Self-medication in Pregnancy and Associated Factors among Antenatal Patients of a Tertiary Facility in North-Eastern Nigeria

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Summary

BACKGROUND

Self-medication during pregnancy is common. Some drugs could cause severe adverse effects that are sometimes life-threatening and harm pregnant mothers and fetuses. We evaluated the prevalence of self-medication and associated factors among pregnant women receiving care in a specialist hospital in Bauchi, North-eastern Nigeria.

MATERIALS AND METHODS

This was a cross-sectional study of 400 pregnant women recruited using systematic random sampling. Data were collected between October and December 2020. A structured questionnaire was employed to investigate sociodemographic characteristics, the magnitude of self-medication in pregnancy, the reasons for this practice, common drugs used, and factors associated with the practice among antenatal care attendees of the hospital. The collected data were analyzed using the Statistical Package for Social Sciences (SPSS) Version 26, where chi-square was utilized to determine the relationship between variables.

RESULTS

Overall, 40% of pregnant women practised self-medication during pregnancy. The common reasons for self-medication were lower cost, availability/easy access, and the thought that the illness was minor. The common drugs used were paracetamol and other analgesic drugs, antacids/anti-ulcer, anti-malaria, and Cough/Cold mixture. Age, occupation, gravidity, and the number of antenatal visits associated with self-medication.

CONCLUSION

There was a high prevalence of self-medication among the participants. Also, drugs for such practice were cheap, readily available, and accessible, whereas frequent antenatal care attendance discourages self-medication practice in pregnancy. Laws to guide the sale and distribution of drugs should be made while existing ones are enforced.

Keywords: *Pregnancy, Self-medication, Bauchi, Determinants, Antenatal*

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Introduction

Pregnancy is still a health risk, with various medical and physiological issues that make using drugs to relieve pregnancy-related discomfort inevitable in some cases [1,2]. Since the thalidomide crisis in the 1960s and the discovery of diethylstilboestrol's teratogenicity in 1971, medication use in pregnancy has been a source of worry [3,4]. Between the late 1950s and early 1960s, thalidomide was extensively utilized as a therapeutic agent for nausea in pregnancy [5]. It was, however, discovered to result in severe congenital disabilities, especially phocomelia, among several children and was banned in 1961 by many countries [5]. Diethylstilboestrol (DES) was prescribed to pregnant women to avert abortions in the 1940s to 1960s [6]. Beginning in 1971, children with in-utero exposure to DES were found to have later pregnancy, neonatal loss, and cancer of the reproductive organs [6,7]. The Food and Drug Administration (FDA) classifies only a few medications as category A or B (suggesting the absence of risk to the unborn baby). In contrast, the majority are classified as category C (suggesting proof of possible gains exceeding possible threats to the fetus) or category D or X (suggesting proof of fetal threat) [8].

Self-medication is utilizing drugs on one's initiative to manage self-diagnosed diseases or symptoms [9]. Self-medication in pregnancy has been on the rise globally and is widespread across the globe, particularly in underdeveloped countries [10,11]. However, its type, scope, and motivations differ [9]. In early pregnancy, about half of all pregnant women utilize drugs [12], and over 65 per cent of pregnant women self-medicate with over-the-counter (OTC) drugs [13]. The disparity in the magnitude of self-medication between developed and under-developed Nations is a result of socioeconomic and cultural variation, differences in medication dispensing ethics and health service management, as well as the accessibility of health services [14]. The situation in underdeveloped nations such as Nigeria is especially frightening because of easy access to medicines, ineffective health policies, and inefficient control of drugs, ultimately increasing the risk of self-medication during pregnancy [1,9,15].

As identified in previous studies, various items are linked with self-medication in pregnancy. These include earnings, educational background, age, profession, drug accessibility, time, risk awareness of self-medication, prior drug use, and pregnancy stage [16–18]. Others include poverty, deficient medical services, unawareness, and excessive advertisements of pharmaceuticals [19–21]. Self-medication may result in various structural and functional defects in the unborn baby and affect the mother's health [22–25]. Despite not being a direct cause, maternal mortality could result from the consequences of self-medication [14].

It is common to find drug vendors and patent medicine stores in North-eastern Nigeria receiving much patronage from the inhabitants, including pregnant women. The drugs are presented without any prescription, and most attending staff in these pharmacies lack formal training on drugs. They grant the requests of their pregnant customers without consideration for the likely consequences of their actions. This practice is encouraged by the availability and accessibility of patent medicine stores.

