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Use of herbal medicine during pregnancy and associated factors among pregnant women with access to public healthcare in west Shewa zone, Central Ethiopia: sequential mixed-method study

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ABSTRACT

Objective This study was aimed at assessing the prevalence of herbal drug use among pregnant women with access to modern medicine and associated factors in public health facilities in the west Shewa zone, Oromia regional state, Ethiopia.

Design A sequential mixed-method study approach was carried out among pregnant women and other stakeholders.

Setting This study was conducted at public health facilities, including 3 public hospitals and 20 health centres, in the west Shewa zone of Ethiopia.

Participants A systematically selected sample of 411 pregnant women was participated in the quantitative study. For the qualitative method, focus group discussions and in-depth interviews were conducted among pregnant women attending antenatal care and key informants using an interview guide until data saturation was achieved.

Primary outcome For outcome variables, the respondents were asked if they used any herbal medicine during their current pregnancy. It was then recorded as 0=no and 1=yes.

Results The prevalence of herbal medicines was found to be 19.7%. The most commonly used herbal medicines were *Zingiber officinale*, *Ocimum gratissimum*, *Eucalyptus globules*, *Allium sativum* and *Rutacha lepensis*. Herbal medicine use during pregnancy was significantly associated with older maternal age (adjusted OR (AOR) 2.4, 95% CI 1.2 to 5.1), urban residence (AOR 2.3, 95% CI 1.3 to 3.7) and second trimester of pregnancy (AOR 2.3, 95% CI 1.3 to 4.5).

Conclusions In this study, one in five pregnant women uses herbal medicine, which is relatively low. Sociodemographic factors and the duration of pregnancy affected the utilisation of herbal drugs during pregnancy. The most common herbals used by pregnant women were intended to treat minor disorders of pregnancy and medical disorders such as hypertension.

STRENGTHS AND LIMITATIONS OF THIS STUDY

⇒ The mixed approach provides greater insight and strength into the research topic.
⇒ The study's limitations could be that it is prone to recall bias, which could alter the results because the pregnant women might not remember what drugs they took, and most of the herbal remedies are not considered medicine in rural communities.
⇒ Women in early pregnancy may not have the opportunity to use medications, which could alter the reported outcomes of routinely used herbal drugs.
⇒ The effect of COVID-19 on the community regarding the use of home remedies for the treatment and control measures.

BACKGROUND

Traditional medicine, also known as complementary and complementary medicine, is the oldest system of healthcare. It appears to be reviving in recent decades and is increasingly in demand and used everywhere.[1] Health practices, approaches, knowledge and beliefs in traditional medicine include a wide range of medicines and therapies used to treat, diagnose and prevent illness, as well as to maintain health and well-being.[2] Humans have used herbal medicine, a type of traditional medicine derived from plants, as an ancient and culture-bound method of healing to cope and deal with various diseases that threatened their existence.[3]

Over the last three decades, the demand for and use of herbal medicine has grown not only in societies where modern healthcare has gaps but also in societies where there is a strong healthcare system.[4] It is estimated that between 65% and 80% of the world's

population relies on herbal medicines and drugs as their primary source of healthcare.[5 6]

Despite colonialism and western culture introducing modern medical care and creating distrust, traditional medicine plays an unsubstituted role in the health systems of developing countries.[4 7] Traditional medicine is used by the majority of Ethiopians, and the government health policies recognise its importance. However, research, long-term application and integration into modern medical practice have been limited. While there has been significant progress in coverage and utilisation of the modern healthcare system, it appears that it does not replace traditional medicine.[1]

To support and nurture the pregnancy, the pregnant mother undergoes significant physiological and anatomical changes. These changes are usually associated with minor health issues and complications. Pregnant women are more likely to use herbal medicines because the majority of minor pregnancy health concerns do not require pharmaceutical treatment. Furthermore, different communities have different health practices, knowledge and beliefs about medicines to protect pregnancy and promote the health of the mother and fetus.[8]

