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ORIGINAL ARTICLE

PREVALENCE AND PATTERN OF USE OF HERBAL MEDICINES DURING PREGNANCY IN TUMPAT DISTRICT, KELANTAN

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The objective of this cross -sectional study is to determine the prevalence and pattern of herbal medicines use during pregnancy among women in Tumpat district, Kelantan. A total of 210 mothers were interviewed using a structured questionnaire. There were 108 mothers (51.4%) who used at least one type of herbal medicines during pregnancy. The most common herbal medicines used (63.9%) was coconut oil which was ingested during the third trimester of pregnancy only. The most common indication was (89.8%) to facilitate labour. The majority of users (79.6%) used herbal medicines during the third trimester of pregnancy only. Many of them (81.5%) believed that herbal medicines were effective to solve their health problems and fulfilled the indications for use. The older generation like parents and in laws (63.9%) were the most common persons who suggested using herbal medicines. The majority of them used the herbs only once (56.5%) and one type (87.0%) throughout the pregnancy. Further research focusing on local commonly used herbal medicines is to be carried out to evaluate the safety and efficacy of the herbs.

Key words *: herbal medicines; pregnancy; prevalence; pattern*

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Introduction

Herbs include crude plant materials such as leaves, flowers, fruits, seeds, stems, wood, bark, roots, rhizomes or other plant parts, which may be entirely fragmented or powdered. Herbal medicines are defined as plant-derived materials or preparations with therapeutic or other human health benefits that contain either raw or processed ingredients from one or more plants (1). A World Health Organization survey revealed that about 70–80% of the world population rely on non-conventional medicine mainly of herbal sources in their primary healthcare (2). It has been estimated that one third of Americans use herbal products with herbal medicine sales in United States reaching an estimated total of about US$3.24 billion (RM 12.3 billion) in 1997. In the same year, Malaysians spent about RM 2.0 billion on herbal medicines. This amounts to about RM 45.00 spent on herbals per person per year in the United States compared to about RM91.00 per person per year in Malaysia taking into account populations of 273 million and 22 million respectively (3). About 17.1% of Malaysians used herbs to treat their health problems while 29.6% of them consumed herbs for their health maintainence (4). Herbal medicines was the most frequent type of Traditional/Complimentary Medicine used (49.4%) by adult patients attending Family medicine clinic at Hospital Universiti Sains Malaysia (5).

Herbal medicines are used in pregnancy although there is very little real evidence of safety (6). The incidence of use by expectant mothers is unconfirmed and has been quoted as varying between 7.0% to 55.0% (7).

There is very limited information regarding herbal medicines practice during pregnancy among Malaysian women. The objective of this study is,

Table 1 *: Common types of herbal medicines (HM) used during pregnancy*

Types of HM	**Trimester of pregnancy use**	**Users n=108 n(%)**
Coconut oil	3rd trimester	69 (63.9)
Unidentified herbs prepared by aborigines	3rd trimester	21 (19.4)
Unidentified herbs prepared by traditional midwives	3rd trimester	21 (19.4)
	2nd trimester	1 (0.9)
	3rd trimester	7 (6.5)
"Manjakani" (*Croton caudatus*)	1st trimester	3 (2.8)
"Ketam Uri"	2nd trimester	0 (0.0)
	3rd trimester	2 (1.9)
"Sanggul Kacip Fatimah"	3rd trimester	6 (5.6)
Other types of "Kacip Fatimah" (*Labisia patoina, pumila*)	1st trimester	7 (6.5)
Other types of HM	1st trimester[2]	8 (7.4)
	2nd trimester[2]	7 (6.5)
	3rd trimester[2]	8 (7.4)

