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Research Article

### AWARENESS, RISK PERCEPTION AND PRACTICE OF SELF-MEDICATION AMONG PREGNANT WOMEN ATTENDING ANTE-NATAL CLINICS IN SOKOTO, NIGERIA

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#### ABSTRACT

**Background:** In addition to its adverse health effects on mother and fetus, self-medication is believed to be one of the main driving forces behind the increasing burden of antimicrobial resistance worldwide. This study aimed to assess the awareness, risk perception and practice of self-medication among pregnant women attending ante-natal clinics in Sokoto, Nigeria.

**Materials and Methods:** A cross-sectional study was conducted among 315 pregnant women (selected by a two-stage sampling technique) attending the antenatal clinics of the Primary Healthcare Centres in Sokoto metropolis, Nigeria. Data were collected with a set of pretested, interviewer-administered, structured questionnaire. Data analysis was done using IBM SPSS version 20 statistical package.

**Results:** Whereas, almost all the respondents (98.4%) were aware of self-medication, less than half of them (47.3%) perceived it as a serious threat to their health and the health of their unborn baby. Majority of respondents (67.9%) had self-medicated, with the most commonly self-medicated drugs being analgesics/antipyretics (35.1%), antimalarials (31.3%) and antibiotics (24.3%). The most commonly cited reasons for self-medicating were financial problems (28.5%), lack of the required drugs in the hospital (16.8%), lack of time (12.6%), and sickness being mild (9.8%). Self-medication practice was influenced by respondents' age, marital status, educational background and perception of risk.

**Conclusion:** This study showed low risk perception and high prevalence of self-medication among pregnant women in Sokoto, Nigeria. Sensitization of members of the public on the hazards of self-medication, poverty alleviation, and provision of comprehensive healthcare services at subsidized prices for pregnant women are hereby suggested.

**Keywords:** Awareness, risk perception, practices, self-medication, pregnant women

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#### INTRODUCTION

Self-medication, defined by the World Health Organization<sup>1</sup> as “treatment of self-diagnosed disorders or symptoms by use of medicines, or intermittent / continued use of medicines prescribed by physician for chronic / recurring diseases” is now increasingly being considered as a component of “self care” in patients’ management.<sup>2</sup> If practiced responsibly, the potential benefits of self-medication include easy and rapid access to medication, and quick alleviation of minor symptoms. In addition, it saves patients’ time, money, and the

inconvenience of visiting a doctor; and it also reduces unnecessary health care utilization and associated cost.<sup>3</sup> Responsible self-medication is generally considered to be safe and effective, and it is limited to use of “over the counter drugs” or “non-prescription drugs”. Unfortunately, in sub-Saharan Africa, the reverse is true due to the grossly inadequate number of healthcare personnel and facilities across the continent, thus leaving the vast majority of the populace with no other option than to seek care from patent medicine vendors (PMVs) for acute conditions. And since the PMVs practices are largely unregulated and unsupervised, they mostly

engage in inappropriate drug dispensing practices, and promote harmful self-medication practices by providing uncontrolled access to drugs without consultation and prescription by doctors.<sup>4,5</sup>

Non-compliance with responsible self-medication practices results in incorrect self-diagnosis, inappropriate choice of therapy, unnecessary out-of-pocket expenditure, bacterial resistance, drug interactions, failure to seek appropriate care, prolonged treatment period, serious adverse effects (often irreversible), treatment failure, drug dependency, and delay in treatment for malignant cases.<sup>6,7</sup>

Self-medication is a serious problem in sub-Saharan Africa, with reports of high prevalence of the practice in studies conducted in many countries across the continent, including Ghana (70.0%),<sup>8</sup> Sudan (73.9%),<sup>9</sup> Burkina-Faso (71.9%),<sup>10</sup> and Nigeria (85.0%).<sup>11</sup> In Nigeria, similar to the situation across the continent, high self-medication prevalence rates were also obtained in studies conducted in many cities across the country, including Ibadan (63.8%),<sup>12</sup> Uyo (72.4%),<sup>13</sup> and Jos (75.4%).<sup>14</sup>

