Factors Affecting the Use of Nutri-Medicinal Plants by Pregnant Women in Kyeizooba, Bushenyi District Western Uganda

Kiconco Catherine[1]*, Kamatenesi Maud Mugisha[1], Waswa Bright[1] and Ogwang Patrick Engeu[2]

[1]Department of EthnoBiology, Bishop Stuart University, Mbarara, Uganda

[2]Department of Pharmacy, Pharm-Biotechnology and Traditional Medicine Centre of Excellence (ACEII), Mbarara University of Science & Technology, Mbarara, Uganda

Abstract

The use of nutri-medicinal plants is widely spread in the treatment of several ailments among pregnant women worldwide. In Uganda, different medicinal plants are used by pregnant women for treatment of different ailments. A cross sectional study was done on 135 women in Kyeizooba Sub county Bushenyi District from September 2016 to November 2016. Factors associated with the use of medicinal plants were identified. Univariate, bivariate and multivariate analyses were done and logistic regression model was used to test for significant relationships. Level of significance was set at 5% CI and p=0.05. Distance (p=0.012), number of children to a mother (p=0.037) and income (p=0.025) were influencing use of medicinal plants by pregnant women. Women with low income [OR=0.02] living in long distance from health centers [OR=12.7], and mothers with many children [OR=1.45] were most likely to use nutri-medicinal plants than their counterparts. Any factors that affected women from attending to ANC increased their chances of using herbal medicines.

Keywords: Pregnancy • Nutri-medicinal plants

Introduction

Background to the study

Even though there is an increasing concern of health care service provision for pregnant women, globally, the use of herbal medicine has continued to rise. The World Health Organization [1], reported that the use of traditional medicine is about 80% globally, with higher percentages in developing countries. A large population of pregnant women use herbal medicines for ailments like gastro intestinal disorders, nausea and vomiting, inducing labor and infections. Traditional medicine is defined as the sum total of the knowledge, skills and practices based on the theories, beliefs and experiences indigenous to different cultures whether explicable or not used in the maintenance of health as well as in the prevention, diagnosis, improvement or treatment of physical and mental illnesses [2]. Traditional medicines (TM) include herbs, herbal preparations, animal extracts and finished herbal products all of which contain bio chemical components for treating ill-health among the users. Herbal medicines are extracts of naturally occurring plants which may be taken in its crude or in processed form without any form of prescription or dosage, exclusively made from plants and is administered in different forms of solution, boiled or powdery form. In developed countries like China, herbal medicines are taken as decoctions or as granules. The extracts are of defined parts of the plants which include floral parts, areal parts or the whole plant. Preparation of these herbs usually is by steaming, roasting, boiling or extracting their juice by squeezing or by pounding.

Traditional medicine has a long traditional use compared to conventional western medicines long before recorded history. It is the oldest and still

the most used widely used system of medicine in the world today which is traced back for more than 3000 years ago [3]. Pregnant women have been found to use traditional medicine even with the extension of health care services and advancement in in modern medicine. Increasing use of herbal medicines globally among pregnant women occurs with varying percentages for treatment of pregnancy related ailments due to different geographical, social, cultural and ethnic groups [4]. Reasons for the use of nutri-medicinal plants in the treatment of pregnant related ailments vary in different regions some of which include accessibility to western conventional treatments, education, socio-economic status, availability of health workers, cost of drugs, income and knowledge acquisition on the several herbs.

Use of herbal medicine is estimated at 80% worldwide [1] and has been recorded over time in the different countries. The prevalence of use is also recorded in developed countries where health care facilities are sufficient and up to date like the USA [5]. In Africa, the prevalence of use of herbal medicine was estimated at 80% [6]. Women who were interviewed in Nigeria, 67.5% had used herbal medicine and 26.7% had never used herbal medicine [7]. Reviewed studies about prevalence of use of herbal medicines across the globe show wide variations in prevalence of herbal medicine use with estimates across countries ranging from 52%-58% in Australia and the United Kingdom [8,9], 40-48% in Norway and Italy [10] and in Nigeria ranging from 12.08% to 66.7% among reviewed works [11].

