A cross-sectional study to determine the use of alternative medicines during pregnancy in the district hospitals in Manicaland, Zimbabwe

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Abstract
Background: Traditional medicines are widely used in the rapidly growing health system and are of economic importance. The study aimed at determining the frequency, pattern of use and factors that influence traditional medicines use during pregnancy.
Materials and methods: A cross-sectional study was carried out at four district hospitals in Manicaland, Zimbabwe, using questionnaire based convenience sampling.
Results: Traditional medicines use was found to be high with 54% (n = 337) of pregnant women using traditional medicines during pregnancy. The major purpose of use of traditional medicine was found to be preparation for delivery; cervical dilation in particular. The following factors showed a significant statistical association for use of traditional medicines: previous mode of delivery (p = 0.006), level of education (p = 0.016), family income (p = 0.007), and residential settlement (p = 0.026). Some of the common traditional medicines used during pregnancy include *Camellia sinensis, Aloe, Spirostachys Africana, Thumbergia lancifolia, Dalbergiella nyasae, Steganotaenia oraliacea, Stomatostemma monteiroae* and *Cussonia arborea*
Conclusion: A number of pregnant women use traditional medicines as partus preparators (labour aids) throughout the entire pregnancy period. This calls for obstetricians, general practitioners and midwives to inquire about use of traditional medicine in history.
Key words: Traditional medicines, pregnancy, Zimbabwe.
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Introduction
In some Asian and African countries, 80% of the population depends on alternative medicines for primary health care. Alternative medicines are a group of diverse health care practices and products not traditionally associated with the modern medical profession or public health system[1]. Not many countries have national policies for traditional medicines. Regulating traditional medicine products, practices and practitioners is difficult due to variations in definition and categorization of traditional medicine therapies. Over 80% of the mothers use traditional medicines to provide health care for themselves and their children[2]. The treatment of most ailments that women suffer from, especially in rural areas, are managed by traditional medicines first. In case the condition deteriorates, then they seek mod-

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ern health facilities[3]. Complications resulting from reproductive health related conditions such as maternal mortality and morbidity account for number one problem among the disease burden[4].

The physical and physiological changes that occur during pregnancy can lead to a variety of conditions that can usually be self-treated. The principles of management differ and strong medicines would harm the foetus thus the choice of drugs for the disorders occurring during pregnancy should be restricted[5]. There are no licensed medicines for conditions such as morning sickness or insomnia in pregnancy, and evidence from high income countries suggests that patients often resort to using herbal medicines[6].

There is limited data on use of either herbal or vitamin supplements during pregnancy[7]. Many consumers do not inform their primary care provider about their use of these alternative medicines[8]. Previous survey data show that women often do not share their use of herbal remedies with their healthcare providers due to fear of offending providers or to the belief that clinicians would be ignorant about their use[8]. Most pregnant women are utilizing traditional medicine products and/or services as part of their maternity care and obstetricians, general practitioners and midwives need to enquire with women in their care about possible traditional medicine use to help promote safe, effective coordinated maternity care[7]. Use of traditional medicine during pregnancy is commonly stigmatized and may be associated with non-adherence to conventional antenatal prescription medicines[9]. Women might choose to use herbal supplements during pregnancy because they consider them safer than pharmaceutical products[1]. Nonetheless, herb derived remedies need a thorough and deep assessment of their pharmacological qualities and safety[1]. There is not much documentation on the engagement in traditional medicines by women during pregnancy in Zimbabwe. This study aimed at/span>-determining factors influencing the use of traditional medicines; and establish the obstetric history of clients using traditional medicines during pregnancy. The results would form a basis for further studies on the relationship between the use of traditional medicines during pregnancy and the high levels of maternal morbidity and mortality following increased levels of herbal use.

Materials and methods

Study population and sample size

This study was carried out at four different district hospitals in Manicaland district (Hauna, Murambinda, Mutambara and Nyanga), as a cross-sectional study undertaken using convenience sampling. Any woman walking in to access antenatal care services during the period of data collection was approached. Participants were pregnant women and those who had just given birth, that came for antenatal clinic at the hospitals. The questionnaires were formulated in Shona and English, therefore, eligible participants had to understand at least one of the languages.