A striking feature of the epidemiology of self-medication in Nigeria is the alarmingly high prevalence of the practice in the rural populations in the country. A study conducted among rural residents in Lagos State, Nigeria<sup>15</sup> reported 92.3% prevalence of self-medication, while another study conducted in rural communities of 4 Local Government Areas (LGAs) of Cross Rivers and Akwa Ibom States of Nigeria,<sup>16</sup> reported that self-medication was the only treatment option available for 99.4% of the population studied. These findings are disturbing because in addition to bringing to the fore the deplorable state of healthcare services provision in the rural populations of Nigeria where the majority of the populace reside, they provide additional evidence in support of the submissions of Okojie and Shimeles<sup>17</sup> on the multi-dimensional inequality (particularly in education, income and access to healthcare services) between the urban and rural communities of sub-Saharan Africa.

A cause for concern is the high self-medication prevalence rates reported in studies conducted among pregnant women and mothers across the country, mirroring the high prevalence of the condition in the general population. A study among pregnant women attending antenatal clinic in Uyo, Nigeria,<sup>13</sup> reported 72.4% prevalence of self-medication, another study among mothers in Ibadan<sup>18</sup> reported that 96.5% of mothers practiced antibiotic self-medication for their under-five years old children. Noticeably, in most of the studies conducted among pregnant women in Nigeria, self-medication practice was found to be associated with being single, low educational attainment, unemployment or being a full-time house wife, self-employment, and poor knowledge of the risks associated with self-medication. In addition, ailments being mild and financial constraint were the most commonly cited reasons for self medicating; and with the most commonly self-medicated drugs being analgesics, antimalarial drugs and antibiotics.<sup>13,18,19</sup>

Pregnancy is a special physiological state where medication intake presents a challenge and a concern due to altered drug pharmacokinetics and drug crossing the placenta possibly causing harm to the fetus.<sup>20</sup> Self-medication in the first trimester can result in miscarriage and malformations; and if the complications are severe, it can result in secondary infertility. Also, self-medication during any stage of pregnancy can hinder the normal growth of the fetus.<sup>21</sup>

The most worrisome aspect is the fact that, in addition to its adverse health effects on mother and fetus, self-medication is believed to be one of the main driving forces behind the increasing burden of antimicrobial resistance worldwide.<sup>1</sup> This has serious implications on the health of these vulnerable groups, particularly children, considering the high neonatal, infant and under-fives mortality rates of 37, 69 and 128 deaths per 1,000 live births respectively, the predominance of deaths due to infectious diseases, and the abysmally low full vaccination coverage (25%) against vaccines preventable diseases among children in Nigeria.<sup>22</sup>

Previous studies in Sokoto, Nigeria, majorly examined the self-medication practices of students,<sup>23,24</sup> and little is known about the self-medication practices of pregnant women in Sokoto, Nigeria. This study was conducted to assess the awareness, risk perception and practice of self-medication among pregnant women attending antenatal clinics in Sokoto, Nigeria. The findings from the study would be useful to policymakers, human resource managers and other stakeholders in identifying the influencing factors, and in designing appropriate strategies and interventions for addressing the high burden of self-medication among pregnant women in Nigeria.

## MATERIALS AND METHODS

### Study Design and Population

A cross-sectional study was conducted among pregnant women attending the antenatal clinics of the Primary Healthcare Centers (PHCs) in Sokoto metropolis, Nigeria, in February and March 2016. The sample size was estimated at 307 using the Fisher's formula for calculating sample size for cross-sectional studies,<sup>25</sup> a 72.4% prevalence of self-medication among pregnant women in a previous study,<sup>13</sup> and a precision level of 5%. This was adjusted upwards to 323 based on an anticipated participant response rate of 95%. The participants were selected by a two-stage sampling technique. At stage one, four PHCs were selected in each of the 4 Local Government Areas (LGAs) in Sokoto metropolis by simple random sampling using the balloting technique; and with the list of PHCs in the respective LGAs used to constitute the sampling frame. At stage two, the study participants were selected by systematic sampling technique; one of three pregnant women presenting consecutively at the ANC clinics of the selected PHCs was enrolled into the study over a period of 8 weeks until the required sample size was obtained.

