




Article

Prevalence and Factors Influencing Self-Medication among Pregnant Women Attending Antenatal Clinics in Urban Tertiary Hospitals in Nigeria

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Abstract: Despite the adverse effects of self-medication (SM), such as antimicrobial drug resistance, drug addiction, allergy, worsening of ailment, organ damage, disability, and death, the practice is still common and increasingly practiced globally, even among pregnant women. This study investigated the prevalence and factors influencing self-medication among pregnant women attending antenatal clinics in urban tertiary hospitals in Nigeria. A facility-based cross-sectional study was carried out in two tertiary hospitals in Port Harcourt between 25 September and 24 October 2022, using an interviewer-administered questionnaire. Data were analyzed using descriptive and logistics regression techniques, and statistical significance was set at $p < 0.05$. A total of 413 respondents participated in the study. The prevalence of SM was 31.0% (95% CI = 26.7–73.3). Women who were not married and those with less than secondary education had the highest prevalence, 60.5% (95% CI = 45.1–74.0) and 51.1% (95% CI = 42.7–59.4), respectively. The common drugs used for SM were Paracetamol, antimalarials, antibiotics, cough and cold medicines, and herbal products. While the reasons for SM were emergency illness, high cost at health facilities, and distance to the health facility. The commonest illnesses/symptoms that necessitated SM included body pain, headache, fever, cold and cough, and vaginal discharge. Married women and those educated above the secondary level had lower odds of practicing SM compared to their counterparts; married (AOR = 0.37, 95% CI = 0.18–0.78) and >secondary level (AOR = 0.31, 95% CI = 0.18–0.51). This study showed that a significant proportion of pregnant women practiced SM and marital status and educational level were the factors influencing SM in the studied population. We recommend public health education and reproductive health programmes aimed at discouraging unmarried women and those with minimal education from the irrational use of drugs during pregnancy.

Keywords: self-medication; prevalence; pregnant women; antenatal clinic; risk factors

1. Introduction

Self-medication (SM) occurs when clients/patients treat themselves with self-prescribed medications or use medicines that were previously prescribed by authorized prescribers on an intermittent or continual basis to treat their disease conditions [1]. The action to make decisions without recourse to authorized health professionals, procure, and use prescription drugs without prescription or medical advice is a recognized public health problem among pregnant women world-wide [2]. This practice is widespread in the world, with a 32% estimated prevalence [3]. Self-medication is considered a major public health problem globally and has gained significant attention in research and policy formulation in the recent decades [2–6].

Globally, about 50% of pregnant women self-medicate in the early weeks of gestation [5]. Self-medication can impact the health of individuals negatively by way of toxicological and pharmacological risks associated with the improper use of medicines [6]. Self-medication may extend to prescription and herbal drugs and may be propagated by counseling or advice offered by healthcare professionals [7]. Lack of knowledge, expensive healthcare services, extensive publicity of drugs, deficiency of health-oriented services, and emergency conditions were some reasons for self-medication even among pregnant women [8,9]. Pregnancy is a dynamic process in which anatomic and physiological changes occur from fertilization to parturition [10]. Self-medication during pregnancy may trigger significant structural as well as physiological adverse effects on the woman's health and the newborn's development [11,12]. The practice of self-medication for various health or disease conditions has existed throughout history and continues to be followed globally, especially in deprived and rural communities [13].

In Africa, people use both over-the-counter and prescription drugs without supervision [3]. Pregnant women are one of the vulnerable population groups practicing these forms of self-medication [3]. To curb the dangers of self-medication, the United States Food and Drug Administration established a machinery to classify the states of medications for pregnant women and their effects on fetal development, in response to the increased prevalence of birth abnormalities caused by self-medicated drugs [14].

