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Original Research

The Prevalence and Pattern of Traditional Herbal Medicine Use during Pregnancy, Labour, and Postpartum: Implications for Prevention of Mother to Child Transmission of HIV in South Africa

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Abstract

The use of traditional herbal medicines (THM) is widespread among pregnant women in many African societies. Cultural beliefs and social norms largely influence the use of THM. However, its use during pregnancy is not freely discussed during antenatal care and the extent of its use remains unknown. The aim of the study was to determine the prevalence and pattern of THM use during pregnancy, labour, and post-delivery. The study was a quantitative cross-sectional design using a researcher administered questionnaire. Postnatal women enrolled in the prevention of mother to child transmission of HIV (PMTCT) were recruited from healthcare facilities in a rural South African sub-district. Summary and inferential statistics were computed using STATA 14.0 statistical package. The sample consisted of 399 women with mean age of 28 years. A high proportion (158/42.5) were receiving antiretroviral treatment. The prevalence of THM use was 23% and 76/87.4% took THM in the second trimester of pregnancy, 50/57.5% used THM throughout pregnancy, and 27/60% ingested THM when labour started. The majority (50/58.1%) used one type of THM and 35/41.5% used up to four types. The prevalence of THM use on babies was 44%, 82/54.2% were introduced to THM before three months, and 22/14.2% within their first week of life. A third 52/32.3% of babies received more than one concoction of herbal medicines. The women took THM to protect mother and baby from evil spirits as well as to increase labour pains and shorten the duration of labour. The use of THM on the baby was despite the women being enrolled in the PMTCT program which advocates exclusive breastfeeding (EBF) in the first six months. Mixed feeding practices including the use of THM on the baby before the end of the period of EBF have a negative impact on the elimination of vertical transmission of HIV.

Keywords: Cultural practices; Traditional herbal medicines; Pregnant women; Primary health facilities; Postnatal care; South Africa

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Introduction

The widespread use of traditional herbal medicines (THMs) and other traditional practices are entrenched or deeply rooted in the thinking and way of lives of the African society [1,2]. The World Health Organization (WHO) estimates that in Africa up to 80% of the world population use herbal medicines irrespective of widespread availability of modern medicines [3]. Herbal medicines are seen as being safe, more effective, accessible, and cheaper [1,4-7]. This explains the preferential use of herbal medicine during pregnancy, labour, and child rearing in developed and developing countries of the world [1,2,8].

WHO defines traditional medicine as the health practice, approach, knowledge and beliefs incorporating plants, animals and mineral-based medicines, spiritual therapies, manual techniques, and exercises applied singularly or in combination to treat, diagnose and prevent illnesses or maintain the well-being of the person. Herbal medicine, which is part of traditional medicine, is defined as plant-derived material or preparations perceived to have therapeutic benefits; it often contains raw or processed ingredients from one or more plants [3]. Herbal medicines include herbs, herbal materials, herbal preparations, and finished herbal products that contain parts of plants or other plant material as active ingredients [3].

The practice of traditional herbal medicine (THM) is the first line of consultation. Frequently, when a woman is pregnant, traditional healers, spiritual diviners, and herbalists are being consulted [9,10]. In most African societies, cultural beliefs and social norms largely influence the use of THM [1,2,11,12]. The overall prevalence of herbal medicine among pregnant women shows pockets of use in different countries, with most users being in urban areas [8,13-15]. There are currently no large countrywide sample studies to measure the extent of THM use. In South Africa, a study done in the province of Kwa-Zulu Natal found prevalence of 55% [16], while in Zimbabwe, the prevalence was 90% [2], and in Kenya, a prevalence of 12% was reported [17].

During pregnancy, THM is used to protect the pregnancy and the child from witchcraft and to maintain the pregnancy to term [9,15,18,19]. While there are many types of THMs, many countries in sub-Saharan Africa (SSA) have similar uses of THMs. In South Africa, THMs are tailored for the specific time of pregnancy. The time of commencing the use of THMs ranges from before pregnancy to the third trimester and during labour. Most commonly, the traditional herbal concoctions are used in the later stage of pregnancy as a protective tonic against witchcraft, to maintain pregnancy, to induce labour, and to accelerate a quick painless labour [15,18,19]. Although different traditional herbal concoctions are popular among the different ethnic groups in South Africa, all are used to speed up labour. They aggravate labour contractions after ingestion [2,13,20]

