



MEDICATION ADHERENCE OF WOMEN ATTENDING ANTENATAL CLINICS IN A SOUTHEASTERN NIGERIAN TOWN

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ABSTRACT

Background: Medication adherence is vital for success in pharmacotherapy. Non-adherence to medical advice on the other hand has been identified as a public health problem worldwide and extends beyond the use of medicines to other forms of therapeutic interventions. Medication non-adherence could lead to failure of treatment, avoidable or prolonged hospitalization and increased cost of medical treatment. It is commonly observed among persons on treatment for chronic illnesses as well as among pregnant women. **Methods:** We carried out a cross-sectional survey using pre-validated questionnaire to investigate the extent of medication adherence among pregnant women and the impact of their socio-demographic characteristics on their adherence profile at Enugu a major town in southeastern Nigeria. Data analysis was done using SPSS version 20 (IBM corporation, New York, USA) computer software. Statistical differences were determined at $p < 0.05$. **Results:** The proportion of respondents who adhered strictly to their antenatal clinic prescription for prenatal vitamins and minerals supplements was 60.6% and non-adherence recorded was 39.4%. The proportion of respondents who adhered strictly to their antenatal clinic prescription for malaria prevention using (Fansidar®) was 76.9% and non-adherence recorded was 23.1%. There was evidence of association between adherence to prescription for prenatal vitamins and supplements with maternal age, educational level attained, marital status and parity but there was no association between adherence to prescription for malaria prophylaxis and the women's socio-demographic characteristics. Adherence of pregnant women in this study was better than adherence statistics found in published peer reviewed literature for chronic disease patients. **Conclusion:** Clinicians are encouraged to crosscheck for adherence when faced with patients who seem to be doing poorly despite appropriate prescription and assist where necessary to promote medication adherence.

KEYWORDS: Adherence, pregnant women, non-adherence, prenatal drugs, Fansidar.

INTRODUCTION

Medication adherence is vital for successful clinical management of an illness.^[1, 2, 3] Medication adherence simply put, refers to abiding by medical advice particularly on when and how prescribed medicines should be taken and the amount to be taken. Non-adherence to prescribed treatment has been identified as a common public health problem globally and it extends beyond medicines to other forms of medical advice.^[4,5] It is typically discussed in relation to chronic illnesses^[6] though in actual practice non-compliance is also commonly observed among pregnant women and among patients who are not chronically ill.^[1,7]

Medication non-adherence could lead to failure of treatment which might be erroneously thought to be due to drug resistance or an escalation of patient's illness.^[8] It

also leads to avoidable or prolonged hospitalization and increased cost of medical treatment.^[9]

Good doctor-patient relationship, high index of suspicion and patience in reviewing a patient's condition are keys to detection of non-adherence. Detection of medication non-adherence could save a patient's life, prevent unnecessary referrals, save time and money, and facilitate an early attainment of therapeutic goals and the joy that comes with the latter.

There are many factors that can affect a patient's capacity to take his/her medicines as prescribed^[10,11,12] Some of the factors have to do with the prescriber and the health facility, and some are related to the patient's personal preferences, socio-economic characteristics, forgetfulness, or simply a failure to comprehend what had been advised by the prescriber.^[13] Non-adherence

can even be intentional or not intentional^[14] or could be as a result of inability to procure the prescribed medicines.

Pregnancy constitutes a period of complex physiological changes in a woman and sometimes it is complicated by a concomitant illness that requires treatment.^[15] In West Africa the commonest communicable disease occurring in pregnant women is malaria. Malaria caused by a parasite, *Plasmodium falciparum*, is responsible for high proportions of maternal morbidity and mortality, as well as fetal loss and neonatal deaths. Anemia and malnutrition are also common in pregnancy in Sub-Saharan Africa. Prenatal medications in the country therefore include supplements of vitamins and minerals such as iron and calcium as well as tablets of Sulfadoxine-pyrimethamine (Fansidar®) and tetanus toxoid injection for prophylaxis of malaria and neonatal tetanus respectively.^[16-20]

Apart from these medicines that have come to be locally known as “routine antenatal medicines”, the use of medicines and other substances that have pharmacological or toxic effects are discouraged in pregnancy, except when indicated. Some drugs are outrightly forbidden (contraindicated) in pregnancy because of concerns about their toxicity, teratogenicity, carcinogenicity and/or mutagenicity.^[15,21,22] Nonetheless, there are several conditions that require treatment should they occur in a pregnant woman. These include tuberculosis, bronchial asthma, and HIV/AIDS.^[17,23] In such circumstances, doctors and other caregivers, would be guided by stipulated guidelines laid down by regulatory bodies, expert groups, patient characteristics, safety profile, efficacy of each drug, and cost-benefit considerations in making rational prescriptions.