The prevalence of self-medication among pregnant women varies across different communities and it could be affected by several factors, including a lack of access to healthcare services, unregulated distribution of medicines, patients' attitudes toward healthcare providers, socioeconomic factors, long waiting times, cost of the drugs, education level, personal satisfaction, and belief of people toward medication and disease [9,15]. Moreover, the rational use of drugs empowers patients to be more involved in health care [16]. Specifically, self-medication reduces pressure on healthcare systems, decreases time spent by patients seeking care, and reduces costs [4]. A lot of people in low- or middle-income countries of the world have limited access to healthcare partly because of their finances or the weak health system and as a consequence are reliant on self-medication to take care of their health needs [13]. Some persons may resort to self-medication as a preventive means to stop some unhealthy habits, such as smoking or to protect themselves against heart attack [17]. Moreover, when patients are knowledgeable about their medicines and diseases, some of them resort to self-medication to reduce time spent in health facilities and cut incidental and actual costs associated with visiting a physician [16,18]. However, adequate and proper medication is only achieved when the symptoms and signs of patients are completely examined by appropriate clinicians and medicines are prescribed based on diagnoses and prescriptions filled by the pharmacist [8]. Some persons may resort to self-medication when they are faced with acute conditions, such as flu, headaches, diarrhoea, and vomiting which sometimes are acute, serious, and life-threatening [19]. In settings where human resources for health and other resources are limited, self-treatment, though not recommended, may reduce the workload on inadequate personnel [20]. The variation in self-medication among developing and developed countries may differ within and between states and neighborhoods because of cultural, socio-economic, health system disparities, and policies in drug dispensation [21].

The prevalence of SM In Nigeria is as high as 52.1% [6]. Despite the adverse effects of self-medication (SM), such as antimicrobial drug resistance, drug addiction, allergy, worsening of ailment, organ damage, disability, and death, the practice is still common and increasingly practiced globally, even among pregnant women [22,23]. This study investigated the prevalence and factors influencing self-medication among pregnant women attending antenatal clinics in urban tertiary hospitals in Nigeria.

2. Methods

2.1. Study Design and Participants

A facility-based cross-sectional study was carried out among pregnant women who attended antenatal clinics at the two tertiary hospitals in Port Harcourt, namely the Rivers State University Teaching Hospital (RSUTH) Port Harcourt and the University of Port Harcourt Teaching Hospital (UPTH). The study was carried out between September and October 2022 after ethical approval was obtained. The calculated sample size of 423 (minimum sample size of 384 plus 10% for non-response) was estimated using the Cochran formula for cross-sectional studies at a 95% confidence level, a 5% error margin, and a 50% prevalence, and purposively distributed evenly between the two tertiary hospitals. To obtain the participants in each facility, we adopted a systematic sampling technique by which every sixth antenatal attendee at the two facilities was recruited until we attained the estimated sample size. Systematic sampling was used to randomly select participants to reduce bias and obtain results that can be generalized to similar settings. The study took place in a multi-lingual city where English is the official language of instruction. However, trained interpreters were used to translate the questionnaire to some participants who could not understand English.

Vulnerable pregnant women, such as underaged girls, those with a need for care or welfare services, those with a known mental disorder or severe illnesses, and those who refused to give information about their use of medicines attending these facilities within the study period, were excluded. Underaged girls were excluded from the study because of the difficulty to obtain assent and consent from them and their guardians or parents.

2.2. Data Collection Instruments and Procedures

The researchers used an interviewer-administered questionnaire to collect data from the participants, for which approximately 80% of those interviewed participated in the survey. The questionnaire consisted of two parts: sociodemographic characteristics and the part containing questions related to the use of medicines. The sociodemographic variables were as follows: age (<25, 25–34, ≥35); marital status (not married, married); educational level (≤secondary, >secondary); employment status (unemployed, employed); religion (Christianity, Islam); monthly income in US dollars (<100, 100–200, >200); gravidity (first timer, 2–4, ≥5); trimester (first, second, third); and previous abortion/miscarriage (No, Yes). While the other part contained questions on whether the woman self-medicate or not, drugs used during pregnancy, reasons for using the drugs, and common illness/symptom that necessitated the use of the drugs. The questionnaire was developed and validated by the authors based on a previous study [6]. Moreover, the validity and reliability of the instruments was evaluated by conducting a pre-test with 10 pregnant women. Changes were made to improve the instruments' quality and those participants were not part of the study. Thereafter, Cronbach's Alpha (CA) was calculated as 0.76, suggesting better validity and reliability of the questionnaire.