WHO announced the initiative to integrate the safe and effective use of TM into health care systems as early as the year 2000 [21]. However, there is evidence that the practice of using THM during pregnancy and labour is not free-

ly discussed in health care settings. In addition, data on the safety of THM use during pregnancy is unknown [22]. Health care workers (HCWs) have a low level of awareness of the use of THM during pregnancy as well [23]. Women do not disclose or very few disclose their use of THM to the HCWs [8,10,17,22,24,25]. On the other hand, HCWs do not enquire about the use of THM in antenatal care (ANC) [23]. The non-disclosure of the use of THM has a negative impact on the delivery of safe maternal health services, since evidence suggests that its use poses a risk to mother and child.

Research has documented complications or risks related to the usage of THM such as high frequency of fetal distress, caesarean sections related to strong continuous contractions, uterine rupture, and teratogenic effects on the new born infant [15,16,26-28]. Researchers have associated THM with increased caesarean sections performed for fetal distress [2,8,15,28]. The intake of THM at the onset of labour may contribute to maternal complications observed during obstetric care since the toxicity of the substances are unknown [27]. Lastly, the intake of THM during pregnancy among women on antiretroviral therapy (ART) can alter the efficacy of the treatment and render the unborn baby or new born baby at risk of HIV transmission [22].

Herbal medicine use during pregnancy is quite common across SSA [29] as is the case among pregnant women accessing primary health facilities in Thembisile Hani Sub-district. The sub district is predominantly rural, and cultural beliefs and practices are embedded in the community's belief system; thus, the use of THM is very common. However, consistent with other African countries in SSA [30], there is lack of empirical research to document the practice of THM use during pregnancy and labour. In response to this lack of data, the study determined the prevalence and pattern of THM use during pregnancy, labour, and post-delivery by women enrolled in prevention of mother to child transmission of HIV (PMTCT) care in the district. A secondary objective of the study was to investigate the use of herbal and complementary medicines on the babies during the exclusive breastfeeding period. It is important that HCWs are familiar with the THMs commonly used in the communities that they serve in order to advise pregnant women to ensure safe clinical care [5,22,23]. Mothupi [17] argues that the high use of public health facilities for ANC presents an opportunity to discuss the use of THM with women while attending ANC or during delivery.

Materials and Methods

Study design and setting

The study was a cross-sectional survey conducted among postnatal women in health facilities in a sub-district of Mpumalanga Province, South Africa. Data were collected from November 2017 to January 2018. There are seven primary health care (PHC) facilities, 13 eight-hour clinics, and a level one hospital in the sub-district. The area is predominantly rural with 57 villages and adjacent farms, which are serviced by nine ward based outreach teams. All the seven PHC facilities were included in the survey. These are

24-hour centres providing mother and child services including deliveries and well-baby clinic. The facilities serve an estimated population of 310 458 people, the majority of whom are from disadvantaged backgrounds, with 46% of households being mostly headed by females. The study population included mothers of babies from six weeks to six months, who were enrolled in the PMTCT program, and attended the well-baby clinic services. Approximately 6000 postnatal women utilise the well-baby clinic per annum.

Sampling

The study used a convenient sampling technique to select participants from the health facilities. Convenient sampling was deemed appropriate because of the number of mothers who meet the inclusion criteria present in the health facilities on a daily basis. Based on a population of 6 000, the required sample size was determined using Raosoft sample size calculator [4]. The software takes into consideration the population size, a 5% margin of error, a 95% confidence level, and a 50% response distribution. As a result, the sample size was calculated to be 399 postnatal women. The participants were consecutively recruited in each health facility until the intended sample size was met. There was no intention to proportionately allocate the total sample size to the selected health facilities since the numbers present during data collection varied per facility.

Data collection

A structured pretested questionnaire, developed after reviewing the literature [5,20], was administered by the lead author and research assistants experienced in administering surveys. The questionnaire was in English and the local languages (IsiNdebele and IsiZulu), and was pre-tested on 20 randomly selected postnatal women from the health facilities. Based on the results, a few questions were rephrased and data from the pilot were excluded from the final analysis. The questionnaire captured information on socio-demographic characteristics, obstetric history, and ANC, mode of delivery, pattern of THM use, types of THM used, and use of herbal and complementary medicines on baby. The questionnaires were completed in a private room allocated for the research by the facilities. In facilities were there was lack of space, the research assistant used gazebos to administer the tool. Informed consent was obtained prior to completion of the questionnaire; the informed consent forms were available in the local languages. Data collection lasted for three months.

