Moderate to Low Knowledge and Positive Attitude towards Medicinal Plants Leads to High Consumption of these Plants during Pregnancy

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Abstract

Background: In recent years, the use of medicinal plants in developing countries has increased significantly. However, these plants can cause adverse effects on the mother and fetus. This study aimed to investigate the frequency of use, knowledge, and attitude towards the use of medicinal plants in pregnant women.

Methods: This descriptive–analytical study was performed in 2020 on 290 pregnant women referring to Shahroud health center. The first part of the questionnaire included demographic information and the second part included information related to knowledge, attitude, behavior, reasons for using medicinal plants, source of information, etc. The significant level was set at 0.05.

Results: 61% of the participants had used the medicinal plants at least once during pregnancy. Most pregnant women had moderate knowledge (50%) and a positive attitude (73.1%) towards the use of medicinal plants. Behavior was significantly associated with knowledge (Pvalue=0.011) and attitude (Pvalue=0.014). The most common problem during pregnancy that caused the use of medicinal plants was heartburn (43.4%) and the main reason for the use of these plants was the availability of them at home or taking from acquaintances (36.6%). 57.2% had obtained their information about medicinal plants from the family.

Conclusions: Due to the relatively high frequency of the use of medicinal plants during pregnancy and low knowledge about it, informing and increasing knowledge about medicinal plants during pregnancy is very important.

Keywords: Pregnancy, Pregnant women, Medicinal plants, knowledge.
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Introduction

Herbal therapy has always been one of the main foundations of common schools in civilizations such as the ancient civilizations of Egypt, India, Assyria, Babylon, China, Greece, Iran, and also Islamic medicine; therefore, it is an ancient science.[1] Plants with one or more organs containing the effective ingredient are called medicinal plants; which are used raw or processed to treat or prevent disease. Herbal medicines include herbal products that contain one or more herbs as active ingredients and additives for drug stability.[2,3] From many years ago, people around the world have used herbs to make

medicine;[4] till now, 80-75% of the world's population, especially in developing countries, use herbs for primary health care.[5] "In recent years, the use of medicinal plants in developing countries has increased significantly".[6]

There are many different reasons why people use herbal medicines, such as culture, personal belief, philosophical outlook on life, health, and gender.[7] The results of studies show that women are more inclined to use herbs and traditional medicine than men.[8] About 80% of the world's population uses traditional medicine, including herbal medicine, to diagnose, prevent and treat disease and improve general condition;[9] medicines that are sometimes without supervision even in the production and use.[10]

Pregnancy is one of the most sensitive stages of a woman's life, which is associated with many physical and psychological changes that can cause problems.[11] During this period, women use herbal therapy for problems related to or unrelated to pregnancy.[12] Problems such as nausea and vomiting,[13] anemia,[14] diabetes,[15] hypertension,[16] infection,[17] fatigue, poor sleep, constipation,[11] etc. Today, the prevalence of medical problems in pregnancy is on the rise due to the complex interplay between demographic factors, lifestyle, and modern medical developments.[18]

Such products are often used during pregnancy based on the belief that the use of herbal supplements and herbal medicines is safe.[19] The misconception about herbs that they are harmless can cause side effects and in some cases can be severe and fatal. This belief can also lead to not reporting the use of these and their side effects the doctor.[20] Although herbs have many beneficial effects, consuming these products can also be dangerous. These risks are due to the product itself or the interaction of these medicines with the patient's medical treatment. Many people who use these medicines are not aware of their harms.[6] In addition, unlike chemical drugs, the exact and safe dosage of herbal products has not been determined yet.[21] Adverse effects of medicinal plants include preterm labor,[22] abortion,[23] teratogenicity,[24] etc.