Sample size determination

The target sample size was 407 calculated using the formula

Margin of Error = $z \sqrt{(p (1 - p)/ n)}$ $\rightarrow$ 5% $=1.96\sqrt{((0.60 \times 0.4)/n)} =370$

where the desired margin of error =5%.

Z=the z-score using the desired 95% confidence interval

p is the prior judgment of the correct value of the proportion of women (ANC) who use traditional medicine

n= the sample size

Assuming a response rate of 10% sample size = 407.

after finding out the total number of women attending antenatal care at the chosen district hospitals in Manicaland monthly and annually. The experimental protocol and procedure used in this study were approved by the Joint Research and Ethics Committee of the University of Zimbabwe, reference number JREC 234/16 and by the Medical Research Council of Zimbabwe MRCZ/B/1201.

Pilot study

A pilot study was conducted at Old Mutare Hospital to test the effectiveness of the data collection tool. On average it took five minutes and below to answer the questions and the tool was shown to be effective.

Sampling and data collection

Self-administered questionnaires were developed in English and translated into the local language (Shona). A pilot study was carried out among women attending antenatal care at Old Mutare hospital. All targeted women were informed of their right to decline participation and needed to give their full informed concern

upon participation. To minimize non-response and measurement errors, interviewers were trained to ask questions in a sensitive and non-judgmental manner in settings with adequate privacy. Interviewers were not to counsel the participants against use of alternative medicines. No remunerations were given for participation.

Data processing and analysis

After retrieval, data were recorded in to Microsoft excel and saved electronically with restricted accessibility to legible persons only through the use of privacy codes and passwords. In place of participants' names, generated codes were used for confidentiality sake. Collected data were entered on a Microsoft Excel 2007 spreadsheet for statistical operations like calculation of totals, means, and proportions and for the construction of tables, graphs and charts. Epi Info version 3.5.4 was used for data analysis. Chi-square tests were performed to test the significance of association, and level of significance set at 0.05% ($P < 0.05$).

Health service utilization

Women were asked about the number of pregnancies they had, and if they had ever had miscarriages or stillbirths. Another, important question was if they had any kind of illness during their pregnancy and what action they took in response to the illness. This was to find their health seeking behaviour pattern. They had to provide information concerning their first reporting to antenatal clinic and the number of children they had, providing information about the mode of delivery in the previous pregnancies. On the use of traditional medicine, women were asked, if they have used traditional medicine during their pregnancy, if the answer was yes, then, they had to provide the stage of pregnancy at which they used traditional medicine, dosage, method of administration (e.g. oral or vaginal insertion), personal perception of effectiveness and also the reason of choosing traditional medicine instead of conventional medicine. Furthermore, the women had to give the cost of the traditional medicine used and where it was found. Again of importance was where the information about the used traditional medicine was found.

Results

Demographics

A total of 343 participants from four district hospitals in the Manicaland province (Hauna, Mutambara, Nyanga and Murambinda) were enrolled. Six of the participants' information was not complete therefore declared invalid. Of the valid information, 183 (54%) admitted to use of traditional medicine, while 154 (46%) did not admit to traditional medicine use.

Table 3. Socio-Demographic details of the study participants stratified by self reported use of traditional medicine during the current or most recent pregnancy

Socio-demographic detail	Frequency n (%) (n=337)		Total
	Traditional Medicine users n= 183 (54%)	Non users n =154 (45%)	n (%)
Age			**n=337 (100%)**
18 or below	40 (66%)	21 (34%)	61
18-30	104 (51%)	102 (49%)	206
31-40	35 (54%)	30 (46%)	65
41 or older	4	1	5
Residence			**n=337 (100%)**
HD urban	14 (50%)	14 (50%)	28
LD urban	0	1	1
Peri-urban	11 (32%)	23 (68%)	34
Rural	158 (58%)	116 (42%)	274
Income			**n=323* (100%)**
>500	6	2	8
251-500	46 (69%)	22 (31%)	67
100-250	38 (40%)	56 (60%)	94
<100	53 (54%)	45 (46%)	98
Nil	13	11	24
Unsure	22 (69%)	10 (31%)	32
Education			**n=337 (100%)**
None	3	0	3
Primary	25 (42%)	34 (58%)	59
Secondary	152 (58%)	112 (42%)	264
Tertiary	3	8	11
Religion			**n=337 (100%)**
African Traditional	4	2	6
Christianity	179 (55%)	147 (45%)	326
Muslim	0	2	2
None	0	3	3

