OPEN ACCESS

GAVIN PUBLISHERS

Research Article

Self-Medication During First Trimester among Pregnant Women Attending Antenatal Care Clinic at a District Hospital in Mwanza, North-western Tanzania

Deogratias M Katabalo[1*], Debora N Robert[2], Stanley Mwita[1], Winfrida V Minja[1], Shadya Abbas[3], Karoli J Marwa[2]

[1]Department of Pharmaceutics and Pharmacy practice, School of pharmacy, Catholic University of health and allied sciences, P O Box 1464 Mwanza, Tanzania

[2]Department of Pharmacology, School of Medicine, Catholic University of health and allied sciences, P O Box 1464 Mwanza, Tanzania

[3]Ministry of health, social development, gender, elderly and children, Mwanza College of Health and Allied Sciences, P O Box 476 Mwanza, Tanzania

[*]**Corresponding author:** Deogratias M Katabalo, Department of Pharmaceutics and Pharmacy practice, School of pharmacy, Catholic University of health and allied sciences, P O Box 1464 Mwanza, Tanzania.

Abstract

Background: Self-medication with conventional and/or herbal medicines is an important public health concern, especially to a delicate group of pregnant women due to its harmful and potential risks to mother and foetus. Awareness to its detrimental effects is influenced by social demographic factors and is highly related to its practice. This study determined the general knowledge, practice and common factors for self-medication among pregnant women attending antenatal clinic at Sengerema designated district hospital.

Method: A hospital based descriptive cross-sectional study was conducted using a semi structured questionnaire in which a sample of 381 pregnant women on their first trimester of pregnancy was enrolled through convenient sampling. Data were analysed using STATA version 13 (TX: StataCorp LLC). Continuous variables were presented as frequencies, percentages and proportions while categorical variables were presented in charts, graphs and figures. Logistic regression analysis was performed to determine the factors associated with self medications.

Results: The overall proportion of self-medication practice was found to be 289(75.9%) whereby 146(38.3%) and 143(37.5%) did self-medication with conventional and herbal medicines respectively. Prior experience with the medicine and better knowledge on disease and treatment were common reasons for self medication reported by 178(61.6%) and 152(52.6%) pregnant women respectively. On the other hand, Malaria, headache and morning sickness (nausea and vomiting) were the leading ailments treated by self-medication as reported by 93(32.2%), 72(24.9%) and 68(23.5%) proportions of women respectively. Marital status, occupation, Level of education, parity was significantly associated with self-medication with conventional medicines (p-value < 0.01) while residence, occupation and level of education were associated with self-medication with herbal medicines

(p-value <0.01). Furthermore this study found that participants had no adequate knowledge on the medication they were using as well as harmful effects of self-medication during first trimester of pregnancy.

Conclusion: The practice of self-medication during first trimester was highly common among women attending district hospital. Majority of them had no adequate knowledge on the detrimental effects of this practice posing a potential risk to them and to the foetus they are carrying.

Keywords: Designated District hospital; First trimester; Self-medication; Tanzania

Abbreviations: **ALU:** Artemether Lumefantrine; **ANC:** Antenatal Care; **BMC:** Bugando Medical Centre; **CUHAS:** Catholic University of Health and Allied Sciences; **CM:** Conventional medicine; **DDH:** Designated District Hospital; **DMO:** District Medical Officer; **HM:** Herbal medicine; **NHIF:** National Health Insurance Fund; **SM:** Self-Medication; **UTI:** Urinary Tract Infection