However, the use of herbs during pregnancy in the United States is reported to be 9.4%,[25] in Australia 6-12%,[26] and in the Middle East 22.3-82.3%.[27] In a study conducted by Hosseini et al. (2017), 63% of pregnant women in Bojnourd used a medicinal plant, about half of whom had obtained information

from family and relatives.[1] Also, in the study of Dabiri Fard et al. (2017), 90% of pregnant women used at least one herbal medicine during pregnancy, that data source of 94% of them were family and friends.[28]

Therefore, due to the numerous and sometimes unknown side effects of self-medication of medicinal plants during pregnancy, low knowledge of pregnant women about these plants, and few studies in this field, we decided to investigate the frequency of consumption and the level of knowledge, attitude and intention of pregnant women about the use of medicinal plants during pregnancy to take a step towards filling this scientific gap. This study aimed to investigate the knowledge and behavior of pregnant women towards the use of medicinal plants in Shahroud.

Materials and Methods

This descriptive-analytical cross-sectional study was conducted to investigate the level of knowledge, attitude, and intention toward the use of medicinal plants and also to measure the frequency of consumption of these plants during pregnancy on some pregnant women referred to Bahar hospital in Shahroud in 2020. Considering the 57% frequency of consumption of medicinal plants in the study of Karimian et al.[8], 95% confidence coefficient and 5.7% error coefficient and using the sample volume formula, the sample size of 290 people was calculated. In this study, the available sampling method was used.

Inclusion criteria included: People's willingness to participate in the study, being pregnant (at any stage of pregnancy) or after delivery (up to 3 days), and having the ability to communicate with the researcher. People who did not want to participate in this project and did not or incompletely answered the questions were excluded from the study.

The data collection method was through a researcher-made questionnaire that was used in the study of Karimian et al.[8] The first part of the questionnaire includes personal and midwifery information questions (age, length of pregnancy, occupation, level of education of the individual and her husband, economic status, insurance status, place of residence, number of pregnancies, number of abortions, etc.) and the second part includes questions related to Knowledge, attitude, abstract norm, perceived behavioral control, intention scale, performance checklist, reasons for using medicinal plants, source of information and etc. In the above study, the validity and reliability of this questionnaire were measured and Cronbach's alpha was confirmed by 98%. A question about the length of pregnancy was added to the questionnaire.

After obtaining informed consent from the studied units and explaining the research objectives to them, the questionnaires were completed in the form of face-to-face interviews by the study researchers. Participation in the study was done consciously and voluntarily and concerning the privacy of individuals. Data analysis was performed by SPSS software (version 23) and independent chi-square and t-tests. The significant level was set at 0.05.

Results

In this study, 290 pregnant women were studied. The mean age of the subjects was 28.71 ± 6.01 with a range of 16-46 years

and the mean length of pregnancy was 30.72 ± 10.55 with a range of 2-41 weeks. 93 women (32.1%) became pregnant for the first time. 48 women (16.6%) had one abortion and 13 patients (4.5%) had more than one abortion. The range of pregnancies was 1-11, the range of deliveries was 0-5 and the range of abortions was 0-9.

The demographic characteristics of the subjects are reported in table 1. Most pregnant women in the study were housewives and residents of the city. Also, most of them were educated until high school and were in average economic status. Of these 290 women, 251 (86.6%) were covered by insurance.

Table 1. Demographic characteristics

Demographic characteristics	Number (percent)
Job	
- Housewife	258(89)
- Employed	32(11)
Educational status	
- Illiterate	6(2.1)
- Elementary-guidance	62(21.4)
- High school	122(42.1)
- University	100(34.5)
The economic situation	
- Good	64(22)
- Medium	200(69)
- Weak	26(9)
Location	
- City	220(75.9)
- Village	70(24.1)

In this study, 177 women (61%) had used the medicinal plants at least once during pregnancy (behavior). About the use of medicinal plants and traditional medicine, 71 women (24.5%) had low knowledge, 145 women (50%) had medium knowledge, and 74 women (25.5%) had high knowledge. Also, 9 women (3.1%) had a negative attitude, 69 women (23.8%) had a neutral attitude, and 212 women (73.1%) had a positive attitude toward medicinal plants.