HD, High density; LD, Low density.
**Some participants were not comfortable responding to the question on household income and opted not to answer it*
%ages are not presented for frequencies n<28

Frequency of traditional medicines use in different age groups

Figure 1 shows that there was no significant statistical association to use of traditional medicine in different age groups (p = 0.129). 66% of the 61 women aged 18 and below used traditional medicine together with 54% of 65 in the age range between 31-40 years. The majority representation of 206 of which 51% used traditional medicine were in the age range 19-30 years. Only 5 of peri-menopause women were represented with 80% having used traditional medicine during their pregnancy.

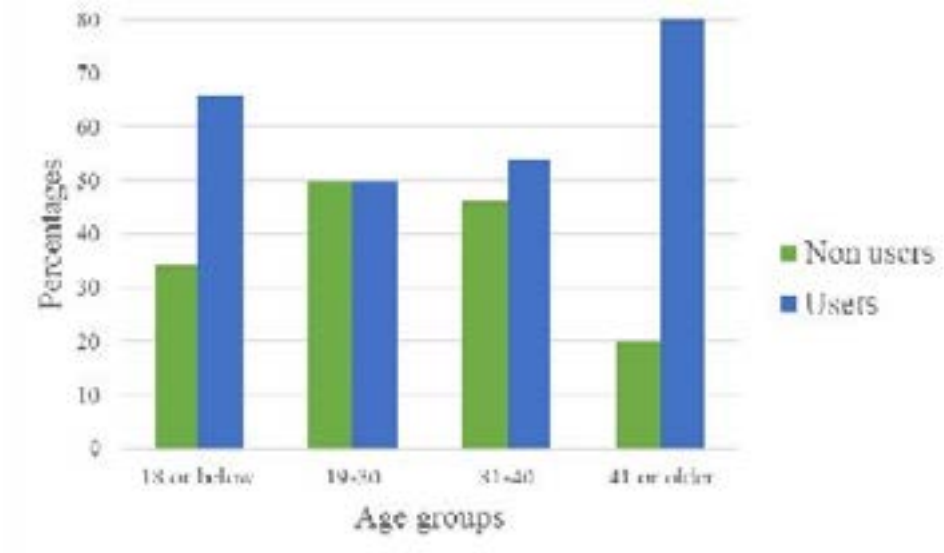

Figure 1: Traditional medicines use in different age groups

Traditional medicines use amongst different religious groups

Christianity was the common religious affiliation amongst the study participants (Fig 2). Of the 326 Christians who participated in the study 55% of them admitted to use of traditional medicine. There was no significant statistical association between use of traditional medicine and religious affiliation (p = 0.095).

Influence of residential settlement to use of traditional medicines

Most of the women under study were from rural areas (274), 58% of them used traditional medicines as advised by their mothers in law or a close relatives. 32% of the 34 women who resided in the peri-urban settlement had used alternative medicine in their pregnancy. Only 28 women under study were from high density urban area and 50% of them used traditional medicines prior to delivery. From low density urban area only 1 pregnant women who did not use traditional medicine was included. There was a significant statistical association between residential settlement and use of traditional medicine amongst women from different locations.