Introduction

Self-medication (SM) is the act of medicating oneself without advice of physician or health care professional [1]. Basically, it is a practice of taking drugs, herbs or home remedies on one's own initiative or the advice of another person (relatives, friends) without consulting the doctor [2]. Because Pregnancy is a special period of physiological changes to the mother and foetus and is associated with related symptoms, it is advisable to take great precaution before using any medication to alleviate these symptoms. Usually medications are taken to alleviate headache, dizziness, nausea and vomiting which are more common during first trimesters. But even simple, known usual medication can have detrimental effects to mother and or the unborn child if taken without prior advice, recommendation and advice of the healthcare professional [3]. Self-medication is a problem leading to incorrect use of medicine [4]. A study done in Ethiopia reported that the prevalence of self-medication among pregnant women was high globally as it was estimated to be 22-44% in developed countries and 85% in resource-limited settings particularly in Africa [5]. This is because; there is a traditional practice of treating symptoms initially by self-medication then consulting health care personnel when symptoms persist. In these countries most retail drug shops are easily accessible and serve as the first line of contact for treatment where conventional medicines are obtained for self-medication use. Use of herbal drugs is commonly practiced in developing countries and is a major form self-medication, it is a part of cultural practices in Africa due to easy availability, accessibility, and affordability of various herbs believed to be useful treatments [6]. Various studies have indicated that, the use of herbal and or conventional medicines for self-medication during pregnancy, may not be safe for the foetus [7]. It is associated with risks such as drug-drug interactions, incorrect dose or excessive dosage and prolonged duration of use which may lead to short or long term toxicity effects [8].

In Tanzania, particularly among women attending district hospital, information about their behaviour of self-medication during first trimester is scant. There is observable structural and functional effects on foetus related to drug exposure during pregnancy most of which are developmental delay, low birth weight, intellectual disabilities, birth defects and still birth [9]. Furthermore self-medication is associated with miscarriage, premature delivery and maternal death on a pregnant woman [10]. Thus, pregnant women's knowledge on the use of medications influence their practice, having adequate knowledge helps them to make proper decision of consulting health care professional. This study aimed at determining the proportional of pregnant women on their first trimester who practice self-medication, their general knowledge and most common factors leading to self-medication for women attending antenatal clinic at a district hospital in Tanzania.

Materials and methods

Study area and design

The study was conducted at Sengerema Designated District Hospital (DDH) in Sengerema district of Mwanza located in Lake Zone north western region of Tanzania. Sengerema District has an estimated average population of 663,034 according to 2012 census [11]. Sengerema DDH provides health care services to the district population and the surrounding areas. There are different wards and clinics within the hospital, and Antenatal Clinic (ANC) services being one of services provided. The hospital provides services to 50-60 pregnant women per day. Hence provides health services to approximately 21,600 pregnant women each year. This study was an institution based cross-sectional descriptive study to determine the general knowledge, practice and common factors on self-medication during first trimester among pregnant women attending ANC at Sengerema DDH from April to May 2021.

Data collection

A semi-structured administered questionnaire was used. The questionnaire was prepared in English language which included all relevant variables then was translated into Swahili language. Variables were socio-demographic data, obstetrics characteristics of pregnant women, practice of self-medication, knowledge on

self-medication, and common factors leading to self-medication.

Data analysis Procedures

The data management was done by using statistical software, firstly the data were entered into Microsoft excel 2019 for cleaning and coding, then was transferred to STATA version 13 (TX: StataCorp LLC) for analysis. Univariate variables were presented in frequency distribution tables in frequency and percentages, proportions and measures of central tendency. Cross tabulation was used to present multivariate variables. The chi-square and fissures exact were used to show association between variables and p value less than 0.05 was considered statistical significant.

Variables and definition

The assessed dependent variables were, practice of self-medication, General knowledge on the issue of self-medication and most common factors influencing self-medication during first trimester of pregnancy. In this study, practice of self medication was defined as the use of herbal and or conventional medicinal agent through own will without advice or directive from health care professional. Also it could be by advice from a friend or relative and this must have been happened anytime during the first three months of pregnancy. General knowledge was defined as having prior awareness or understanding of the detrimental effects of using medicines during first trimester of pregnancy, Common factors is any reason influencing someone to practice self-medication during first trimester of pregnancy. Independent variables were age, marital status, parity, level of education and occupation.

Ethical approval

The ethical clearance was sought from the joint CUHAS-BMC Research and Ethical review committee and granted certificate no 1847/2021. Further Permission to conduct a study was requested and approval letter was issued by the District medical officer (DMO) of Sengerema district. Participants voluntarily agreed to be recruited into the study by signing a written informed consent. The aims and purposes of the study were fully elaborated before they were enrolled. The data of participants were kept anonymous by using codes and were not accessed by anyone outside the study. The filled questionnaires were and are still kept in a locked cabinet by the study investigator.