Use of herbal medicine was found to be common among women over 35 years of age with higher education in Europe, America, and Australia [12]. In Virginia, one of the states in America, a case study on the role of demographic factors showed that herbal use was associated with increasing age where older women were using herbal medicines more than young women. It also indicated 59% of the women who used herbal medicines had been living in rural areas in Virginia [13,14], women less than 30 years of age living in rural areas with no jobs had mostly used herbal medicine. Age, socio-economic status, geographical regions may not be significant in determining the prevalence of herbal use in some regions of the world [12]. In such countries thus, use of herbal medicine is determined by perception and attitude of the women but not specifically the socio demographic factors which may be the cause in most developing countries [6]. The herbal medicines are used by women for many reasons ranging from nausea, vomiting, gastro intestinal disorders, colds and flu and obstructed labor [11].

In the Middle East, prevalence of use of herbal medicine among pregnant women varied from 22.3% to 82%. In Iran and Palestine, 37.2% and 65.8% of the pregnant women respectively informed their physicians about the use of herbal medicine [15]. In Ethiopia, knowledge acquisition of herbal medicine use is through parents and relatives (49.2%), health professionals (5%), neighbors (33.7%), traditional herbalists (8.7%) and friends. Most pregnant women obtained herbal medicines from market places, traditional herbalists, and neighbors but to others, they were self-prepared [16]. In Africa, according to a study in Mali revealed that maternal demographic characteristics like age, socio economic status, marital status and education levels were not associated with use of medicinal plants in pregnancy [17]. This indicated that use of herbal medicines is so widespread in the society of Mali that demographic factors had no impact on use of medicinal plants. The prevalence of use of herbal medicines was high among those with low or no education at all in Ethiopia. Pregnant women who did not attend any formal education were 4.4 times more likely to use herbal medicine than those who attended secondary education and more [16]. In Malawi, a study about reasons for the use of herbal medicines showed that most women resorted to home remedies for child delivery due to poverty and could not afford the charges presented by conventional private health facilities. This was because that the conventional health facilities were not readily accessible. Other reasons for using traditional medicines during child birth were lack of adequate drugs, limited medical personnel and laboratory equipment in the government health centers. Respondents also stated that the hospital staffs were rude. In Ethiopia, most women used herbal medicines because these medicines were easily accessible and affordable as compared to Western conventional medicines [3].

In Uganda, a study by Kasolo and Ampaire [18] showed that women with age ranging between 25 to 35 years were mostly using herbal medicines. These women obtained this knowledge from their mothers, mothers in laws, traditional birth attendants and elderly women in the community. The use of herbal medicine may be associated with lack of easy access to public health care units due to high costs of transport just like in many parts of Africa [6], beliefs about safety and perceived efficacy, ease of access to the herbal medicines, mistrust in health workers and the use of unkind language to the mothers. The use of herbal medicines was high in rural areas than in urban areas, however in urban areas where public health care services are available, pregnant women still relied on herbal medicines which were bought from market places.

There is a knowledge gap in the efficacy of these herbal medicines. These herbs could present some harmful effects if wrongly taken since their dosages and biochemical make up is not very clear thus resulting into some complications. Such complications could be due to neglect of women to attend to modern treatment as they rely on traditional herbal medicines as a result of inadequate health facilities in some regions and if they are available they are located far away [4]. Women in such areas find it convenient to use herbal medicines than walking long distances to reach health centers since the traditional medicines are readily available [11]. This is in connection with the low economic status that they cannot afford the transport costs to health centers. Other reasons for using medicinal herbs include cultural beliefs, inaccessibility of the medicines due to cost and long distances [19].