Common problems that caused the use of medicinal plants include heartburn (43.4%), constipation (25.5%), nausea during pregnancy (19.3%), and infection (16.9%) (Table 2).

Table 2. common problems that caused the use of medicinal plants

Common pregnancy problems	Number (percent)
Heartburn	126(43.4)
Constipation	74(25.5)
Pregnancy nausea	56(19.3)
Infection	49(16.9)
Dental problems	47(16.2)
Anemia	39(13.4)
Backache	26(9)
the pain	23(7.9)
Diabetes in pregnancy	16(5.5)
Urinary problems	14(4.8)
Bleeding in pregnancy	10(3.4)
Blood pressure in pregnancy	9(3.1)
Hemorrhoids	3(9)

The main reasons for using medicinal plants are the availability of medicines at home or taking from acquaintances (36.6%), belief in the safety of medicinal plants and traditional medicine (35.9%), previous experience of the disease (35.9%), the good result of previous self-treatments by the individual

(33.4%), etc. (Table 3). Moreover, the source of information of participants toward medicinal plants and traditional medicine is reported in table 4.

Table 3. Reasons for use of medicinal plants

Reasons for use	Number (percent)
Availability of medicines at home or taking from acquaintances	106(36.6)
Belief in the safety of medicinal plants and traditional medicine	104(35.9)
Previous experience of the disease	104(35.9)
Good result of previous self-treatments by the mother	97(33.4)
Easy preparation of medicine	97(33.4)
The insistence of entourage	77(26.6)
Disbelief in drug-free treatment	59(35.9)
Lack of access to a doctor	57(19.7)
Lack of proper information about the effects of the drug	54(18.6)
It is not important for the mother to consider the disease	52(17.9)
Not having enough time to go to the office or hospital	44(15.2)
Expensive right to visit	38(13.1)
Lack of confidence in doctors' medicine	33(11.4)
Lack of health insurance booklet	17(5.9)

Table 4. Source of information

Source of information	Number (percent)
Family	166(57.2)
Friends	45(15.5)
Doctor	44(15.2)
Internet	26(9)
Book	9(3.1)

The results indicated that 31 women (10.7%) believed that they were under pressure from the community or others to use medicinal plants (norm). 156 women (53.8%) intended to use medicinal plants if there is a problem during pregnancy, during, and after delivery, 82 women (28.3%) had no opinion about this, and 52 women (17.9%) did not intend to use medicinal plants in the future (intention). None of the subjects had done leech therapy, phlebotomy, and cupping during pregnancy.

According to the results of statistical analysis, there was no significant relationship between the behavior with the length of pregnancy (Pvalue=0.489), educational status (Pvalue=0.134), place of residence (Pvalue=0.443), occupation (Pvalue=0.343), and the number of pregnancies (Pvalue=0.332). However, there was a significant relationship between behavior with knowledge (Pvalue=0.011), attitude (Pvalue=0.014), intention (Pvalue=0.048) and norm (Pvalue<0.001).

Most women who used medicinal plants during pregnancy had moderate knowledge (55.4%) and a positive attitude (79.1%) toward medicinal plants. Also, most of them were intending to use medicinal plants during pregnancy, during, and after delivery (59.3%) and were not under pressure from the community and others to use medicinal plants (74.6%) (Table 5). Moreover, insurance status was significantly associated with behavior (Pvalue=0.001); 64.9% of the insured and 35.9% of the uninsured women used medicinal plants during pregnancy.

The results also showed a significant relationship between knowledge with the length of pregnancy; in this way, with increasing gestational age, knowledge about medicinal plants increased (Pvalue=0.043). Among those with high knowledge, 17.6% were employed and 82.4% were housewives, which has a significant difference (Pvalue=0.006). Also, the intention of individuals to use medicinal plants during pregnancy, during, and after delivery was significantly associated with the level of knowledge (Pvalue=0.001). While there was no significant relationship between knowledge with educational status (Pvalue=0.512), attitude (Pvalue=0.239), and place of residence (Pvalue=0.139) (Table 6).