[a] Other types of herbal medicines used during 1st trimester of pregnancy include "Celaka" (*Plumbago zeylonica*) root (n=3), "Gelam" (*Melacieuca cajupati*) leaf (n=1), "Tongkat ali" (*Eurycoma longifolia jack*) "Mas Secotek" (*Ficus deltoides*) (n=1), "Mata Kucing Keling" fruit (n=1), pineapple fruit (n=1), "Mengkudu" (*Morinda elliptica*) juice (n=1), "Ganoderma" (n=1), "Tongkui" root (n=1), boiled juice of "Durian" skin (n=1), coconut juice (n=2), "Kembang Semangkuk" (*Scaphium macropadum*) flower (n=1), Sea weed (n=1), Gingko (*Gingko biloba*) fruit (n=1), "Tamar" fruit (n=1) [b] Other typer of herbal medicines used during 2nd trimester of pregnancy include "Ganoderma" (n=3), sea weed (n=1), "tamar" fruit (n=2), Gingko (*Gingko biloba*) fruit (n=1), "Tongkat Ali" (*Eurycoma longifolia jack*) (n=1), "Mengkudu" (*Marinda elliptica*) juice (n=1), "Mata Kucing Keling" fruit (n=1) [c] Other types of herbal medicines used during 3rd trimester of pregnancy include cocunat juice (n=2), "Ganoderma" (n=2), see weed (n=1), "Tamar" fruit (n=2), boiled juice of "Durian" skin (n=2), "Tongkat ali" (*Eurycoma longifolia jack*) (n=1), "Kembang Semangkuk" (*Scaphium macropodum*) flower (n=1), "Mengkudu" (*Morinda elliptica*) juice (n=1), "Mata Kucing Keling" fruit (n=1), Gingko (*Gingko biloba*) fruit (n=1)

therefore, to determine the prevalence and pattern of herbal medicines use during pregnancy among women in Tumpat district, Kelantan.

Materials and Methods

A cross- sectional study was conducted. A simple random sampling method was used to select mothers from the birth registration records in five Maternal and Child Health Clinics (MCHC) in Tumpat District. Mothers who gave birth in 2006 either at hospitals, Alternative Birthing Centres (ABC) or home were included. Sample size was calculated using a single proportion formula. Taking the precision level of 0.07, the value of standard normal distribution of 1.96 and the prevalence of herbal medicines use during pregnancy of 0.46 (obtained from a pilot study conducted among

Table 2 : *Common indications for using herbal medicines before pregnancy (prenatal)*[a]

Indications	Users n-=108 n(%)	Types of herbal medicines
Muscle & body ache	8 (7.4)	Unidentified herbs prepared by traditional midwives Other types of "Kacip Fatimah" (*Labisia patoina, pumila*) "Tongkat Ali" (*Eurycome longifoliia jack*) Gelam (*Melacieuca cajupati)*
Spacing of children	6 (5.6)	Other types of "Kacip Fatimah " (*Labisia patoina, pumila*) Unidentified herbs prepared by traditional midwives Gelam (*Melacieuca cajupati*) Mas Secotek (*Ficus deltoides*) Stunjang Bumi (*Prismatomeris tetranda*) root Mata Kucing Keling "fruit" Sirih (*Piper bettle*) leaf
Sexual pleasure	6 (5.6)	Other types of "Kacip Fatimah" (*Labisia patoina, pumila*) Manjakani (*Croton caudatus*)

[a] *Mothers used herbal medicines for these indications before they became pregnant; however, they continued to use herbal medicines during early pregnancy because they were unaware that they were pregnant.*

women attending antenatal clinic, Hospital Universiti Sains Malaysia), the minimum sample size required was 195 subjects. The mothers were interviewed using a structured questionnaire (Appendix A), during child health clinic sessions. In order to validate the contents of the questionnaire, comments and suggestions from a group of experts including one pharmacologist, one sociologist, two public health lecturers and one nutritionist were reviewed. Following the content validity, face validity was carried out. Five women attending the antenatal clinic, HUSM as representatives from respondents were interviewed using the questionnaire. A few wordings had been changed after the session to improve the contents of the questionnaire. The questionnaire was then piloted among 30 women attending antenatal clinic, Hospital Universiti Sains Malaysia.

The interviewer initially explained the working definition of herbal medicines to the mothers. In this study, the mothers were considered as herbal medicines users if they took the herbal medicines orally. Other route of administration such as topical application and preparations that were consumed as nutriments and within routine meal preparation such as food additives were excluded. The herbal medicines could be consumed in any form such as solutions, capsules, tablets or raw form, at any frequency, duration and amount during any trimester of pregnancy. They were asked whether they had experience taking the herbal medicines orally during pregnancy by using open -ended questions. They were also asked whether they had taken any herbal medicines before they conceived. For those who had experienced taking herbal medicines before they became pregnant, they were asked to recall the last time they took them to determine whether they had been exposed during pregnancy. Several techniques were used to help the mothers to recall the history of herbal medicines use during pregnancy. The technique included showing them a list of commonly used herbal medicines as examples. In addition, a list of common indications and medical and health problems for using herbal medicines was also shown and the subjects were asked whether any herbal medicines had been used to solve medical and health problems or fulfill the indications. Sources of herbal medicines where the women obtained the herbal medicines were also determined. Two local traditional midwives, a homeopathic practitioner and two pharmacists were interviewed in order to confirm whether the products

