Jon Adams
Co-Investigator(s): Dr Alex Broom, Prof Cindy Gallois, A/Prof David Sibbritt
Department(s): School of Population Health, Faculty of Social and Behavioural Sciences UQ; Discipline of Behavioural And Social Sciences in Health, University of Sydney; School of Medicine and Public Health University of Newcastle
Project Number: 2010000411
Granting Agency/Degree: ARC
Duration: 30th April 2013

Comments:

Expedited review on the basis of approval from the University of Newcastle HREC, dated 24/03/2010.

**Name of responsible Committee:-
Medical Research Ethics Committee**

This project complies with the provisions contained in the *National Statement on Ethical Conduct in Human Research* and complies with the regulations governing experimentation on humans.

**Name of Ethics Committee representative:-
Professor Bill Vicenzino
Chairperson
Medical Research Ethics Committee**

Production Note:

Signature removed prior to publication.

Date:

31/5/2010

Signature: _____

Appendix 4: Frawley J, Adams J, Sibbritt D, Steel A, Broom A and Gallois C. (2013). Prevalence and determinants of complementary and alternative medicine (CAM) use during pregnancy: Results from a nationally representative sample of Australian pregnant women. *Australian and New Zealand Journal of Obstetrics and Gynaecology*. 53(4):347-52.

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Appendix 5: Frawley J, Adams J, Steel A, Broom A, Gallois C, Sibbritt D. (2014) Majority of women are influenced by non-professional information sources when deciding to consult a complementary and alternative medicine (CAM) practitioner during pregnancy. *Journal of Alternative and Complementary Medicine*, 20(7): 571-577.

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Appendix 6: Jane Frawley, David Sibbritt, Alex Broom, Cindy Gallois, Amie Steel, Jon Adams (under review). Women's Use and Self-Prescription of Herbal Medicine during Pregnancy: An Examination of 1,835 Pregnant Women. *Women's Health Issues* (doi: 10.1016/j.whi.2015.03.001 Epub ahead of print).

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