2.3. Statistical Analysis

The baseline characteristics of the study participants were analyzed using descriptive statistics, such as frequencies and percentages; while a chart was used to analyze the medicines used during pregnancy, reasons for using the medicines, and common illness/symptom that necessitated the use of the medicines. The Chi-square test was used to investigate the relationship between the practice of SM and the socio-demographic

variables. The binary logistic regression model was used to determine the factors associated with SM practice. The response was binary: practiced SM vs. did not practice SM during pregnancy.

We estimated the odds ratio (OR): the crude from bivariate models and adjusted odds ratios from multivariable models together with their 95% confidence intervals (CI). Only the significant variables at the bivariate models were included in the multivariate model and statistical significance was set at p -values < 0.05 . Multicollinearity between the explanatory variables were tested using correlation coefficient r , and it was considered linearly correlated if $r < 0.5$. All statistical analyses were performed with Stata statistical software, version 16 and charts with Microsoft-Excel 2010.

3. Results

3.1. Socio-Demographic Characteristics and Prevalence of Self-Medication among Pregnant Women

Table 1 shows socio-demographic characteristics and prevalence of self-medication among pregnant women. The result revealed that a total of 413 respondents participated in the study and the prevalence of self-medication was (31.0%). Self-medication in current pregnancy was more among those aged <25 years (43.1%), those who were not married (60.5%), had at most secondary education (51.1%), and above secondary education (21.0%), those who were unemployed (37.3%), and Muslims (50.0%). Self-medication was also more among those who earn $< \$100$ per month (32.4%), those who had five or more children (40.6%), those in their third trimester (37.4%), those who had a previous abortion (32.3%), and those who had no information about self-medication (44.2%). The result further revealed that a statistically significant relationship was found between the prevalence of self-medication and characteristics, such as age ($p < 0.05$), marital status ($p < 0.05$), educational level ($p < 0.05$), and gestational age ($p < 0.05$).

Table 1. Characteristics and prevalence of self-medication among pregnant women.

Variables	Total (n = 413)	%	Self-Medication		<i>p</i> -Value	95% CI for Prevalence
			No n (%)	Yes n (%)		
Facility						
UPTH	220	46.7				
RSUTH	193	53.3				
Self-medication in Current Pregnancy			285 (69.0)	128 (31.0)		26.7–73.3
Age (years)					0.02 *	
<25	65	16.2	37 (56.9)	28 (43.1)		31.5–55.4
25–34	264	65.7	193 (73.1)	71 (26.9)		21.9–32.6
≥35	73	18.2	45 (61.6)	28 (38.4)		27.9–50.1
Mean (SD)	29.7 (5.6)					
Marital Status					0.00 *	
Not Married	43	10.4	17 (39.5)	26 (60.5)		45.1–74.0
Married	370	89.6	268 (72.4)	102 (27.6)		23.2–32.4
Educational Level					0.00 *	
≤Secondary	137	33.2	67 (48.9)	70 (51.1)		42.7–59.4
>Secondary	276	66.8	218 (79.0)	58 (21.0)		16.6–26.2
Employment Status					0.08	
Unemployed	118	28.9	74 (62.7)	44 (37.3)		28.2–45.3
Employed	291	71.1	208 (71.5)	83 (28.5)		23.8–34.3
Religion					0.12	
Christianity	399	96.6	278 (69.7)	121 (30.3)		26.0–35.0
Islam	14	3.4	7 (50.0)	7 (50.0)		25.2–74.8

Table 1. Cont.