Traditional medicine use amongst different family incomes

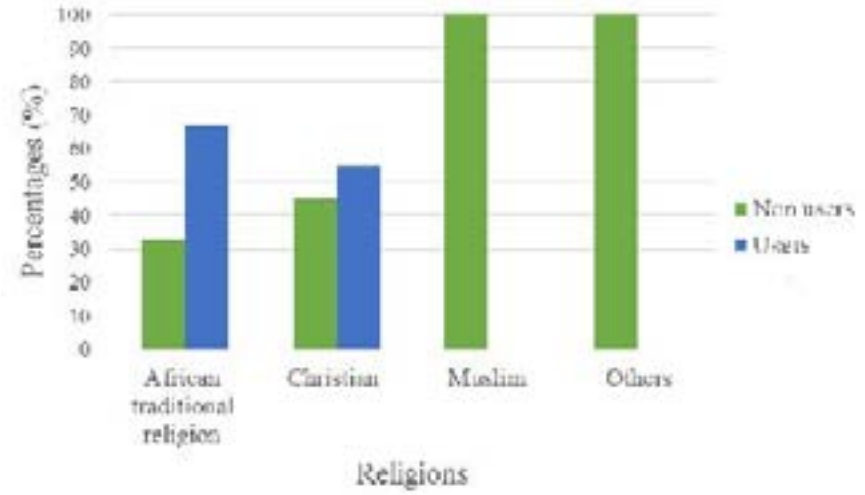

Figure 2: Association of religious affiliation to use of traditional medicines

On average the family income amongst the study participants ranged between US$100- US$500 as shown in figure 3. Using chi square, it was established that there was a highly significant statistical association between family income and use of traditional medicine (p = 0.007). Of the participants, only 8 women had a family income above US$500 and 6 of them used traditional medicine during the course of their pregnancy.

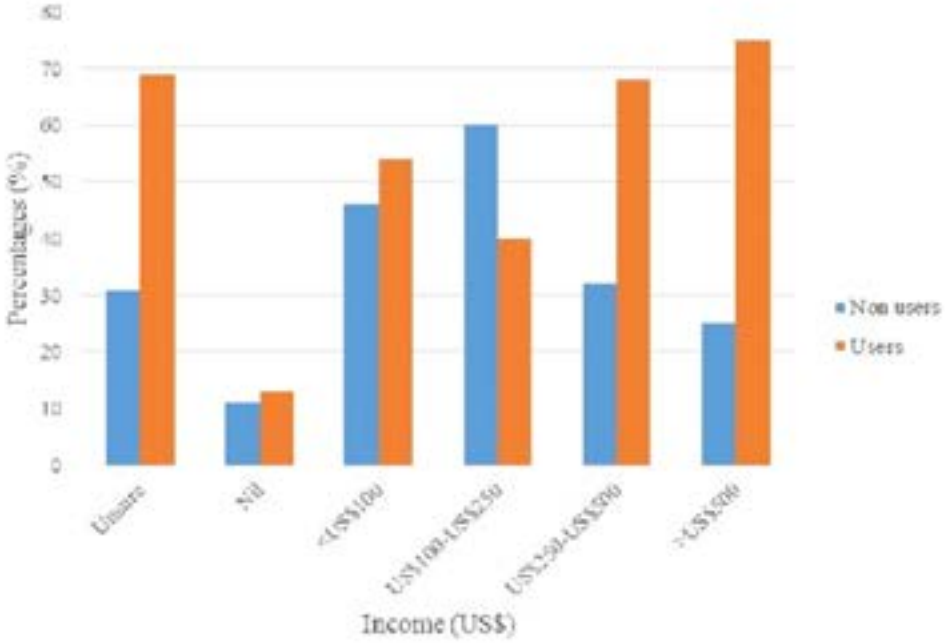

Figure 3: Frequency of traditional medicine use in different income groups

Relationship between educational background and use of traditional medicines

Figure 4 shows the relationship between educational background and traditional medicines use. The common attainable level of education amongst study participants was secondary education (264) and 58% of these women had used traditional medicine as a means of preparation for labour. The 3 illiterate women interviewed used traditional medicine to open the birth canal. There was a decline in traditional medicine use amongst the women who had completed tertiary level of education. A chi square measure showed a considerable statistically significant association between level of education and use of traditional medicine (p= 0.016)./ span>