In Kyeizooba, medicinal plants are commonly used during pregnancy even with the presence of a health centre III that provides antenatal care services. Several reasons for the use of medicinal plants were advanced of which most women believed that herbs were more effective than the Western conventional medicines with less side effects.Most women took medicinal herbs to treat gastro intestinal disorders, vomiting, nausea and obstructed labor and the most common route of administration was oral. According to estimates from UNICEF, Uganda's maternal mortality ratio, the annual number of deaths of women from pregnancy-related causes stands at 435 per 100,000 live births [20]. Women die as a result of complications during pregnancy and child delivery which include severe bleeding, infections, miscarriages and obstructed labor. This was further supported by the Uganda Demographic and Health Survey [21] which reported that 438 maternal deaths on average occur per 100,000 live births. WHO reported that 99% of the maternal death occur in developing countries, with 2 million deaths among mothers and new born occurring at birth [2].

Several factors have been recorded for the use of herbal medicines in treatment of pregnancy related ailments in Uganda. Though most pregnant women attend antenatal health care, they continue to use herbal medicines. With the intervention of the government to establish health centers, women still continue to use herbs. This research is intended to identify the specific factors for the use of herbal medicines in Kyeizooba sub county Western Uganda and thus be able to predict pregnant women that are more likely to use herbal medicines so that appropriate interventions can be put in place to improve on maternal health care in the region.

This study will provide information to medical workers which will act as a basis for more programmed health education to the pregnant women about using the herbal medicines.

Methods

Scope of the study

The study was conducted in Kyeizooba Sub county, Igara East constituency, Bushenyi District Western Uganda. The coordinates of the district are 00° 32S, 30° 11E covering an area of 942.3 km². The district is predominantly occupied by Banyankole and very few immigrants who include the Bakiga, Baganda, and Banyarwanda. The economy of the district mostly depends on agriculture which involves growing coffee, tea, bananas and cattle rearing. A few depend on retail businesses while others are employed by government and private organizations within the area. The study was conducted between September, 2016 and March, 2017. Data was collected from September 2016 to march 2017. Data about factors associated with the use of medicinal plants in the treatment of pregnant related ailments was collected.

Sample size

Study sample size was calculated using the standard statistical formula [22] which gave a sample size of 135 respondents.

Research design

A cross sectional study was conducted and 135 women participated in the study. Both qualitative and quantitative methods of data collection were used with both structured and unstructured questions. Participants were women ≥ 20 years old who are legally expected to be in the child bearing bracket. Key informants were the health workers working in the selected health center in the study area and the traditional birth attendants. Respondents were selected by systematic sampling technique from the selected villages. Simple random sampling without replacement was used to select participants at the health center. Key informants were selected purposively and these included health workers in the health center and traditional birth attendants (TBAs). 15 villages were selected from five out of seven parishes which were selected by random sampling [23-32].

Qualitative data collection methods

In depth interviews and focus group discussions were used for data collection about reasons for the use of herbal medicines. The questions were interpreted into local languages for participants who did not understand English. Focus group discussions were used to obtain more detailed qualitative information from respondents who presented themselves in groups of six to eight women. Questionnaires, interview guides, and observation guides were used as the main research instruments in collecting data. They were organized to contain structured, unstructured and semi structured questions to collect both quantitative and qualitative data. Closed and open ended questions were included. Interview administered questionnaires and self-administered questions were both administered depending on the abilities of the participants to read and write. An interview guide for key informants and observation guide was used to verify the

common herbs used. The instruments were pilot tested on an appropriate population of ten women in Kyeizooba Sub County, Nyamiyaga village.

Socio-demographic factors of the respondents and health care related factors determining the use of herbal medicines were studied. The cultural beliefs and perceptions of women about use of herbal medicines were also collected. The women were asked to mention the ways in which they obtained knowledge about herbal medicines. The socio-demographic factors that were tested include age, socio economic status, income, education level and cultural beliefs. Health factors included availability of health workers at the time of antenatal visits, conduct of the health workers and accessibility to the nearest health units where they were receiving antenatal care. Some intervening variables were also studied like knowledge of medicinal plants and attitude towards their use.