Variables	Total (n = 413)	%	Self-Medication		p-Value	95% CI for Prevalence
			No n (%)	Yes n (%)		
Income (Dollars) per month					0.08	
<100	219	58.4	148 (67.6)	71 (32.4)		26.5–38.9
100–200	75	20.0	56 (74.7)	19 (25.3)		16.7–36.5
>200	81	21.6	65 (80.2)	16 (19.8)		12.4–29.9
Gravidity					0.27	
First Timer	196	47.5	132 (67.3)	64 (32.7)		26.4–39.6
2–4	185	44.8	134 (72.4)	51 (27.6)		21.6–34.5
≥5	32	7.7	19 (59.4)	13 (40.6)		25.0–58.4
Gestation Age (Weeks)					0.02 *	
First Trimester	42	10.4	33 (78.6)	9 (21.4)		11.4–36.6
Second Trimester	160	39.5	120 (75.0)	40 (25.0)		18.9–32.3
Third Trimester	203	50.1	127 (62.6)	76 (37.4)		31.0–44.3
Mean (SD)	26.2 (17.0)					
Previous Abortion/Miscarriage					0.77	
No	310	76.9	215 (69.4)	95 (30.6)		25.4–35.6
Yes	93	23.1	63 (67.7)	30 (32.3)		24.7–43.2
Info. about self-medication					0.04 *	
No	43	10.5	24 (55.8)	19 (44.2)		30.1–59.3
Yes	368	89.5	259 (70.4)	109 (29.6)		25.2–34.5

* Significant; $p < 0.05$.

3.2. Medicinal Drugs Used for Self-Medication during Pregnancy

Figure 1 reveals the drugs used for self-medication during pregnancy. The result indicated that the drugs mainly used for self-medication were paracetamol 64 (50.0%), antimalarial drugs 40 (31.3%), antibiotics 21 (16.4%), cough and cold drugs 17 (13.3%), herbal products 15 (11.7%), and the least used were antiasthmatic medicines 1 (0.8%).