## Data Collection and Analysis

A standardized, structured, interviewer-administered questionnaire was developed and used to obtain information on participants' socio-demographic characteristics, awareness, risk perception and practice of self-medication. The questionnaire was pretested on 20 pregnant women attending the antenatal clinic of one of the PHCs not selected for the study; the questions were well understood by the respondents and no modification was necessary after the pretesting. Five Community Health Officers (CHOs) assisted in questionnaire administration after being trained on the conduct of survey research, the objectives of the study, and questionnaire administration.

Data were analyzed using IBM Statistical Package for the Social Sciences (SPSS) version 20.0 software. Frequency distribution tables were constructed, and cross tabulations were done to examine the relationship between categorical variables. The Chi-square test was used for bivariate analysis involving categorical variables, while multivariate logistic regression analysis was used to determine the predictors of self-medication practice among the respondents. All levels of significance were set at  $p < 0.05$ .

## Ethical Consideration

Institutional ethical clearance was obtained from the Ethical Committee of Sokoto State Ministry of Health, Sokoto, Nigeria. Permission to conduct the study was obtained from the Sokoto State Ministry for Local Government and Community Development, Sokoto, Nigeria, and from the respective LGAs authorities. Informed written consent was also obtained from the participants before data collection.

## RESULTS

### Socio-demographic characteristics of respondents

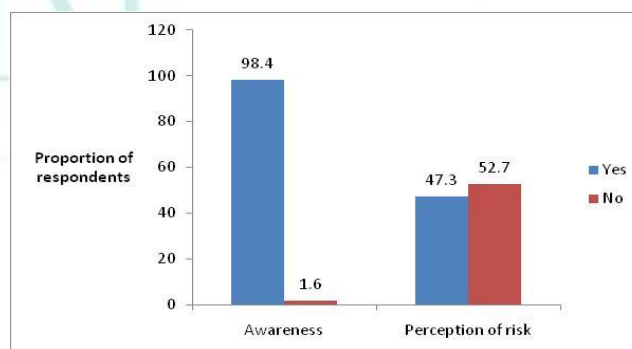
Three hundred and fifteen out of the 323 questionnaires administered were completely filled and retrieved, giving a response rate of 97.5%. The ages of the respondents ranged from 16 to 46 years, but majority of them 187 (59.4%) were aged 20 – 29 years. Most of the respondents 295 (93.7%) were married; and majority of them were Hausa/Fulani (69.2%), and were Moslems (75.6%). Majority of respondents, 216 (68.6%) attained secondary and tertiary education levels, and were full-time housewives (54.6%). The respondents had between 0 and 11 (median = 3), and majority of them (79.0%) had 4 children and below (Table 1).

### Awareness and risk perception of self-medication by respondents

Whereas, almost all, 310 (98.4%) of the 315 respondents were aware of self-medication, less than half of respondents 149 (47.3%) perceived it as a serious threat to their health and the health of their unborn baby (Figure 1).