Because self-medication constitutes a possible threat to both the mother and the fetus, it is crucial to learn more about its pattern and the factors that influence it during pregnancy. As a result, the purpose of this study was to evaluate the magnitude of self-medication among pregnant women receiving antenatal care at a specialist hospital in Bauchi, North-Eastern Nigeria, as well as its contributing factors. The findings of this study will contribute to establishing health education campaigns to help

women better understand how to manage difficulties that lead to medication use during pregnancy. It will also be necessary to develop personalized measures to enhance medication safety in pregnancy for both the mother's and the fetus's benefit.

Materials and Methods

Study design

The study was conducted in the antenatal clinic of Specialist Hospital Bauchi, North-eastern Nigeria, between October and December 2020. The hospital is located in the Bauchi Local Government of Bauchi State, Nigeria. Specialist hospital Bauchi is a tertiary healthcare facility within the Bauchi metropolis. Antenatal care booking is on Mondays, while Wednesdays and Fridays are for antenatal clinic revisits by the booked clients. The antenatal care attendees per month range from 350-450.

It was a hospital-based descriptive cross-sectional study. The study population was all pregnant women attending ante-natal care at the specialist hospital in Bauchi.

Sample size and sampling method

The sample size was determined using the formula $n = z^2pq/d^2$ [26]. A prevalence of self-medication in pregnancy of 62.9% [27] was used to arrive at 359. The sample size was modified using a 90% expected response rate to account for missing or incomplete data, resulting in an adjusted sample size of 399. As a result, 400 participants were chosen as the final sample size.

Systematic random sampling was used to select participants. Using the expected 400 antenatal visits per month, we anticipated 1200 antenatal attendees during the three months duration of the study. With a sample size of 400, the sampling interval was 1200/400=3. As a result, every third pregnant woman at the antenatal clinic was included in the study until the required sample size (400) was met.

Pregnant women aged 18 years and above who presented at the antenatal clinic for booking or antenatal care and consented were included. In contrast, those who presented with severe illness or were in labour and those with significant psychiatric problems were excluded.

Ethical considerations

The Bauchi State Health Research Ethics Committee granted the study ethical permission, protocol registration number BSMOH/REC/42/2020 and approval number NREC/03/11/19B/2020/45.

Data collection and analysis

Data was collected using a pretested, interviewer-administered, semi-structured questionnaire. The questionnaire consisted of four sections, each containing responses to sociodemographic characteristics, obstetric and gynaecological history, self-medication practice in pregnancy, reasons for self-medication and drugs for self-medication.

The data was sorted, coded, and entered into the computer for analysis using SPSS Version 26 software. Frequency, percentages, mean, and standard deviations were used as descriptive statistics, whereas chi-square was used to determine the relationship between variables. The significance level for this study was established at 5% ($p<0.05$).

Results

Sociodemographic characteristics

This study involved 400 pregnant women with a 100% response rate. The mean age of participants was 26.72 years (SD±5.95), with an age range of 18 to 47 years. Two-thirds of the respondents, 264 (66%), were in the age group 21-30years. Most respondents were Muslims, Hausa/Fulani, and married, representing 92%, 72%, and 98%, respectively. An equal proportion of participants, 204 (51%), had secondary education and were homemakers, while the

highest proportion, 156 (39%), earned below ₦5,000 monthly (Table 1).

Obstetric and gynaecological characteristics

About one-fifth of the women, 84 (21%), was prim gravida, with most respondents, 156 (39%), having parity of 2 to 4. Around a quarter, 104 (26%) of the women reported having a previous miscarriage, with the majority, 276 (69%), in their third trimester of pregnancy and attending second to fourth antenatal visits 228 (57%) (Table 2).

Self-medication practice

Among 400 participants, 156 (39%) practised self-medication in the current pregnancy. Of the 316 women with gravida two and above, 124 (39.2%) practised self-medication during a previous pregnancy.

Table 1:
Sociodemographic characteristics of respondents (N=400)

Socio-Demography	Group	No of respondents	Percentage
Age (years)	≤ 20	64	16.0
	21-30	264	66.0
	31-40	60	15.0
	41-50	12	3.0
Religion	Christianity	32	8.0
	Islam	368	92.0
Ethnic Group	Hausa/Fulani	288	72.0
	Igbo	8	2.0
	Jarawa	32	8.0
	Kanuri	16	4.0
	Sayawa	8	2.0
	Yoruba	12	3.0
	Others	36	9.0
Marital Status	Single	4	1.0
	Married	392	98.0
	Widowed	4	1.0
Family type	Monogamy	292	73.0
	Polygamy	108	27.0
Education Level	No formal education	44	11.0
	Primary	40	10.0
	Secondary	204	51.0
	Tertiary	112	28.0
Occupation	Housewife	204	51.0
	Trading	96	24.0
	Farming	4	1.0
	Schooling	32	8.0
	Civil servant	20	5.0
	Artisan	20	5.0
	Unemployed	24	6.0
Monthly Income	≤5,000	156	39.0
	5,001-10,000	76	19.0
	10,001-20,000	68	17.0
	20,001-40,000	24	6.0
	>40,000	76	19.0