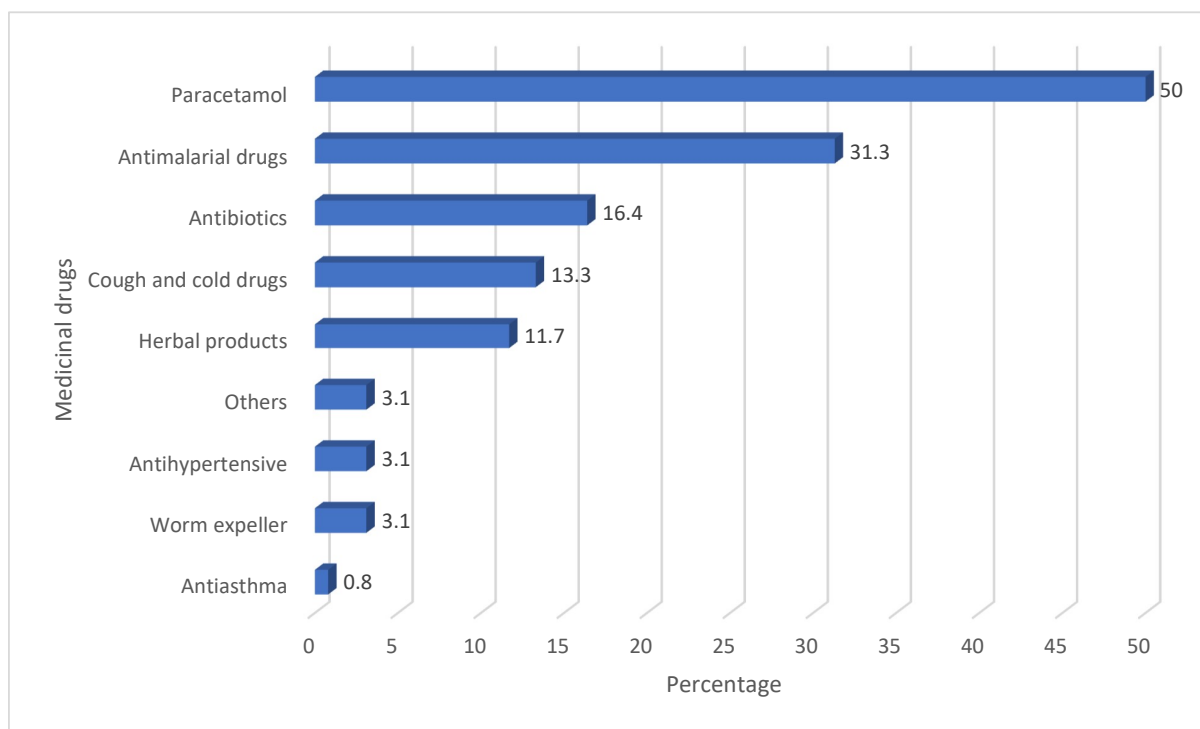


Figure 1. Medicinal drugs used for self-medication during pregnancy.

3.3. Reasons for Self-Medication during Pregnancy

Figure 2 reveals the reasons for self-medication during pregnancy. The reasons indicated by the respondents were emergency illness 62 (48.8%), high cost at health facilities 23 (18.1%), distance to health facility 19 (15.0%), and no medication in the health facilities 4 (0.8%).

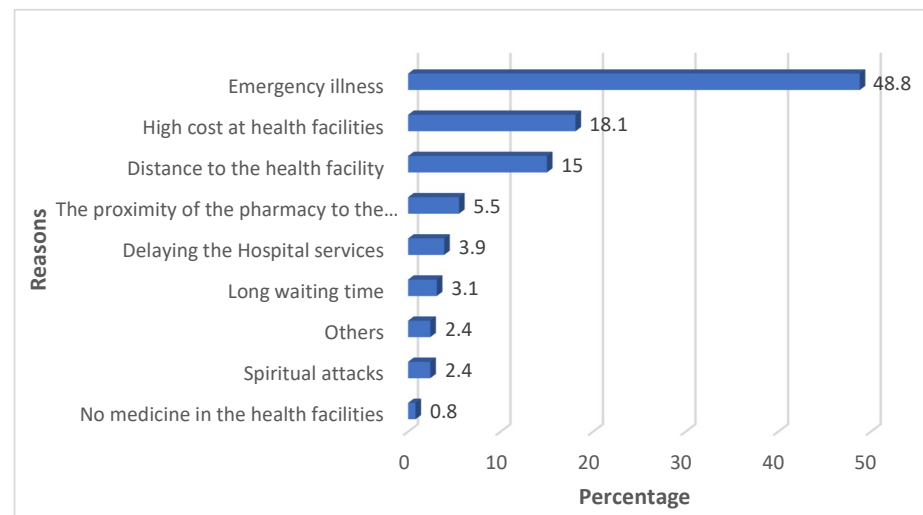


Figure 2. Reasons for self-medication during pregnancy.

3.4. Common Illnesses/Symptoms That Prompted Self-Medication among Pregnant Women

Figure 3 reveals common illnesses/symptoms that prompted self-medication among pregnant women. The symptoms included body pains 57 (44.9%), headaches 55 (43.3%), fever 47 (37.0%), cold 32 (25.2%), body weakness 14 (11.0%), and the fewest, vaginal bleeding 1 (0.8%).