The evidence on the benefits and potential risks of using herbal medicines during pregnancy is inconclusive. According to studies, using herbal drugs while pregnant can have serious consequences for both the fetus and the mother because the safety profiles and appropriate dosages of most herbal medicines are not well established.[5 9–11] Herbal medicines, on the other hand, have been associated with effective relief of pregnancy-related symptoms,[12] a lower risk of spontaneous preterm delivery[13] and a significant reduction in blood pressure in hypertensive patients.[14 15]

Approximately half of pregnant women in Ethiopia use herbal medicine or drugs, and the level and type of herbal use vary by setting.[9 16 17] Pregnant women use herbal drugs in the belief that they will treat pregnancy-related symptoms, ensure the successful progression of the pregnancy and promote the health and well-being of the mother and fetus.[4 18–21] The increased use of herbal drugs among pregnant women while the usage of maternal healthcare services has improved in the last few decades prompted us to ask: Why do pregnant women use herbal drugs when they are receiving antenatal care (ANC) services from modern medicine? What are the shortcomings in modern medicine that necessitate the use of herbal drugs? This study assessed the prevalence of herbal drug use among pregnant women with access to modern medicine and explored its associated factors. This will be an input to unveil the reasons for seeking herbal drugs while having access to modern medicine among pregnant women in Ethiopia.

METHODS

Study area and period

The study was conducted in health facilities in the west Shewa zone, Oromia Regional State, Ethiopia. The zone is located in the Oromia Regional State to the west of Addis Ababa, the capital city of Ethiopia. Ambo, the capital of the west Shewa zone, is located 114 km away from Addis Ababa. According to information from the west Shewa zonal health office, the total population in the zone is estimated to be 2 381 079, of which 1 214 350 were females. The study was conducted from 1 July 2021 to 30 July 2021.

Study design

A sequential explanatory mixed-method study approach was carried out among pregnant women and other stakeholders. A quantitative cross-sectional study design was employed, followed by an explorative qualitative study.

Population

All pregnant women who were attending ANC in the public health facilities of west Shewa were the source population, and pregnant women who were attending ANC in the selected public health facilities of west Shewa who had lived in the study area for more than 6 months were considered the study population for quantitative study. Moreover, pregnant women, health professionals working in ANC, health extension workers, traditional healers and community leaders were the study population for the qualitative study.

Sample size determination

Sample size for quantitative study was determined based on a single population proportion formula considering the prevalence of herbal drug use among pregnant women in Nekemte town, which was 50.4%,[22] 95% confidence level, 5% marginal error and 10% non-response rate.

$$N=\frac{Z(\alpha/2)2p\ (1-p)}{d2}\ ;\quad (1.96)^2(0.504)\quad (0.496)/(0.05)^2=384+39\ (10\%\ \text{non-response rate})\ =423$$

For qualitative part, four focused group discussion (FGD) with 6–8 participants were undertaken at each level of the health facility. The candidates for FGD were the primary study population (pregnant women) who had used herbal drugs during their current pregnancy. The number of FGDs was adjusted based on data saturation. In-depth interviews (IDIs) were conducted with key informants: health professionals working in ANC, health extension workers, traditional healers and community leaders. Eight IDIs were conducted, and the maximum number was decided based on the data saturation.

Sampling procedure

There are 8 hospitals and 96 health centres in the west Shewa zone of Ethiopia. From the eight hospitals, Guder Hospital was excluded since MCH service was not provided due to COVID-19 during the study period. From the seven hospitals, three hospitals, namely

Gedo Hospital, Ambo University Referral Hospital and Adaberga Hospital were selected randomly. Of the 92 health centres, 20 were selected randomly. The sample size was distributed proportional to the case flow, and the study participants were selected using a systematic random sampling technique.

Different techniques, such as snowballs, were used to find the elderlies, traditional healers, previous traditional birth attendants and health extension workers for IDI in order to get more relevant information about the outcome variable. Four FGDs and eight IDIs were conducted to reach data saturation.