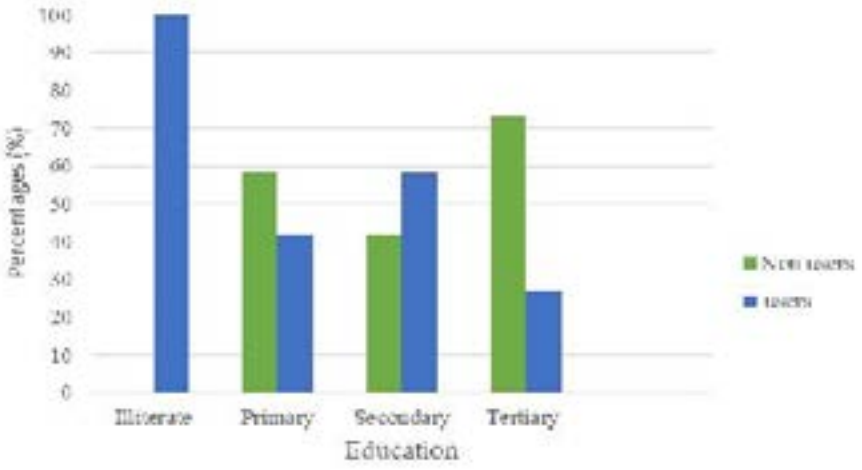

Figure 4: Frequency of traditional medicine in different educational levels

Traditional medicines use amongst pregnant women with different obstetric history

The frequency of use of traditional medicine (figure 5), was observed to be associated with previous delivery mode with a confidence level of 0.006 (P = 0.006). Of the women who used traditional medicine during their pregnancy, 69% of them had previous episiotomy. Similarly 65% of those who had had prior caesarian section showed preference for traditional medicines use. Amongst the women who had undergone long labour in their previous pregnancy, 67% of them used traditional medicines for cervical dilation to facilitate labour and delivery. On the contrary only 46% of the women who had had normal vaginal delivery in their previous pregnancies used traditional medicine in preparation for labour.

The preferred time of use of traditional medicine during the course of pregnancy was the second and third trimester for a majority of women (Figure 5).

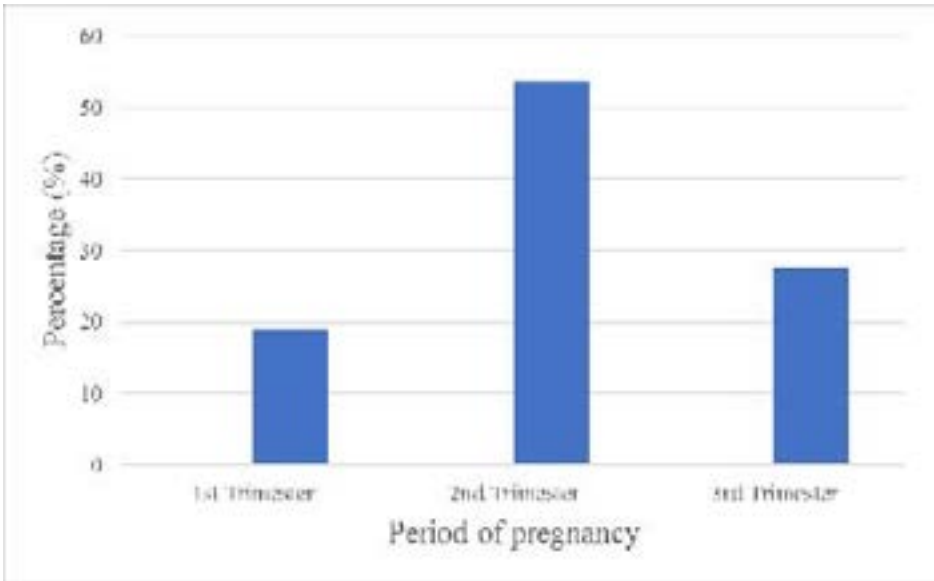

Figure 5: Period of prevalent use of traditional medicine throughout pregnancy

Fifty eight percent believed the traditional medicine they used was effective in dilating the cervical opening and shortening labour. However, the remaining 42% said it is either neutral or not effective. The idea of opting to use traditional medicines was predominantly through the advice of a relative or friend. Most of the medicine is free from local endogenous plnts, shrubs or trees. The highest cost paid was US$15 paid by 1% of the traditional medicine users. A common belief among non-users was that, traditional medicine use could harm the baby and result in abnormal development or cause cervical cancer to the pregnant women. A considerable number of non-users used holy water instead, upon the advice of their pastors or because their religious tenets did not allow use of traditional medicines.

