



E-ISSN: 2321-2187
P-ISSN: 2394-0514
www.florajournal.com
IJHM 2021; 9(5): 33-37
Received: 17-07-2021
Accepted: 19-08-2021

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Prevalence and factors associated with use of herbal medicine among pregnant women in an urban tertiary hospital in Uganda: Cross-sectional survey

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Abstract

Herbal medicines are widely used during pregnancy. This study aimed at determining prevalence, reasons for, and factors associated with use of herbal medicine during pregnancy in an urban tertiary hospital in Uganda. In this cross-sectional survey, 520 postpartum mothers were recruited after informed consent. Data on demographic characteristics, obstetric history, and reasons for use of herbal medicine were collected. Using modified Poisson regression model, multivariate analysis was done. Majority of the mothers 69.8 % (363/520) reported using herbal medicine in the just concluded pregnancy. Herbal medicines were used mainly to ease delivery and avoid caesarean section. Women who believed that herbs are safe (PR = 1.1 95% CI = 1.01-1.21), had ever used herbs (PR = 3.23, 95% CI = 2.23-4.67), and those advised by family members to use herbs (PR = 1.64, 95% CI = 1.04-2.59) were more likely to use herbs. Herbal medicines are widely used in this urban population mainly for avoiding caesarean sections.

Keywords: herbal medicine, pregnancy, urban, Uganda

1. Introduction

Use of herbal medicine is widely reported in developing and developed countries [1-3]. There are potential benefits of using herbal medicines like cost and acceptability, but its safety has been an area of contention [4, 5]. Herbal medicine use is more prevalent in poorer countries although its use has been reported globally. Different herbs are used in different communities to treat ailments that are common in pregnancy [6].

Some herbs like ginger have been studied and found to be safe and useful when used by pregnant women [7, 8]. Many herbal medicines are used without ever going through safety and efficacy trials, and they are used with minimal regulatory oversight [9-11]. Use of herbal medicines has been associated with adverse effects like rupture of the uterus in pregnancy [12]. Despite their potential risk, herbal medicines are used widely in pregnancy.

Across Africa, nausea in pregnancy is the commonest reason for use of herbal medicine by pregnant women [13]. Some women in Western Uganda use medicinal plants to induce and ease childbirth [14, 15]. Pregnant women in Northern Uganda use herbal medicine to treat nausea, vomiting, abdominal pain, and fevers [16]. People living in rural areas are more likely to use herbal medicines than those in urban areas; the two populations use herbal medicine for slightly different Indications [17]. This study aimed at finding the proportion of women in an urban tertiary hospital in Uganda using herbal medicine during pregnancy and the factors associated with its use.

2. Methods

2.1 Design: It was a cross sectional survey.

2.2 Study setting

The study was conducted on the postnatal ward of an urban tertiary hospital, Kawempe National Referral Hospital. The hospital is located in Kampala district, 6km from Kampala city centre. It offers comprehensive gynecology and obstetrics services to women residing in Kampala and those referred from other health centres in Uganda. The data was collected between January 2019 and March 2019. In a month, between 2200 and 2500 women deliver at Kawempe. Women who come for delivery are assessed. Following normal delivery, mothers are admitted for 24 hours on the postnatal ward for observations, and those who deliver by Caesarean section are discharged after three days. If a woman gets complications of birth/puerperium, she may be treated in hospital for longer than three days.

2.3 Sample size estimation

Using Kish Leslie formula for determination of population proportion ^[18], a sample size of 243 women was calculated. And using the formula for power calculation in logistic regression with a binary covariate ^[19], a sample size of 520 women was calculated for factors associated with use of herbal medicine.

2.4 Study population

The study population were mothers who had delivered in Kawempe National Referral Hospital during the study period. Inclusion criteria was mothers in postnatal ward following delivery. Mothers who were very sick or were in the high dependency unit were excluded from the study.

2.5 Sampling procedure and data collection

Systematic sampling was used in recruiting participants. The patient registry on the postnatal ward was the sampling frame. Every fourth woman on the registry was approached and recruited after informed consent. Data were collected using an interviewer-administered questionnaire. The questions asked included questions about participant characteristics like age, parity, education levels, and others. Data on self-reported use of herbal medicine in the just concluded pregnancy was also collected. Herbal medicine use was defined as a plant/plant-part that is used to treat any condition.