Results

Demographic Characteristics

A total of 381 consented pregnant women and were enrolled to participate in the study, Majority 257(67.5%) were in the aged group of 18-28 years, married 306(80.3%), business women 135(35.4%), had primary education 273(71.6%) and 211(55.4%)

were from urban areas. Detailed information on demographic characteristics is given in table 1.

Characteristics	Frequency	Percentage (%)
Age (Years)		
18-28	257	67.4
29-39	168	30.5
>39	8	2.1
Marital status		
Married	306	80.3
Single	74	19.4
Widowed	1	0.3
Occupation		
Business	135	35.4
Employed	30	7.9
Housewife	111	29.1
Peasant	84	22.1
Unemployed	21	5.5
Level of education		
Incomplete primary education		
No formal education	18	4.7
Primary education	10	2.6
Secondary education	273	71.7
University of college level	65	17.1
	15	3.9
Residence		
Rural	170	44.6
Urban	211	55.4

Table 1: Demographic characteristics (N=381).

Obstetric Characteristics

When assessing obstetric history of the participants, it was found that; 325(85.3%) pregnant women had less than five gravid, 242 (63.5%) had less than five children, 113(29.7%) were on their first pregnancy, 31(8.1%) had previous bad obstetric history of miscarriage and 1(0.3%) had a premature baby. All respondents were in their first trimester Table 2.

Variable	Characteristic	Frequency	Percent (%)
Gestational age	First trimester	381	100
Gravidity	Below 5	325	85.3
	Above 5	56	14.7
Parity	No child	113	29.7
	Below 5	242	63.5
	Above 5	26	6.8
Bad obstetric history	Miscarriage	31	8.2
	Premature delivery	1	0.3
	None	349	91.6

Table 2: Obstetric characteristics of the participants.
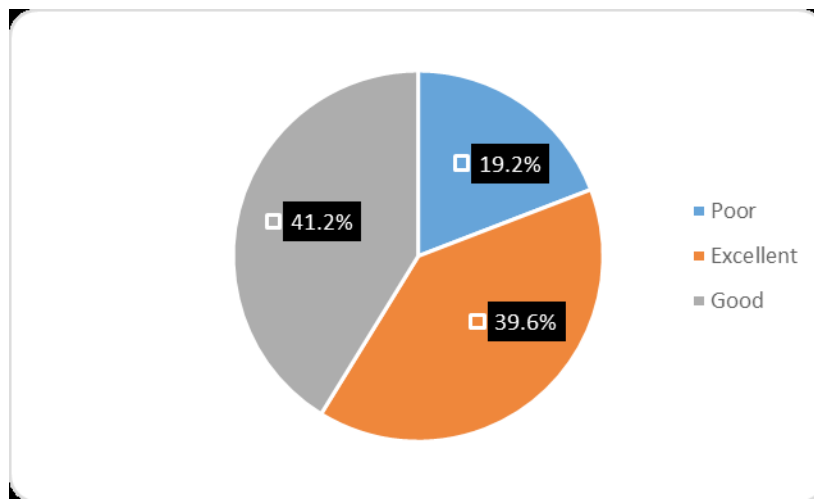
Knowledge of pregnant women on Self-Medication

In this study, Majority of participants 311(81.6%) had sufficient knowledge of self-medication and reported they had practiced it before and during current pregnancy. Also; they were aware that using some medications may lead to harmful effects to the mother and to the unborn child. It was also found that, 64(16.8%) responded believed that, there is no medicine which cause harmful effects when used during pregnancy and only 6(1.6%) did have no any idea. When assessing their knowledge on the stages of pregnancy, it was found that, majority of the participants 296(77.7%) knew that, there are three different trimesters of pregnancy while 85(22.3%) had no idea.

Moreover, majority of participants 207(54.3%) had no knowledge on medications which are not supposed to be used during first trimester while 165(43.3%) knew some medications which can be used during first trimester. Generally, their knowledge was good (Figure 1) as most pregnant women responded to most of the questions correctly except for only one question "Do you know that, there are medications which are not supposed to be used by pregnant women during first trimester" which few 151(39.6%) got it right (Table 3).