Data analysis

All statistical analyses were performed using the STATA 14.0 statistical package. Descriptive statistics was used to generate frequencies of categorical variables and to summarise categorical statistics variables. Variables such as age, marital status, and employment status were analysed using descriptive statistics and presented as frequency tables. Univariate logistic regression was used to analyse the statistical significant of association of selected dependent variables with the outcome variables. Odds ratio (OR) with a 95% confidence interval were

computed to show the strength of associations. For all analyses, p values < 0.05 were considered as statistically significant.

Ethical clearance

Ethical approval of the study was granted by the Sefako Makgatho Health Sciences University Research and Ethics Committee (SMU-REC/H/160/2016: PG). The Mpumalanga Province Research Committee and the sub-district and facility managers also granted permission to conduct the study in the selected health facilities. The participants gave written consent before the interviews. The questionnaire was completed in a private room and the information collected was recorded anonymously.

Results

Description of study participants

Table 1 presents the characteristics of the study participants segregated by the use of THM. Of the 398 participants in the study, all of them were postnatal women enrolled in the PMTCT program. A significant proportion (42.5%) had been receiving ART during ANC and labour. Their ages ranged from 15-48 years (mean age of 28 years), and the majority (45.3%) were distributed in the age group of 26-35 which is regarded as the child bearing age. With regard to marital status, the majority (77.9%) were single, 45.4% had completed the 12th Grade, and only 9% had tertiary education. Most (76%) were unemployed and were recipients of the child social grant.

In South Africa, pregnant women are encouraged to initiate ANC early, preferably before twelve weeks. The aim is to initiate ART early for those with an HIV positive test result. ANC attendance was categorised as before 12 weeks, before 20 weeks, and after 20 weeks. A higher proportion (39%) booked for ANC before twelve weeks, but 16.5% booked after twenty weeks, which is regarded as a late booking. A small proportion (7.2%) did not attended antenatal classes but presented to the health facility for delivery. Slightly over two-thirds (61.7%) were pregnant for the second to the fourth time. The results indicated that only age category was associated with the use of THM (OR = 3.4, 95% CI: 1.77-6.65, p = 0.000).

Table 1. Socio-demographic characteristics and obstetric history by herbal medicine use

Variables	All	Traditional herbal medicine use		p value
		No (n = 307)	Yes (n = 90)	
Age category 15-25 26-35 36-45	 157 (39.6) 180 (45.3) 60 (15.1)	 130 (42.4) 142 (46.3) 35 (11.4	 27 (30) 38 (42.2) 25 (27.8	0.000
Marital status Single Married	 309 (77.8) 88 (22.2)	 239 (77.9) 68 (22.2)	 70 (77.8) 20 (22.2)	0.988
Education status Primary education Secondary education Completed Grade 12 Tertiary education	 7 (1.8) 175 (44.1) 179 (45.1) 36 (9.1)	 4 (1.3) 139 (45.3) 137 (44.6) 27 (8.8)	 3 (3.3) 36 (40) 42 (46.7) 9 (10)	0.764

Employment status Employed Unemployed	94 (23.7) 302 (76.3)	70 (22.9) 236 (77.1)	24 (26.7) 66 (73.3)	0.458
Number of times pregnant Once Twice More than twice	152 (38.3) 222 (55.9 23 (5.8)	123 (40.1) 164 (53.4) 20 (6.5)	29 (32.2) 58 (64.4) 3 (3.3)	0.502
Antenatal visits Before 12 weeks Before 20 weeks After 20 weeks Did not attend	151 (38.8) 146 (37.5) 64 (16.5) 28 (7.2)	119 (39.7) 106 (35.3) 53 (17.7) 22 (7.3)	32 (36) 40 (44.9) 11 (12.4) 6 (6.7)	0.370
Received ART No Yes	214 (57.5) 158 (42.5)	164 (56.9) 124 (43.1)	50 (59.5) 34 (40.5)	0.674

Use of herbal medicine

Of the 90 women who took THM, the majority (76/87.4%) of them started using THM in the second trimester of pregnancy, while only a small proportion (11/12.6%) did so in the first trimester of pregnancy. Concerning the number of herbal medicine concoctions, the majority (50/58.1%) used only one type while the rest (35/41.5) used between two and four types of THM. Over half (50/57.5%) reported to have used THM continuously until labour started. Of the 45 women who indicated to have used THM during labour, 27 (60%) did so when labour started and the majority 27(79.4%) used only one type of THM (Table 2).