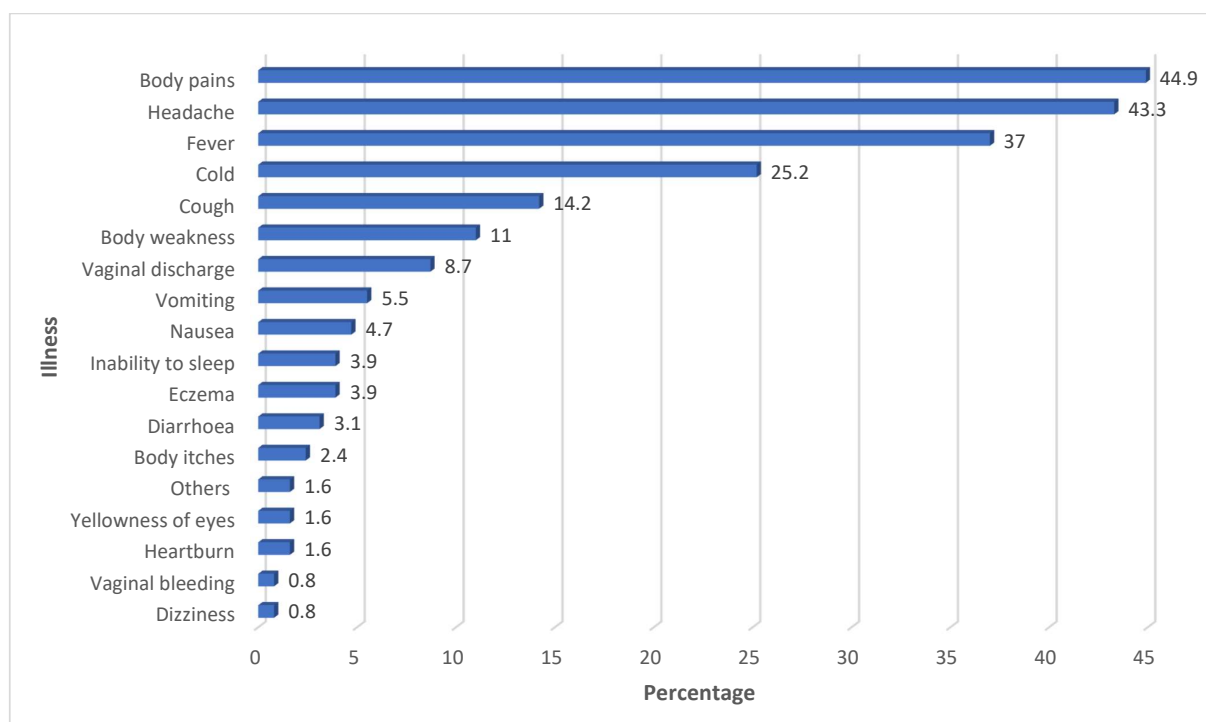


Figure 3. Common illnesses or symptoms that necessitated self-medication.

3.5. Association between Selected Factors and Self-Medication among Pregnant Women

Table 2 reveals factors associated with self-medication among pregnant women. All the factors were tested for multicollinearity and the variables that have $r < 0.5$ were included in the multivariate logistic regression model. In the bivariate logistic regression model age, marital status, educational level, gestational age, and knowledge of self-medication were significantly associated with self-medication during pregnancy at p -value < 0.05 . The predictors of self-medication from the multivariate logistic regression analysis after controlling for other variables were marital status and level of education. Those who were married were 0.37 times less likely to self-medicate during pregnancy (AOR = 0.37; 95% CI = 0.18–0.78; $p = 0.01$) compared to those who were not married, and those who had higher than a secondary education were 0.31 times less likely to self-medicate during pregnancy (AOR = 0.31; 95% CI = 0.18–0.51; $p = 0.00$) compared to those with a lower educational status. Thus, the predictors of self-medication among pregnant women were marital status and level of education.

Table 2. Factors associated with self-medication among pregnant women.

Variables	Crude Odd Ratio (95% CI)	p -Value	Adjusted Odd Ratio (95% CI)	p -Value
Age (years)				
<25	1.00		1.00	
25–34	0.49 (0.28–0.85)	0.01	0.85 (0.43–1.67)	0.63
≥35	0.82 (0.42–1.62)	0.57	1.16 (0.52–2.62)	0.72
Marital Status				
Not Married	1.00		1.00	
Married	0.25 (0.13–0.48)	0.00	0.37 (0.18–0.78)	0.01
Educational Level				
≤Secondary	1.00		1.00	
>Secondary	0.26 (0.16–0.40)	0.00	0.31 (0.18–0.51)	0.00
Gestation Age (Weeks)				
First Trimester	1.00		1.00	
Second Trimester	1.22 (0.54–2.71)	0.48	1.33 (0.56–3.21)	0.52
Third Trimester	2.19 (1.01–4.82)	0.05	1.93 (0.81–4.52)	0.13
Heard about self-medication				
No	1.00		1.00	
Yes	0.53 (0.28–1.00)	0.05	1.46 (0.67–3.17)	0.33