**Table 1: Socio-demographic characteristics of respondents**

Variables	Frequency (%) n = 315
<b>Age group (years)</b>	
16-19	30 (9.5)
20-24	83 (26.4)
25-29	104 (33.0)
30-34	52 (16.5)
≥ 35	46 (14.6)
<b>Marital status</b>	
Single	4 (1.3)
Married	295 (93.7)
Separated	5 (1.6)
Divorced	8 (2.5)
Widowed	3 (1.0)
<b>Ethnic group</b>	
Hausa/Fulani	218 (69.2)
Igbo	31 (9.8)
Yoruba	39 (12.4)
Others	27 (8.6)
<b>Religion</b>	
Islam	238 (75.6)
Christianity	77 (24.4)
<b>Level of education</b>	
Primary and below	99 (31.4)
Secondary and tertiary	216 (68.6)
<b>Occupation</b>	
Housewife	172 (54.6)
Trader /business woman	86 (27.3)
Civil servant / professional	57 (18.1)
<b>Number of children alive</b>	
0-4	249 (79.0)
5-11	66 (21.0)



**Figure 1: Awareness and risk perception of self-medication by respondents**

### Respondents' self-medication practice

Majority, 214 (67.9%) of the 315 respondents have self-medicated; of these, the most commonly self-medicated drugs were analgesics/antipyretics (35.1%), antimalarials (31.3%) and antibiotics (24.3%). The most commonly cited reasons for self-medicating were financial problems (28.5%), lack of the required drugs in the hospital (16.8%), lack of time (12.6%), and sickness being mild (9.8%) as shown in Table 2.

**Table 2: Respondents' self-medication practice**

Variables	Frequency (%)
<b>Self-medicated in the current pregnancy (n = 315)</b>	
Yes	214 (67.9)
No	101 (32.1)
<b>Drugs most commonly self-medicated (n = 214)</b>	
Analgesics / antipyretics	75 (35.1)
Antimalarials	67 (31.3)
Antibiotics	52 (24.3)
Anti-emetics	14 (6.5)
<b>Main reason for self-medicating (n=214)</b>	
Financial problem	61 (28.5)
No drug in the hospital	36 (16.8)
Lack of time	27 (12.6)
Sickness was mild	21 (9.8)

### Factors influencing respondents' self-medication practice

Self-medication practice was found to be associated with respondents' age, marital status, occupation, level of education, and perception of risk. The proportion of respondents that self-medicated was significantly lower ( $p < 0.05$ ) among those that were aged 30 years and above (55.1%) as compared to those that were aged less

than 30 years (73.7%). It was significantly lower among those that were traders, business women, civil servants and professionals (62.2%) as compared to those that were full-time housewives (72.7%). It was significantly lower among those that attained secondary and tertiary education levels (55.1%) as compared to those with primary education and below (96.0%). It was significantly lower among those that perceived self-medication as a threat to their health and the health of their unborn baby (55.7%) as compared to those that did not (78.9%); but it was significantly higher among those that were single, separated, divorced or widowed (90.0%) as compared to those that were married (66.4%).as shown in Table 3.

In multivariate logistic regression analysis, the predictors of self-medication practice among the respondents were age, marital status, level of education and perception of risk. Older age ( $\geq 35$  years), higher educational background (secondary and tertiary) and perception of risk were associated with a 53.1% [Adjusted Odds Ratio (aOR): 0.469, 95% Confidence Interval (CI): 0.243 - 0.907,  $p = 0.025$ ], 94.1% (aOR: 0.059, 95% CI: 0.020 - 0.171,  $p < 0.001$ ), and 51.2% (aOR: 0.488, 95% CI: 0.274 - 0.869,  $p = 0.015$ ) less likelihood of self-medication respectively; while being single, separated or widowed was associated with an 8.15 fold (aOR: 8.152, 95% CI: 1.735 - 38.313,  $p = 0.008$ ) greater likelihood of self-medication (Table 4).

