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REVIEW PAPER

Attitudes and referral practices of maternity care professionals with regard to complementary and alternative medicine: an integrative review

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Abstract

Aim. This paper presents an integrative literature review examining the attitudes and referral practices of midwives and other maternity care professionals with regard to complementary and alternative treatment and its use by pregnant women.

Background. Use of complementary and alternative medicine during pregnancy is a crucial healthcare issue. Recent discussion has identified the need to develop an integrated approach to maternity care. However, there is a lack of understanding of attitudes and behaviours of maternity care professionals towards these treatments.

Data sources. A database search was conducted in MEDLINE, CINAHL, Health Source, AMED and Maternity and Infant Care for the period 1999–2009.

Review methods. An integrative review method was employed. Studies were selected if they reported results from primary data collection on professional practice/referral or knowledge/attitude towards complementary and alternative medicine by obstetricians, midwives and allied maternity care providers.

Results. A total of 21 papers covering 19 studies were identified. Findings from these studies were extracted, grouped and examined according to three key themes: 'prevalence of practice, recommendation and referral', 'attitudes and views' and 'professionalism and professional identity'.

Conclusion. There is a need for greater respect and cooperation between conventional and alternative practitioners as well as communication between all maternity care practitioners and their patients about the use of complementary and alternative medicine. There is a need for in-depth studies on the social dimension of practice as well as the inter- and intra-professional dynamics that shape providers' decision to use or refer to complementary and alternative medicine in maternity care.

Keywords: complementary and alternative medicine, complementary therapies, healthcare personnel, literature review, midwifery, pregnancy

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Introduction

The use of complementary and alternative medicine (CAM) – defined for the purpose of this review as a broad group of healthcare systems, therapeutic practices and products including acupuncture, chiropractic, naturopathy, herbal medicine and yoga that are not traditionally associated with the conventional medical profession – has recently grown in popularity around the world (Ernst 2000, Harris & Rees 2000, Hanssen *et al.* 2005, Barnes *et al.* 2008). Alongside such exponential growth in demand for CAM, closer ties have developed between alternative therapists and a range of conventional healthcare providers via direct integrative practice, referral or simply an acknowledgement that conventional providers need to discuss concurrent use of CAM with patients (Boon *et al.* 2004, Baer 2005).

One healthcare area which has attracted attention and debate among practitioners and policymakers in many countries has been the use of CAM during pregnancy (Nordeng & Havnen 2004, Refuerzo *et al.* 2005, Warriner 2007, Adams & Tovey 2008, Holst *et al.* 2008, Skouteris *et al.* 2008, Adams *et al.* 2009, Low Dog 2009). Although recent discussion has identified the need to develop an integrated approach to maternity care (Dooley 2006) and the efficacy of some CAM use in pregnancy is gradually emerging (Fugh-Berman & Kronenberg 2003, Huntley *et al.* 2004, Anderson & Johnson 2005, Smith & Cochrane 2009), there is a lack of understanding of attitudes and practice behaviours of mainstream maternity care professionals towards complementary and alternative treatments.

The review

Aim

The aim of the review was to identify attitudes and referral practices of maternity care professionals with regard to CAM and its use by pregnant women.

Design

An integrative review approach was adopted, as previously outlined by Whittemore and Knafl (2005) and Russell (2005); this summarizes past empirical and theoretical literature and incorporates diverse methodologies to capture the context, processes and subjective elements of the topic. In line with this approach, we first conducted a comprehensive database search to identify peer-reviewed papers that focused on attitudes and referral practices of maternity care professionals with regard to CAM. The title and abstract of each search result was then examined to identify scientific papers reporting original empirical research findings with regard to maternity care professionals' knowledge/attitudes towards or practice/referral of CAM. Papers that had not report primary data collection through established research design – such as correspondence, commentaries and individual case reports – were excluded. Papers reporting clinical studies were also discarded due to the aim and focus of the review.

One author prescreened all identified titles and abstracts for relevance to the aim of the review. Two authors independently assessed relevant studies for inclusion using the selection criteria mentioned above. Any disagreements were resolved by discussion. Where the abstract was deemed not to give sufficient information, the full paper was retrieved and examined prior to final decision-making about inclusion or exclusion.

Search methods

A search of research papers between January 1999 and December 2009 was conducted via MEDLINE, CINAHL, Health Source (Nursing/Academic Edition), AMED (Allied and Complementary Medicine Database) and Maternity and Infant Care using the following keywords/subject terms: complementary medicine/therapy, alternative medicine/therapy, pregnancy, childbearing, labour, obstetrics, midwifery and maternity.

AMED is an authoritative resource for practitioners and researchers of CAM. Maternity and Infant Care is a database devoted to issues of reproductive health care. These two databases were chosen to supplement the mainstream databases of MEDLINE, CINAHL and Health Source to ensure that all relevant international literature was identified.

Search outcome

The search results (n = 527) were imported into EndNote (Thomson Reuters 2008), bibliographic management system software. A total of 21 papers reporting the findings from 19 empirical studies (two research projects were reported by two

papers each) met the selection criteria and were included in the review. Figure 1 summarizes the process of the literature search.

Quality appraisal

In line with the integrative research approach adopted, we undertook no formal critical appraisal of the identified papers.

Data abstraction

Basic details of these research-based studies are given in Table 1 along with the coverage of these studies concerning three key themes or areas of investigation: 'prevalence of practice, recommendation and referral', 'attitudes and views' and 'professionalism and professional identity'.

Synthesis

The findings of the 21 papers were extracted, grouped and summarized in a narrative manner according to the three key themes. We made no direct comparison or meta-analysis of findings as the included studies employed different definitions of CAM.