Table 2. Pattern of herbal medicine use during pregnancy, delivery, and post delivery

Responses	Frequency	Percent
Used herbal medicine during pregnancy		
No	307	77
Yes	90	22.8
Time of ingesting herbal medicine		
First trimester	11	12.6
Second trimester	76	87.4
Number of types of herbal medicine used (n = 85)		
One type	50	58.1
Two types	18	21
Three types	15	17.4
Four types	2	2.3
Used herbal medicine until labour started (n = 87)		
No	37	42.5
Yes	50	57.5
Waited for labour to start before taking herbal medicines (n = 45)		
No	18	40.9
Yes	26	59.1

Number of types of herbal medicine used during labour (n = 34)		
Used one type	27	79.4
Used two types	5	14.7
Continued taking herbal medicine after delivery (n = 86)		
No	36	41.9
Yes	50	58.1

Reasons for taking herbal medicines during labour

Table 3 present the reasons provided by the participants for taking THM during labour. They indicated that they ingested THM mostly to reduce labour pains (26%) and the duration of labour (25.5%).

Table 3. Reasons for taking herbal medicines during labour (n = 50)

Responses	Frequency	Percent
For cleansing the uterus	5	7.8
For spiritual purposes	2	3.1
Protection from witchcraft and evil spirits	16	25
To reduce labour pains	17	26.6
To reduce labour time	13	20.3
Other	7	10.9

*Participants had the option of selecting more than one answer

Table 4. The use of traditional herbal medicine on the baby and the initiated period

Variable	Frequency	Percentage
Traditional herbal use on the baby (n = 371) No Yes	 206 165	 55.5 44.5
Number of types of herbal meds given to the baby One type Two types Three types Four types	 104 25 18 9	 66.7 16.0 11.5 5.8
Age of introducing herbal medicine to the baby Within one week Within one months Within two months Three months Above three months	 22 28 34 43 28	 14.2 18.1 21.9 27.2 18.1

Use of herbal medicine with baby

All the participants irrespective of their use of THM during pregnancy and labour were asked about giving the newborn baby THM. High proportion (44%) indicated that their babies ingested THM and complementary medicine. Over half (54.2%) introduced THM to their babies before three months, and of these babies, (14.2%) were introduced to THM within the first week of their lives. Over a third (32.3%) gave their babies more than one concoction of herbal medicines.

Discussion

The study was conducted in a rural setting where cultural practices are the pride of the community and traditional health practitioners are sought for various reasons prior to consulting the health facilities. The results indicated that women in health facilities in Thembisile Hani sub-district used THMs during pregnancy and labour. The mean age of the women was 28 years, three quarters of them were unemployed, and the majority (77.9%) were single. In South Africa, the prevalence of marriage among women of childbearing has been reported to be exceptionally low, particularly among Black women. This was attributed to the declining status of marriage as the most common type of relationship for family formation [31]. About one quarter (23%) of the women used various types of THM and spiritual medicines during pregnancy, labour, and post-delivery. Of note is that over two-thirds (62.6%) of them reportedly paid for the THMs which suggest that the notion that people use THM because it is free was not the main reason for its use. The prevalence of THM use of 23% observed in the study is similar to the prevalence reported in Tanzania [32], but higher than the prevalence of 12% reported in an urban setting in Kenya [17]. However, the prevalence was lower than the 55% reported in Kwa-Zulu Natal in South Africa almost two decades ago [16]. The results suggest that the prevalence of THM use among pregnant women in South Africa might have changed given the introduction of ART during pregnancy.

Of those who used herbal medicines, the majority (87.4%) took THMs in the second trimester of pregnancy; while about 12.6% did so during their first month of pregnancy. An Ethiopian study found that almost half (48.6%) of the women started to use THMs in the third trimester of pregnancy [14] which suggests late introduction of herbal medicine in pregnancy. THM taken during the third trimester is commonly used to prepare the uterus for labour and ease child delivery [25,33,34]. However, in the current study most of the women used it throughout all trimesters of pregnancy to protect the mother and unborn child from evil spirits. In contrast, in Ghana two-thirds (62.5%) of the women used THM in their first trimester [35]. The use of THM during pregnancy has detrimental effects on the development of the baby and alters the normal process of labour [2,14,16,17].

