Original Article

Women's use of herbal and alternative medicines for preconception care

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Background: Use of complementary and alternative medicine (CAM), particularly herbal and alternative medicine supplements, for preconception care and fertility management is becoming increasingly common.
Aims: To determine the factors associated with the use of CAMs by women for preconception care.
Materials and Methods: 412 women who had visited an antenatal 'first visit' clinic situated at a Brisbane obstetric hospital or had visited a private ultrasound clinic in the same city for the purposes of a routinely indicated ultrasound scan in the first trimester were recruited into the study. Data were collected via a cross-sectional questionnaire.
Results: Complementary and alternative medicines (not including multivitamins) were used during preconception by 8.3% of women attending for obstetric care. Approximately half (55.8%) of women taking herbal and alternative medicines ceased these medications on discovery of their pregnancy, though fewer (17.4%) ceased taking multivitamin supplements. Baseline characteristics (age, education and income) are not significantly different between CAM users and those who did not take CAMs preconception. The results of statistical analyses showed that only visiting a practitioner to check for health (OR = 2.00; 95% CI: 1.33, 3.00) and trying to lose weight prior to pregnancy (OR = 1.53; 95% CI: 1.00, 2.36) were the key predictors for women using CAM during preconception.
Conclusions: Women do consume CAMs to enhance preconception care to a certain extent, though CAM users remain in the minority. CAM users also tend to cease use once pregnant.

Key words: complementary and alternative medicine, herbal medicine, preconception, women.

Introduction

Complementary and alternative medicines (CAM) have become increasingly utilised by patients in Australia, and internationally, over the past few decades.[1,2] One area in which CAM is commonly used is in the area of women's health, particularly preconception care and fertility management, with studies indicating prevalence of CAM use ranging from 29 to 91%.[3,4] The most frequent types of CAM used in preconception care and fertility management were herbal medicines, followed by acupuncture and dietary guidance with the use of supplements. Characteristics of the users of CAM for preconception care and fertility management are similar to those reported in the literature for general CAM use, namely women who are older, with higher levels of education, working as professionals and earning high incomes.[1,5] Emerging evidence suggests that high utilisation extends beyond preconception care and fertility to become a core part of many women's pregnancy management.[6,7]

Optimisation of the chance to achieve a successful pregnancy is the primary reason women used CAM for preconception care and fertility management.[3] Positive relationships with CAM providers and the empowerment afforded through self-care are also strong reasons for CAM use in preconception care and fertility management.[3] Previous exploration of Australian women attending obstetric antenatal clinics in Adelaide found the majority of women (62%) using CAM interventions for preconception.[8] However, high CAM use may not automatically extend into pregnancy, with 41% of women taking CAM ceasing these interventions, with concerns on the impact of the unborn child being the primary reason for cessation. Another prospective survey of 100 patients attending an Adelaide infertility clinic found that 66% of

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attendees were using CAM, most commonly herbal and nutritional medicines.[9]

A high proportion (49.4%) of Australian women also consult with a CAM practitioner for pregnancy-related health issues,[10] with nearly half (48.2%) of women visiting a conventional infertility clinic concurrently seeing a CAM practitioner for preconception care and fertility management (mainly naturopaths and chiropractors). CAM interventions are more likely to be midwife-led than obstetrician-led, midwives are more likely to be supportive of CAM use than obstetricians, and midwives are more likely to communicate with CAM practitioners than obstetricians,[11,12] suggesting that the maternity care practitioner type may also influence CAM use for preconception, fertility and pregnancy. It is therefore important not only to explore CAM use amongst women more generally, but also explore differences in CAM use amongst differing birth settings.

The aim of this study was to help address the gap in the knowledge of CAM use by women during preconception by examining the prevalence of CAM use by women attending an obstetric antenatal clinic or a private ultrasound clinic; identifying the CAMs used by these women; and to determine the demographical, health status and pregnancy outcome factors significantly associated with use of CAM by these women.

Materials and Methods

Over a 6-week period (February–March 2006), successive unselected women in early pregnancy stages whom had visited a antenatal 'first visit' clinic situated at a Brisbane obstetric hospital (the Royal Brisbane and Women's Hospital) or had visited a private obstetrician in Brisbane for the purpose of a routinely indicated ultrasound scan in the first trimester were asked to participate in the study. Of the 512 women approached for the study, 412 agreed to participate (80% consent rate), with 255 participants being recruited from the public antenatal clinic (62%) and 157 recruited from a private ultrasound clinic (38%).[13]

The data collection instrument utilised in this study was a questionnaire. The questionnaire contained 192 items covering the following areas: the circumstances under which the women became pregnant; activities undertaken prior to becoming pregnant; medications used when the women became pregnant, including complementary medicine and other forms of medication; previous pregnancies; exercise habits; diet; weight; health status; alcohol and tobacco consumption and demographics. For this study, women were classified as CAM users if they responded 'yes' to the question: *When you became pregnant were you taking any herbal or alternative medicines?* Folic acid use and multivitamin use were asked in separate questions and were not defined as CAM for use in this study.