Data collection tool

The data collection tool for quantitative study was adopted after reviewing similar literature conducted to assess the utilisation of traditional herbal drugs during pregnancy[22–26] and others. The questionnaire was prepared in English and translated into Afan Oromo, and the translated version was used to collect the data (online supplemental file 1). The questionnaire was designed in CSPRO V.7.3 software and exported to CSEntry for Android for electronic data collection. The data were collected by 13 BSC midwives and supervised by 5 MSc and above educational level personnel.

A semistructured guide was also developed for the FGD and IDI, and it was conducted in Afan Oromo (online supplemental file 2). The guide was used to explore their knowledge of how often pregnant women use herbal drugs, the type of herbal drugs, the timing of utilisation, the reason for using those drugs and the possible outcomes of the drugs on fetuses and pregnant women.

Operational definition

Utilisation of herbal medicine

The use of at least one herbal medicine during this pregnancy, coded as 1 if they used it and 0 if not.

Data quality assurance

The questionnaire was pretested on 5% of the sample size at Ginchi Primary Hospital, and necessary corrections were made 1 week before the actual data collection time. Training was given for data collectors and supervisors for 2 days.

The interview guide was also pretested to check the difficulty of understanding and completeness, and modifications were made accordingly. The IDI and the FGD were conducted by MSC-holder data collectors.

Patient and public involvement

No patient or the public was directly involved in developing the research questions, the design, protocol, data collection tools, results and dissemination plan of the study.

Data processing and analysis

The quantitative data were collected by the CS-Entry Android app and exported to SPSS V.25 for data analysis. A basic descriptive analysis was computed. Binary logistic regression was used to control the confounders and identify factors associated with the outcome variable. All explanatory variables that were significantly associated with the outcome variable with a p value less than 0.05 in the bivariate analyses were entered into the multivariable logistic regression model. Crude and adjusted ORs (aORs) with their 95% CI were determined, and a statistically significant association was asserted based on a $p<0.05$. Multicollinearity was checked using the variance inflation factor.

Qualitative data collection and analysis were undertaken simultaneously because of the interactive nature of qualitative methods. Each day of data collection, the audio tapes of IDI and FGDs were transcribed verbatim in Afan Oromo and then translated into English. The transcribed data were internalised by reading it repeatedly and translated into English by the investigator. The data were coded, categorised and thematically analysed. Then coding and categorisation were done using open code software. Following interpretative content analysis principles, the words of participants and the meanings they gave to their words were considered in coding and categorisation. The first words or phrases were used to form codes. Then, similar codes were brought together to form categories. Similar categories were brought together to form a theme that represents the whole idea of the categories. Major concepts were deciphered by repeated reading through the notes and memos, summarising, displaying and verifying. Based on the emerging themes, thematic content analysis was followed to summarise the findings from the participants' points of view. The findings from the qualitative data were triangulated with the findings from the quantitative data.

RESULTS

Sociodemographic characters

A total of 411 pregnant women participated in the study, making a response rate of 97.2%. The mean age of the study participants was 28 years, with an SD of 4 years. The majority of the study participants, 401 (97.6%) were married; Oromo by ethnicity, 388 (94.4%); the occupation of housewife, 227 (55.2%) and 129 (31.4%) of them attended above the college. Regarding their husbands, 190 (46.2%) of them have attended above the college level, and 173 (42.1%) of them stated their occupation is private employee. The place of residence was rural for 238 (57.9%) of the study participants, and the mean monthly income of the study participants was ETB5228 with an SD of ETB4530 (table 1).

Obstetric history

Regarding the obstetric history of the study participants, the mean number of pregnancies was twice, and the mean number of children was one. The majority of women, 288 (70.1%), had a history of pregnancy (multigravida). Among these women with a history

Table 1 Sociodemographic characteristics of pregnant women attending ANC in public health facilities of west Shewa zone, Central Ethiopia, 2021