Statements	Frequency	Percentage (%)
Do you know that, there are three trimesters of pregnancy?		
Yes	296	77.7
No	72	18.9
I don't know	13	3.4
Do you know that, there are medications which may cause harmful effects to mother and unborn child during first trimester?		
Yes	311	81.6
No	64	16.8
I don't know	6	1.6
Do you know that, there are medications which are not supposed to be used by pregnant women during first trimester?		
Yes	165	43.3
No	207	54.3
I don't know	9	2.4

Which antimalaria agents do you use for self-medication		
When you feel/confirm you have malaria?		
SP	268	70.3
Artemether Lumefantrine (ALU)	112	29.4
Quinine	1	0.3

Table 3: Response of participants on assessment of knowledge of self-medication.

Figure 1: Pie chart showing overall knowledge of pregnant women on self-medication.

The practice of self-medication and stated reasons

It was found that, 143(37.5%) practiced self-medication using conventional medicines. The most common medicines used were Anti-malarias 98(32.5%), Analgesics 75(24.8%), Anti-emetics 71(23.5%), Antibiotics 49(16.2%) and cough and cold remedies 9(3%). The users reported to have gotten information about their use from other pregnant women 128(50.6%), friends 36(14.2%), neighbours 32(12.6%), their husbands 20(7.9%) and Pharmacists/Druggist 10(4%) and other health professionals 27(10.7%). Interestingly, majority of them 342(89.8%) reported to have never read the accompanied drug information leaflet. When participants were asked to give the reasons to why they practiced self-medication, most of them gave the following reasons; having prior experience with the medicine 110(46.6%), having better knowledge on disease and treatment 94(39.8%), easy availability of the medicine 25(10.6%) and saving time by avoiding hospital procedures 5(2.1%). Furthermore participants reported to have used these medicines mostly to treat Malaria 98(32.3%), Headache 75(24.8%), Morning sickness (nausea and vomiting) 71(23.4%) and others shown in the table 4.

Furthermore, 146(38.3%) of the pregnant women reported to have practiced self-medication using herbal medicine. Common types were mixture of herbs 108(58.4%), Ginger 65(35.1%), Garlic 12(6.5%). These herbal medicines were commonly used to treat Stomach pain 85(35.3%), Morning sickness (nausea and vomiting) 81(33.6%), Prevent miscarriage 31(12.9%), Urinary Tract Infections 24(10%), Flu 15(6.2%) and Headache 5(2.1%). Nevertheless 64(44.8%) of the pregnant women used both conventional and herbal medicines for self-medication.

Characteristic	Variable	Frequency	Percentage (%)
Reasons of self-medication	Easily available	25	10.6
	Time saving	5	2.1
	Better knowledge on disease and treatment	94	39.8

	Had Prior experience on the drug	110	46.6
	No or limited time to go to hospital	1	0.4
	Did lab test and bought medicine	1	0.4
Common ailments leading to self-medication	Malaria	98	32,3
	Cough and colds	8	2.6
	Urinary Tract infections	34	11.2
	Morning sickness (Nausea and vomiting)	71	23.4
	Headache	75	24.8
	Typhoid	17	5.6
Common drugs used for self-medication	Antiemetics	71	23.5
	Antimalaria	98	32.5
	Analgesics	75	24.8
	Antibiotics	49	16.2
	Cough and cold remedies	9	3
Source of information about medicine used	Myself	128	50.6
	Friends	36	14.2
	My husbands	20	7.9
	Neighbours	32	12.6
	Pharmacist/Druggist	10	4
	Other health professionals	27	10.7

Table 4: Table showing practice of self-medication among pregnant women.

Factors associated with self-medication

Self-medication practice among pregnant women during first trimester for Conventional Medicines were found to be significantly associated with Marital status, Occupation, Level of education and parity (p<0.01) as shown in the table 5. Other factors, Age, Residence, Gravidity, Gestational age and Gravidity were not significantly associated with self-medication. Furthermore, self-medication using Herbal Medicines was found to be significantly associated with occupation, level of education and parity (p<0.05).