Table 3 : *Common indications for using herbal medicines during pregnancy*

Indications	**Users n-=108 n(%)**	**Types of herbal medicines**
Facilitate labour	97 (89.8)	Coconut oil Unidentified herbs prepared by aborigines "Sanggul Kacip Fatimah" "Kembang Semangkuk" (*Scaphium macropodum*) flower Coconut juice Boiled juice of "durian" skin
Promote baby's physical health & intelligence	9 (8.3)	"Tongkui" root *Ganoderma* Sea weed Gingko (*Gingko biloba*) fruit "Mengkudu" (*Morinda elliptica*) juice "Mata Kucing Keling" fruit "Tamar" fruit
Prevent retained placenta	1 (0.9)	"Ketam Uri"
Abortion	1 (0.9)	Unidentified herbs prepared by traditional midwives Pineapple fruit "Celaka" (*Plumbago zeylonica*) root

were herbal medicine products and to identify the specific herbal contents of the products.

Data entry and statistical analysis was done using SPSS version 12. Socioeconomic and demographic characteristics of respondents were described. The Continuous variables were recorded as means and standard deviations (SD). Categorical variables were recorded as frequencies and percentages. The prevalence of herbal medicines use during pregnancy among women in Tumpat District and its 95% confidence interval was computed. The pattern of use of herbal medicines include the types of herbal medicines, indications for use, the trimester of pregnancy, perception on the effectiveness, persons suggesting use, frequency of use and the number of herbal medicine types used throughout pregnancy.

This study was approved by the Research and Ethics Committee, Universiti Sains Malaysia (USM) and Ministry of Health, Malaysia.

Results

A total of 210 mothers were interviewed. The mean age was 30 years (SD=6.54). Their mean total monthly household income was RM 840.43 (SD=678.30). The mean parity was 4 children (SD=2.3). The majority (54.8%). of mothers had formal education up to the secondary level. The majority (97.1%) of them were Malays and housewives (89.5%).

There were 108 mothers who used at least one type of herbal medicine during pregnancy. The prevalence of women who used at least one type of herbal medicine during pregnancy was 51.4% (108 out of 210) (95% CI 44.6%, 58.2%).

Table 1 shows that the most common herbal medicines was coconut oil (63.9%) which was ingested during the third trimester of pregnancy. Table 2 shows that the most common indication (7.4%) for those who used herbal medicines before pregnancy but continue to use during pregnancy

Table 4 : *Use of herbal medicines according to the trimester of pregnancy, perception on the effectiveness, persons suggesting, frequency and number of herbal types used*

Variables	Users (n=108) n(%)
Trimester of pregnancy	
1st only	5 (4.6)
2nd only	0 (0.0)
3rd only	86 (79.6)
1st & 3rd	10 (9.3)
2nd & 3rd	3 (2.8)
All trimesters	4 (3.7)
Perception	
Effective	88 (81.5)
Not effecrive	8 (7.4)
Not sure	12 (11.1)
Persons suggesting	
Parents or in laws	69 (63.9)
Husband, friends or siblings	20 (18.5)
Traditional midwives	11 (10.2)
Self preference	5 (4.6)
Others[a]	3 (2.8)
Frequency	
Once	61 (56.5)
Weekly	6 (5.6)
Every 2 to 3 days	4 (3.7)
Daily	37 (34.3)
Number	
One type	94 (87.0)
Two types	9 (8.3)
Three types	5 (4.6)
[a] nurse (n=1), drug seller (n=2)	

[a] *nurse (n=1), drug seller (n=2)*

without knowing that they were pregnant was to relieve muscle and body ache. The most common indication (89.8%) for using herbal medicines during pregnancy was to facilitate labour as shown in Table 3. The majority of users(79.6%) used herbal medicines during the third trimester of pregnancy only (Table 4). Table 4 also shows that majority (81.5%) who used herbal medicines during pregnancy believed that the herbal medicines were effective to solve their health problems and fulfilled the indications for use. The older generations like parents and parents in law were the most common persons (63.9%) who suggested the women to use herbal medicines during their pregnancy (Table 4). Table 4 also shows that the majority of users (56.5%) took herbal medicines once only throughout their pregnancy. The majority of them (87.0%) took only one type of herbal medicine throughout the pregnancy as shown in the table 4.

