

WOMEN'S ATTITUDE AND SOCIODEMOGRAPHIC CHARACTERISTICS INFLUENCING USAGE OF HERBAL MEDICINES DURING PREGNANCY IN TUMPAT DISTRICT, KELANTAN

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Abstract. The objective of this cross-sectional study was to determine whether the use of herbal medicines during pregnancy is associated with women's attitudes towards herbal medicines and their sociodemographic features, such as age, education level, and income. Two-hundred ten women (110 "users," 100 "non-users") were studied. The probability of using herbal medicines among women who had negative attitudes towards the use of herbal medicines was 50.0% less compared to those who had positive attitudes (OR = 0.51, 95% CI = 0.29 - 0.92). Women who had a positive attitude towards the safety of herbal medicines were less likely to use herbal medicines during pregnancy. There were no significant associations between usage and sociodemographic features, such as age, income, race, and education.

INTRODUCTION

Over the past decade, the use of traditional and complementary medicine (T/CM) has expanded globally and become increasingly popular. According to the World Health Organization, 80% of the world's population meets their need for drugs with herbal drugs (WHO, 2002). Herbal medicines are plant-derived material or preparations with therapeutic or other human health benefits, which contain either raw or processed ingredients from one or more plants (WHO, 2000). In Malaysia, herbs

were used in traditional medicine for several civilizations, such as the Chinese and the Indian ethnic groups. The use of the herbs in these cultures has been well documented, and the practitioners have been trained and practice with proper knowledge and ethics. The Chinese and Indian traditional medicines have been well received, and the same is true for the use of *jamu* (Malay medicinal preparation consisting of selected herbs) among Malays in Malaysia and Indonesia (Mustafa, 2003). Practitioners of Malay traditional and indigenous medicine rely primarily on medicinal plants and herbs for the preparation of therapeutic substances (Raden and Werner, 1985). For example, *Kacip Fatimah*, also known as *Labisia pumila* (Myrsinaceae), is a traditional herbal medicine that has been used by many generations of Malay women to induce and facilitate childbirth as well as a post-partum

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medicine (Zaizuhana *et al*, 2006).

Women may choose to use herbal supplements because they consider them safer during pregnancy than pharmaceutical products (Hollyer *et al*, 2002). Herbs are not non-toxic just because they are natural. Medicinal herbs may contain powerful, pharmacologically active compounds (Hussin, 2001). Several animal studies described the adverse effects of herbal medicines to the fetus, such as congenital malformations (Noordalilati *et al*, 2004), intrauterine growth retardation, and reduction of fetal survival rate (Sulaiman *et al*, 2001). A human study in South Africa reported fetal distress as the outcome of taking herbal medicines during pregnancy (Mabina *et al*, 1997).

Attitude towards herbal medicines is a factor that influences use during pregnancy (Nordeng and Havnen, 2005). Other possible associated factors are age, education level, and income (Ni *et al*, 2001). Currently, no research has studied the factors influencing the use of herbal medicines during pregnancy among Malaysian women. If health promotion would be an appropriate means for reducing the risks from taking herbal drugs during pregnancy, then women who are more likely to use herbal medicines during pregnancy should be identified. The objective of this study, therefore, was to determine whether the use of herbal medicines during pregnancy is associated with women's attitude towards herbal medicines, and what are their sociodemographic features, such as age, education level, and income. One hypothesis was that if women had negative attitudes towards herbal medicines, they would be less prone to use herbal medicines during pregnancy. The second hypothesis was that certain characteristics of women would influence their practice of using herbal medicines during pregnancy.

MATERIALS AND METHODS

Tumpat District is a coastal area, about 21 kilometers from Kota Bharu, the capital of Kelantan State, and about one kilometer from the Thai border. Most of the population are farmers and fishermen. The majority are Malay.