Variable	Yes	No	Chi square	p-value
Marital status				
Married	104 (34%)	202 (66%)		
Single	39 (52.7%)	35 (47.3%)	9.5	<0.01
Widowed	0 (0%)	1 (100%)		
Occupation				
Business	36 (26.7%)	99 (73.3%)		
Employed	9 (30.0%)	21 (70.0%)		
Housewife	54 (48.7%)	57 (51.3%)	14.6	<0.01

Peasant	34 (40.5%)	50 (59.5%)		
Unemployed	10 (47.4%)	11 (52.4)		
Level of education				
Incomplete primary education	14 (77.8%)	4 (22.2%)		
No formal education	6 (60.0%)	4 (40.0%)		
Primary education	97 (35.5%)	176 (64.5%)	15.9	<0.01
University education	21 (32.3%)	44 (67.7%)		
	5 (33.3%)	10 (66.7%)		
Parity				
No child	58 (51.3%)	55 (68.7%)		
Below 5	82 (33.9%)	160 (66.1%)	20.9	0.04
Above 5	23 (88.5%)	3 (11.5%)		

Table 5: Common factors associated with self-medication among pregnant women.

Discussion

There are vast evidences that some drug may harm the pregnant mother, the foetus or both. A lot of these evidences come from referral hospitals in urban centres [12], our study involved 381 attending the lower level of health care facilities delivering services to women from rural areas. In this study, 143(37.5%) pregnant women practiced self-medication. This percentage is low compared to similar study done in Mwanza city which showed 46.24% [13]. It is also low to other studies done in similar environment in Gondar, Northwest Ethiopia (44.8%)(5), Bukavu, Eastern DR Congo(61.3%)(3) but higher to a Systematic review and meta-analysis (32%) [14], done by Mohseni M et al and another study which was done in North East Ethiopia(26.9%) [15]. The reasons are probably the difference in methodology and difference in cultural practice among different areas. However this percentage is still very high and measures should be taken to address this problem.

The findings revealed that the common ailments were Malaria, Morning Sickness (nausea and vomiting), Headache and Urinary tract infection. Malaria is still an endemic disease in our region and most areas in Africa [16]. Because of its prevalence majority are practicing SM due to being aware of its symptoms following continuous awareness campaigns but also to avoid hospital contact time, hospital expenses, and improved access to ant malaria medicines; these has lead to majority of women to continue with self-medication practice even during pregnancies [17]. Morning Sickness (nausea and vomiting) is common in first trimester of pregnancy hence women may self-medicate to relieve it. This is a main reason antiemetics was found to be the second

group of medicines highly used for self-medication followed by analgesics and antibiotics [18]. This was in agreement with the study done in Mwanza [13], probably because it's the same geographical areas with similar health challenges. The major common reasons stated for self-medication were prior experience of the drug and better knowledge on disease and treatment which is in agreement with a study done in Ethiopia [19]. This is misleading and dangerous because a drug may be safe to use before pregnancy while contraindicated during pregnancy, hence women should be educated on this. Also, pregnant women themselves were source of information for using drugs on self-medication, followed by friends, Neighbours, Other health professionals, their husbands and Pharmacists/Druggists [20]. This was similar to a study in North East Ethiopia by Tuha et al. [15]. Pregnant women being the source of information themselves calls upon Pharmacists/Druggists to be more accessible to provide guidance on drug use especially during pregnancy together with other health professionals at the antenatal clinics [21].

Self-medication with herbal medications was also high 146(38.3%),this was similar to other studies done in other parts of Africa [13,22]. Commonly used herbs were mixture of herbs which participants didn't know the names, ginger and garlic. Mostly were for Stomach pain, Vomiting and nausea, to prevent miscarriage, UTI, Flu and Headache. Use of herbal drugs is common in African communities but may be not safe during pregnancy because they are not standardized for dose, frequency and duration and may lead to complications or harmful effects and most complications happen during delivery as it was reported by nurses at the Antenatal Clinic [23]. This study found, there was