Health status, pregnancy outcomes and demographic measures of CAM users and nonusers were compared using Pearson's chi-square test. A parsimonious model involving significant variables was determined via a stepwise backward removal process which was determined using the likelihood ratio test. Statistical significance was set at the $\alpha = 0.05$ level.

The study was approved by the Royal Brisbane and Women's Hospital Human Research Ethics Committee (2006000105). Approval did not allow collection of information regarding women who did not consent to participate in the study.

Results

There were 412 women who completed the questionnaire, of which 8.3% indicated that they used CAM for preconception care. The herbal medicines reported by the women were milk thistle ($n = 8$), dandelion ($n = 8$), Chinese herbs ($n = 7$), ginseng ($n = 2$), ganoderma (a medicinal mushroom extract) ($n = 1$), guarana ($n = 1$), St John's wort ($n = 1$), spirulina ($n = 1$), echinacea ($n = 1$) and individualised herbs prescribed by a naturopathic clinic ($n = 1$). The nutritional alternative medicines reported by the women were omega 3 oils (flax seed and fish oils) ($n = 7$), iron ($n = 3$), vitamin B ($n = 1$), vitamin C ($n = 1$), l-carnitine ($n = 1$), a 'mineral matrix' supplement (containing calcium, chromium, copper, magnesium, manganese, potassium, selenium, sodium and zinc) ($n = 1$), a glucosamine and chondroitin supplement ($n = 1$), evening primrose oil ($n = 1$) and colloidal minerals ($n = 1$). Three ($n = 3$) women reported using homoeopathic medicines and one ($n = 1$) woman reporting using an alternative medicine 'digestive aid' which was not classified. Multivitamin use and folic acid use were also asked separately, with 41.7% ($n = 172$) women reporting taking a multivitamin supplement and 56.3% ($n = 232$) of women reporting taking a folic acid supplement. When CAM use was extended to include multivitamin use, the prevalence of CAM use amongst women in this study was 43.7% ($n = 180$). Of those taking multivitamin supplements, 17.4% ($n = 30$) ceased these supplements after discovery of their pregnancy, and 55.8% of women taking other CAMs ($n = 19$) ceased these medicines after discovering they were pregnant.

The associations between women who used CAM and those who did not use herbal medicines by demographic measures are presented in Table 1. No significant associations were identified in comparing CAM medicine users and nonusers groups across education ($P = 0.203$), employment status ($P = 0.613$), salary ($P = 0.814$) or marital status ($P = 0.116$).

Table 1 also shows a comparison between CAM and non-CAM users reporting alcohol and tobacco consumption prior to pregnancy. Use of CAM medicines was significantly associated with smoking status ($P = 0.030$). Specifically, 2.9% of women who used CAMs were current smokers compared to 17.2% of nonusers. There were no significant associations between women who did or did not use CAM and alcohol consumption ($P = 0.858$).

Table 1 Complementary and alternative medicine use by demographic and substance abuse characteristics⋆ = statistically significant result (p < 0.05)

	Used CAM		
Characteristic	Yes (n = 34) (%)	No (n = 377) (%)	P
Demographics			
Education			
School	100	100	0.203
Trade/other qualification	78.8	68.1	
Other	21.2	31.9	
Employment			
Employed	69.7	65.3	0.613
Unemployed	30.3	34.7	
Salary (AUD)			
0–19 999	27.3	22.3	0.814
20 000–39 999	27.3	23.9	
40 000–59 999	18.2	26.0	
60 000–99 000	15.2	12.6	
>100 000	12.1	15.3	
Marital status			
Married/*de facto*	78.8	65.3	0.116
Other	21.1	34.7	
Alcohol and tobacco use			
Tobacco consumption⋆			
Current non-smoker	97.1	82.8	0.030
Smoker	2.9	17.2	
Alcohol consumption			
Non-drinker	52.9	50.4	0.858
Ex-drinker	11.8	9.9	
Drinker	35.3	39.7	