As adherence to medical advice gives rise to good treatment outcomes, and non-adherence leads to failure of treatment, complications, and other untoward outcomes,^[2,8,24] it is considered important to study the extent of medication adherence among pregnant women in order to gain more knowledge of this important phenomenon. To the best of our knowledge, no peer reviewed publication on this subject is in existence for Enugu residents. Caregivers and policy makers will find the results very useful. In this paper we present the report of our study of medication adherence among pregnant women and the impact of their socio-demographic characteristics on their adherence profile at Enugu in southeastern Nigeria.

METHODS

The study was a cross-sectional survey using pre-validated questionnaire conducted in Enugu from April 2017 to July 2017. Enugu is a major town in southeastern Nigeria and a State capital. The study was based in three key hospitals that had busy and well attended antenatal clinics chosen by multistage random sampling to include

both public and private hospitals within the metropolis. The target population were women who had no complications of pregnancy or any acute pain or distress. Research personnel obtained authorization from hospital officials in order to distribute the questionnaires to women who were in attendance at their antenatal clinics. Only women who gave informed consent completed the questionnaire. There was no coercion to fill the questionnaires and no penalty for refusal to complete the questionnaire or for not filling it completely.

Sample size was 205 but 220 questionnaires were given out to prospective respondents. Data analysis was done using SPSS version 20 (IBM corporation, New York, USA) computer software. Statistical differences were determined at $p < 0.05$.

RESULTS AND DISCUSSION

Of all the questionnaires given out, two hundred and sixteen were collected back. As expected for a sample of pregnant women, majority of the respondents (99.5%) were in the age range of 18 – 45 years. With respect to highest educational attainment, 4.2% had primary school education, 31.0% had secondary school education, and 31.1% attended Colleges of Education and Polytechnics whereas 33.3% had university education. Only 0.5% had no formal education. The high educational profiles of the respondents could be explained by the fact that among a group of people, well-educated people tend to be more willing to complete educational or health related questionnaires more than less educated people. Besides, literacy rate in Southeastern Nigerian urban areas is high. Apart from 15 respondents who were either widows (2) or single mothers (13), all the other respondents were married women (201 persons) as shown in Table 1.

Table 1: Socio-demographic Characteristics of Respondents (n=216).

Characteristics	Frequencies (%)
Age (years)	
Less than 18	1 (0.5)
18-31	127 (58.8)
32 and above	88 (40.7)
Total	216 (100.0)
Marital Status	
Married	201 (93.1)
Single mother	13 (6.0)
Widow	2 (0.9)
Total	216 (100.0)
Level education	
No formal	1 (0.5)
Primary education	9 (4.2)
Secondary education	67 (31.0)
College education	20 (9.3)
Polytechnic	47 (21.8)
University	72 (33.3)
Total	216 (100.0)

Table 2: Prenatal drug-taking behavior of the Respondents during pregnancy.

Practices	Frequencies	%
Took prenatal supplements as prescribed daily		
Yes	131	60.6
Took the medicines but not everyday	61	28.2
No, did not take them.	24	11.1
Total	216	100.0
Took Fansidar® as prescribed in this pregnancy		
Yes	166	76.9
No	50	23.1
Total	216	100.0
I have had an adverse drug reaction to at least one of my routine prenatal medicines		
Yes	15	6.9
No	201	93.1
Total	216	100.0

As shown in Table 2, the proportion of respondents who adhered strictly to their antenatal clinic prescription for prenatal vitamin and minerals supplements was 60.6% and non-adherence recorded was 39.4%. The proportion of respondents who adhered strictly to their antenatal clinic prescription for malaria prevention using (Fansidar®) was 76.9% and non-adherence recorded was 23.1%. Adherence of pregnant women in this study was better than adherence statistics found in published peer reviewed literature for chronic disease patients.

Some studies have shown that patients with chronic conditions adhere only to 50-60% of medications as prescribed.^[4] Our respondents had higher adherence rates and this might be attributed to the fact that these pregnant women were fit and might have known the importance of the medications to their health and wellbeing and those of their babies.

Our questionnaire did not ask for reasons for noncompliance of those who reported unsatisfactory adherence but there could have been a number of reasons. The reasons for non-adherence from other studies included: forgetfulness, an aversion for oral medications, previous experience of adverse effects, lack of comprehension of the need for such medicines, and failure of adequate communication on the part of care givers.^[1, 25]

The proportion of pregnant women who had a past history of adverse drug reaction from the use of prenatal drugs was 6.9%. This does not account for the larger proportion of women that did not take their Fansidar® tablets, vitamins and mineral supplements. The rest of the respondents were frank enough to report that they either did not take the medicines (11.1%) or were irregular in taking them (28.2%).

The responses also confirm that patients could sincerely reveal their extent of medication adherence or nonadherence when asked by their doctors or caregivers. Candid feedback from patients obviously will be

facilitated by caregivers making such inquiry in a non-judgmental manner.