Common traditional medicines used amongst participants

The traditional medicines were used during pregnancy to dilate the birth canal and shorten labour. The most common route of administration was oral and vaginal ablution for at least twice a day. However, there is no standardized measurement of dosage for all traditional medicines. In fact, high dosage was said to be associated with faster activity and effectiveness. In most instances, more than one type of medicine was used to effect the same purpose. Some of the common native traditional medicines used by participants' during pregnancy are the following: *Aloe* (*Gavakava* in Shona), Spirostachys africa (*Munhiti* or *Mutivoti* in Shona), Thumbergia lancifolia (*Mufurambudzi* in Shona), Dalbergiella nyasae (*Munyamhanji* or *Munyenza* in Shona), Steganotaenia oraliacea (*Mubanda* in Shona), Cussonia arborea (*mufenje* in Shona). *Camellia sinensis*, commonly known as tea, and *Stomatostemma monteiroae* are exotic trees which do not have Shona names

Discussion

Maternal health is a public health priority in many African countries, but little is known about herbal medicine use in pregnancy[10]. This study found that 54% of pregnant women used traditional medicines during the course of their pregnancies. Most of the traditional medicine products used were native shrubs, tree leaves and plants roots. However, only a few of the partici-

pants used other concoctions, like lemon, cooking oil and warm water. Nonetheless, prevalence estimates in some studies have been reported to be complicated by a lack of standardized definition of traditional medicine due to diversity of different practices outside conventional medicine[11]. However, in this case, such difficulty in classification of traditional medicine products was minimized by a narrow choice of the types of traditional medicines used by the participating pregnant women. Other forms of alternative medicine used in other research reports included acupuncture, aromatherapy, massage, yoga, homeopathy and chiropractic care[12]. None of these were part of the practice in our study participants. Traditional medicine use is not only common, in Zimbabwe, most pregnant women across the continent use alternative medicine during the course of their pregnancy. According to a meta-physical study by Adams et al[13], the prevalence of traditional medicines in 14 studies that had a sample size of ($n \geq 200$) ranged from 1 to 87 percent (with 9 falling between 20 and 60%). The major reason for disparity of frequency in the studies being due to differences of definition of complementary and alternative medicine. The most frequently used native traditional medicines during pregnancy were highlighted and to the best of our knowledge, not any of the plants mentioned have been experimentally analysed to establish their toxicity nor their therapeutic effectiveness in any scientific study.

The common mode of administration was oral with a considerable incidence of vaginal ablution. A larger percentage of pregnant women 58% considered traditional medicines more appropriate, safer and having equal or even better efficacy than prescription medicine. This is not uncommon as a study by Gaffney and Smith,[14], showed that many women expressed a greater comfort with using traditional medicine than pharmaceutical drugs. Traditional medicine products have also been considered as efficacious by Australian pregnant women[15].

The predominant referral to the use of traditional medicine in the study area was close relatives, in particular mothers in laws played a pivotal role in advising their daughters in law to use traditional medicine as a preparatory practice to labour. Friends and family also had a considerable influence and this is in agreement with other previous studies[16]. Furthermore, in a meta-physical study by Adams et al[17], 25 to 54% of the cases of pregnant women who used traditional medicine had been advised by close relatives or friends to consider use of alternative medicine.