This is a cross-sectional study design. Mothers who gave birth from June 2002 to June 2005, either at hospitals, Alternative Birthing Centers (ABCs), or at home, and who were registered in the birth registration records at five maternal and child health clinics (MCHC) in Tumpat were included in this study. A simple random sampling method was used to select the mothers. Sample size calculation was done using PS Software (version 1.0.13). Using the significance level of 0.05, study power of 80%, standard deviation of 6.40 (obtained from the standard deviation of mean attitude towards the safety of herbal medicines during pregnancy among women attended antenatal clinics, Hospital Universiti Sains Malaysia), detectable difference of 3.0 (the smallest but significant mean attitudes difference between the users and non-users of herbal medicines that was desired to be detected), and a ratio of users to non-users of 1, the minimum sample size required was 156 subjects.

Two hundred ten women were interviewed, from 1 July to 30 September 2005 using a structured questionnaire, by the first author during child health clinic sessions. The interviewer initially explained the working definition of herbal medicines to the mothers. Preparations that were consumed, such as nutriments and within routine meal preparation such as food additives, were not considered herbal medicines. Mothers were considered to be "herbal medicines users" if they took the herbal medicines orally in any form (solutions, capsules, tablets, or

raw), at any frequency, duration, and amount during any trimester of pregnancy. Mothers were also asked if they had taken any herbal medicines before they conceived. For those who had taken herbal medicines before they got pregnant, they were asked to recall the last time they took them to determine if they had been exposed during pregnancy. To facilitate recall, a list of commonly used herbal medicines (Table 1) was shown to the subjects as examples. A list of common indications and medical and health problems (Table 2) for using herbal medicines was also shown, and the subjects were asked whether any herbal medicines had been used to remedy the medical and health problems or to treat the indications. The list of commonly used herbs and the reasons for their use were obtained from a pilot study that had been conducted among pregnant mothers attending the antenatal clinic at the Hospital Universiti Sains Malaysia a few months prior to this study. Local traditional midwives, homeopathy practitioners, and pharmacists were interviewed to confirm that the products were herbal medicines.

To assess the level of attitude, seven questions were asked. It was a newly developed questionnaire. Comments and suggestions from a group of experts that consisted of one pharmacologist, one sociologist, two public health lecturers, and one nutritionist validated the contents of the questionnaire. Ordinal responses ('Strongly Agree,' 'Agree,' 'Not Sure,' 'Disagree,' and 'Strongly Disagree') were scored as '4,' '3,' '2,' '1,' and '0,' respectively. The items include 1) "You are supposed to ask and discuss with the doctor before taking any herbal medicines during pregnancy," 2) "You are not keen to eat or drink any herbal medicines during pregnancy," 3) "You would discourage your friend or relative who wants to eat/drink herbal medicines during pregnancy," 4) "If possible, you will try to avoid eating/drink-

Table 1
Commonly used herbal medicines by Malaysian women.

Coconut oil
Kacip Fatimah
Manjakani
Ketam uri
Celaka
Mas secotet
Kembang semangkuk
Setunjang bumi

Table 2
Common indications for using herbal medicines by Malaysian women.

Facilitate labor
Nausea, vomiting
Promote baby's physical health and intelligence
Prevent retained placenta
Abortion
Sexual pleasure
Spacing of children
Relieve muscle and body ache

ing herbal medicines during pregnancy," 5) "You are confident that herbal medicines are not safe to be eaten/drunken during pregnancy," 6) "The government is responsible to ensure that herbs and herbal products are of good quality and safe before they can be used," and 7) "Health personnel are responsible for conveying information regarding the effects of herbal medicines on the fetus." Item analysis was done, and the internal consistency reliability had a Cronbach's alpha of 0.88.

Binary logistic regression was used to determine the association between the use of herbal medicines during pregnancy with attitudes towards herbal medicines, age, total monthly household income, level of education, and ethnic group. "Attitude" was

Table 3
Attitudes and sociodemographic factors associated with the use of herbal medicines during pregnancy, simple logistic regression.