Data analysis and presentation

Data from completed questionnaires were cleaned, recorded, and entered into Epidata version 3.1 which was exported to STATA version 13 software for analysis. Univariate analysis was used to obtain frequencies and percentages of effect for categorical variables. Bivariate analysis was used to assess binary outcomes. $p<0.05$ was considered as statistically significant. The chi-square $(x2)$ test was used to analyze categorical variables which was expressed as percentage values. Multivariate analysis was used to obtain factors that were significant with use of herbal medicines while controlling for confounders. Logistic regression model was used to obtain significant relationships between groups. Adjusted Odds ratios were used to predict the category of pregnant women that were more likely to use herbal medicines more than others. The data was then presented in form of tables, texts, frequency distribution tables and this formed the basis of interpretation, conclusion and recommendations.

Limitations of the study

This was limited to obtaining respondents conveniently since it was done during the time of weeding, most of them were out in the morning hours. But this was over come later when afternoons were programmed for the interview sessions though this prolonged the time frame in which data collection was supposed to be done. Some respondents in the focus group discussions were not free to share openly their views thus leaving the discussion for the few who dominated throughout. Sometimes the TBAs did not feel like sharing the information deeply especially about the uses of particular herbs. But this was overcome through the rapport that was created over time in the course of the study.

Ethical considerations

The proposal was reviewed by the (Institutional Review Board) IRB of Bishop Stuart University who studied the ethical values of the research. All the participants were presented with informed consent forms which were explained to them signed and then days for interviews were set. Privacy and confidentiality was assured to the participants by assigning identification numbers throughout the study.

Results

A total of 135 women were interviewed from Kyeizooba sub county where 70.37% (n=95) of the women were using or had used herbal medicine and 29.63% (n=40) were not using herbal medicine (Figure 1).

Respondents who were using herbal medicine believed that it was safe to use herbal medicines when pregnant (70.37%). The socio demographic factors that influenced use of herbal medicines include low levels of education, lack of employment and low income. Women who had attended up to primary level of education in the age bracket of 20-29 years of age with a monthly income below USD 56 used medicinal herbs more than their counterparts (Table 1). Respondents that were living in a distance above 1 km were using herbal medicines more than those in a distance less than 1 km. Knowledge acquisition about herbal medicines was mostly provided by the parents more than friends and the TBAs probably due to trust.

Medicinal herbs were mostly taken during the first and the second trimester and less in the third trimester. The largest number of women using herbal medicines had no formal employment, but were obtaining subsistence from their meager surplus agricultural products. Businesses that were being operated were mostly retail in all kinds of goods on a small scale within the village trading centers. The employed were either working with government or private organizations in different departments like education, health and local government.

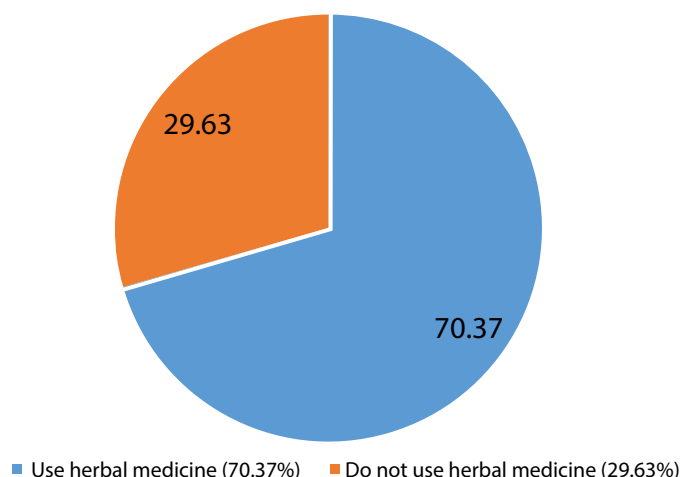Age, income, education level employment, number of children

■ Use herbal medicine (70.37%)   ■ Do not use herbal medicine (29.63%)

Figure 1. Pie chart showing the prevalence of use of herbal medicine in Kyeizooba Sub country.

Table 1. Prevalence of use of herbal medicines in different categories of women.

