Advances in Integrative Medicine xxx (2015) xxx–xxx

Contents lists available at ScienceDirect

Advances in Integrative Medicine

journal homepage: www.elsevier.com/locate/aimed

The characteristics of women using different forms of botanical medicines to manage pregnancy-related health conditions: A preliminary cross-sectional analysis

Diana Bowman [a,*], Amie Steel [b,c], Jon Adams [b], David Sibbritt [b], Alex Broom [d]

[a] Naturopathy Faculty, Endeavour College of Natural Health, Gold Coast, Queensland, Australia
[b] Australian Research Centre in Complementary and Integrative Medicine (ARCCIM), Faculty of Health, University of Technology Sydney, Australia
[c] Office of Research, Endeavour College of Natural Health, Australia
[d] School of Social Science, University of Queensland, St Lucia, Queensland, Australia

ARTICLE INFO

Article history:
Received 26 November 2014
Received in revised form 8 December 2014
Accepted 10 December 2014

Keywords:
Aromatherapy
Complementary medicine
Complementary therapies
Herbal medicine
Herbal teas
Medicinal teas
Pregnancy
Traditional therapies

ABSTRACT

Objective: To ascertain the attitudes, perceptions and characteristics of women who used varying forms of botanical medicine (herbal extracts and tinctures, herbal teas, aromatherapy oils) during pregnancy, birth and lactation.
Methods: Longitudinal data from a sub-study of women ($n = 2445$) from the Australian Longitudinal Study of Women's Health (ALSWH) was analysed for the characteristics of women who used only one form of botanical medicine (herbal extracts and tinctures, herbal teas or aromatherapy oils), Fisher's exact tests were used to compare categorical variables due to the small cell numbers of the individual categories. A modified Bonferroni correction was used to compensate for multiple testing. All analyses were performed using Stata 11.1 and statistical significance was set at $p = 0.05$.
Results: Women who held private health insurance were more likely to consult with an acupuncturist or naturopath for pregnancy-related health conditions and use herbal extracts and tinctures rather than herbal teas or aromatherapy oils. Women who used herbal extracts and tinctures also reported higher rates of epidural use and were more likely to initiate breastfeeding than those using aromatherapy oils. Women who used herbal teas were more likely to discuss their expectations of their birth with a general practitioner than a midwife and use birthing pools, baths or showers as intrapartum pain management. Women who used herbal teas were also more likely to initiate breastfeeding than those choosing aromatherapy, and moreover, continue breastfeeding for more than 6 months. Women who showed a preference for breathing techniques as intrapartum pain management were more likely to use aromatherapy rather than herbal extracts, tinctures or teas during pregnancy.
Conclusions: Our analysis is a preliminary insight into an as yet unassessed aspect of maternity care. More in-depth investigation of the characteristics of women who choose to use herbal medicines, teas and aromatherapy during pregnancy would be beneficial to policy makers and health care professionals to provide safe, effective maternity care.

What is already known about this topic:

- A significant number of women use complementary and alternative medicine (CAM) as part of obstetric care.
- Level of education and income all positively influence the likelihood of CAM use during pregnancy.
- One-third of Australian women use herbal medicines to manage pregnancy-related health conditions.
- Most women who use CAM throughout pregnancy consider it to be safe, natural and equally effective as conventional treatments.

What this paper adds:

- Women who used herbal extracts and tinctures rather than herbal teas or aromatherapy oils consult with an acupuncturist ($p = 0.001$) or naturopath ($p < 0.001$) for pregnancy-related health conditions.

* Corresponding author. Tel.: +61 756348483.
E-mail addresses: Diana.Bowman@endeavour.edu.au (D. Bowman), Amie.steel@uts.edu.au (A. Steel), Jon.adams@uts.edu.au (J. Adams), David.sibbritt@uts.edu.au (D. Sibbritt), A.broom@uq.edu.au (A. Broom).

http://dx.doi.org/10.1016/j.aimed.2014.12.004
2212-9626/

Please cite this article in press as: Bowman D, et al. The characteristics of women using different forms of botanical medicines to manage pregnancy-related health conditions: A preliminary cross-sectional analysis. Adv Integr Med (2015), http://dx.doi.org/10.1016/j.aimed.2014.12.004

- Women who used herbal teas feel more comfortable discussing their expectations of their birth with a general practitioner rather than a midwife and choose birthing pools, baths or showers as intrapartum pain management ($p < 0.001$).
- Women who used aromatherapy during pregnancy and birthing showed a preference for breathing techniques as intrapartum pain management ($p < 0.001$).
- Rates of breastfeeding initiation are high for women using any form of botanical medicine, particularly those using herbal extracts and tinctures ($p = 0.02$).
- Women using herbal teas were most likely to continue breastfeeding for more than 6 months ($p < 0.001$).

DOSAGE FORM	EXTRACTION METHOD	COMMONLY EXTRACTED CONSTITUENTS	POTENTIAL FOR HARM	ACCESSIBILTY
Herbal tinctures & extracts	Ethanol	Alkaloids Bitters Glycosides Volatile oils Resins Tannins	High	Linked to practitioner dispensing
Herbal infusions/teas	Water	Bitters Mucilage Glycosides Saponins Tannins	Moderate	Available through retail outlets
Aromatherapy oils	Steam	Volatile oils	Low (inhalation only)	Available through retail outlets

Fig. 1. Comparative summary of different forms of botanical medicine. *Sources*: Tan and Adams [6]; Pengelly [40].