**Table 3: Factors associated with self-medication practice among the respondents**

Variables	Self-medicated		Test of significance
	Yes Frequency (%)	No Frequency (%)	
<b>Age groups (in years)</b>			
16 - 29	160 (73.7)	57 (26.3)	$\chi^2 = 10.758$ , $p = 0.001$
30 - 46	54 (55.1)*	44 (44.9)	
<b>Marital status</b>			
Married	196 (66.4)	99 (33.6)	$\chi^2 = 4.773$ , $p = 0.029$
Single / separated / divorced / widowed	18 (90.0)*	2 (10.0)	
<b>Ethnicity</b>			
Hausa	143 (65.6)	75 (34.4)	$\chi^2 = 1.780$ , $p = 0.182$
Igbo / Yoruba / Others	71 (73.2)	26 (26.8)	
<b>Occupation</b>			
Housewife	125 (72.7)	47 (27.3)	$\chi^2 = 3.904$ , $p = 0.048$
Trader / business woman / civil servant / professional	89 (62.2)*	54 (37.8)	
<b>Religion</b>			
Islam	155 (65.1)	83 (34.9)	$\chi^2 = 3.531$ , $p = 0.060$
Christianity	59 (76.6)	18 (23.4)	
<b>Level of education</b>			
Primary and below	95 (96.0)	4 (4.0)	$\chi^2 = 52.042$ , $p < 0.001$
Secondary and tertiary	119 (55.1)*	97 (44.9)	
<b>Number of children alive</b>			
0 - 4	173 (69.5)	76 (30.5)	$\chi^2 = 1.296$ , $p = 0.255$
5 - 11	41 (62.1)	25 (37.9)	
<b>Perception of risk</b>			
No	131 (78.9)	35 (21.1)	$\chi^2 = 19.420$ , $p < 0.001$
Yes	83 (55.7)*	66 (44.3)	

\*Statistically significant

**Table 4: Predictors of self-medication practice among the respondents**

Variables	Adjusted Odds Ratio (aOR)	95% CI		p value
		Lower	Upper	
Age (16-29 years versus 30 years and above)	0.469*	0.243	0.907	0.025
Marital status (Married versus single, separated, and widowed)	8.152*	1.735	38.313	0.008
Occupation (Housewife versus trader, business woman, and professional)	0.959	0.550	1.674	0.884
Education (Primary and below versus secondary and tertiary)	0.059*	0.020	0.171	< 0.001
Perception of risk (No versus Yes)	0.488*	0.274	0.869	0.015

\*Statistically significant

## DISCUSSION

This study assessed the awareness, risk perception and practice of self-medication among pregnant women attending antenatal clinics in Sokoto, Nigeria. The respondents in this study represent a relatively young population of mothers as majority of them (59.4%) were aged 20-29 years. This could be due to the tradition of early marriage for girls in northern Nigeria. It is also known that the Hausa/Fulani constitute the predominant ethnic group in northern Nigeria, and they majorly practice Islam as religion. This also explains why most of the respondents in this study (93.7%), were married, as Islam forbids having children out of wedlock.

While the findings in this study are similar to the findings in a study among pregnant women attending antenatal clinics in Jos North, Nigeria,<sup>26</sup> majority (54.6%) of the respondents in this study were full-time housewives as compared to the other study in which less than a fifth of respondents (19.4%) were full-time housewives. This could be due to the relatively higher educational attainments of the respondents in the other study in which most of them (93.1%) had at least secondary education. Female enrolment into basic education is low in Sokoto State (with a male to female ratio of 2:1),<sup>27</sup> and since basic education is a requirement for employment into the civil service, it is not surprising that less than a fifth of the respondents in this study were civil servants as compared to the other study in which 34.6% were civil servants.

The high level of awareness of self-medication (98.4%) among the respondents in this study could be due to the fact that the respondents reside in urban communities, where most of the pharmacies and patent medicine stores are concentrated; and these drug outlets not only promote self-medication, but also threatens utilization of health facilities, as they mostly provide uncontrolled access of the populace to drugs.<sup>28</sup>

The high prevalence of self-medication (67.9%) among the respondents in this study could be related to their low perception of the risks associated with the practice, as less than half of them (47.3%) perceived it as a serious threat to their health and the health of their unborn baby. In addition, perception of the risks of self-medication was found to be a determinant of the practice in this study, with those that perceived self-medication as a threat to their health and the health of their unborn

baby being 51.2% (aOR: 0.488, 95% CI: 0.274 – 0.869,  $p = 0.015$ ) less likely to self-medicate as compared to those who did not. This finding is supported by the finding in a study among mothers in Ibadan, in which most of the respondents (96.5%) practiced antibiotics self-medication for their under-five years old children, and less than a third of them (28.1%) were knowledgeable about the risks and side-effects of antibiotics self-medication. These findings underscore the need to sensitize the members of the public on the hazards of self-medication.