Variables	Response	Frequency	Percentage
Age category	Younger than 25	169	41.1
	25–30 years	182	44.3
	31 and above	60	14.6
Marital status	Married	401	97.6
	Unmarried	10	2.4
Ethnicity	Oromo	388	94.4
	Amhara	16	3.9
	Gurage	7	1.7
Religion	Orthodox	160	38.9
	Muslim	18	4.4
	Protestant	226	55.0
	Wakefata	7	1.7
Occupation	Housewife	227	55.2
	Students	39	9.5
	Government employee	64	15.6
	Private business	59	14.4
	Others	22	5.3
Education	Can't read and write	31	7.5
	Can read and write	10	2.4
	Primary	110	26.8
	Secondary	131	31.9
	College and above	129	31.4
Husband education	Can't read and write	22	5.4
	Can read and write	12	2.9
	Primary	59	14.4
	Secondary	128	31.1
	College and above	190	46.2
Husband occupation	Not working	19	4.6
	Government employee	149	36.3
	Private business	173	42.1
	Farmer	54	13.1
	Others	16	3.9
Income category	Less than 1000	41	10.0
	1000–4999	179	43.6
	5000–9999	121	29.4
	10 000 and above	70	17.0
Residence	Rural	238	57.9
	Urban	173	42.1

ANC, antenatal care.

of pregnancy, 203 (70.5%) had ANC follow-up, 139 (48.3%) delivered at the hospital and 158 (54.9%) had used postnatal care services. Maternal previous illness during pregnancy was reported among 49 (17%) of the study participants (table 2).

Current obstetric history

From the total of 411 respondents, 375 (91.2%) and 395 (96.1%) reported that their current pregnancy was planned and supported, respectively. All of the study participants were attending ANC, and 233 (56.7%)

Table 2 Obstetric history of pregnant women attending ANC in public health facilities of west Shewa zone, Central Ethiopia, 2021

Variables	Response	Frequency	Percentage
No of pregnancy	One	123	29.9
	Two or three	196	47.7
	4 and more	92	22.4
No of children	One	123	50.0
	Two or three	96	39.0
	4 and more	27	11.0
Abortion	No	363	88.3
	Yes	48	11.7
Past illness	No	246	85.4
	Yes	42	14.6
Past ANC	No	85	29.5
	Yes	203	70.5
Place of last delivery	Home	28	9.7
	Health centre	121	42.0
	Hospital	139	48.3
Past PNC	No	130	45.1
	Yes	158	54.9
Previous child illness	No	248	86.1
	Yes	40	13.9
Family planning	No	121	29.4
	Yes	290	70.6

ANC, antenatal care; PNC, postnatal care.

received health education during ANC follow-up regarding herbal medicine. More than three-fourths, or 323 (78.6%), of them reported that they have not developed any health problems during their current pregnancy. The mean distance between the health facilities where they attend their ANC and home is 8.5 km with an SD of 5 km, and Bajaj was the most common mode of transportation (54.0%). The majority of respondents indicated that their desired place for delivering a baby is the same facility as the one where they receive ANC service, 285 (69.3%).

Qualitative findings

The qualitative study was conducted to explore more information about the use of herbal medicine during pregnancy. Four FGDs were undertaken with 6–8 pregnant women who had used herbal drugs during their current pregnancy, and eight IDI were done among key informants. From the qualitative analysis, facilitators of herbal medicine use and commonly used herbal medicines were the two main emerging themes. The facilitator theme describes the factors that influence the use of herbal medicines and includes the belief that herbal medicines are effective in treating many ailments, the availability of herbal medicines at low cost, cultural beliefs that herbal medicines are safe for pregnancy and the tradition of using herbs. The two themes are presented in triangulation with the quantitative data in the following sections.

Knowledge and herbal drug use during pregnancy

Nearly half (53.3%) of the study participants knew about herbal drugs, and 129 (67.2%) heard about them from family members. From the total respondents, about one-fourth of them get the drugs from home remedies, 49 (25.5%). Participants in the qualitative FGD revealed that the majority of herbal medications are purchased from herbal drug vendors on the market or as home remedies. As an example, one woman stated that:

> Mostly they (herbal medicines) are prepared as home remedies. We can also get them from the market. There are also traditional healers in our community, so we can get this drug from them with minimal cost. [G2P3]*

*Following each quote is the participants' focus group number and participant number.