Factor	Percentage of respondents (%)
Age bracket (years)	
20-29	38.61
30-39	22.22
40-49	20.7
50-59	5.9
>60	12.57
Employment	
Informal	76.8
Business	12.6
Employed	10.5
Education level	
None	14.7
Primary	52.6
Secondary	20
Tertiary	12.6
Monthly income (USD)	
<56	84.2
56-139	12.6
>139	3.2
Distance to health center (Km)	
Less than 1 Km	13.3
1 Km-3 Km	56.3
Above 3 Km	30.37
Knowledge acquisition	
Parents	83.7
Friends	13.3
TBAs	3
Stage of use	
Trimester one	33.7
Trimester two	48.4
Trimester three	17.9

possessed by the mother, distance from the health centers and the number of visits for ANC showed an association with the use of herbal medicines at bivariate level of analysis. These factors had their p-values less than 0.05 thus were associated with herbal use by the pregnant women, however education level (p=0.046) and income (p=0.042) were weakly associated compared to other factors considering that their p-values are close to the margin. Other factors like tribe, religion herbal knowledge, cost of health care services and availability of health workers were not associated with the use of herbal medicines since their p-values were greater than 0.05 (Table 2).

Multivariate analysis was done on variables that were associated with herbal medicinal use at bivariate level of analysis and the results indicated the factors that were statistically significant included income of the respondents (p=0.025), distance to the health centers (p=0.012), and number of children the respondent had (p=0.037) (Table 3).

Logistic regression testing indicated that women whose income was ≥ USD 139 were 0.02 times less likely to use herbal medicines than those whose income was ≤ USD 56 [OR=0.019:95% CI (0.0002, 1.3880], and women whose income was USD 56 to 139 were 0.2 times less likely to use herbal medicines than those whose income was below USD 56 [OR=0.211:95% CI (0.0345, 1.300)], thus women whose income was high were least likely to use herbal medicines. In a focus group discussion, one of the respondents reported that;

"…The cost of antenatal checkups is completely free in government health centers, the problem is when you are told to buy drugs from an external private pharmacy which we cannot manage so we find herbal medicines cheaper to use…"

Women who had given birth three or more times were 1.5 times more likely to use herbal medicines than those that had given birth once [OR=1.456:95%CI(0.2465,8.601)] where as women who had given birth twice 0.7 times more likely to use herbal medicines compared to those who had one birth [OR=0.675:95%CI(0.1128, 4.047)]. Women who were living in a distance of 3 km and more away from the nearest health centers were about 13 times more likely to use herbal medicines than those that were

Table 2. Factors for the use of herbal medicines

Variable	Chi square value	p-value	Degrees of freedom
Age	17.9	0.001	4
Income	6.36	0.042	2
Education level	7.998	0.046	3
Employment	16.92	0.002	4
Tribe	0.46	0.794	2
Number of children	19.99	<0.001	4
Religion	3.67	0.299	3
Herbal knowledge	1.14	0.565	2
Distance to nearest health center	11.56	0.003	2
Availability of health workers	0.85	0.652	2
Cost of health services	2.03	0.567	3
Number of visits to health center	11.97	0.007	3

Table 3. Factors associated with the use of herbal medicines.

Variable	Coefficient	p-value	95%CI
Number of ANC visits		-0.3707	0.102	[-0.8157 0.0743]
Number of births to mother	0.465	0.037	[0.0279 0.9021]
Distance to health centers|	0.9871	0.012	[0.2170 1.7573]
Monthly income of respondents	-1.2511	0.025	[-2.3436 -0.1587]
Education level	-0.2646	0.375	[-0.8491 0.3199]
Employment	0.5369	0.087	[-0.0782 1.1519]
Age	0.3529	0.169	[-0.1499 0.8558]

Table 4. Significant factors for use of herbal medicines showing their Odds ratios (ORs).