2.6 Data analysis

Data cleaning was done followed by data entry in EPIDATA Software. Then, data were imported into Stata 14 software for statistical analysis. A summarized description of the sample was achieved using summary statistics for characteristics like age, parity, and others. The proportion of women who reported having used herbal medicine while pregnant was determined by the fraction of those who used over the total

sample size.

To determine factors associated with use of herbal medicine, Bivariate and multivariate analysis was done. At bivariate analysis, comparison proportions of herbal medicine use among factors was done using Pearson Chi square for categorical data; medians were compared using Wilcoxon's rank sum test.

Then, variables whose P-values of unadjusted Incident rate ratios (at bivariate level) was less than 0.1, were considered for multivariable analysis to find factors that significantly determine use of herbal medicine. Modified Poisson regression was used as an alternative to logistic regression to determine factors associated with use of herbal medicine in pregnancy, because the prevalence of the dependent variable was greater than 10%. When modified Poisson regression analysis is used in prevalence studies where there is high prevalence of the outcome variable, it yields less biased results than logistic regression ^[20, 21].

2.7 Ethics approval and consent to participate

Ethical approval was obtained from the School of Medicine Research Ethics Committee of Makerere University (REC Reference Number: 2018-182). Informed consent was sought from participants, and a written consent form signed before participants took part in the research.

3. Results

3.1 Participant characteristics

They were 520 participants recruited between January 2019 and March 2019. Median age was 22years. Majority of participants had delivered vaginally (303/520) 70.1%. Most women were married (459/520) 89.3% and (14/520) 2.7% had no formal education. Details of other demographics and obstetric history of the study population are shown in **Error! Reference source not found.**

Table 1: Participant characteristics

Participant characteristics	Frequency n = 520	Percentage (%)
Age (years), median (IQR)	22 (20-23)	
15-19	66	12.8
20-24	161	31.1
15-29	153	29.6
30-34	95	18.4
35-39	37	7.2
40-44	5	1.0
Education level		
No formal Education	14	2.7
Primary	164	31.7
Secondary	268	51.7
Tertiary	72	13.9
Marital status		
Never married/single	47	9.1
Married	459	89.3
Divorced	6	1.2
Widowed	2	0.4
Mode of delivery		
Caesarean	129	29.9
Normal	303	70.1
Parity, median (IQR)	2 (1-3)	
<=2	312	61.8
>2	193	38.2
History of miscarriage		
Never	438	86.7
m At least 1 (1-8)	67	13.3

IQR: Interquartile range

3.2 Herbal medicine use during pregnancy

Majority of the participants (363/520) 69.8% reported using herbal medicine in the just concluded pregnancy. The main reasons given for using herbal medicine were to get energy 140/520 (38%), prevent Cesarean delivery 134/520 (34.1%),

and make vaginal delivery easy 48/520 (13.1%). Some participants reported more than one reason for using herbal medicine during pregnancy. Details of other reasons given for using herbal medicine are shown in Table.

Table 2: Reasons for use of herbal medicine in pregnancy.

Reason for use of herbal medicine	Frequency (percentage)
Getting energy	140 (38.6)
Avoid caesarean section	134 (34.1)
Make vaginal delivery easily	48 (13.2)
Abdominal pain	11 (3.0)
Prevent neonatal jaundice	21 (5.8)
Clean the baby's skin	27 (7.4)
Prevent diseases	16 (4.4)
Increase blood levels	19 (5.2)
Gives luck to the baby	19 (5.2)
Avoiding vaginal tears	7 (1.9)
Stop vomiting	15 (4.1)
Prevent malaria	17 (4.7)
For better positioning of the baby	10 (2.9)

3.3 Factors associated with use of herbal medicine in pregnancy

Table 3: Factors associated with use of herbal medicine during pregnancy-bivariate analysis.