This study revealed that, about one-fifth of women (19.7%) used herbal drugs during pregnancy (table 3). The qualitative study participants also revealed the use of various herbal medications to manage different pregnancy-related ailments, like nausea, fever, vomiting,

Table 3 Knowledge and utilisation of herbal medicine during pregnancy among women attending ANC in public health facilities of west Shewa zone, Central Ethiopia, 2021

Variables	Response	Frequency	Percentage
Know herbal medicine	No	219	53.3
	Yes	192	46.7
Source of information (more than one response)	Traditional healers	40	20.8
	Religious leaders	41	21.4
	Family member	129	67.2
	Neighbour/friend	63	32.8
	Others	9	4.7
Used herbal during pregnancy	No	330	80.3
	Yes	81	19.7
Reason for using herbal drug (more than one response)	Effective than conventional drug	51	62.9
	Have fewer side effect	33	40.7
	Lower cost	20	24.7
	Availability without physician prescription	42	51.9
	Complement conventional medicines	13	16.1
	It is in our culture	10	12.3
	Used when conventional medicine it fails	15	18.5
Who recommend you… (more than one response)	It's my own idea	77	95.1
	My husband	33	40.7
	Friends or neighbours	31	38.3
	Traditional healers	17	20.9
	Healthcare providers	12	14.8
	Religious leaders	2	2.5
	Other	12	14.8
Contaminant use of herbal and modern drug	No	27	33.3
	Yes	54	66.7
Tell to healthcare provider at ANC	No	50	62.8
	Yes	31	37.2
If yes to tell to healthcare providers, what was their response	To continue using the herbal drug	16	51.6
	To discontinue the herbal drug	10	32.3
	Said nothing	5	16.1

ANC, antenatal care.

headaches, common colds and abdominal cramps. The most commonly used herbal medicines by the study participants during pregnancy were *Zingiber officinale, Ocimum gratissimum, Eucalyptus globules, Allium sativum and Rutacha lepensis* (online supplemental file 3).

Reasons for using herbal medicine during pregnancy

The reasons for using herbal drugs while receiving ANC at a health facility were studied, and the majority of the women perceived herbal drugs as more efficient than conventional drugs, 51 (62.9%). This is also in line with the qualitative study finding where one woman stated:

> Some diseases are not treatable with modern medication. Hepatitis B, for example, is treatable with herbal medication but not with modern medicine. [G4P5]

The other reasons for using herbal medicine while having access to modern medicine were the availability of the drugs without the need for a prescription by physicians, 42 (51.9%), having fewer side effects, 33 (40.7%), lower cost of drugs, 20 (24.7%), and being the culture to use in pregnancy, 10 (12.3%) were among the reasons for using herbal drugs. This was also supported by the results of qualitative studies.

Modern drugs come with a slew of negative side effects. The medicines used to treat peptic ulcer illness, for example, can aggravate the problem on their own. People utilize home remedies or traditional medicine instead of pharmaceuticals because they are afraid of negative drug side effects. [G3P1]

IDI participants also raised similar information:

Mainly, there are misunderstandings in the community regarding the use of modern medicine during pregnancy. They don't want to consider using modern medicine as they believe that it could endanger the life of their foetus because modern medicine passes through different preparation processes in fabric. For these reasons, the community prefers using the plants they know as medicine because they consider them safe. [IDI7]

About two-thirds, (66.7%) of the women who used herbal drugs during pregnancy also took conventional drugs ordered during ANC follow-up. Of these women, 31 (38.2%) of them informed the health professionals, and 16 (51.6%) of them were told to continue using the herbal drugs by the health professionals.

Factors associated with herbal drug use during pregnancy

Age, residence, educational status, previous child illness, gestational age and herbal drug use during the non-pregnancy period were candidate variables for the multivariable logistic regression analysis with a p<0.2. In multivariate analysis, three variables were significantly associated with herbal drug utilisation during pregnancy with a p<0.05.