No, Number

In contrast, two-fifths of 160 (40%) participants practiced it in previous or current pregnancy (Table 3). Of these 160 respondents who practice self-medication in pregnancy, the highest proportion of them, 112 (70%), reported the lower cost of self-medication as the reason for the practice, followed by availability/easy access to the drug 104 (65%). In contrast, a minor proportion of respondents reported a lack of time, 28 (17.5%) (Table 4). Among 160 women that practiced self-medication, paracetamol and other analgesic drugs were reported to be used by 124 (77.5%), while antibiotics were used by 8 (5%) (Table 5).

Factors associated with self-medication in pregnancy

Table 6 reveals that age, occupation, gravidity, and the number of antenatal visits all had a statistically significant association with self-medication during pregnancy.

Table 2:
Obstetric and Gynaecological Characteristics of Respondents

Variable	Group	No of respondents	Percentage
Gravidity	Primigravida	84	21.0
	Gravida 2-4	204	51.0
	Gravida 5-7	76	19.0
	Gravida ≥ 8	36	9.0
Parity	Para 0 to 1	176	44.0
	Para 2-4	156	39.0
	Para ≥ 5	68	17.0
Previous Miscarriage	Yes	104	26.0
	No	296	74.0
Trimester	First	20	5.0
	Second	104	26.0
	Third	276	69.0
No of ANC visits	First	156	39.0
	2-4	228	57.0
	≥5	16	4.0

No, Number; ANC, Antenatal care

Table 3:
Prevalence of Self-Medication in Pregnancy

Variables	Response	Number of respondents	Percentage	Valid percentage
Practice Self-Medication in Previous Pregnancy	Yes	124	31.0	39.2
	No	192	48.0	60.8
	Not applicable (Primigravida)	84	21.0	
Self-Medication in Current Pregnancy	Yes	156	39.0	
	No	244	61.0	
Self-Medication in Previous or Current Pregnancy	Yes	160	40.0	
	No	240	60.0	

When compared to other age groups, being in the 41-50 year age group (66.7%) is linked to self-medication during pregnancy, and this link was statistically significant (p<0.001). In addition, when compared to other jobs, a significantly higher proportion of trading participants (62.5%) practiced self-medication (p<0.001). Self-medication was related to respondents' gravidity (p=0.005), with a higher proportion of individuals having their eighth or higher pregnancy (55.6%) practicing it than those with lower gravidity. Respondents' number of antenatal visits was also connected with their use of self-medication, with a higher proportion (48.7%) of those having their first antenatal visit practicing self-medication than those having subsequent antenatal appointments (p<0.001).

Table 4:
Reasons for Self-Medication in Pregnancy (N=160)

Reason for Self-Medication	Response	No of respondents	Percentage
Knowledge of the disease and its treatment	Yes	64	40
	No	96	60
Previous use of medication for same ailment	Yes	48	30
	No	132	70
Minor ailment	Yes	68	42.5
	No	92	57.5
Cost Less	Yes	112	70
	No	48	30
Lack of time	Yes	28	17.5
	No	132	82.5
Availability/Easy access to the drug	Yes	104	65.0
	No	56	35.0

No, Number

Table 5:
Common Drugs Used for Self-medication in Pregnancy (N=160)

Drug/Drug Group	Response	Number of respondents	Percentages
PCM/Analgesics	Used	124	77.5
	Not used	36	22.5
Haematinics	Used	16	10.0
	Not used	144	90.0
Antibiotics	Used	8	5.0
	Not used	152	95.0
Anti-malaria	Used	48	30.0
	Not used	112	70.0
Anti-emetics	Used	28	17.5
	Not used	132	82.5
Antacids/Anti-ulcer	Used	56	35.0
	Not used	104	65.0
Cough/Cold mixture	Used	44	27.5
	Not used	116	72.5

PCM, Paracetamol

Discussion

Participants in this study ranged in age from 18 to 47 years old, with a mean age of 26.72 (SD±5.95). Those in the age group 21-30 (66.0%) dominated those in other age groups. This conforms to Ebrahimi's finding that pregnant women in Iran were, on average, 26.33±4.60 years old [28]. It is also similar to Yusuf's figure of 27.53years in Ibadan [17], and the majority (46.9%) of pregnant women attending antenatal in Jos were between the ages of 20 and 28 [27]. Most of the respondents (98%) were married, similar to the result from the Nigerian city of Jos-North, where 97.1% were married [27]. Most of our respondents (92.0%) declared Islam their religion.