While the high prevalence of self-medication among the respondents in this study is higher than the prevalence rates obtained in studies conducted among pregnant women in other places including Iran (43.5%),<sup>29</sup> and Tanzania (46.24%),<sup>30</sup> it is in agreement with the prevalence rates obtained in studies conducted among pregnant women across Nigeria including Jos North, Nigeria (62.9%)<sup>26</sup> and Ibadan, Nigeria (63.8%).<sup>12</sup> These findings, in essence, highlight the high burden of self-medication among pregnant women in Nigeria, and it suggests the need to tackle the problem at the national level.

The most commonly self-medicated drugs among the respondents in this study, and in most of the studies conducted in Nigeria and other sub-Saharan African countries were analgesics / antipyretics, antimalarials and antibiotics.<sup>13,30</sup> This could be due to the high burden of infectious and parasitic diseases across the continent. The fact that patent medicine vendors (PMVs) who are known to have poor compliance with regulatory practices (as they simply sell whatever drugs clients requested, with little history or counseling, and also stock their shops with popular medicines at the expense of policy recommended treatment) constitute the main source of the self-medicated drugs across the continent,<sup>4,31</sup> underscores the need for the regulatory agencies concerned in the respective countries to wake up to their responsibilities, in order to prevent a large scale development of antibiotic resistance across the continent.

The finding of financial problems being the most common reason for self-medication among the respondents in this study could be due to the fact that majority of them (54.6%) were full-time housewives, who depend on their husbands for all their needs (including accessing healthcare services). It is therefore

not surprising that being married (which guarantees support from the husband), and higher educational background (which guarantees employment and income) were also determinants of self-medication practices among the respondents in this study; with respondents that were single, separated or widowed having an 8.15 fold (aOR: 8.152, 95% CI: 1.735 – 38.313,  $p = 0.008$ ) greater likelihood of self-medication, as compared to those that were married; and respondents with higher educational background (secondary and tertiary) having a 94.1% (aOR: 0.059, 95% CI: 0.020 - 0.171,  $p < 0.001$ ) less likelihood of self-medication, as compared to those with primary education and below. These factors have also been identified as determinants of self-medication practices in several studies conducted in Nigeria and other places.<sup>12,19,30,32</sup>

These findings highlight the importance of women empowerment (through female education, female employment and female emancipation) in facilitating appropriate health seeking behavior, particularly utilization of healthcare services; as it enables them to overcome physical, financial and intellectual barriers to accessing the services. Several studies conducted among different populations across Nigeria also reported financial constraints as one of the most common reasons for self-medication.<sup>11,14,18,33</sup> It is therefore imperative that government give top priority to education of the girl

child, promotion of gender equality, and implementation of sustainable programmes for poverty alleviation.

The finding of non-availability of drugs in the hospital being the second most common reason for self-medication among the respondents in this study exposes the gross inadequacies in the allocation of resources for provision of effective and efficient healthcare services in Nigeria. This finding emphasizes the need for government to make enough resources available to the health sector to enable it provide comprehensive healthcare services to the populace, particularly pregnant women, at highly subsidized prices.

## CONCLUSION

This study showed low risk perception and high prevalence of self-medication among pregnant women in Sokoto, Nigeria. Sensitization of members of the public on the hazards of self-medication, poverty alleviation, and provision of comprehensive healthcare services at subsidized prices for pregnant women are hereby suggested.

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