a significant relationship between marital status, Occupation, Level of education, parity and self-medication. Most pregnant women, who had secondary education, primary or lower (never completed primary school) education practiced self-medication, may be due to not having optimum knowledge on the importance of consultation or attend the hospital [24]. Those with college or university level were unlikely to practice self-medication. Also, housewives, peasants, small business women and casual labourers (unemployed) were likely to practice self-medication than the employed this may be due to economic reasons, because the low incomes they are earning make it difficult for them to afford expenses of hospitals consultations. Nonetheless unemployed do not have health insurance as they are not eligible whereby majority or nearly all employed women are under National Health Insurance Fund (NHIF) which cater for their health needs hence increase their access to health care facilities. This was similar to a study done in Mwanza[13], which suggested the influence of health insurance. Parity had influence on self-medication practice, most pregnant women who were on their first pregnancy were found to be likely to practice self-medication than those who had children [20]. This may be due to lack of experience on the pregnancy symptoms hence treating them as emanating from other diseases. Self-medication using herbal medicines was associated with occupation, level of education and residence. Peasants, housewives and those with low education level were likely to use herbal medicines whereby those living in rural areas were more likely to practice self-medication using herbal medicines. This may be due to easy accessibility of the herbal drugs in rural areas or being far with the hospital.

This study showed that, most women understood self-medication and could tell what it was. Those who had good and excellent knowledge were not likely to practice self-medication because they knew and when asked stated that, it leads to harmful effects to mother and foetus. This is in contrast to a study done in Malang, Indonesia where pregnant women with high knowledge were more likely to practice self-medication [25].Also some women still didn't know the indication and contraindication of anti-malarias like ALU during first trimester and reported to use them without any doubt or fear. There is a need for pharmacist to be available at the clinic to give education to pregnant women on the indication and contraindication of medicine during pregnancy.

Conclusion

This study found self-medication practiced among pregnant women during first trimester was high for both conventional medicines and herbal medicines. However, a slightly higher practice was of herbal medicines than conventional medicines. Marital status, occupation, level of education and parity were common factors leading to self-medication with CM while Occupation, level of education and residence were common factors

for self-medication with HM. The overall general knowledge was good but still many of pregnant women were not aware of which medications are indicated or contraindicated during first trimester of pregnancy.

Declarations

Ethics approval and consent to participate

Ethical permission was sought from the Joint CUHAS/BMC research ethics and review committee and granted permission (no: 1847/2021) to conduct the study. Permission was requested from the district medical officer at the Sengerema district council and granted letter of permission to conduct the study. Data collection in the study was voluntary prior to requesting for permission and respondents signing a written consent form before the interview. The purpose of the study was elaborated to the participants and the confidentiality of the information was kept. The data were coded to maintain anonymity throughout data analysis.

Competing interests

The authors declare that they have no competing interests.

Funding

The study has no external funding. All operational costs were met by the authors.

Availability of data and materials.

The datasets for this study are available can be accessed on request from the corresponding author on reasonable request.

Authors' contribution

DMK, DNR, SM, and KJM designed the study. DNR, WM and SA collected data. DMK drafted the manuscript, and then all authors critically reviewed it, and provided final approval for publication.

References

1. Staff M-W. (2004) Merriam-Webster's collegiate dictionary. Merriam-Webster.

2. Hernandez-Juyol M, Job-Quesada J. (2002) Dentistry and self-medication: a current challenge. Med Oral Organo Of Soc Espanola Med Oral Acad Iberoam Patol Med Bucal. 7: 344-347.

3. Mbarambara PM, Songa PB, Wansubi LM, Mututa PM, Minga BBK, et al. (2016) Self-medication practice among pregnant women attending antenatal care at health centers in Bukavu, Eastern DR Congo. Int J Innov Appl Stud. 16: 38.

4. Asseray N, Ballereau F, Trombert-Paviot B, Bouget J, Foucher N, et al. (2013) Frequency and severity of adverse drug reactions due to self-medication: a cross-sectional multicentre survey in emergency departments. Drug Saf. 36: 1159-1168.

5. Sema FD, Addis DG, Melese EA, Nassa DD, Kifle ZD. (2020) Prevalence and Associated Factors of Self-Medication among Pregnant Women on Antenatal Care Follow-Up at University of Gondar Comprehensive Specialized Hospital in Gondar, Northwest Ethiopia: A Cross-Sectional Study. Int J Reprod Med.

6. Shankar P, Partha P, Shenoy N. (2002) Self-medication and non-doctor prescription practices in Pokhara valley, Western Nepal: a questionnaire-based study. BMC Fam Pract. 3: 1-7.