Results

Prevalence of practice, recommendation and referral for CAM

The practice of CAM and the endorsement or referral of women by conventional maternity providers of these treatments appears common in the maternity setting. A majority of the 14 surveys that examined these issues showed that most of their respondents reported practising, recommending or referring pregnant women for complementary therapies or products. Many of these service providers employed or endorsed more than one type of alternative therapy for their clients (Table 2). Beer and Ostermann (2003) found that an average of four alternative therapies was practised in each gynaecology and obstetrics clinic/hospital included in their study in Germany. Another study investigating maternity care units in the United Kingdom (UK) showed that 64% (108) of these units provided alternative therapies to mothers and babies as part of their services (Mitchell *et al.* 2006).

As shown in Table 2, a wide variety of complementary therapies had been practised with, or referred for, pregnant women. The most commonly used modalities were herbal therapy, chiropractic, acupuncture/acupressure, massage, homoeopathy and aromatherapy. These modalities were employed primarily for relief of pregnancy-related complaints, including nausea and vomiting, low-back pain, discomfort or depression.

The studies also revealed geographical variations in the incidence of practice or referral for CAM. For instance, surveys in Germany showed that obstetric institutions in the former Federal Republic of Germany used more alternative treatment in pregnancy than clinics in the former German Democratic Republic (Beer & Ostermann 2003, Münstedt *et al.* 2009b). The latter, however, employed more physical alternative therapies than the former (Beer & Ostermann 2003). Harding and Foureur's (2009) study with midwives in Canada and New Zealand also revealed a difference in referral practice between the two countries, with Canadian

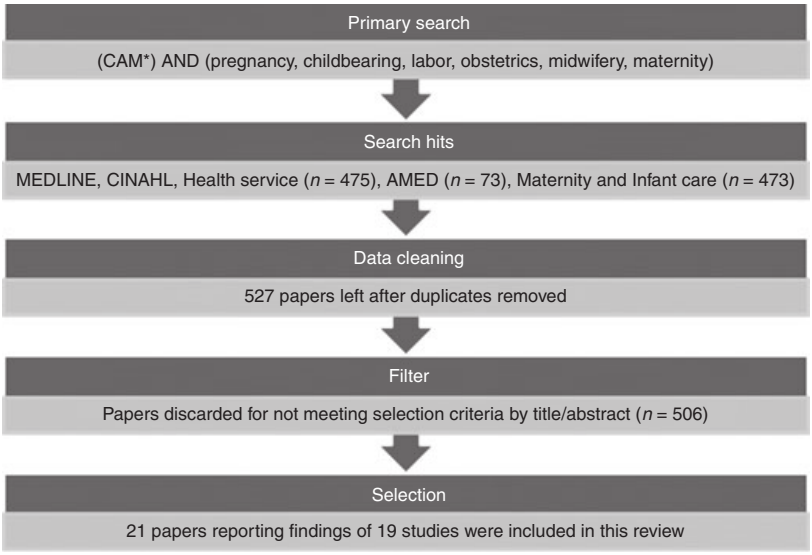

Figure 1 Flowchart of the literature search process. *CAM, complementary and alternative medicine.

Table 1 Research-based studies on providers and CAM practice in maternity care, 1999–2009

Author/year	Country	Method	Provider involved	Sample*	Theme†		
					I	II	III
Adams (2006)	Australia	Interview	Midwives working in public hospitals	*n* = 13	x	x	√
Allaire *et al.* (2000)	US	Survey	Licensed certified nurse-midwives	*n* = 82 (68%)	√	√	x
Bayles (2007)	US	Survey	Licensed direct entry midwives and certified nurse-midwives	*n* = 69 (21%)	√	x	x
Beer and Ostermann (2003)	Germany	Survey	Gynaecology/obstetrics institutions	*n* = 481 (46%)	√	x	x
Einarson *et al.* (2000)	Canada	Survey	Physicians, medical students, naturopaths and naturopathic students	*n* = 242 (42%^{P})	√	√	x
Furlow *et al.* (2008)	US	Survey	Obstetricians-gynaecologist members of the American Medical Association	*n* = 401 (41%^{P})	√	√	x
Gaffney and Smith (2004)	Australia	Survey	Members of the Royal Australian and New Zealand College of Obstetricians and Gynaecologists, and the Australian College of Midwives	*n* = 220 (75^{P}/145^{M}) (80%^{P}/78%^{M})	√	√	x
Harding and Foureur (2009)	New Zealand, Canada	Survey	Registered midwives in Canada and Midwives in primary care practice in New Zealand	*n* = 172 (Canada)/171 (NZ) (65%/45%)	√	√	√
Hastings-Tolsma and Terada (2009)	US	Survey	Members of the American College of Nurse Midwives	*n* = 227 (45%)	√	√	x
McFarlin *et al.* (1999)	US	Survey	Members of the American College of Nurse-Midwives	*n* = 172 (34%)	√	√	x
Mitchell and Williams (2007)	UK	Interview (telephone)	Certified midwife-complementary therapists	*n* = 8	x	√	√
Mitchell *et al.* (2006)	UK	Survey	Heads of midwifery in maternity units	*n* = 167 (75%)	√	√	√
Münstedt *et al.* (2009a,b)	Germany	Survey	Heads of departments of obstetrics	*n* = 381 (40%)	√	x	x
Rawlings and Meerabeau (2003)	UK	Interview	Nurses and midwives	*n* = 8	x	√	√
Wiebelitz *et al.* (2009)	Germany	Survey	Midwives and midwifery students in seven midwifery schools	*n* = 63 (midwives)/246 (students) (100%/100%)	√	x	x
Shuval and Gross (2008a,b)	Israel	Interview	Midwives working in hospital delivery rooms	*n* = 13	x	√	√
Tiran (2006)	UK	Interview	Obstetricians and midwives in an antenatal clinic	*n* = 28	√	√	x
Wang *et al.* (2005)	US	Survey	Physicians, midwives and prenatal educators working in antenatal clinics	*n* = 104 (62%)	√	x	x
Wills and Forste (2008)	Australia	Survey	Midwives of a public, tertiary maternity hospital	*n* = 49 (51%)	√	x	x

*Numbers in bracket is the response rate if applicable.