4. Discussion

This study was conducted to determine the prevalence and the factors influencing self-medication among pregnant women attending antenatal clinics in Urban Tertiary Hospitals in Port Harcourt in Nigeria.

The findings from this study showed that more than one-quarter (31.0%) of the respondents practice self-medication during their current pregnancy. This was lower than what was reported in a previous study in South-West Nigeria where about 52.1% of pregnant women practiced self-medication during pregnancy [24] and about 40% in North-East Nigeria [22], as well as some other African countries. For instance, the prevalence of SM among pregnant in Uganda was 65.7% [25], 62.0–68.0% in Ghana [4,13,26], 46.2% in Tanzania [7], and between 36.7 and 44.3% in Ethiopia [11,15,27]. However, this proportion is higher than what was reported in another study in Ethiopia where 15.5% of the women practiced self-medication during pregnancy [28].

Self-medication was more prevalent among those who were <25 years of age compared to those who were ≥25 years of age and ≥35 years of age. Those who were in their third trimester practiced self-medication more compared to those in the first and second trimesters. This was contrary to a previous study that reported a decreasing order of self-medication prevalence from the first to third trimester [7]. Among those that self-medicate, 29.6% of them knew about self-medication and the dangers compared to those without

knowledge (44.2%). This was lower than what was reported in a previous study [13]. This difference could be due to the study setting and reproductive health policies regarding self-medication. Those younger in age at pregnancy could have indulged in self-medication because of inexperience, fear, and anxiety and the older ones could be because of previous prescriptions and feeling of being in control of their health.

The findings from this study showed that the most used drugs for self-medication during pregnancy were paracetamol, antimalarial drugs, and antibiotics. This agreed with previous studies in Nigeria [6,22] and Uganda [29] in the general population and among pregnant women. In contrast to these reports, a study done in Nigeria and the United Arab Emirates reported the use of herbs, sedatives, alcohol, kolanut, folic acid, calcium, and iron [10,30]. The disparity could result from the diversity of illnesses and symptoms that are often associated with pregnancy.

The reasons for self-medication in this study were emergency illness, high cost at health facilities, distance to the health facility, no medication in the health facilities, body pains, headache, fever, cold, body weakness, and vaginal bleeding. This agreed with a previous study that reported emergency illness, delay in getting hospital services, distance to the health facility, the proximity of the pharmacy, no availability of medicine in a health facility, and health facility charges in Nigeria [6]. However, this disagreed with a previous study that reported protection from witches and witchcraft; preventing pregnancy from coming out, for blood; lower cost; availability; and easy access in Uyo, Nigeria [30]; and the thought that the illness was minor [22] in North-Eastern Nigeria.

In contrast to these reports, a study done in Ghana reported the perceived unserious nature of diseases, previous experience with drugs [4], and Mohseni et al. reported easy access to over-the-counter drugs and a previous episode of disease as reasons for self-medication [31]. This slight difference in proportion might be a result of the proportion, personality, and age range of pregnant women. These reasons could be because most of the illnesses that are peculiar to pregnancy can occur at any time during pregnancy. The occurrence of peculiar illnesses at night or odd hours when there is no help or access to clinicians can cause pregnant women to self-medicate. Most of these pregnant women may lack the financial resources to visit the clinic, seek, and pay for healthcare services [6]. This could be responsible for some cases of self-medication recorded among pregnant women. Nearness to health facilities is key to ensuring quick, easy access, and utilization. The inability of pregnant women to assess health facilities due to the distance of the facilities from their homes could be responsible for self-medication during pregnancy. No or insufficient availability of drugs in the facilities could also be a discouraging factor that could lead to the practice of self-medication among pregnant women. Imagine a pregnant woman visiting a health facility and at the end of a long waiting time and is unable to get medication on the first, second, and third visits. What could be the next decision of such a pregnant woman? It would be safe to assume that she will stop visiting the clinic and self-medicate.