Discussion

The prevalence of herbal medicines use during pregnancy among women in Tumpat was 51.4% (95% CI= 44.6%, 58.2%). There is no reported study on the prevalence of use of herbal medicines during pregnancy in Malaysia. Our finding is lower compared to those in South Africa (8). About 55.0% of women used herbal medicines during pregnancy. In their study, mothers presented

in early labour were randomly selected and interviewed.

Our finding is higher compared to those reported by Glover *et al*. (9). They found that about 45.2% of women from rural outreach clinics and the Physicians Office Center of West Virginia University, Morgantown used at least one type of herbal medicine during pregnancy. In that study, obstetric patients were asked open- ended questions to assess whether they used any herbal medicines during pregnancy, followed by showing several indications for use and a list of common local herbal medicines used during pregnancy to help mothers recall. They included herbal products that were used solely for medicinal purposes and excluded those consumed as nutriments. However, the researchers did not document the route of administration of herbal medicines (9).

By using a self-completed questionnaire, Pinn and Pallet (6) reported that about 12.0% of women attending the antenatal clinic in an Australian district hospital used herbal medicines. However, the researchers did not mention how they defined the herbal medicines users in their study. They questioned mothers who presented at the clinic for the first booking at 16 to 24 weeks of pregnancy .

Obviously, the selection of tools for data collection to determine whether respondents use herbal medicines or not is very important because these tools might influence the outcome of the study. By using the interview technique, as was done in this study, mothers had a better chance to clarify questions and avoided misunderstandings and possible underestimation in the use of herbal medicines compared to a self-completed questionnaire.

It is well known that traditional medicines, particularly herbal medicines, are commonly used in less developed countries and developing countries. However, the above studies revealed that the use of herbal medicines is also common in developed countries. There are several reasons why communities in developed countries are showing interest in the use of herbal medicines. In developed countries, the safety and efficacy of some herbs is well documented. Among well-researched herbs are garlic (*Allium sativum*), ginger (*Zingiber officinale*), ginkgo biloba (*Ginkgo biloba)* and ginseng (*Panax ginseng*) (7). Besides that, in developed countries, there is widespread promotion of herbs in the media as natural and safe (10). In addition, there is growing awareness on the side effects of modern medicines because modern medicines are well-researched. Nowadays, people are adopting healthy living with nature and herbal medicines are seen as part of the natural cure (11).

Coconut oil, unidentified herbal medicines which came from different sources such as aborigines and traditional midwives, local plants known as "Kacip Fatimah", "Ketam Uri", "Manjakani" (*Croton caudatus*) and "Celaka" (*Plumbago zeylonica*) were among commonly used herbal medicines in this study. The herbal medicines were used for certain indications such as to facilitate labour, relieve muscle and body ache, space pregnancies, promote baby's physical health and intelligence, enhance sexual pleasure, prevent retained placenta and abortion purposes. Coconut oil was the most common herbal medicine used during pregnancy (63.9%). The most common indication for using herbal medicines during pregnancy was to facilitate labour (89.8%).

Glover *et al*. (9) found that commonly used herbal medicines among rural obstetric population in rural outreach clinics and the Physician's Office Center of West Virginia University were peppermint to treat nausea, cranberry juice to prevent urinary tract infections and herbal teas for a variety of medical uses. Peppermint was the most common herb used in their study (18.0%) (9).

Another study conducted at the antenatal clinic, Australian District Hospital revealed that raspberry leaf, Golden seal, Ginger, Echinacea and St Johns wort were among commonly used herbal medicines during pregnancy. The most common herb used in that study was raspberry leaf (21.6%). However, the researchers did not include the indication for use in their study (6).

In South Africa, plants such as *Clivia miniata*, *Agapanthus africanus* and *Typha capensis* have been used as ingredients for traditional herbal remedies for pregnant mothers. The herbal preparation was known as *Isihlambezo* (8). It was used to treat common pregnancy-related ailments such as oedema, indigestion, constipation, infection and high blood pressure (13). In South Africa, Rolanda and Sally reported that traditional herbal medicine was believed to turn a breech baby, thus preventing unnecessary operations (14).