In this study, it was indicated that there is no significant relationship between attitude with educational status (Pvalue=0.353), length of pregnancy (Pvalue=0.105), and place of residence (Pvalue=0.311); while there was a significant relationship between attitude and intention, in the way that the presence of a positive attitude increased the intention to use medicinal plants during pregnancy, during, and after delivery (Pvalue<0.001) (Table 7).

Table 5. Relationship between behavior and some changings

Changings		Behavior		Pvalue
		Positive	Negative	
knowledge	High	46(26)	28(24.8)	
	Moderate	98(55.4)	47(41.6)	0.011
	Low	33(18.6)	38(33.6)	
Attitude	Positive	140(79.1)	72(63.7)	
	Neutral	32(18.1)	37(32.7)	0.014
	Negative	5(2.8)	4(3.5)	
Intention	Positive	105(59.3)	51(45.1)	
	Neutral	46(26)	36(31.9)	0.048
	Negative	26(14.7)	26(23)	
The norm	Is under pressure	21(11.9)	10(8.8)	
	Neutral	24(13.6)	38(33.6)	0.001
	Not under pressure	132(74.6)	65(57.5)	
Length of pregnancy	Under 14 weeks	21(11.9)	13(11.6)	
	28-14 weeks	31(17.5)	26(23.2)	0.489
	Over 28 weeks	125(70.6)	73(65.2)	
Educational status	Illiterate	2(1.1)	4(3.5)	
	Elementary guidance	33(18.6)	29(25.7)	0.134
	High school	74(41.8)	48(42.5)	
	University	68(38.4)	32(28.3)	
Location	City	137(77.4)	83(73.5)	0.443
	Village	40(22.6)	30(26.5)	

Table 6. Relationship between knowledge and some changings

Changings		Knowledge			Pvalue
		High	Moderate	Low	
Length of pregnancy	Under 14 weeks	5(6.8)	20(13.8)	9(12.9)	0.043
	28-14 weeks	9(12.2)	28(19.3)	20(28.6)	
	Over 28 weeks	60(81.1)	97(66.9)	41(58.6)	
Occupational status	Employed	13(17.6)	18(12.4)	1(1.4)	0.006
	Housewife	61(82.4)	127(87.6)	70(98.6)	
Intention	Positive	43(58.1)	87(60)	26(36.6)	0.001
	Neutral	14(18.9)	34(23.4)	34(47.9)	
	Negative	17(23)	24(16.6)	11(15.5)	
Educational status	Illiterate	1(1.4)	4(2.8)	1(1.4)	0.512
	Elementary guidance	12(16.2)	34(23.4)	16(22.5)	
	High school	31(41.9)	56(38.6)	35(49.3)	
	University	30(40.4)	51(35.2)	19(26.8)	
Attitude	Positive	59(79.7)	107(73.8)	46(64.8)	0.239
	Neutral	14(18.9)	32(22.1)	23(32.4)	
	Negative	1(1.4)	6(4.1)	2(2.8)	

Table 7. Relationship between attitude and intention and educational status

Changings		Attitude			Pvalue
		Positive	Neutral	Negative	
Intention	Positive	134(63.2)	18(26.1)	4(44.4)	0.001
	Neutral	52(24.5)	30(43.5)	0(0)	
	Negative	26(12.3)	21(30.4)	5(55.6)	
Educational status	Illiterate	3(1.4)	3(4.3)	0(0)	0.353
	Elementary guidance	42(19.8)	17(24.6)	3(33.3)	
	High school	97(45.8)	22(31.9)	3(33.3)	
	University	70(33)	27(39.1)	3(33.3)	