The illnesses and symptoms that necessitated self-medication in the study population were body pain, headache, fever, and cold. The same applies to studies in Ethiopia [32], Ghana [4,26], Uganda [29], Northern Jordan [16], and the USA [17]. In contrast to these reports, a study done in Morocco reported nausea [3] and vomiting, morning sickness; upper respiratory tract infection in Ethiopia [15]; diarrhea and food poisoning in Bangladesh [33]; and poor sleep, fever and vomiting, and infections [30] in Nigeria. This is also supported by the fact that headaches, colds, body pain, and nausea were associated with malaria, which is a leading illness among pregnant women, especially in high-prevalent areas like Rivers State.

The factors that were found to be significantly associated with self-medication during pregnancy were age, marital status, educational level, gestation age, and knowledge about self-medication. This agreed with previous studies that reported a statistically significant association between socio-demographic characteristics and knowledge of self-medication [6,15,22]. However, this differs from a report which found no statistically

significant association between socio-demographic factors and self-medication during pregnancy [16].

Pregnant women who were currently married and educated above the secondary level were less likely to practice self-medication during pregnancy compared to those not married and educated below or equal to the secondary level. This disagreed with a previous study that found that pregnant women with high-school or university-level education were more likely to practice self-medication compared to women with a lower educational level [3]. However, these data agreed with a study that reported that unmarried women had higher odds than married women to indulge in self-medication during pregnancy [20]. The possible explanation for this could be the fact that the educated may have a higher income as most are employed and therefore can afford healthcare services and would not prefer self-medication [7]. Low income is a determinant of self-medication in poor/developing countries [34–36] and attendance at the clinic [37]. This age group tries to hide minor etiologies or used to take some famous brands or generics for their procurement without being aware of the possible adverse effects of drugs on healthcare [8]. Married pregnant women get more support from their husbands during pregnancy. Some spouses encourage their wives to regularly visit the hospital for healthcare.

Study Limitations and Strengths

The major limitation of this study was based on the setting and design. The fact that the study was carried out in urban tertiary hospitals confined the participants to mainly those residing in the urban areas, making the finding not to be generalizable to other segments of the population. The study utilized a cross-sectional design which does not establish a causal effect relationship and recall bias could occur because participants may not remember some facts about drug use especially if it occurred during the early phase of the pregnancy for those in their third trimesters.

The strength of this study lies in the fact that it has contributed to addressing the gap in knowledge about self-medication during pregnancy in the area. This study is among a few on SM during pregnancy in the area. The study revealed the prevalence of SM among the pregnant population and across the different strata of sociodemographic factors, and the factors influencing it. Hence, it is expected that this study will raise awareness among the major stakeholders about SM and assist in the development of appropriate intervention(s) related to SM during pregnancy to mitigate its adverse effect on mothers and the fetus.

5. Conclusions

This study showed that a significant proportion of pregnant women practiced SM, and marital status and educational level were the factors significantly influencing SM in the studied population. Other important findings of this study were the revealing of the drugs used to self-medicate, the reason for SM, and the illness or symptom that necessitated SM. The findings of this study have implications for improving the prevention strategies regarding SM and its consequences during pregnancy. We recommend that public health education and reproductive health programmes should be aimed at discouraging unmarried women and those with minimal education on the irrational use of drugs during pregnancy. We also suggest that more data relating to SM during pregnancy should be collected from more healthcare facilities, such as zone hospitals and primary health centres, to obtain more robust findings that are generalizable to the Nigerian state.

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Data Availability Statement: The raw data used for this article is not readily available but can be made available upon reasonable request to the corresponding author.

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