Table 2 Current and previous pregnancy characteristics by CAM use⋆ = statistically significant result (p < 0.05)

	Used CAM		
Characteristics	Yes (n = 34) (%)	No (n = 377) (%)	P
Current pregnancy characteristics			
Did you plan to become pregnant?			
Yes	70.6	65.6	0.555
No	34.4	29.4	
Did you have any problems becoming pregnant?⋆			
Yes	26.5	13.6	0.041
No	86.4	73.5	
Did you visit a doctor to check your health?⋆			
Yes	26.5	48.5	0.013
No	73.5	51.5	
Did you take folic acid?			
Yes	66.7	55.3	0.165
No	32.4	44.7	
Did you take multivitamin supplements?⋆			
Yes	79.4	38.4	<0.001
No	20.6	61.6	
Did you require fertility treatment to become pregnant?⋆			
Yes	17.6	7.5	0.041
No	82.4	92.5	
Did you stop taking herbal or alternative medicine?			
Yes	48.5	50.0	0.946
No	51.5	50.0	
Did you change any exercise habits in preparation for pregnancy?⋆			
Yes	26.5	13.0	0.031
No	73.5	87.0	

Table 2 shows the association between women who did or did not use CAMs and various current pregnancy characteristics. Women who had problems becoming pregnant were significantly more likely to use CAM than women who did not have this problem (*P* = 0.041). Specifically, 26.5% of women who used CAMs had problems becoming pregnant compared to 13.6% of women who did not use CAM. Additionally, women who visited a doctor to check their health were less likely to use CAM than those women who did not visit a doctor to check their health (*P* = 0.013). Specifically, 26.5% of women who used CAM visited a doctor compared to 48.5% of women who did not use CAM. Women requiring fertility treatment to conceive were also found to be more likely to use CAM (*P* = 0.041). Specifically, 17.6% of women who used CAM required fertility treatment compared to 7.5% of women who did not use herbal medicines. Women who changed their exercise habits in preparation for pregnancy were more likely to use CAM than women who did not change their exercise habits (*P* = 0.031). Specifically, 26.5% of women who used CAM had changed their exercise habits compared to 13.0% of women who did not use CAMs. Women who

consumed multivitamins were also more likely to be using other CAMs (*P* = <0.001). There were no significant associations between CAM and non-CAM users for women planning to become pregnant (*P* = 0.555), consuming folic acid (*P* = 0.165) and those who stopped taking herbal or alternative medicine (*P* = 0.946).

There were no significant associations between women who did or did not use CAM for any previous negative pregnancy outcomes such as pre-eclampsia, miscarriage, hypertension, previous birth defects, previously giving birth to a baby who had spent more than 24 h in intensive care or who was underweight or preterm (data not shown). There were no significant differences between women who had previous successful pregnancies or pregnancies that had been voluntarily terminated and their CAM use (data not shown).

There were no differences between women's perceived health status (excellent, fair or poor) and no significant difference in health conditions and women's CAM use. There were no significant differences between women's weight (overweight, normal weight, and underweight) and women's CAM use. Women who tried to lose weight were significantly more likely to use CAM than women who did not try to lose weight (*P* < 0.001). Specifically, 61.8% of women who used CAM tried to lose weight compared to 30.9% of women who did not use CAM. There were no

significant associations between women who did or did not use CAM and any of the remaining health status measures.

Table 3 presents the results obtained from multiple logistic regression modelling to determine the most important predictive factors for CAM use during preconception. Of all the variables within the current and previous pregnancy outcomes, health status of women, alcohol and tobacco consumption and demographic measures, only visiting a practitioner to check for health and trying to lose weight prior to pregnancy were the key predictors for women using CAM as part of their preconception care. That is, the odds of a women using CAM is 2.00 (95% CI: 1.33, 3.00) times greater for those trying to lose weight prior to pregnancy compared to women who were not trying to lose weight. Women who visited a doctor to check health prior to pregnancy were 1.53 (95% CI: 1.00, 2.36) times more likely to use CAM compared to women who did not visit a doctor to check their health prior to pregnancy.