†I = prevalence of practice/recommendation/referral for CAM, II = attitudes/views on CAM, III = professionalism/professional identity.

P, physicians/obstetricians; M, midwives.

Table 2 Survey findings on practice, recommendation or referral for CAM

Author/year	Provider	Practice/recommendation/referral for CAM	CAM modality and indication
Allaire *et al.* (2000)	Midwives (Australia, *n* = 82)	77 (94%) practised, recommended or referred for CAM 47 (57%) practised, recommended or referred for CAM to more than 10% of patients in the past year	Herbal therapy (73%), massage therapy (67%), chiropractic (57%), acupressure (52%) Herbal therapy was used for nausea and vomiting (85%), labour stimulation (68%) and perineal discomfort (60%)
Bayles (2007)	Midwives (US, *n* = 69)	All participants indicated practised, recommended or referred for at least one CAM in last year Licensed midwives had practised, recommended and referral for CAM more than certified nurse-midwives	62 (90%) practised, recommended or referred for herbal remedy Back pain and nausea/vomiting were the indications that CAM therapies were most frequently practised, recommended, or referred Chiropractic care was the most popular treatment for back pain and herbal remedy for nausea/vomiting
Beer and Ostermann (2003)	Heads of obstetrics departments (Germany, *n* = 481)	373 (81%) responding clinics in the former Federal Republic of Germany and 83 (18%) clinics in the former German Democratic Republic employed CAM in treatment	Acupuncture (employed in 431 hospitals), homoeopathy (in 380 hospitals), physiotherapy (in 197 hospitals) were most commonly employed CAM Acupuncture and physiotherapy were commonly practised by both doctors and midwives. Homoeopathy was predominately practised by midwives
Einarson *et al.* (2000)	Physicians, naturopaths and medical students (Canada, $n = 66^{P}$)	20 (30%) physicians discussed herbal products with their pregnant patients but only one had recommended the product to pregnant patient	Echinacea (25%), herbal teas (20%) and black cohosh (10%) were the most discussed products with pregnant patients Herbal teas is the only products recommended to pregnant patients
Furlow *et al.* (2008)	Obstetricians (US, *n* = 401)	391 (98%) routinely endorsed, provided or referred patients for at least one CAM modality	Movement therapies (86%), biofeedback (80%) and acupuncture (80%) were most commonly endorsed, provided or referred by obstetricians Aromatherapy (62%), bioelectromagnetic therapies (53%) and homoeopathy (52%) were the least recommended therapies
Gaffney and Smith (2004)	Obstetricians, midwives (Australia, $n = 75^{P}$ and 145^{M})	51 (68%) obstetricians and 113 (78%) midwives had formally referred a patient for CAM therapies	Massage (64%), yoga (60%), aromatherapy/meditation (58%) were CAM most frequently advised or recommended by obstetricians Meditation (79%), vitamins (69%) and aromatherapy/homoeopathy (66%) were CAM most frequently advised or recommended by midwives Therapies were employed for the treatment of pregnancy-related complaints such as nausea and vomiting in early pregnancy, back pain, pregnancy health and preparation for labour
Harding and Foureur (2009)	Midwives (Canada, *n* = 172; NZ, *n* = 171)	72% reported recommending or offering CAM 95% made referrals to CAM practitioners 67% reported using CAM in the hospital setting but only 43% documented the use on the institutional charts	CAM practitioners commonly referred: homoeopaths (51%), acupuncturists (50%), naturopaths (48%), chiropractors (36%), massage therapists (31%), osteopaths (20%) Canadian midwives referring more often to naturopaths, massage therapists and chiropractors. NZ midwives referring more often to homoeopaths, osteopaths, herbalists
Hastings-Tolsma and Terada (2009)	Midwives (US, *n* = 227)	78% reported use of CAM and 85% reported used at least one herb 89% said they would refer a patient to CAM providers Those who used CAM therapies were typically middle-aged (mean = 42) and in practice for a mean of 8 years	Most commonly used CAM treatments: herbal preparations (85%), pharmacologic/biologic treatments (82%), mind-body interventions (80%), manual healing/bioelectromagnetic therapies (47%)

Table 2 (*Continued*)

Author/year	Provider	Practice/recommendation/referral for CAM	CAM modality and indication
McFarlin *et al.* (1999)	Midwives (US, *n* = 172)	90 (52%) reported employing herbal preparations to stimulate labour Those who employed herbal preparations were younger, more likely to deliver at home or in an in-hospital or out-of-hospital birthing centre	Castor oil (93%), blue cohosh (64%) and raspberry leaf (63%) were the most frequently employed preparations
Mitchell *et al.* (2006)	Heads of maternity units (UK, *n* = 167)	108 (64%) units provided CAM in a variety of combinations to mothers and babies	Massage (54%), aromatherapy (46%) and reflexology (33%) were the most frequently employed therapies
Münstedt *et al.* (2009a,b)	Heads of obstetrics departments (Germany, *n* = 381)	All but one (99·7%) department offered at least one CAM	Most commonly used CAM method: acupuncture (97%), homoeopathy (93%), aromatherapy (77%) Departments of the former German Democratic Republic used slightly less CAM than departments in former West Germany, especially homoeopathy (73% compared with 99%)
Wang *et al.* (2005)	Physicians, midwives, prenatal educators (US, *n* = 104)	63 (61%) respondents recommended more than one type of CAM; 54 (52%) considered employing only CAM treatment; 11 (11%) employed both CAM and conventional medication Nurse midwives (93%) recommended more CAM than physicians (64%) and prenatal nurse educators (57%)	Cooling/heating pad (47%), yoga (37%) and massage (29%) were the most frequently recommended treatment options
Wiebelitz *et al.* (2009)	Midwives/ midwifery students (US, *n* = 63/246)	41% estimated that they used CAM in between 25% and 75% of cases treated All but one respondents with 5-19 years of professional experience assume the use of CAM in 25% of cases or over	Frequency of use: homoeopathy (at 50–75%), phytotherapy (at 20–40%), hydrotherapy (at 18–27%)
Wills and Forste (2008)	Midwives (US, *n* = 49)	85% recommended vitamin or herbal supplements	Ginger (93%), vitamin B6 (68%), peppermint (51%) chamomile (24%) were the most frequently recommended CAM for nausea and vomiting Other alternative treatments/herbal supplements used for nausea and vomiting: acupuncture, acupressure wristbands, acupressure, reflexology, raspberry leaf tea