A greater percentage of the pregnant women were aged between 19-30 years which is well within reproductive age range: half used traditional medicine during pregnancy. There was no significant association between age and use of traditional medicine ($p = 0.129$). Nonetheless, an interesting finding, was observed with women aged 41 or older, with 80% having used traditional medicine during pregnancy. According to Adams et al[17], women who are older, report more physical symptoms and are more likely to use a complementary or an alternative therapy during pregnancy. Another, remarkable, finding was that, some pregnant women reported using holy water to dispel any threat to their pregnancy as their pastors did not allow them to use traditional medicine. Most participants in our study were Christian (97%) and 55% used traditional medicine during pregnancy. There was no significant association of religion to use of traditional medicine amongst participants ($p = 0.095$). There is a lot of stigmatization around the use of traditional medicines in religious setting. In fact, the use of traditional medicines goes against most of the established religious tenets, therefore, it is common for most pregnant women with religious affiliation to lie about not using traditional medicine during their pregnancy.

In the current study, 81% of the study participants lived in rural area, of these 58% admitted to having used traditional medicine in their pregnancy. There was a decreasing trend of use of traditional medicine, from high preference of use observed in rural dwellers, to declining use in high density urban areas (50%) to only 32% peri-urban settlers having used traditional medicine. Of the few pregnant women from low density area, none used traditional medicine during pregnancy. There was indeed a significant association ($p = 0.026$) between area of settlement and use of traditional medicine. Rural pregnant women tended to be far from well-established health care service centres, hence ended up opting for alternative medicine from relatives to cut down on the cost of travel to the nearby hospital and service charges in the local hospitals. Often, traditional medicine in the rural area setting was free, because most of the traditional medicines used, are from the local native shrubs and plants that grow within reach of the locals. Most study participants had not completed secondary school as is common in most rural dwellers, due to lack of access to good schools; lack of motivation to pursue further education due to poverty and gender disparity[18]. There was a reduction of use of traditional medicine amongst pregnant women who had completed ter-

tiary level, only 27% used traditional medicines during pregnancy. This could be due to the fact that educated pregnant women were well informed of the potential negative effects of alternative medicines, driven by the concern for the safety of the baby. They tended to find more information from health practitioners on the safety of use of traditional medicine and the health care providers recommendation before they could take the initiative of using traditional medicines. On the contrary, in the study by Frawley[7], having a university education was significantly correlated with increased use of alternative medicine. The rationale behind this was that university education may imbue critical thinking, which could understandably foster informed appraisal of healthcare options outside conventional care. The reasoning could also result from the level of acceptance and formalisation of herbal medicines in their setting. This finding is also supported by the study by Bishop et al[19], which reported an increase of use of alternative medicine amongst pregnant women with relatively better family income in the study sample.

Pregnant women in the current study sample tended to use traditional medicines throughout the course of pregnancy. The use was more pronounced from the second semester, declining slightly in the last trimester. The main reasons for using traditional medicines were: preparing for a shorter and less painful labour, this was thought to be achieved by the effect of traditional medicine on cervical muscular dilation and softening. Some other reasons were to alleviate pregnancy associated back pain, lower extremities swelling (peripheral oedema) nausea and vomiting. These findings were in line with research outcomes from the reviewed literature by Adams et al[17], that alternative medicines were used consistently throughout the three trimester of pregnancy. According to Nordeng and Havnen[16], 51% of their study participants used herbal medicine on a daily basis in the second and third trimester. Preparatory medicines were often referred to as partus preparatus (labour aids), depending on the herb, these labour aids were taken anywhere from a few days to a month before the suspected due date according to Ernest[10]. In a study by Kamatenesi et al[20], medicinal plants used to speed up birth are usually taken towards the end of gestation period or at the onset of labour pains. The only deterrent to use of traditional medicine in pregnant women established from the participants were potential side effects to the baby and a threat of cervical cancer to the pregnant mother.

Conclusion

This study shows that a substantial number (54 %) of pregnant women in Zimbabwe use traditional medicine during pregnancy mostly to widen the birth canal. The use of traditional medicine extends throughout the course of pregnancy. Prime influencing factors in use of traditional medicines include previous mode of delivery, household income, level of education and residential settlement. The major reasons for alternative medicine utility were shown to be, episiotomy, long labour, or other obstetric complications in their previous delivery. Young women in their first pregnancies tended to use partus preparators as well. These results form a basis for further studies on the relationship between the use of traditional medicines during pregnancy and the high levels of maternal morbidity and mortality.

Conflict of interest

None to declare.

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