Discussion

In this study, when vitamin supplements were excluded, only a minority of women attending outpatient obstetric services used CAM. The pattern of CAM use by women in this study for preconception care and fertility management is reflective of previous studies that have focused on the prevalence of CAM for preconception care.[8,9] However, this study found that education, salary, employment and marital status were not significantly associated with the use of CAM. This finding is contradictory to other studies reporting that women who have a higher income, were married, or tertiary educated were more likely to use of CAM therapies for preconception care or fertility management,[3,14,15] and general Australian population data suggest similar associations with CAM use.[1,2] The differences between the findings of this study and that reported in the literature may be due to the sampling from both the public and the private sectors within Brisbane, where there are multiple streams of antenatal care, as there appear to be differing levels of integration, information and support of CAM between different birth pathway cohorts.[11] It is also possible that our study lacked statistical power due to the small sample size.

Analyses identified that women trying to lose weight and those who visited a doctor prior to pregnancy were more likely to use CAM for preconception care. Possible

Table 3 Multiple logistic models for predictive factors associated with use of CAM by women in pregnancy

Predictors	Odds ratio	95% CI	*P*
Tried to lose weight prior to pregnancy	1.995	1.329, 2.996	<0.001
Visit a doctor to check health prior to pregnancy	1.533	0.996, 2.357	0.013

explanations for this are that women who use CAM are more proactive about their health, or alternatively, that women who were using CAM had more concerns about their health and were accessing a broader range of healthcare practitioners including their doctor. Women in this study who attempted to change health behaviours positively (such as via exercise) were also more likely to be CAM users. Additionally, one marker for proactive preconception care (folic acid utilisation) showed no statistical difference between CAM users and CAM nonusers, but CAM use was significantly associated with multivitamin use, which may be a proxy for proactive preconception care, given that levels of folic acid in most multivitamins are also considered sufficient. The idea that women who use CAM are more proactive in their health-seeking behaviours is consistent with the literature showing that CAM use is significantly associated with positive health behaviours (such as lower tobacco use) and increased utilisation of broader healthcare services.[16] Studies have identified that many women attempt to lose weight before becoming pregnant, to improve pregnancy outcomes but also to address conditions such as high cholesterol, thyroid disorders, obesity, polycystic ovarian syndrome (PCOS), diabetes and infertility.[13,17,18] However, results from this study indicated no significant associations for such health conditions except for women seeking fertility treatments to help them with preconception care. CAMs associated with weight loss also appear to be those with the strongest evidence base in fertility management,[19] and this may affect the use of these therapies by patients, either self-prescribed or directed by a practitioner. The finding that recently consulting with a medical practitioner is associated with CAM use is consistent with previous studies which indicate that CAM product, and practitioner use is used concurrently with, rather than instead of, conventional care, and that higher use of conventional services is associated with higher use of CAM.[6,10]

Of note is the fact that many women using CAM ceased such use upon discovery of their pregnancy. Again, this finding appears consistent with previous studies[9] and indicates that women take a critical risk-benefit approach to CAM use in preconception, fertility management and pregnancy, and appreciate the potential risks of CAM in pregnancy. This cessation could also be affected by healthcare provider views, given that safety in pregnancy is the primary concern of CAM use amongst maternity care providers.[11] Many of the CAMs used by women in this study do not appear to correlate to those with an established evidence base,[19] nor do they appear to be those that are routinely recommended by CAM practitioner literature.[20] It is important to note that herbal medicines are being used by women for preconception care without sufficient scientific evidence and no safety assessments on toxicity of herbal supplements. Further, ovarian follicular development and sperm maturation occur for several months prior to conception, and so the safety and impact of these agents need to be assessed with

regard to the long-term health of the offspring. Therefore, given the risks associated with any ingestible medicine use in preconception or pregnancy, urgent attention is required to uncover the decision-making processes of women related to self-prescribed medications and CAMs as they relate to preconception and pregnancy care.

The strength of this study is that it is one of the few studies to provide insights into the use of CAM for preconception care. There are some limitations that need to be considered when interpreting our study findings. The study sample was recruited from two major clinics in Brisbane, so the findings may not be necessarily generalisable to the wider population. The health status information provided was self-reported by the women, so some bias could have been introduced. The utilisation of herbal medicine and health service utilisation is also defined by self-report, so that findings could be affected by recall bias.

Conclusion

Complementary and alternative medicine use amongst women attending antenatal clinics is significant, and CAM use appears to be a strong and consistent phenomenon in those using contemporary obstetric care. However, when vitamin supplements are excluded, CAMs are only used by a minority of women, though still at levels that warrant clinician consideration. As such, there is a clear need for research to help women and healthcare practitioners better understanding the risks and potential benefits associated with CAM use prior to and after conception. Further research is also required to explore women's decision-making processes when deciding to use herbal medicines and the communication that exists between the women and healthcare practitioners in relation to their use of herbal medicines.

Acknowledgements

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