P, physicians/obstetricians; M, midwives.

midwives referring more often to naturopaths, massage therapists and chiropractors, and New Zealand midwives referring more often to homoeopaths, osteopaths and herbalists. The divergence in practice/referral for complementary medicine across healthcare systems needs to be considered alongside the wider social and cultural contexts of healthcare provision and policy and the training available to providers in different countries.

With regard to patterns of practice, complementary and alternative medical interventions were in general more midwife- than obstetrician-led (Gaffney & Smith 2004, Wang *et al.* 2005, Mitchell *et al.* 2006). In particular, many midwives reported employing herbal medicine for the purpose of labour induction or stimulation (McFarlin *et al.* 1999, Allaire *et al.* 2000, Bayles 2007, Harding & Foureur 2009, Hastings-Tolsma & Terada 2009). A survey of maternity care units in UK found that obstetricians were generally more wary of using alternative therapies than midwives and nurses, and favoured interventions which attracted stronger evidence of effectiveness (Tiran 2006). Münstedt *et al.* (2009b) also discovered that decisions about CAM use in obstetrics institutions in Germany were often made by midwives. The survey by Einarson *et al.* (2000) showed that although 20 (30%) of the Canadian physicians studied admitted discussing herbal products with pregnant women, only one recommended these products to them.

Gaffney and Smith (2004) documented a divergence between prescriptions of alternative therapies by obstetricians

and midwives. The former frequently gave advice to pregnant women about the use of acupuncture and vitamins. In contrast, midwives were found to be more likely to recommend massage, yoga and aromatherapy. To complicate the picture a little further, as the study by Furlow *et al.* (2008) documented, the most commonly used alternative interventions by pregnant women did not necessarily correspond to those considered most effective or useful by physicians. This incongruity was explained by the fact that many pregnant women had initiated complementary treatment without first consulting their physicians.

Attitudes and views on CAM

The evidence base indicates that many maternity care providers consider CAM a useful supplement to conventional treatments (Beer & Ostermann 2003, Gaffney & Smith 2004, Mitchell *et al.* 2006, Münstedt *et al.* 2009b). Surveys focusing on midwives show that many perceive complementary interventions as safe, natural and concurrent with conventional medicine (Allaire *et al.* 2000, Mitchell *et al.* 2006, Mitchell & Williams 2007, Wills & Forste 2008, Harding & Foureur 2009). However, lack of knowledge on safety of the substances, fear of litigation and lack of acceptance by colleagues, doctors and clients are major concerns that have stopped some midwives from practising or referring alternative therapies (McFarlin *et al.* 1999).

While mainstream providers in maternity care tend to remain positive over the use of CAM, there is substantial divergence of attitude towards alternative treatment for pregnancy between and within professions. For instance, there is evidence that midwives have a more positive view of complementary medicine than obstetricians (Einarson *et al.* 2000, Gaffney & Smith 2004). Obstetricians, on the other hand, are not fully convinced of the efficacy of CAM methods (Tiran 2006, Münstedt *et al.* 2009b). The survey conducted by Gaffney and Smith (2004) revealed that although 88 (65%) midwives perceived alternative therapies as effective in stimulating the body's natural healing powers, only 13 (19%) obstetricians agreed with this statement. In contrast, 25 (37%) obstetricians believed that the results of CAM are in most cases due to the placebo effect, while only seven (5%) midwives agreed with this position. The same study also showed that 49 (72%) obstetricians insisted on the need for an evidence base for alternative treatment, but only 35 (26%) midwives did so. Although many maternity care professionals may perceive complementary medicine as useful and safe, this is not necessarily a predictor of referral by them to any particular alternative therapy or therapist (Gaffney & Smith 2004).

Gaffney and Smith (2004) found no differences in referral for alternative treatment by healthcare professionals by sex or years in practice. In contrast, Furlow *et al.* (2008) discovered that female obstetricians were about six times more likely than their male counterparts to describe alternative treatment as having a real impact on care. The same study also revealed increasing physician age as negatively associated with the belief that complementary medicine is effective. In line with findings of studies of general healthcare professionals' knowledge of CAM (Braun & Cohen 2007, Brown *et al.* 2008), Tiran (2006) highlighted a lack of understanding among obstetricians and midwives about the pharmacological nature of alternative therapies and their possible risks to pregnant women. Her data also suggest that conventional providers focus on the merits of the therapies themselves and rarely give conscious thought to the credibility or ability of the individual alternative practitioners who provide these therapies to pregnant women.