Women aged 31 years and older are 2.4 times more likely to use herbal drugs than pregnant women younger than 25 years (AOR 2.4, 95% CI 1.2 to 5.1). Urban resident women were 2.3 times more likely to use herbal drugs than pregnant women living in rural areas (AOR 2.4, 95% CI 1.3 to 3.7). Second-trimester women were found to be 2.3 times more likely to use herbal drugs during pregnancy than third-trimester pregnant women (AOR 2.3, 95% CI 1.3 to 4.5) (table 4).

Table 4 Bivariate and multivariable logistic regression analysis of factors associated with utilisation of herbal medicine among pregnant women in west Shewa zone, Central Ethiopia, 2021

	Herbal drug use			
	Frequency (%)			
Variables	No	Yes	COR (95% CI)	AOR (95% CI)
Age category				
Younger than 25	143 (43.3)	26 (32.1)	1	1
25–30 years	144 (43.6)	38 (46.9)	1.45 (0.8 to 2.5)	1.6 (0.9 to 2.9)
31 and above	43 (13.0)	17 (21.0)	2.1 (1.08 to 4.3)*	2.4 (1.2 to 5.1)*
Educational status				
No formal education	32 (9.7)	9 (11.1)	1	1
Primary	88 (26.7)	22 (27.2)	0.88 (0.3 to 2.1)	0.8 (0.6 to 1.2)
High school	115 (34.8)	16 (19.8)	0.49 (0.2 to 1.2)*	0.5 (0.3 to 1.3)
College and above	95 (28.8)	34 (42.0)	1.27 (0.5 to 2.9)	1.4 (0.8 to 3.1)
Residence				
Rural	203 (61.5)	35 (43.2)	1	1
Urban	127 (38.5)	46 (56.8)	2.1 (1.3 to 3.4)*	2.3 (1.3 to 3.7)**
Previous child illness				
Yes	27 (11.8)	13 (22.0)	2.1 (1.1 to 4.1)	2.0 (0.9 to 4.6)
No	202 (88.2)	46 (78.0)	1	1
Gestational age				
First trimester	110 (33.3)	26 (32.1)	1.4 (0.7 to 2.7)	1.4 (0.7 to 2.7)
Second trimester	91 (27.6)	34 (42.0)	2.3 (1.2 to 4.2)	2.3 (1.3 to 4.5)*
Third trimester	129 (39.1)	21 (25.9)	1	1
Previous herbal drug use				
Yes	251 (76.1)	52 (64.2)	1	1
No	79 (23.9)	29 (35.8)	1.7 (1.1 to 2.9)	1.5 (0.8 to 2.9)

1 reference category
*p≤0.05, **p<0.01.
AOR, adjusted OR; COR, crude OR.

DISCUSSION

This research determined the prevalence of herbal medicine use during pregnancy and explored associated factors among pregnant women receiving ANC service at public health facilities in the west Shewa zone of Central Ethiopia.

This study found that 19.7% of pregnant women used herbal drugs during their pregnancy, which is comparable with a study conducted among women attending postnatal clinics in Northern Uganda.[27] This finding is relatively higher than the proportion of herbal drug use reported among pregnant women in the Kigoma region of Tanzania, 10.9%[18] and 12% in Kenya.[28] However, this result is lower than the prevalence of herbal medicine use documented in similar studies conducted in Italy,[29] Taiwan,[6] Bangladesh,[5] Nigeria[21] and Egypt.[30] Similarly, this finding is lower than previous studies conducted in Ethiopia.[16 25] Prevalence rates may differ due to sociocultural and ethnic variances in the studied areas. This disparity could also be due to differences in accessibility, price and regulating policies regarding the use of herbal and modern medicine between countries and districts.