It is worrying that, although almost half (44%) of the women were living with HIV and on ART, 40.5% of them used THMs during pregnancy and labour and a proportion used herbal medicines on their babies. Concomitant consumption of THMs and conventional drugs by pregnant

women has been documented in other studies [25,36,37]. The potential interactions of THM with conventional drugs can lead to unknown impacts on the fetus or cause severe complications to the mother [22]. Even though the study did not find significant association between those on ART and herbal medicines use, stakeholders of the PMTCT program need to look into this practice. Mixed feeding practices including the use of herbal medicines on the baby before the end of the period of exclusive breastfeeding have a negative impact on the elimination of vertical transmission of HIV [38].

The pattern of THM use was also concerning, as about two-thirds (59.1%) of the women ingested herbal medicines when labour started. Whereas the majority (50/58.1%) used only one type of THM, a high proportion (41.5%) used a concoction of between two and four types of herbal medicines. Research has noted that this practice commonly results in precipitated labour and its complications of fetal distress, which has been associated with a high rate of performance of caesarean sections [2,8,15]. The study further established that 57.5% of the women used THMs continuously until labour started, which is of great concern in terms of the pregnancy outcome. Consistent with prior studies, the women took herbal medicines for protection from witchcraft and evil spirits, to increase labour pains, and shorten the duration of labour [2,5,13,14]. The study further noted that half (50.1%) have used herbal medicines after delivery.

The study also discovered the use of various types of herbal medicines on babies. A high proportion (44%) indicated that their babies ingested liquid traditional herbal and complementary medicines, and about 14.2% of the babies were introduced to herbal medicine within the first week of their lives. Half (49.6%) of the women introduced herbal medicines to their babies between two and three months. The majority (66.7%) of them gave their babies one type of herbal medicine; while 32.3% gave their babies more than one concoction of herbal and complementary medicines. Similar practices were observed in other provinces of South Africa [10]. A high proportion of the babies were introduced to herbal medicines within three months of their lives despite the fact that half of the women in the study were living with HIV and were receiving ART. Prior South African studies found that women who were single, unemployed, and living in extended households were likely to introduce herbal medicines early in the life of the babies [39,40].

While the introduction of herbal medicine to the baby increases the baby's risk of HIV infection or transmission from the mother, nearly half (43.4%) of the women believed that herbal medicine protects the baby from witchcraft and bad spirits. Similar findings were reported in other studies [1,10,14,19,28,40]. In addition, the women in this study, as in others, performed traditional rituals soon after arrival at home from the health facility to ward off evil spirits [10,13,20,39].

The study found an association between herbal medicine use and the mothers' age. Those aged between 36-48 years were over three times more likely to use THM during pregnancy and labour

than other age groups. Nordeng et al. [18] argue that those between the ages of 26-35 years old have a higher knowledge of herbal drugs and are more likely to use them. In contrast, other researchers reported that the majority of women who used herbal medicines during pregnancy and labour were less than 30 years old, and of low education and socioeconomic status [33,41]. Young women are mostly influenced by their mothers to use THM during pregnancy and labour [2,8,14]. We did not find an association between herbal medicine use and other sociodemographic and obstetric factors.

Limitations

One limitation of this study was that it was conducted in a rural district and that does not allow us to generalize the results to all pregnant women. Secondly, some of the women might have provided socially desirable responses because they were aware that the use of THMs during pregnancy and labour was discouraged by health care providers. There is also a possibility of recall bias on the timing and pattern of herbal medicines use. These might have resulted in under reporting of the use of herbal medicines. To address the potential sources of bias, the fieldworkers were not linked to the health facilities and the participants were assured of anonymity of the data. Although we observed disruption of exclusive breastfeeding by using herbal medicines for some of the babies, the study did not investigate the significance of the disruptions.

Conclusions

The study found that about one quarter of the women used herbal medicines during pregnancy, labour, and post-delivery. In addition, a high proportion (44%) used herbal and complementary substances on the babies. We found that women aged between 36-48 years were over three times more likely to use herbal medicines compared to women in other age groups. Health care providers need to question pregnant women routinely on whether they use any THM and other complementary medicines during their ANC. It is imperative that HCWs educate women about the possible harm THM can cause to the unborn baby.

Conflict of Interests

None.

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