Professionalism and professional identity

For both obstetricians and midwives, but particularly the latter, understandings and perceptions of CAM appear to be closely linked to wider notions of professionalism and professional identity. In particular, the emphasis on a holistic approach of many alternative modalities appears to have close affinity with the philosophy, professional goals and care perspectives of many midwives. Research reveals that midwives approach complementary medicine as an alternative and an aid to reducing complex medical intervention, and as a means to empowering women and increasing their autonomy (Adams 2006, Mitchell *et al.* 2006, Mitchell & Williams 2007, Harding & Foureur 2009). These perceptions are in line with a core tenet of midwifery, at least as presented by many in the profession, that childbirth is a natural process and that there is a role for midwives in facilitating support and choice for women (Pairman *et al.* 2006). There is also evidence from studies that midwives themselves experience a sense of empowerment through administrating alternative modalities. Many participating midwives support an understanding of complementary medicine practice in their daily routines as meeting their professional needs to be 'with women', enabling them to provide holistic care and increasing their work confidence and job satisfaction (Rawlings & Meerabeau 2003, Adams 2006, Mitchell *et al.* 2006, Mitchell & Williams 2007).

Harding and Foureur's (2009) survey of 343 midwives in Canada and New Zealand revealed that respondents affirmed a relationship of CAM with midwifery practice, with over

70% perceiving CAM as an essential part of midwifery practice. A similar proportion of respondents agreed that the use of CAM enhances midwifery care. In a similar vein, Hastings-Tolsma and Terada (2009) found that over 90% of the nurse-midwives participating in their study believed that CAM therapies belong to nurse-midwifery practice, and about 25% of participants considered themselves CAM therapy providers.

Findings of in-depth interviews with midwives offer further evidence that the practice of and referral to CAM is specifically tied up with the identity of midwives as a provider group. Such practice or referral provides midwives not only with a new perspective on the therapeutic relationship but also with a range of treatment options packaged in patient-centred terms (Adams 2006, Shuval & Gross 2008a,b). The ability to prescribe or refer alternative treatments thus appears to be a valuable resource which midwives use to re-negotiate the established professional boundaries between obstetrics and nursing/midwifery (Freidson 2001).

Research findings indicate that many of the midwives practising or referring to CAM have received no formal training on alternative therapies (Allaire *et al.* 2000, Hastings-Tolsma & Terada 2009). Self-study, discussions with colleagues or participation in workshops are the major sources of information through which midwives learn about CAM (McFarlin *et al.* 1999, Harding & Foureur 2009, Hastings-Tolsma & Terada 2009). Wiebelitz *et al.* (2009) found that 88% of the midwives they surveyed considered available training of CAM inadequate. There is, however, evidence that many providers identify gaining knowledge about CAM as an important and pressing professional issue and support the idea that CAM teaching should be integrated into conventional medical and healthcare curricula (Einarson *et al.* 2000, Gaffney & Smith 2004, Harding & Foureur 2009, Hastings-Tolsma & Terada 2009, Wiebelitz *et al.* 2009).

Discussion

Research examining the practice of CAM in the maternity setting has grown significantly in recent years. Fifteen of the 21 papers (or 13 of the 19 studies) covered in this review were published over the last 5 years and this reflects the exponential growth in interest in the use of alternative modalities by obstetricians, midwives and nursing professionals. Given this recent explosion of publications, the evidence-base on this issue nevertheless remains relatively thin. Because of the lack of consensus on definitions of CAM across studies and the wide variation in therapies covered by the research reviewed, it is often difficult to make comparisons across studies or generalize from a particular study.

The limited evidence available, however, points to a high uptake of CAM among maternity care professionals. Many have practised, recommended or referred pregnant women for complementary modalities/therapies for healing or relieving purposes or for preparation for labour. The increased prevalence for birth to be seen as a natural physiological event is one important factor that facilitates the use of CAM in maternity care (Low Dog 2009). As this review has highlighted, many providers consider CAM as natural, safe and/or having at least equal efficacy as conventional medicine. They regard the use of these therapies as an essential part of midwifery and a complement to 'normal' birth in maternity care. In addition, the ability of nurses or midwives to 'prescribe' alternative modalities also offers them a strategy for advancing professional autonomy and territory (Adams 2006, Mitchell *et al.* 2006, Mitchell & Williams 2007). As Tiran (2009, p. 32) succinctly summarized the situation recently: 'There has never been a better time to use CAM in maternity care'.

On the other hand, growth in use of CAM among pregnant women and maternity care professionals goes hand in hand with a rising concern over the risks brought about by the so-called 'over-the-counter culture' (Warriner 2007). There are also worries about the 'indiscriminate enthusiasm' (Tiran 2008) of some care providers in adopting complementary therapies in the treatment of pregnancy complications. This is especially the case given that there is evidence that many maternity care providers have received no training in the use of CAM or have little understanding of the pharmacological nature of alternative therapies and their possible risks to pregnant women (Tiran 2006, Braun & Cohen 2007, Brown *et al.* 2008, Lake 2009). In recent years, there have been calls among care practitioners for education and training about all aspects of complementary therapies/modalities and for the introduction of relevant courses in nursing or midwifery education institutions (Dayhew *et al.* 2009). Many conventional medical organizations or registration boards – such as the Royal College of Midwives (2007), Royal Australian College of General Practitioners (2005) and Australian Nursing Federation (2008) – have also issued position statements endorsing the linking of care standards to education/knowledge of CAM.

To meet the challenges of managing CAM in maternity care, there is a need to encourage greater respect and cooperation between conventional and alternative practitioners. Previous researchers have indicated that users of CAM often fail to disclose their use to their conventional health providers, and that medical practitioners find it difficult

What is already known about this topic

- The use of complementary and alternative medicine has grown in popularity in contemporary societies.
- The consumption of complementary and alternative medicine during pregnancy is a crucial healthcare issue which has attracted much debate and attention in recent years.
- There is limited understanding about how midwives and other maternity care providers use complementary and alternative medicine in practice.