Variables	Users N = 110 n (%)	Non users N = 100 n (%)	Crude odds ratio (95% Confidence interval)	p-value of Wald statistics
Attitudes				
Positive (score < 19)	57 (51.8)	34 (34.0)		
Negative (score ≥ 19)	53 (41.2)	66 (66.0)	0.48 (0.27-0.84)	0.010
Age (years)				
17 - 24	25 (22.7)	18 (18.0)	1.09 (0.60-1.98)	0.773
25 - 34	61 (55.5)	50 (50.0)		
≥ 35	24 (21.8)	32 (32.0)	0.60 (0.36-1.00)	0.050
Income (MYR)				
< 500	32 (29.1)	30 (30.0)		
500 - 1,300	63 (57.3)	50 (50.0)	1.63 (1.99-2.68)	0.056
>1,300	15 (13.6)	20 (20.0)	1.33 (1.66-2.67)	0.421
Education				
Primary school/no formal education	41 (37.3)	38 (38.0)	0.60 (0.23-1.58)	0.302
Secondary school	58 (52.7)	57 (57.0)	0.66 (0.25-1.72)	0.395
University/college	11 (10.0)	5 (5.0)		
Race				
Malay	104 (94.5)	95 (95.0)		
Others	6 (5.5)	5 (5.0)	1.32 (0.43-4.03)	0.622

categorized using mean scores. A score of ≥ 19 was defined as “negative attitude towards the use of herbal medicines during pregnancy,” and a score of < 19 was defined as “positive attitude towards the use of herbal medicines during pregnancy.” Model fitness was checked by Hosmer-Lemeshow goodness-of-fit test and ROC curve. Results were analyzed using Stata[®] (version 8).

This study was approved by the Research and Ethics Committee, Universiti Sains Malaysia (USM) (USM/KK/PPSP/JK P&E 2004) and the Ministry of Health, Malaysia (letter of approval dated 20 January 2006).

RESULTS

Two hundred ten mothers were inter-

viewed. The mean age of the mothers was 31 years old (SD 6.5). Their mean household monthly income was MYR 840.40 (SD 686.70). The majority of them were Malay (94.8%). Just over one-half (54.8%) of the mothers had attended formal education up to secondary school. A total of 110 (52.4%) mothers had used herbal medicines during pregnancy. Coconut oil, unidentified herbal medicines that came from sources such as *Orang Asli* (native Malaysian) and traditional midwives, and local plants known as *Kacip Fatimah* (*Labisia pumila*) and *Manjakani* (*Croton caudatus*) were among the commonly used herbal medicines found in this study. Herbal medicines were used for certain indications, such as to facilitate labor, to promote a baby’s physical health and intelligence, to enhance sexual pleasure, and for

Table 4
Attitudes and sociodemographic factors associated with the use of herbal medicines during pregnancy, multiple logistic regression.

Variables	Adjusted odds ratio	95% Confidence interval	p-value of Wald statistic
Attitudes			
Positive (score <19)	1.00		
Negative (score ≥ 19)	0.51	0.29-0.92	0.025
Age (years)			
17-24	0.99	0.47-2.11	0.997
25-34	1.00		
≥ 35	0.67	0.34-1.31	0.239
Income (MYR)			
<500	1.00		
500-1,300	1.23	0.64-2.38	0.530
>1,300	0.55	0.19-1.57	0.263
Education			
Primary school/no formal education	0.33	0.99-1.26	0.105
Secondary school	0.29	0.07-1.21	0.089
University/college	1.00		
Race			
Malay	1.00		
Others	0.89	0.24-3.30	0.865

Hosmer-Lemeshow goodness-of-fit statistics chi-square p -value =0.292, area under receiver operating characteristic curve =70%.

abortion purposes. The mean attitude score was 19 (SD 6.40).