Participant characteristics	Used herbs 363 (69.8%)	Never used herbs 157 (30.2%)	Unadjusted PR (95% CI)	P value
Age				
15-24	169 (74.5)	58 (25.6)	1.00	
25-49	193 (66.6)	97 (33.5)	0.89 (0.80,0.99)	0.049
Education level				
Education/Primary	132 (73.6)	47 (26.4)	0.93 (0.70, 1.24)	0.629
Secondary	189 (70.5)	79 (29.4)	0.90 (0.68, 1.19)	0.457
Tertiary	41 (56.9)	31 (43.1)	0.73 (0.52, 1.02)	0.063
Parity				
>2	120 (62.2)	73 (37.8)	1.00	
≤2	234 (75.0)	78 (25.0)	1.21 (1.1, 1.4)	0.004
Mode of delivery				
Caesarean	101 (65.6)	53 (34.4)	1.00	
Normal	250 (71.8)	98 (28.2)	1.09 (0.96, 1.24)	0.191
Advise by family member				
No	8 (32.0)	17 (68.0)	1.00	
Yes	355 (74.4)	122 (25.6)	2.3 (1.31, 4.13)	0.004
Staying with partner				
Yes	315 (70.8)	130 (29.2)	1.00	
No	43 (66.2)	22 (33.9)	0.94 (0.78, 1.12)	0.471
HM ever use				
No	27 (21.4)	99 (78.6)		
Yes	332 (85.1)	58 (14.9)	4.0 (2.84,4.6)	<0.001
Herbal medicine is not safe in pregnancy				
Agree	150 (58.6)	106 (41.4)	1.00	
Disagree	197 (82.4)	42 (17.6)	1.41 (1.25, 1.58)	<0.001
Monthly income				
No income	125 (76.2)	39 (23.8)	1.00	
≤150000	115 (65.7)	60 (64.3)	0.86 (0.75, 0.98)	0.034
>150000	123 (68.0)	58 (32.0)	0.89 (0.78, 1.0)	0.088

Women who had their first or second baby ($P = 0.004$ (95% CI [1.10, 1.40]), those advised by family member ($P = 0.004$ (95% CI [1.31, 4.13]) and those who had used herbal medicine in past pregnancies ($P < 0.001$ 95% CI [2.84, 4.6]) were more likely to use herbal medicine while pregnant. Details of the factors associated with herbal medicine use at bivariate analysis are shown in Table 3.

3.3.1 Multivariate analysis for factors associated with use of herbal medicine in pregnancy

Women who had attained tertiary education were less likely

to use herbal medicine during pregnancy (PR 0.71; 95% CI [0.58, 0.87]). Women having their first or second baby (PR = 1.22, 95% CI [1.08, 1.39]), those advised by family members to use herbal medicine (PR = 1.64, 95% CI [1.04-2.59]), those who had used herbal medicine in previous pregnancies (PR = 3.23, 95% CI [2.23, 4.67]) and those who believed that herbal medicine is safe in pregnancy (PR = 1.1, 95% CI [1.01, 1.21]) were more likely to use herbal medicine. Details of factors associated with use of herbal medicine in the just concluded pregnancy are shown in Table 4 below.

Table 4: Multivariate analysis for factors associated with use of herbal medicine in pregnancy.

Participant characteristics	Used herbs 363 (69.8%)	Never used herbs 157 (30.2%)	Adjusted PR (95% CI)	P value
Age				
15-24	169 (74.5)	58 (25.6)	1.00	
25-49	193 (66.6)	97 (33.5)	0.98 (0.89, 1.10)	0.822
Education level				
No education/primary	132 (73.6)	47 (26.4)	1.00	0.669
Secondary	189 (70.5)	79 (29.4)	0.93 (0.85, 1.02)	0.132
Tertiary	41 (56.9)	31 (43.1)	0.71 (0.58, 0.87)	0.001
Parity				
>2	120 (62.2)	73 (37.8)	1.00	
≤2	234 (75.0)	78 (25.0)	1.21 (1.07, 1.38)	0.003
Advise by family member				
No	8 (32.0)	17 (68.0)	1.00	
Yes	355 (74.4)	122 (25.6)	1.64 (1.04, 2.59)	0.033
HM ever use				
No	27 (21.4)	99 (78.6)	1.00	
Yes	332 (85.1)	58 (14.9)	3.29 (2.27, 4.76)	<0.001
Herbal medicine is not safe in pregnancy				
Agree	150 (58.6)	106 (41.4)	1.00	
Disagree	197 (82.4)	42 (17.6)	1.11 (1.00, 1.22)	0.044
Monthly income				
No income	39 (23.8)	125 (76.2)	1.00	
≤150000	60 (64.3)	115 (65.7)	0.92 (0.82, 1.03)	0.145
>150000	58 (32.0)	123 (68.0)	0.91 (0.82, 1.02)	0.104