7. Moussally K, Bérard A. (2012) Exposure to specific herbal products during pregnancy and the risk of low birth weight. Altern Ther Health Med. 18.

8. Hughes CM, McElnay JC, Fleming GF. (2001) Benefits and risks of self-medication. Drug Saf. 24:1027-1037.

9. Liao S, Luo B, Feng X, Yin Y, Yang Y, Jing W. (2015) Substance use and self-medication during pregnancy and associations with socio-demographic data: a cross-sectional survey. Int J Nurs Sci 2: 28-33.

10. Nakhai-Pour HR, Broy P, Sheehy O, Bérard A. (2011) Use of nonaspirin nonsteroidal anti-inflammatory drugs during pregnancy and the risk of spontaneous abortion. Cmaj. 183: 1713-1720.

11. Mbangala B, Samzugi A. (2014) The role of telecentres in Tanzania's rural development. A case study of Sengerema District Council, Mwanza Region. Libr Philos Pract.

12. Rahmani A, Hamanajm SA, Fallahi A, Ghanei Gheshlagh R, Dalvand S. (2019) Prevalence of self-medication among pregnant Women: A systematic review and meta-analysis. Nurs Midwifery Stud. 8: 169-175.

13. Marwa KJ, Njalika A, Ruganuza D, Katabalo D, Kamugisha E. (2018) Self-medication among pregnant women attending antenatal clinic at Makongoro health centre in Mwanza, Tanzania: a challenge to health systems. BMC Pregnancy Childbirth. 18: 1-8.

14. Mohseni M, Azami-Aghdash S, Sheyklo SG, Moosavi A, et al. (2018) Prevalence and reasons of self-medication in pregnant women: a systematic review and meta-analysis. Int J Community Based Nurs Midwifery. 6: 272.

15. Tuha A, Faris AG, Mohammed SA, Gobezie MY. (2020) Self-Medication and Associated Factors Among Pregnant Women Attending Antenatal Care at Kemisie General Hospital, North East Ethiopia. Patient Prefer Adherence. 14: 1969.

16. Athokpam D. (2017) Common Ailments of Pregnancy and their Management. Int J Nurs Educ Res. 5: 115–9.

17. Alba S, Hetzel MW, Goodman C, Dillip A, Liana J, Mshinda H, et al. (2010) Improvements in access to malaria treatment in Tanzania after switch to artemisinin combination therapy and the introduction of accredited drug dispensing outlets-a provider perspective. Malar J. 9: 164.

18. Rashmi S, Bhuvneshvar K, Ujala V. (2006) Drug utilization pattern during pregnancy in North India. Indian J Med Sci. 60: 277-287.

19. Zewdie T, Azale T, Shimeka A, Lakew AM. (2018) Self-medication during pregnancy and associated factors among pregnant women in Goba town, southeast Ethiopia: a community based cross sectional study. BMC Res Notes. 11:1-6.

20. Atmadani RN, Nkoka O, Yunita SL, Chen Y-H. (2020) Self-medication and knowledge among pregnant women attending primary healthcare services in Malang, Indonesia: a cross-sectional study. BMC Pregnancy Childbirth. 20:1-11.

21. Samuel N, Einarson A. (2011) Medication management during pregnancy: role of the pharmacist. Int J Clin Pharm. 33: 882-885.

22. Yusuff KB, Omarusehe L-D. (2011) Determinants of self medication practices among pregnant women in Ibadan, Nigeria. Int J Clin Pharm. 33: 868-875.

23. Holst L, Wright D, Haavik S, Nordeng H. (2009) The use and the user of herbal remedies during pregnancy. J Altern Complement Med. 15:787-792.

24. Alsous MM, I. Al-Azzam S, Nusair MB, Alnahar SA, Obeidat NA. (2021) Self-medication among pregnant women attending outpatients' clinics in northern Jordan-a cross-sectional study. Pharmacol Res Perspect. 9: e00735.

25. Atmadani RN, Nkoka O, Yunita SL, Chen Y-H. (2020) Self-medication and knowledge among pregnant women attending primary healthcare services in Malang, Indonesia: a cross-sectional study. BMC Pregnancy Childbirth. 20: 1-11.