Simple logistic regression (Table 3) and multiple logistic regression (Table 4) indicate that the attitude towards herbal medicines was significantly associated with the use of herbal medicines during pregnancy. The probability of using herbal medicines among women who had a negative attitude towards the use of herbal medicines was 50.0% less if compared to those who had positive attitudes (OR = 0.51). There were no significant associations between the use of herbal medicines during pregnancy with income, education, race, and age.

DISCUSSION

The use of herbal medicines during

pregnancy was common (52.4%) among women in Tumpat District. This finding was high when compared to a study of a similar population (Kelantanese Malay women admitted in the antenatal ward of the Hospital Universiti Sains Malaysia from September to December 2007), that found that about 34.3% of women used herbal medicines during pregnancy (Law *et al*, 2008). Our study population (women who attended antenatal check-ups at health clinics) compared to a sample of only hospital admitted women might explain the higher prevalence of herbal use found in our study.

We found that women with negative attitudes towards herbal medicines were less likely to use the herbal medicines. The same findings were reported in the United States (Klepser *et al*, 2000). In contrast with our

finding, Nordeng and Havnen (2005) found that there was no significant association between mother's attitudes and the use of herbal medicines during pregnancy among postpartum women at the University Hospital in Oslo, Norway. There were 224 (56.0%) women who had positive attitudes to herbal drugs in pregnancy, 73 (18.3%) who had negative attitudes, and 103 (25.8%) who were neutral. A qualitative study of women in South Africa that assessed their perceptions of herbal medicines found that they believed that traditional herbal medicines could be dangerous to use during pregnancy (van der Kooi *et al*, 2006). The most common reason for not using herbal preparation to stimulate labor among the members of the American College of Nurse-Midwives was that they were concern about the lack of research or experience with the safety of these substances (McFarlin *et al*, 1999).

In our study, mother's age, educational status, racial group, and the total household income were not associated with the use of herbal medicines during pregnancy among women in Tumpat District. Age was also not a significant factor as reported by Gibson *et al*, (2001). However, Nordeng and Havnen (2005) reported that mother's age, between 26 to 35 years old, compared to an older age group was associated with the use of herbal medicines during pregnancy. More than half (55.5%) of herbal medicines users in our study were in the 25-34-year-old age group. However, an American study found that older women (41-50-year-old group) were more prone to use herbal medicines (Hepner *et al*, 2002). Similarly, an Australian study found that older women were more likely to take herbal supplements (Foster *et al*, 2006).

Nordeng and Havnen (2005) also found that mother's educational status was not a significant associated factor. However, the majority of users in their study were among

women with higher education levels. There were trends toward greater use of herbal medicines during pregnancy among women with higher education levels (Hemminki *et al*, 1991; Gibson *et al*, 2001; Foster *et al*, 2006).

Other studies have also reported that there was no significant relationship between income and usage of herbal medicines (Gibson *et al*, 2001; Nordeng and Havnen, 2005). The majority of users in our study were those in the middle-income group (57.3%). Finnish women from the higher social classes were more often users of herbal medicines (Hemminki *et al*, 1991). Women had to spend some amount of money to obtain these herbal medicines product either from the traditional midwives, pharmacy, or direct sellers.

In contrast with our findings, Gibson *et al* (2001) reported that compared to other racial groups, white women were more prone to use herbal medicines during pregnancy. The high proportion of Malay (94.8%) compared to other racial groups may explain the insignificant association found in this study.

We acknowledge there were limitations in our study. Only seven questions were asked to assess attitudes. Further research with more items to assess the attitudes is suggested for future studies. The study finding may not portray the real usage of herbs among Malaysian women because the majority of the respondents were Malay. The characteristics of women who use herbal medicines may be different among the Indian or Chinese ethnic groups.

In summary, this study has suggested that the negative attitude towards herbal medicines had protected women from using herbal medicines during pregnancy. Women's attitude towards the possible adverse effects of herbal medicines to their fetus needs to be strengthened by improving

their knowledge and awareness. The findings of this study may possibly be used for health promotional interventions, but future studies should include such issues in the design of the research.

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