Table 6: Association of selected variables with self-medication practice in pregnancy

Variables	Group	Self- Medicate	Do Not Self-Medicate	x^2	P
Age	≤ 20	12 (18.8)	52 (71.2)		
	21-30	124 (47.0)	140 (53.0)		
	31-40	16 (26.7)	44 (73.3)		
	41-50	8 (66.7)	4 (33.3)	25.385	<0.001*
Religion	Christianity	8 (25)	24 (75)		
	Islam	152 (41.3)	216 (58.7)	3.261	0.071
Education	No education	20 (45.5)	24 (54.5)		
	Primary	16 (40)	24 (60)		
	Secondary	84 (41.2)	120 (58.8)		
	Tertiary	40 (35.7)	72 (64.3)	1.520	0.678
Occupation	Housewife	76 (37.3)	128 (62.7)		
	Trading	60 (62.5)	36 (37.5)		
	Civil servant	4 (20)	16 (80)		
	Schooling	4 (12.5)	28 (87.5)		
	Unemployed	8 (33.3)	16 (66.7)		
	Artisan	8 (40)	12 (60)		
	Farming	0 (0)	4 (100)	37.418	<0.001*
Monthly income	≤ 5000	60 (38.5)	96 (61.5)		
	5000-10000	32 (42.1)	44 (57.9)		
	10000-20000	24 (35.3)	44 (64.7)		
	20000-40000	12 (50)	12 (50)		
	> 40000	32 (42.1)	44 (57.9)	2.062	0.724
Trimester	1st	8 (40)	12 (60)		
	2nd	52 (50)	52 (50)		
	3rd	100 (36.2)	176 (63.8)	5.966	0.051
Gravidity	Primigravid	24 (28.6)	60 (71.4)		
	2-5	92 (45.1)	112 (54.9)		
	5-8	24 (31.6)	52 (68.4)		
	≥ 8	20 (55.6)	16 (44.4)	12.656	0.005*
Parity	Primipara	76 (43.2)	100 (56.8)		
	para 2-4	52 (33.3)	104 (66.7)		
	≥5	32 (47.1)	36 (52.9)	5.043	0.080
Number of ANC	only 1	76 (48.7)	80 (51.3)		
	ANC 2-4	84 (36.8)	144 (63.2)		
	>4	0 (0)	16 (100)	16.554	<0.001*

ANC, Antenatal care; $\chi 2$: Chi-square; *, p value< 0.05 (Statistically Significant)

This is natural, given that Bauchi, the study's location, is in the country's northeastern area, where Islam is practised by most of the population. Nearly half of the respondents (52%) were housewives, which matches Zewdie *et al*.'s finding of 49.5% housewives in Ethiopia [14] and Atmadani's finding of 72.1% housewives in Indonesia [29]. The vast majority of those surveyed (51%) had completed high school. This is in line with data from Uyo, in southern Nigeria, where most pregnant women (43.8 %) had completed secondary education [15].

This study found that self-medication was common among pregnant women, with a prevalence of 40%, similar to studies from other Sub-Sahara African countries such as Brazzaville and Tanzania, where the prevalence was 44.26% and 46.2%, respectively [30,31]. Ethiopia [11] and Iran [32], on the other hand, reported lower figures of 25.1% and 31%, respectively, while Ghana reported a higher rate of 69% [2]. The variance could be due to disparities in pharmaceutical dispensing regulations, as well as discrepancies in study methodology and settings.

In this study, the most common reasons for self-medication were a lower cost, availability/easy access to the drug, and the idea that the illness was a minor disease, which was chosen by 70%, 65%, and 42.5% of self-medicating respondents respectively. While lack of time, previous use of medication for the same ailment, and knowledge of the disease and its treatment were the least common reasons chosen by 17.5%, 35%, and 40% of the respondents, respectively. This is similar to the findings of Beyene, who identified the following as the reasons why pregnant women practised self-medication in Addis Ababa, Ethiopia: easy drug accessibility, time-saving, medical service's excessive waiting period, perception of the trivial nature of the illness, and lower price of self-medication [9]. The finding also agrees with that of Nkrumah [2], who found the following reasons for self-medication among pregnant women in the central region of Ghana: reduced cost of treatment, simple disease condition, previous experience, and long waiting time [2]. Also, the commonly stated reasons for self-medication by pregnant women in Ibadan, southwest Nigeria, were accessibility/uncontrolled availability and far distance of the medical service centre [17].