4. Discussions

The aim of the study was to document herbal medicine use during pregnancy and associated factors. The study shows that more than half of participants had used herbal medicine while pregnant. The main reasons for use of herbal medicine were to avoid Caesarean section, to get energy, treat nausea and vomiting, and ease delivery. The pregnant women were more likely to use herbal medicine if they were illiterate, had ever used herbal medicine, thought that herbal medicine is safe, or were advised by family member to use herbal medicine.

Majority of the participants had used herbal medicine in the just concluded pregnancy. The high prevalence of use herbal medicine among the pregnant has been reported elsewhere [13, 22-24]. A study done in northern Uganda showed the proportion of mothers using the herbal medicine was lower [16], but the study was in a rural setting. It is likely that mothers living in an urban setting are of higher socioeconomic status and may be exposed more to advertisement of herbal medicine use which may influence its use.

Mothers who had attained tertiary education were less likely to use herbal medicine during pregnancy. It has been previously shown the less educated pregnant women are more likely to use herbal medicine [1]. The educated women may be more concerned about the safety of herbal medicines and likely to adhere to the instructions of health workers against use of herbal medicine [5].

Use of herbal medicine in past pregnancies, and the belief that herbal medicine is safe in pregnancy was associated with its use during pregnancy. This finding was also reported in other studies elsewhere [16, 22, 25]. Using herbal medicine in the previous pregnancy may have given women reassurance depending on the birth outcomes.

Women who were delivering their first or second child were more likely to use herbal medicine while pregnant compared to those of higher parity. This result is similar to findings in an Australian study [26]. Using herbal medicine in the previous pregnancies is likely to give her reassurance on the usefulness and probable safety.

Women who were advised by family members to take the herbal medicine were likely to use it during pregnancy. Influence by family members was found to determine use of complementary medicine [3, 27]. It is likely that the mothers of low parity are easily take up advice from the more experienced friends.

5. Conclusions

A majority of pregnant women in Kawempe hospital use herbal medicine during pregnancy to treat complaints/concerns that are common in pregnancy. Prior use of herbal medicine and belief that its safe during pregnancy drives its use in this setting. Further research is needed to document the herbal medicines used, to determine the efficacy of the herbal medicines, and look at potential impact of the herbal medicines on delivery outcomes.

Study limitation

We collected self-reported data from hospitalised patient, so response bias cannot be completely ruled out. However, data was collected after delivery which made the mother more open to sharing herbal medicine use.

Interpretation

The results of the study demonstrate the high prevalent use of herbal medicine among pregnant women in urban setting in Uganda. Educated women are less likely to use herbal medicine. Educating the girl child influences the attitude towards health care Mothers who have ever used HM, felt that it was safe and those advised by family member to use were more likely to use it during pregnancy.

List of abbreviation

IQR: Interquartile range

PR: Prevalence ratio

HM: Herbal medicine

REC: Research and ethics committee

Acknowledgements

We would like to acknowledge the work done by the research assistants, and the women who agreed to participate in the study.

Funding acknowledgments

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors. It was funded by the authors (self-finances).

Authors' contributions

HI, PN, FN; conceived the idea and collected data. HI drafted the first manuscript and participated in data analysis. FM, participated data analysis and presentation of results. All the authors contributed to the intellectual content, read and approved the final manuscript.

Declaration of conflict of interest

The authors declare that there is no conflict of interest.

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