What this paper adds

- The practice of complementary and alternative medicine and referral for these treatments are common in the maternity setting.
- Although healthcare providers remain positive over the use of complementary and alternative medicine, there was a substantial divergence of attitude towards, and practice of, alternative treatments between and within professions.
- Providers' understandings and perceptions of complementary and alternative medicine are linked to notions of professionalism and professional identity in the field of maternity care.

Implications for practice and/or policy

- The high uptake of alternative therapies/modalities among maternity care professionals calls for education and training on all aspects of complementary and alternative medicine.
- There is a need for greater respect and cooperation between conventional and alternative practitioners as well as communication between all practitioners and their patients about the use of complementary and alternative medicine.
- There is a need for in-depth studies on the social dimension of practice as well as the inter- and intra-professional dynamics that shape providers' decision to use or refer to complementary and alternative medicine.

to communicate with their patients about alternative therapies (Montbriand 2000, Shelley *et al.* 2009). Encouraging constructive debate and discussion on the relative roles of conventional and alternative providers would improve communication between all practitioners and their patients.

Overall, the papers discussed in this review cover a wide range of complementary and alternative therapies and practices. The lack of a standardized definition of CAM made it difficult to generalize from the findings or to compare findings across studies. This is a problem long recognized by researchers interested in CAM (Kristoffersen *et al.* 2008). In the light of the review, it is possible to identify important gaps in the literature that require addressing in future research. The majority of the research reviewed draws on self-reported data collected via surveys (14 of the 19 studies, or 15 out of 21 papers). Many of these surveys failed to employ desirable sampling techniques and/or employed only small samples (Table 1). This lack of large or representative national samples of obstetricians and midwives renders any comparisons between the different studies or any generalization across studies a major challenge. While the current literature does provide a platform for further discussion, more studies using representative samples and rigorous methodology are needed. Researchers are also recommended to adopt a common taxonomy or classification of CAM practices, which facilitates comparison of findings across studies (Kristoffersen *et al.* 2008).

The low response rate in some surveys (Table 1) is another issue of concern, as it may introduce bias into the research results. Researchers need to remain cognisant and reflect upon any non-response effects to maximize the validity of their findings (Templeton *et al.* 1997). Furthermore, acknowledging the poor response rates often associated with empirical studies on this topic highlights the need for further research to examine the perspectives and experiences of those providers who do *not* necessarily support or actively engage with alternative modalities, and to explore the relationships between such practitioners and those positively embracing CAM.

Although self-report descriptive surveys are useful for addressing certain research questions, this method is incapable of teasing out the subtleties and rich details associated with maternity care providers' perceptions and experiences about CAM. It is essential that further rigorous qualitative study be undertaken to explore the cultural and social dimensions of practice as well as the inter- and intra-professional relations and dynamics that influence providers' decision-making about referral to alternative therapists (Tovey & Adams 2001, 2002). There is also a need to complement retrospective accounts of providers with direct observations of clinical encounters that involve alternative practice or referral. Comparing data in this way would enrich our understanding of the realities of the interface between CAM and maternity care at a grass-roots level and offer

valuable insight for understanding alternative practices among providers.

Another important gap in the literature is the lack of research on the interface between conventional and alternative practitioners in maternity care settings. The lack of information on such inter-professional dynamics hampers understanding of the role of CAM practice and referral for the care of pregnant women. Recent studies in patients with cancer reveal that while oncologists remain crucial to patient engagement with alternative therapies, it is specialist cancer nurses who occupy a powerful mediating role between physicians and patients and have substantial influence over patient action (Tovey & Broom 2007, Broom & Tovey 2008). It is important to investigate whether similar relationships exist between obstetricians and midwives. Given the rise of interest in inter-professional education (Willison 2008), understanding of the interface between conventional and alternative medicine providers is crucial for developing training programmes to facilitate inter-professional problem-solving and decision-making in maternity care.

Conclusion

The increased presence of CAM in maternity care settings highlights the issue as an important health concern in contemporary societies. An understanding of maternity care professionals' attitudes towards and practice of CAM will help reduce the risk of adverse effects and maximize the potential usefulness of therapies. This review is a first step in developing an evidence base on this important topic, offering insights for those managing, practising and receiving maternity care.

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No conflict of interest has been declared by the authors.

Author contributions

JA, CW, DS, AB, JW & CH were responsible for the study conception and design. JA & CW performed the data collection. JA, CW, DS, AB, JW & CH performed the data analysis. JA, CW, DS, AB, JW & CH were responsible for the drafting of the manuscript. JA, CW, DS, AB, JW & CH made critical revisions to the paper for important intellectual content. DS provided statistical expertise. CW provided administrative, technical or material support.

References

Adams J. (2006) An exploratory study of complementary and alternative medicine in hospital midwifery: models of care and professional struggle. *Complementary Therapies in Clinical Practice* **12**(1), 40–47.

Adams J. & Tovey P. (eds) (2008) *Complementary and Alternative Medicine in Nursing and Midwifery: Towards a Critical Social Science*. Routledge, London.

Adams J., Lui C.-W., Sibbritt D., Broom A., Wardle J., Homer C. & Beck S. (2009) Women's use of complementary and alternative medicine during pregnancy: a critical review of the literature. *Birth* **36**(3), 237–245.

Allaire A.D., Moos M.K. & Wells S.R. (2000) Complementary and alternative medicine in pregnancy: a survey of North Carolina certified nurse-midwives. *Obstetrics & Gynecology* **95**(1), 19–23.

Anderson F.W.J. & Johnson C.T. (2005) Complementary and alternative medicine in obstetrics. *International Journal of Gynaecology & Obstetrics* **91**(2), 116–124.