The finding of this study is, however, in contrast to that of Jambo *et al*. They found the following as the three most typical reasons for self-medication in Ethiopia: time-saving, previous experience with the medication, and awareness of the illness and its management [33]. It is also in disagreement with that of Joseph *et al*.. They found perception of knowledge of the disease and its treatment, previous treatment for the same condition, and medication use for minor ailments as the reasons cited for self-medication among pregnant women in Jos, North-central Nigeria [27].

The easy availability of drugs without a prescription could be attributable to a lack of governmental oversight of dispensing methods and a disconnect between the pharmaceutical business and professional, ethical standards among dispensers. Low buying power and the comparatively high price of medical services in Nigeria have undoubtedly been identified as predictors of self-medication [17]. This is a critical area for action, as providing targeted financial assistance to pregnant women, primarily the unemployed, may enhance their access to healthcare services.

Paracetamol and other analgesic drugs were the most frequently used for self-medication in pregnancy, with 77.5% of respondents using them, followed by antacids/anti-ulcer, anti-malaria, and cough/cold mixture, with 35%, 30%, and 27.5% respectively of respondents using them. The least common drug for self-medication were antibiotics, hematinics, and anti-emetics, with 5%, 10%, and 17.5% of users, respectively.

This is in line with the findings of BiBintsene-Mpika *et al*. among pregnant women in Brazzaville, who reported analgesics, antibiotics, and anti-malaria as the frequently used drugs for self-medication [30]. Also, 70% of drugs used for self-medication among pregnant women in Ibadan, Southwestern Nigeria, were accounted for by paracetamol, vitamins, and hematinics [17]. Furthermore, drugs commonly used among pregnant women in Tanzania were anti-malaria, anti-emetic, and analgesics [31]. In Ethiopia, analgesics, antibiotics, and anthelmintics were the most used drugs for self-medication by pregnant women [9]. This haphazard use of paracetamol can be explained by its high availability in patent medicine stores and illicit markets and its affordability. Moreover, self-medication with anti-malaria drugs is a usual practice among residents of malaria-endemic countries like Nigeria [31].

According to the present study, the following were associated with the practice of self-medication in pregnancy: age, occupation, gravidity, and the number of antenatal visits. The finding of this study partly agrees with that of Marwa *et al* who reported a link between self-medication and educational status, occupation, and pregnancy stage among pregnant women in Tanzania [31]. BiBintsene-Mpika *et al*. found no association between self-medication in pregnancy and age, educational level, marital status, pregnancy stage, and parity in Brazzaville. However, he reported a link between practice, occupation, and education [30]. The study's findings also partially agree with those of the current investigation.

According to this study, pregnant women who had their first ANC visit were less likely to use self-medication than their counterparts who had subsequent ANC appointments. This could be because past ANC attendees had health education about using medicines during pregnancy and the effects on moms and their fetuses. The deduction is that during antenatal clinics, women were always advised to seek medical advice and not to self-medicate during pregnancy. It also implies that self-medication can be effectively limited if women are well-educated about the dangers of using medicines not recommended by doctors during ANC sessions.

Study strengths and limitations

The strength of this study includes the 100% response rate and assessment of reasons for self-medication during pregnancy in the region. This will assist in making the appropriate recommendation that will likely reduce the burden of the practice. The limitations include the use of self-reports in obtaining information on self-medication. Social desirability can give participants acceptable hospital responses, especially since the study was health facility based. Also, reporting of past self-medication practices may be affected by recall bias. These may affect the findings of this study.

Conclusion

This study revealed that 40% of pregnant women attending antenatal care in a specialist hospital in Bauchi, Nigeria practised self-medication. The common reasons for self-medication were lower cost, availability/easy access to the drug, and thought that the illness was a minor ailment. Paracetamol and other analgesic drugs, antacids/anti-ulcer, anti-malaria, and Cough/Cold mixture were the standard drugs for self-medication in pregnancy. The study participants' age, occupation, gravidity, and number of antenatal visits were associated with self-medication in pregnancy.

Recommendations

Consistent health education and counselling concerning self-medication should be provided for pregnant women during antenatal service. The print and social media involvement in awareness creation will assist the community

in knowing the dangers associated with self-medication in pregnancy. Also, women empowerment should be provided by creating employment opportunities to improve the economic status of women. Furthermore, the government should make and implement laws that will guide the sale and distribution of drugs and enforce existing ones. The present coverage of the National Health Insurance Scheme should be increased to cover all pregnant women so that the economic burden of orthodox care will be ameliorated.

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Conflict of Interest

The authors declare no conflict of interest.

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