Taking herbal medicines during different trimesters of pregnancy may cause different effects. Exposure of fetus to herbal medicines during the first trimester may lead to congenital malformation (15- 17) ,while taking herbal medicines during the second or third trimester may lead to fetotoxicity such as intrauterine growth retardation (18), fetal

distress(8), fetal hypoxia (13) and intrauterine death. The majority of mothers in our study took herbal medicines during the third trimester only (79.6%), mainly to facilitate labour. About 4.6% of mothers were exposed to herbal medicines during the first trimester only and 9.3% were exposed to herbal medicines during the first and third trimester. Mothers who were exposed to herbal medicines during the first trimester were those who usually consumed herbal medicines before pregnancy but because of the unplanned pregnancy, they continued taking herbal medicines during pregnancy without realizing that they were pregnant. By the time they stopped taking herbal medicines, they have already been pregnant for several weeks.

Rollanda and Sally (14) found that in South Africa, local herbal medicines were most commonly ingested in the third trimester of pregnancy to prevent and solve labour difficulties and stimulate a smooth delivery. Mbura *et al*. (19) reported that the highest rate of herbal medicines used among mothers in Tanzania were during labour and the first trimester of pregnancy.

Glover *et al*. (9) reported that herbal medicines were used commonly during the first trimester of pregnancy in rural outreach clinics and the physician's office center of West Virginia University, often before the mother learned she was pregnant. However, the researchers did not show the exact proportion of mothers involved.

Gallo *et al*. (20) found that 54.0% of mothers who contacted Motherisk Program at the Hospital for Sick Children in Toronto, Ontario used herbal medicines known as Echinacea in the first trimester of pregnancy, while 8.0% used it in all three trimesters.

Perception on the effectiveness of herbal medicines in solving or preventing problems will influence whether mothers might use them again in the next pregnancy. In our study, the majority of mothers (81.5%) who used herbal medicines during pregnancy believed that herbal medicines were effective in preventing or solving their problems and indications. Varga and Veale (13) reported that nearly 90.0% of mothers felt that traditional herbal medicines, *Isihlambezo*, were a helpful part of self-care during pregnancy. Nearly half (46.6%) of mothers still placed the importance of traditional antenatal care as being equal to the Western antenatal care to ensure a successful course of pregnancy .

Our study revealed that older family members like parents and parents in law were the most common persons (63.9%) who recommended the use of herbal medicines during pregnancy. A qualitative study demonstrated a considerable influence of the older generation like grand mothers, mothers and mothers in law to Tswana mothers in South Africa to take traditional herbal medicines, *Kgaba* (14).

Besides parents and in laws, mothers in our study reported that the use of herbal medicines during pregnancy was also often suggested by other family members, relatives (husbands and siblings) and friends (18.5%). Gallo *et al*. (20) found that 70.0% of mothers reported that the use of Echinacea was often suggested by a relative or friend .

Our study revealed that 10.2% of mothers reported that traditional midwives were the persons who suggested to them to use herbal medicines. Gallo *et al*. (20) reported that 3.2% of mothers used Echinacea suggested by midwives.

Although only one mother said that the nurse was the person who suggested using herbal medicines, this finding should be taken seriously. Gallo *et al*. (20) reported that two mothers (1.1%) used Echinacea suggested by physicians. Being a health care provider, nurses or doctors should not convey any uncertain and scientifically unproven information which may be toxic to their clients.

The majority of mothers (56.5%) in our study used herbal medicines only once throughout pregnancy, mainly during the third trimester to facilitate labour. In addition, the majority (87.0%) used only one type of herbal medicines throughout pregnancy. There was no report in the literature on the frequency of usage and number of herbal types used throughout pregnancy. However, it seems that the number and frequency of use is not critical at the moment because information on the safety and biochemical compounds of many herbs are still unknown.

Conclusions

The use of herbal medicines during pregnancy among women in Tumpat District is common. Therefore, further research such as pharmacological study focusing on local commonly used herbal medicines is to be carried out to identify the exact compounds of the herbs and to evaluate the effects of these compounds to the fetus. Future research on mother's perception towards herbal medicines use during pregnancy is also required.

Women should be educated to plan their pregnancy and stop taking herbs when they decide to become pregnant in order to avoid exposure of

fetus to herbal medicines especially during the first trimester of pregnancy.

Health care professionals should routinely include herbal medicines when asking about the patient's drug use. Mothers, their family members, friends and traditional birth attendants should be educated that alternative medicines particularly herbal medicines may be harmful to the fetus. Although it is difficult to discard use of traditional medicine, particularly herbal medicines, because they have been using herbs and recommending use of herbs for many years, there are several alternative messages can be given to them, such as consulting a doctor, before using any herbal medicines during pregnancy.

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