Australian Nursing Federation (2008) *Guidelines on Complementary Therapies in Nursing and Midwifery Practice*. Australian Nursing Federation, Sydney.

Baer H.A. (2005) *Toward an Integrative Medicine: Merging Alternative Therapies with Biomedicine*. AltaMira Press, Lanham.

Barnes P.M., Bloom B. & Nahin R.L. (2008) *Complementary and Alternative Medicine Use Among Adults and Children: United States, 2007*. US Department of Health and Human Services, Division of Health Interview Statistics, Centers for Disease Control and Prevention, National Center for Health Statistics, Hyattsville.

Bayles B.P. (2007) Herbal and other complementary medicine use by Texas midwives. *Journal of Midwifery & Women's Health* **52**(5), 473–478.

Beer A.M. & Ostermann T. (2003) On the use of classical naturopathy and complementary medicine procedures in hospitals and clinics practicing gynecology and obstetrics in Germany. Results of a questionnaire survey. *Gynecologic & Obstetric Investigation* **55**(2), 73–81.

Boon H., Verhoef M., O'Hara D. & Findlay B. (2004) From parallel practice to integrative health care: a conceptual framework. *BMC Health Services Research* **4**(15), 1–5.

Braun L. & Cohen M. (2007) Australian hospital pharmacists' attitudes, perceptions, knowledge and practices of CAMs. *Journal of Pharmacy Practice and Research* **37**(3), 220–223.

Broom A. & Tovey P. (2008) *Therapeutic Pluralism: Exploring the Experiences of Cancer Patients and Professionals*. Routledge, London.

Brown J., Morgan T., Adams J., Grunseit A., Toms M., Roufogalis B., Kotsirilos V., Pirotta M. & Williamson M. (2008) *Complementary Medicines Information Use and Needs of Health Professionals: General Practitioners and Pharmacists*. National Prescribing Service, Sydney.

Dayhew M., Wilkinson J.M. & Simpson M.D. (2009) Complementary and alternative medicine and the search for knowledge by

conventional health care practitioners. *Contemporary Nurse* **33**(1), 41–49.

Dooley M. (2006) Complementary therapy and obstetrics and gynaecology: a time to integrate. *Current Opinion in Obstetrics and Gynecology* **18**(6), 648–652.

Einarson A., Lawrimore T., Brand P., Gallo M., Rotatone C. & Koren G. (2000) Attitudes and practices of physicians and naturopaths toward herbal products, including use during pregnancy and lactation. *Canadian Journal of Clinical Pharmacology* **7**(1), 45–49.

Ernst E. (2000) Prevalence of use of complementary/alternative medicine: a systematic review. *Bulletin of the World Health Organization* **78**(2), 252–257.

Freidson E. (2001) *Professionalism: The Third Logic*. The University of Chicago Press, Chicago.

Fugh-Berman A. & Kronenberg F. (2003) Complementary and alternative medicine (CAM) in reproductive-age women: a review of randomized controlled trials. *Reproductive Toxicology* **17**(2), 137–152.

Furlow M.L., Patel D.A., Sen A. & Liu J.R. (2008) Physician and patient attitudes towards complementary and alternative medicine in obstetrics and gynecology. *BMC Complementary & Alternative Medicine* **8**(35), 1–8.

Gaffney L. & Smith C.A. (2004) Use of complementary therapies in pregnancy: the perceptions of obstetricians and midwives in South Australia. *Australian & New Zealand Journal of Obstetrics & Gynaecology* **44**(1), 24–29.

Hanssen B., Grimsgaard S., Launsoslash L., Foslashnneboslash V., Falkenberg T. & Rasmussen N.K. (2005) Use of complementary and alternative medicine in the Scandinavian countries. *Scandinavian Journal of Primary Health Care* **23**, 57–62.

Harding D. & Foureur M. (2009) New Zealand and Canadian midwives' use of complementary and alternative medicine. *New Zealand College of Midwives Journal* **40**, 7–12.

Harris P. & Rees R. (2000) The prevalence of complementary and alternative medicine use among the general population: a systematic review of the literature. *Complementary Therapies in Medicine* **8**, 88–96.

Hastings-Tolsma M. & Terada M. (2009) Complementary medicine use by nurse midwives in the US. *Complementary Therapies in Clinical Practice* **15**, 212–219.

Holst L., Nordeng H. & Haavik S. (2008) Use of herbal drugs during early pregnancy in relation to maternal characteristics and pregnancy outcome. *Pharmacoepidemiology and Drug Safety* **17**(2), 151–159.

Huntley A.L., Coon J.T. & Ernst E. (2004) Complementary and alternative medicine for labor pain: a systematic review. *American Journal of Obstetrics & Gynecology* **191**(1), 36–44.

Kristoffersen A.E., Fønnebø V. & Norheim A.J. (2008) Use of complementary and alternative medicine among patients: classification criteria determine level of use. *The Journal of Alternative and Complementary Medicine* **14**(8), 911–919.

Lake J. (2009) Complementary, alternative, and integrative Rx: safety issues. *Psychiatric Times* **26**(7), 1–4.

Low Dog T. (2009) The use of botanicals during pregnancy and lactation. *Alternative Therapies in Health and Medicine* **15**(1), 54–58.

McFarlin B.L., Gibson M.H., O'Rear J. & Harman P. (1999) A national survey of herbal preparation use by nurse-midwives for labor stimulation. Review of the literature and recommendations for practice. *Journal of Nurse-Midwifery* **44**(3), 205–216.

Mitchell M. & Williams J. (2007) The role of midwife-complementary therapists: data from in-depth telephone interviews. *Evidence Based Midwifery* **5**(3), 93–99.