In this study, women over the age of 31 were found to be more likely to use herbal medicine during pregnancy compared with their younger counterparts. This finding is consistent with findings from studies done among pregnant women in Tanzania, Taiwan and Italy.[6 18 29] This finding could be explained by the women's previous experiences with herbal medicine and their belief that it helped them solve other difficulties, as well as its long-standing incorporation into the culture and perception as their own indigenous medicine.[27 31]

When compared with rural dwellers, the odds of using herbal medicine during pregnancy were significantly higher among urban residents. However, a study of pregnant women on ANC follow-up at the University of Gondar referral and teaching hospital in Ethiopia[16] contradicts this finding. This could be explained by the fact that rural individuals are more likely to accept healthcare practitioners' advice regarding the possible negative effects of herbal medication during ANC follow-up, lowering the likelihood of herbal medicine use among rural residents. Moreover, herbal drugs were also considered as a therapeutic option for COVID-19. Information on television, radio and the internet encourages consumers to use herbal medicine more frequently, especially among urban dwellers.[32] On the other hand, in rural areas, most herbal remedies are used as a nutritional supplement, but in urban areas, they are used to cure problems during pregnancy.[27] The findings from the qualitative study also support this finding.

> Herbs are commonly used in urban settings, particularly following the COVID-19 outbreak. Because it passes through several preparation processes in fabric, modern medicine may risk the life of the foetus. As a result of these factors, the community prefers to utilize the medicinal plants because they are safe, particularly for pregnant women.'

Another significant factor related to the use of herbal medicine during pregnancy is gestational age. Unlike a study conducted among pregnant women in Addis Ababa, Ethiopia[33] found that pregnant women are less likely to use self-medication in the second trimester, this study found that the likelihood of using herbal medicine is significantly higher in the second trimester than in the last trimester. The possible explanation is that in Ethiopia, a large proportion of pregnant women drop out before receiving the required number of ANC visits. According to the results of the 2019 Ethiopian Maternal and Demographic Health Study, 74% of women who gave birth in the five years before the survey got prenatal treatment from a skilled practitioner at least once for their most recent pregnancy. For their most recent live birth, however, only 43% had four or more ANC visits.[34] With a drop-out from ANC care, pregnant women could miss out on the critical healthcare activities such as health promotion and counselling, including the risks of using herbal medicine for the fetus and the mother. It is also supported by the qualitative study's finding.

Traditional medicine is generally not advised to be used during pregnancy. However, if a problem emerges, especially after 4 months, herbal medication is preferable than conventional treatment because the former is made entirely of plant leaves or roots, which are safe to be used by pregnant women.

Strengths and limitations of the study

The mixed approach provides greater insight and strength into the research topic.

The study's limitations could be that it is prone to recall bias, which could alter the results because the pregnant women might not remember what drugs they took, and most of the herbal remedies are not considered medicine in rural communities. Another potential drawback is that women in early pregnancy may not have the opportunity to use medications, which could alter the reported outcomes of routinely used herbal drugs. Furthermore, the effect of COVID-19 on the community regarding home remedies for the treatment and control measures. Therefore, we recommend readers consider these limitations while citing and interpreting the findings of this study.

CONCLUSION

According to this study, about one in five pregnant women receiving ANC uses herbal medicines, which is considerably lower than most of the earlier research done in Ethiopia. The most frequently used herbal drugs were *Z. officinale, O. gratissimum, E. globules, A. sativum and R. chalepensis* to treat minor obstetrical issues, the common cold and medical conditions such as hypertension. The use of herbal medications during pregnancy was affected

by sociodemographic characteristics such as age, place of residence and duration of pregnancy. Healthcare professionals should be aware that some pregnant women take herbal medications while receiving ANC, and they should pay close attention to the concerns that lead pregnant women to seek out herbal medications. Further research should be done to comprehend the dosage and formulation of herbal medicines in order to further explore any potential advantages and terotogenic effects.

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Contributors GGB and BSW developed study objectives, data management and analysis; they wrote the first draft of the manuscript. Also, contributed to the study design, interpreted the results, drafted and revised the manuscript. DYG, EMK and GMT reviewed the manuscript for critical input, supervised all data analysis, manuscript writing and provided critical input to the manuscript. All other authors critically revised the manuscript and approved the final version. GGB accepts full responsiblities for the work or the conduct of study as guarantor, had acces to the data, and controlled the decison to publish.

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Patient consent for publication Consent obtained directly from patient(s).

Ethics approval This study involves human participants and was approved by Ambo University College of Medicine and Health Sciences ethical institutional review committee with reference number AURH/M174/2/5/2013. Participants gave informed consent to participate in the study before taking part.

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