1. Complementary and alternative medicine (CAM) and pregnancy care

Complementary and alternative medicine (CAM) is defined as a system of practices and products that are not presently considered to be part of the medical profession [1]. As revealed in a recent review on CAM use during pregnancy [2] a significant number of women choose to incorporate CAM into their maternity care with prevalence rates of 20–60% reported. More recent research [3] suggests 52.0% ($n = 842$) of Australian pregnant women use a CAM product(s) (not including nutritional supplements) with 34.4% ($n = 588$) using herbal medicines and 7.2% ($n = 121$) consulting a herbalist/naturopath. Contributing reasons for this prevalence of use have been linked to attempts to minimise obstetric interventions or to replace lifestyle behaviours discouraged during pregnancy [4].

A pregnant women's age, level of education and income have all been found to positively influence the likelihood of CAM use as part of obstetric care [2]. Those who choose to include a naturopath or herbalist as part of their maternity health care team are more likely to have private health insurance cover and also perceive their CAM practitioner as spending more time in consultation, as easier to converse with and as more supportive of their patients than a conventional maternity care providers [4]. Most women who use CAM throughout pregnancy consider it to be safe, natural and equally effective as conventional treatments [2]. Recent published data [5] has examined the attitudes of pregnant women who consult with CAM practitioners who commonly prescribe herbal medicines and found those women perceived CAM as more natural and safe, and as being at least as effective as conventional maternity treatments.

2. Issues in contemporary botanical medicine use in pregnancy

Botanical or herbal medicine refers to plants (or substances that come from plants) that are used to treat or prevent disease and may be used in differing dosage forms such as fluid extracts or tinctures, teas and essential oils [6]. The difference between these dosage forms pertains to concentration of active ingredients, extraction method, and consumer access (see Fig. 1). Fluid extracts and tinctures, commonly prescribed by a naturopath or herbalist [7] (whilst also available as over-the-counter products), are made from dried or fresh medicinal plants using alcohol and water as solvents to extract the active constituents and are considered stronger in therapeutic action than herbal infusions (herbal teas) [6]. A substantial number of midwives may also recommend herbal medicine to women in their care [8]. Hall et al. [9] report research shows many midwives promote the use of CAM to manage normal challenges of pregnancy and birth.

Herbal teas use water as the extracting solvent, are highly diluted and easily obtained over the counters of health food stores and supermarkets [6], as well as commonly prescribed by naturopaths and herbalists [7], acupuncturists and traditional Chinese medicine practitioners [10] and Ayurvedic practitioners [11] and other conventional care providers such as midwives [12]. Aromatherapy oils also easily obtained over the counter, are aromatic components of plant material usually extracted by steam distillation and can be inhaled, ingested or applied topically [13]. Whilst the use of essential oils by the community is commonly independent of health professional advice [14], both midwives [15] and nurses [16] have shown interest in, and support for, the application and use of these medicines.

The use of botanical medicine during pregnancy has increased across many countries in recent years. Studies in Finland, Australia and United States show more than 10% of pregnant women use botanical medicinal products [17]. Women use botanical medicine for a number of pregnancy-related health conditions such as nausea and vomiting, reflux, candida, or to prepare for labour [18] as well as in the postnatal period for assistance with breastfeeding [19]. Women may also access botanical medicine during the antenatal period for health issues unrelated to pregnancy issues such as respiratory infections or skin problems [20]. The pattern of herbal medicine use during pregnancy can change over time, however, with higher rates of use during the first trimester and lowered rates during the second and third trimester as well as the 3 months before conception [21]. The decision to use botanical medicine during pregnancy has been linked to women's previous use of herbal medicine [22,23], body mass index [23], attitude towards herbal medicine [24] and use of other medications [23]. The reasons for cessation of botanical medicine use by women during pregnancy include: concerns for the health of the baby; the 'condition' improving; the supplement not helping; and advice to discontinue from a health care provider [25].

However, not all botanical medicines available to pregnant women are subject to rigorous scrutiny in terms of safety and efficacy for use during pregnancy. Whilst a recent systematic review identified 14 controlled studies examining herbal medicine in pregnancy [26] the majority of these studies (10 of the 14 reviewed) explored the outcomes associated with ginger for nausea and vomiting in pregnancy. This has led to calls for further research within the Australian context to address the current paucity of efficacy and safety evidence regarding use of herbal medicines during pregnancy [27]. Notwithstanding side effects and the teratogenic potentials of botanical medicines being poorly understood [26] many pregnant women still assume botanical medicine is safe due to the perception of these medicines being 'natural' [18]. However, the existing data on this topic does not discriminate between the various dosage forms of botanical medicine despite the differences in concentration, accessibility, safety and effectiveness. In response, this paper draws upon a nationally representative sample of Australian pregnant women to

Please cite this article in press as: Bowman D, et al. The characteristics of women using different forms of botanical medicines to manage pregnancy-related health conditions: A preliminary cross-sectional analysis. Adv Integr Med (2015), http://dx.doi.org/10.1016/j.aimed.2014.12.004