Mitchell M., Williams J., Hobbs E. & Pollard K. (2006) The use of complementary therapies in maternity services: a survey. *British Journal of Midwifery* **14**(10), 576–582.

Montbriand M.J. (2000) Senior and health-professionals' perceptions and communication about prescriptions and alternative therapies. *Canadian Journal on Aging* **19**(1), 35–56.

Münstedt K., Brenken A. & Kalder M. (2009a) Clinical indications and perceived effectiveness of complementary and alternative medicine in departments of obstetrics in Germany: a questionnaire study. *European Journal of Obstetrics & Gynecology and Reproductive Biology and Endocrinology* **146**, 50–54.

Münstedt K., Schröter C., Brüggmann D., Tinneberg H.-R. & von Georgi R. (2009b) Use of complementary and alternative medicine in departments of obstetrics in Germany. *Forsch Komplementmed* **16**, 111–116.

Nordeng H. & Havnen G.C. (2004) Use of herbal drugs in pregnancy: a survey among 400 Norwegian women. *Pharmacoepidemiology and Drug Safety* **13**(6), 371–380.

Pairman S., Pincombe J., Tracy S. & Thorogood C. (eds) (2006) *Midwifery: Preparation for Practice*. Elsevier Churchill Livingstone, Marrickville.

Rawlings F. & Meerabeau L. (2003) Implementing aromatherapy in nursing and midwifery practice. *Journal of Clinical Nursing* **12**(3), 405–411.

Refuerzo J.S., Blackwell S.C., Sokol R.J., Lajeunesse L., Firchau K., Kruger M. & Sorokin Y. (2005) Use of over-the-counter medications and herbal remedies in pregnancy. *American Journal of Perinatology* **22**(6), 321–324.

Royal Australian College of General Practitioners & Australasian Integrative Medicine Association (2005) *RACGP-AIMA Joint Position Statement on Complementary Medicine*. Royal Australian College of General Practitioners and Australasian Integrative Medicine Association, Sydney.

Royal College of Midwives (2007) *Complementary and Alternative Therapies: Position Statement*. Royal College of Midwives, London.

Russell C.L. (2005) An overview of the integrative research review. *Progress in Transplantation* **15**(1), 8–13.

Shelley B.M., Sussman A.L., Williams R.L., Segal A.R. & Crabtree B.F. (2009) 'They don't ask me so I don't tell them': patient-clinician communication about traditional, complementary, and alternative medicine. *Annals of Family Medicine* **7**(2), 139–147.

Shuval J.T. & Gross S.E. (2008a) Midwives practice CAM: feminism in the delivery room. *Complementary Health Practice Review* **13**(1), 46–62.

Shuval J.T. & Gross S.E. (2008b) Nurses and midwives in alterantive health care: comparative processes of boundary re-configuration in Israel. In *Complementary and Alternative Medicine in Nursing and Midwifery* (Adams J. & Tovey P., eds), Routledge, London, pp. 113–134.

Skouteris H., Wertheim E.H., Rallis S., Paxton S.J., Kelly L. & Milgrom J. (2008) Use of complementary and alternative medicines by a sample of Australian women during pregnancy.

Australian & New Zealand Journal of Obstetrics & Gynaecology **48**(4), 384–390.

Smith C. & Cochrane S. (2009) Does acupuncture have a place as an adjunct treatment during pregnancy? A review of randomized controlled trials and systematic reviews *Birth* **36**(3), 246–253.

Templeton L., Deehan A., Taylor C., Drummond C. & Strang J. (1997) Surveying general practitioners: does a low response rate matter? *British Journal of General Practice* **47**(415), 91–94.

Thomson Reuters (2008) *EndNote X2*. Thomson Reuters, Carlsbad.

Tiran D. (2006) Complementary therapies in pregnancy: midwives' and obstetricians' appreciation of risk. *Complementary Therapies in Clinical Practice* **12**(2), 126–131.

Tiran D. (2008) Is midwives' use of complementary therapies always justified? *MIDIRS Podcasts*. Retrieved from http://www.midirs.org/midirs/midszone.nsf/RSSEssArt/6608A11E80CF084480257427005125A7 on 8 December 2010.

Tiran D. (2009) Complementing normal birth. *Practising Midwife* **12**(6), 32–37.

Tovey P. & Adams J. (2001) Primary care as interesting social worlds. *Social Science and Medicine* **52**, 695–706.

Tovey P. & Adams J. (2002) Towards a sociology of CAM and nursing. *Complementary Therapies in Nursing and Midwifery* **8**, 12–16.

Tovey P. & Broom A. (2007) Oncologists' and specialist cancer nurses' approaches to complementary and alternative medicine and their impact on patient action. *Social Science and Medicine* **64**, 2550–2564.

Wang S., DeZinno P., Fermo L., William K., Caldwell-Andrews A.A., Bravemen F. & Kain Z.N. (2005) Complementary and alternative medicine for low-back pain in pregnancy: a cross-sectional survey. *Journal of Alternative & Complementary Medicine* **11**(3), 459–464.

Warriner S. (2007) Over-the-counter culture: complementary therapy for pregnancy. *British Journal of Midwifery* **15**(12), 770–772.

Whittemore R. & Knafl K. (2005) The integrative review: updated methodology. *Journal of Advanced Nursing* **52**(5), 546–553.

Wiebelitz K.R., Goecke T.W., Brach J. & Beer A.-M. (2009) Use of complementary and alternative medicine in obstetrics. *British Journal of Midwifery* **17**(3), 169–175.

Willison K.D. (2008) Advancing integrative medicine through Interprofessional Education. *Health Sociology Review* **17**(4), 342–352.

Wills G. & Forste D. (2008) Nausea and vomiting in pregnancy: what advice do midwives give? *Midwifery* **24**(4), 390–398.