Fansidar® (sulfadoxine-pyrimethamine) is normally prescribed as three tablets to be taken at once. It is recommended for intermittent prophylaxis against malaria in pregnancy.^[20] The adult dose is prescribed twice during the period of pregnancy for those who commence antenatal care on time. This study showed that as much as 23.1% of respondents did not take this anti-malarial.

There was no association between the various socio-demographic characteristics and adherence to Fansidar® prescription as documented in Table 3. However there was evidence of association between adherence to prescription for prenatal vitamins and supplements with maternal age, educational level attained, marital status and as in Table 4. This is in harmony with published research works reporting socioeconomic determinants of patients' drug use behavior and medication adherence.^[6,12,14] Nonetheless, efforts to assist patients to adhere to their treatments, irrespective of their socio-demographic characteristics, will improve the efficiency and effectiveness of care.^[26]

Table 3: Test of Association adherence to prescription for (Fansidar ®) during Pregnancy and the socio-demographic characteristics of Respondents.

Characteristics	Taking malaria prevention tablets during pregnancy		Fisher's exact / chi-square	P-value
	Yes	No		
Age (years)				
Less than 18	0(0.0)	1(2.0)	4.154	0.242
19-30	95(57.2)	32(64.0)		
31-40	62(37.3)	14(28.0)		
41-45	9(5.4)	3(6.0)		
Total	166(100)	50(100)		
Marital Status				
Married	153(94.4)	44(88.0)	3.099	0.172
Single mother	8(4.9)	5(10.0)		
Widow	1(0.6)	1(2.0)		
Total	162(100.0)	50(100.0)		
Educational level				
No formal	1(0.6)	0(0.0)	8.545	0.106
Primary education	3(1.8)	4(8.0)		
Secondary education	54(32.9)	13(26.0)		
College education	12(7.3)	8(16.0)		
Polytechnic	36(22.0)	11(22.0)		
University	58(35.4)	14(28.0)		
Total	164(100)	50(100)		
Position of the Current pregnancy				
First	48(30.0)	15(33.3)	9.875	0.058
Second	39(24.4)	12(26.7)		
Third	42(26.2)	5(11.1)		
Fourth	25(15.6)	7(15.6)		
Fifth	6(3.8)	6(13.3)		
Total	160(100.0)	45(100)		

*Significant P<0.05

Table 4: Test of Association between taking routine prenatal blood building medicines and supplements every day and the socio-demographic characteristics of Respondents.

Characteristics	I take routine medicines every day			Fisher's exact / Chi-square	P-value
	Yes	Not always	No		
Age (years)					
Less than 18	0(0.0)	0(0.0)	1(4.2)	15.107	0.009*
19-30	70(53.4)	39(63.9)	18(75.0)		
31-40	56(42.7)	16(26.2)	4(16.7)		
41-45	5 (3.8)	6(9.8)	1(4.2)		
Total	131(100)	61(100)	24(100)		
Marital Status					
Married	126(96.9)	52(89.7)	19(79.2)	12.570	0.004*
Single mother	3(2.3)	6(10.3)	4(16.7)		
Widow	1(0.8)	0(0.0)	1(4.2)		
Total	130(100.0)	58(100.0)	24(100.0)		
Educational level					
No formal	0(0.0)	0(0.0)	1(4.2)	17.328	0.043*
Primary education	3(2.3)	2(3.3)	2(8.3)		
Secondary education	40(31.0)	19(31.1)	8(33.3)		
College education	11(8.5)	5(8.2)	4(16.7)		
Polytechnic	31(24.0)	16(26.2)	0(0.0)		
University	44(34.1)	19(31.1)	9(37.5)		
Total	129 (100)	61(100)	24(100)		
Position of the					

Current pregnancy					
First	31(24.6)	25(41.7)	7(36.8)	15.700	0.035*
Second	36(28.6)	13(21.7)	2(10.5)		
Third	34(27.0)	11(18.3)	2(10.5)		
Fourth	16(12.7)	10(16.7)	6(31.6)		
Fifth	9(7.1)	1(1.7)	2(10.5)		
Total	97(100.0)	60(100)	19(100)		

*Significant $P < 0.05$

CONCLUSION

In this study we found that an appreciable number of pregnant women did not take their prescribed prenatal medicines. Their drug taking behavior was however, comparatively better in this respect than those of chronic disease patients.^[27] As it is well established that medication non-adherence causes treatment failure, drug resistance, frequent re-hospitalizations, higher healthcare costs and poorer outcome of the patient's condition,^[12] clinicians should consider it an imperative to enquire about medication compliance from every patient that appears to be doing poorly despite having adequate prescription.^[13] As Brown and Sinsky^[9] put it: "Sometimes the best way to solve our patients' medical problems is to make sure they're taking their medicine".

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