Discussion

The results of this study showed that the frequency of consumption of medicinal plants during pregnancy in Shahroud was 61%. According to studies conducted in Iran, the frequency of consumption of medicinal plants in Tehran (68.1%),[3] Bojnourd (63.4%),[1] Kashan (57.1%),[8] and Shahrekord (51.9%)[20] were reported to be approximately similar to the present study. Moreover, the frequency of consumption of medicinal plants in Tabriz (22.3%)[29] and Ahvaz (19.2%)[30] is lower and in Yazd (90.2%) is higher than in the present study. In a study by Abd al-Mawla (2020) in Assiut Governorate, it was found that about 66% of respondents used plants in raw form or the form of packaged doses during pregnancy;[31] also, a study by Ahmed et al. (2017) in Bangladesh showed that 70% of respondents in their last pregnancy took at least one type of herbal medicine.[32] However, in the study of Nyeko et al. (2016) conducted in Northern Uganda, this frequency was 21%,[33] which is lower than the present study. These differences could be related to the differences in the populations studied, socio-cultural contexts, and health care systems.

The result of this study indicated that 24.5% of pregnant women have low knowledge and 50% have moderate knowledge toward medicinal plants. A study by Hashem Dabbaghian (2011) showed that despite low knowledge about the effects and safety of medicinal plants, the frequency of their use during pregnancy is high in women living in Tehran.[3]

In the present study, 73.1% of pregnant women had a positive attitude toward the use of medicinal plants. In the study performed by Hosseini et al. (2017), this rate was reported to be 78.2%.[1] While Laelago et al. (2016) stated that 52.1% of pregnant women have a positive attitude towards the use of medicinal plants.[34]

The most common pregnancy problem for using medicinal plants in this study was heartburn (43.4%); also in the study of Karimian et al. (2017), the highest percentage belonged to this problem[8]. While nausea and vomiting were reported to be the first problem in Taheri study (30.2%)[7] and in the systematic study of Ahmad et al. (2018) in Africa.[35] The most common pregnancy problem in the study of Nyeko et al. (2016) was abdominal pain (42.5%).[33]

Moreover, the results showed that the most common reasons for using medicinal plants during pregnancy were availability of these plants at home or taking from acquaintances (36.6%) and belief that medicinal plants and traditional medicine are harmless (35.9%). Taheri et al. (2018) founded that the main reason was the lack of side effects caused by these plants (23.1%).[7] Also, in the study of Mekuria et al. (2016) their cheapness and availability (54.8%) was reported to be the main reason.[12] However, in the study of Mawoza et al. (2019) the most common reason was delivery facilitation (43.5%)[36] that in the present study facilitation of delivery as a reason for using medicinal plants was not investigated in the relevant questionnaire.

The main sources of information in the present study were family (57.2%) and friends (15.5%). Also, in the study of Mawoza et al. (2019), the highest percentage belonged to the source of friends and relatives (23.7%)[36] which is consistent with the present study.

The results of this study showed that there was no significant relationship between education and consumption of medicinal plants, while in the study of Soleimani et al. (2017) a significant relationship was observed between this two variables,[30] which indicates inconsistency with the present study.

Mekuria et al. (2016) founded a significant relationship between the frequency of use of medicinal plants during pregnancy with residence, education, and income.[12] Also, Karimian et al. (2015) stated that the frequency of consumption of medicinal plants during pregnancy has no significant relationship with education and occupation[8], which is in line with the present study. While the study of James et al. (2016)[37] and Ahmad et al. (2017)[32] showed that there is a significant relationship between the use of medicinal plants with employment status, which are inconsistent with the present study.

Hosseini et al. (2017) stated that there is no significant relationship between attitude with job and income;[1] which is consistent with the present study. while, in the study of Al-Asa et al. (2017), a significant relationship was seen between attitude and education[38]. Based on the results, increased knowledge of people about medicinal plants' side effects on mother and her fetus is necessary.

Acknowledgement

Conflict of Interest

The authors declare that they have no conflict of interest.

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