Variable	Adjusted OR	p-value	95% CI
Monthly Income (USD)			
*56 and below	1		
56 –139	0.212	0.09	[0.0345 1.3002]
139 and above	0.019	0.07	[0.0002 1.3887]
Number of children			
*None	1		
One	0.369	0.275	[0.0617 2.2092]
Two	0.675	0.668	[0.1129 4.0477]
Three or more	1.456	0.678	[0.2465 8.602]
Distance to health unit			
*1 km or less	1		
1 km – 3 km	3.669	0.1	[0.7791 17.279]
3 km or more	12.706	0.014	[1.682 95.984]

living within a range of 1 km. [OR=12.7:95% CI(1.68,95.98)]. Women that had lived in a distance between 1 km and 3 km, were about 4 times more likely to use herbal medicines than those in the distance of 1 km range [OR=3.67:95% CI (0.779,17.279] (Table 4).

Discussion

The large number of the respondents using herbal medicines in this study agrees with [1] which showed that 80% of the populations in the world use herbal medicine. In another study carried out in Mali, 79.9% of the pregnant women were using herbal medicines [17], in Ethiopia, 73.1% [13]. These studies are consistent with the findings of this research which reports 70.37% of the women who were or had used herbal medicines for treatment of several ailments during pregnancy. The differences in the use of herbal medicines among the different women could be due to the differences in cultural beliefs and perception, economic status, and accessibility to health care units. The long distances to the health centers, high cost of drugs in private pharmacies and availability of herbal medicines were some of the reasons mentioned for the use of herbs [22].

The cost of health care service for antenatal health care was reported to be free according to the majority of the respondents thus was not influencing the use of herbal medicines. This is in agreement with Mothupi who carried out a study in the prevalence of use of herbal medicines in Kenya, and found that cost had no influence on herbal use in pregnant women. Antenatal care in public health care units is free save for private clinics or when they are required to buy medicines which are not in stock usually not supplied by the government, a reason why some women resorted to using herbal medicines.

Women whose income is high have the ability to afford all costs involved in accessing health care services for example transport costs, obtaining specialist medical practitioners, and purchase of prescribed drugs for treatment of certain ailments during pregnancy a reason they less likely to use herbal medicines. This is consistent with the Uganda demographic health survey 2016, which reported that women whose income was high attended ANC more than 4 times than those whose income was low. Cost of western conventional medicines was noted as a reason for use of herbs in a study done in Mali [17] which differs from Uganda particularly in this study since respondents reported that the cost of antenatal care was totally free or at a very low cost in public hospitals. However it was noted that the cost of these services in private clinics was too high for most women which led to overcrowding of public health care units.

Women who had produced three or more children were more likely to use herbal medicines than those who had one or two children only. It could be that these pregnant women did not find it important or were too occupied to attend ANC. These women probably were faced with insufficient

resources especially funds required for western conventional treatments. Any factor that affected the number of times of attendance for antenatal care also increased chances of the respondent using herbal medicines. This study contradicts with a multinational study that was done in Europe, America and Australia where women who were having their first child were more likely to use herbal medicines than their counterparts [12].

Women who were living at a distance of 3 km and more from the nearest health centers were more likely to use herbal medicines than those that were living in shorter distances of 1 km or less. Even though there has been an intervention by the government to improve accessibility to health care services, there is still a section of women who are still living at a long distance away from health center IIIs where antenatal health care has been strengthened. There are other conditions like poor road network and poor terrain that makes transport difficult so that these services are not easily accessible during certain times of the year for example in the rainy seasons. In such conditions transport costs also increase. Women in these conditions with low income do not have transport means and this too reduces accessibility, thus are more likely to use herbal medicines which are more readily available at no or very low cost. This agrees with the study in Gulu District, Uganda where long distances were contributing to increased use of herbal medicines [19]. This reduces frequency of visiting hospitals for health care, though this may cause delays in biomedical attention which results into complications.

Conclusion and Recommendations

Any factors that hindered women from attending antenatal care were likely to increase their chances of using herbal medicines. These include low income, long distances from health centers and increased number of births.

There is need to extend and strengthen antenatal care services to all health care units and hard to reach areas for easy accessibility by the pregnant women. Some interventions could be put in place to attract women to health centers for antenatal care, aimed at reducing complications which have been a cause of maternal death.

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Conflicts of Interest

Authors have declared that no conflicts of interest exist.

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