



## Medication Use in Pregnancy: A Cross-Sectional Assessment of Pregnant Women at Antenatal Clinic of Adeoyo Maternity Teaching Hospital, Ibadan, Southwestern Nigeria

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A – research concept and design; B – collection and/or assembly of data; C – data analysis and interpretation; D – writing the article; E – critical revision of the article; F – final approval of article.

### Abstract

**Background:** Medication use in pregnancy is a major public health concern requiring regular and ongoing awareness among healthcare providers and the pregnant populace.

**Objectives:** To evaluate opinion of pregnant women on medication use and associated risks in pregnancy with a view to identify areas of focus to improve counseling and outcome.

**Method:** A cross-sectional questionnaire-guided interview among 150 pregnant women in Adeoyo Maternity Teaching Hospital, Ibadan, southwestern Nigeria. Information on socio-demographic characteristics and opinion on medicine use during pregnancy was obtained. Total sampling of consented pregnant women was done. Descriptive statistics was used to summarize data. Ranked variables were evaluated using Kruskal-Wallis test at  $p < 0.05$ .

**Results:** Majority (96; 64.0%) were within the age of 20-30 years and 88 (58.7%) had tertiary education. A substantial number (71; 49.7%) were in the third trimester, 101 (76.8%) liked to take medicine during pregnancy. Of these, 48 (47.5%) preferred taking only the prescribed medicines, 36 (35.6%) multivitamins, 10 (9.9%) spiritual oil/water and 7 (6.9%) preferred to take herbal medicines. Paracetamol (64; 17.8%) was the only analgesic reported by participants. One hundred and thirty-three (88.7%) were aware that unprescribed medicine can cause harm to the foetus.

**Conclusion:** A substantial proportion of pregnant women liked using medicine during pregnancy especially if it is prescribed, and majority were aware that medicine can cause harmful effects to the foetus. However, there is need for continuous and ongoing counseling of pregnant women on rational use of medicine, emphasizing the consequences of unguided use of medicines including herbal supplements during pregnancy.

**Keywords:** Medicine use, Pregnant women, Antenatal care, Nigeria

### INTRODUCTION

The thalidomide era has led to increased awareness and sensitization about the danger of indiscriminate use of medicine in pregnancy especially on the foetus (Kacew, 1994; Melton, 1995). Literature report that more than 90% of pregnant women take prescription or nonprescription (over-the-counter) drugs or use social drugs such as tobacco or alcohol or illicit drugs at sometime during pregnancy (Porter, 2004). Studies have also shown that, about 59% of pregnant women are prescribed medication other than a vitamin or mineral supplement, and about 13% of pregnant women take a dietary herbal supplement (Andrade et al, 2004). The fact that certain drugs given during pregnancy may prove harmful to the unborn child is one of the classical problems in medical treatment (Yaffe, 2002). A study in 2001 found that there was not enough information about the risk or safety of more than 90% of

medications approved by Food and Drug Administration (FDA) between 1980 and 2000 when taken during pregnancy. Most often, pregnant women are excluded from clinical trials, and this may have accounted for the limited information on the effects of medications taking during pregnancy. This has however makes it difficult for women and healthcare providers to decide whether to use medication during pregnancy or not (Andrade et al, 2004). The U.S Food and Drug Administration developed a system that determines the teratogenic risk of drugs by considering the quality of data from animal and human studies (FDA Drug Risk Classification in Pregnancy, 2007; Sachdeva et al, 2009). The classification categorized as A, B, C, D and X was done according to the degree of risk the drug pose for the foetus when used during pregnancy. Category A are group of drugs considered as safest, category B are group of drugs in which studies in

animals show no risk to the foetus, and no well-designed studies in people have been done. Category C belongs to the group of drugs in which no adequate studies in animals or people have been done, category D are group of drugs where evidence shows a risk to the human foetus, but benefits of the drug may outweigh risks in certain situations. Category X are group of drugs where risk to the foetus has been proved to outweigh any possible benefit (FDA Drug Risk Classification in Pregnancy, 2007).

In general, medications which are known to be harmful in pregnancy have their effect dependent on many factors including how much medication is taken, when during the pregnancy the medication is taken, other health conditions a woman might have, as well as other medications a woman takes. World Health Organisation (WHO) defined rational use of medicine as 'Patients receiving medications appropriate to their clinical needs in doses that meet their own individual requirements, for an adequate period of time and at the lowest cost to them and their community' (WHO Policy Perspectives on Medicine, 2002; Lamichhane *et al.*, 2006).

A study has shown that a number of pregnant women may have sufficient knowledge about high-risk medication in pregnancy, thus, there is a "general fear" for medication use during pregnancy on account of the possible teratogenic effects or harmful potential to the foetus (Nordeng *et al.*, 2010). The hesitation in medication use by pregnant women might result in serious consequences which include but are not limited to termination of a wanted pregnancy (Einarson, 2007), delayed or reluctance to medication-use for nausea and vomiting which are early symptoms of pregnancy (Baggley *et al.*, 2004), preference of herbal medications (Glover *et al.*, 2003) which may be perceived as safer being "natural" (Fakeye *et al.*, 2009), non-compliance to prescriber's medication (Ito *et al.*, 1993; Williams *et al.*, 2002) and inclination toward over-the-counter drugs (OTC) (Erebara *et al.*, 2008) and other self-medication methods (Holst *et al.*, 2009).

Despite the paucity of information on safety of drugs in pregnancy, the statistics on OTC and prescription-only medicine use in pregnancy is wide spread (Yaffe, 2002). Thus, the need for periodic assessment of medication use among pregnant women in clinical practice. This study therefore aimed at evaluating opinion of pregnant attendee at the antenatal clinic of Adeoyo Maternity Teaching Hospital, Ibadan, Southwestern Nigeria on medication use and the associated risks in pregnancy with a view to identify areas of focus to improve counseling and outcome.

## METHODS

### Study Site

This study was carried out at Adeoyo Maternity Teaching Hospital in Ibadan, a 135-bed tertiary healthcare facility, which serves as a referral centre for primary and secondary healthcare as well as private hospitals in Ibadan and its environs. The hospital has different specialized departments including obstetric and gynaecologic for antenatal care services, medical and general outpatient, pediatrics and pharmacy department among others. Ethical approval for the study was obtained from the Health Ethic

Review Committee of the Oyo State Hospital Management Board.

### Study design

This study was a cross-sectional questionnaire-guided interview among pregnant women attending the antenatal clinic of the hospital within eight weeks study period.

### Inclusion/exclusion criteria

Pregnant women enrolled were those who registered for their routine antenatal care in the hospital, and gave their voluntary informed consent to partake in the study. Pregnant women in the ward and those who decline participation were excluded.

### Sample Size Determination

Representative sample size was determined based on the estimated sample population of regular pregnant attendee at the antenatal clinic of the hospital for the eight weeks study period, at 95% confidence level and 5% margin of errors. An average of between 100 and 120 pregnant women per month regularly attend the antenatal clinic focusing on those who had their first antenatal registration at the hospital. Using these assumptions, a target sample size of 140 was calculated using Raosoft<sup>(R)</sup> sample size calculator (<http://www.raosoft.com/samplesize.html>). Allowing for a 10% non-response rate, 150 copies of questionnaire were administered to the pregnant women within the study period.

### Sampling strategy

Total sampling of consented pregnant women at every antenatal clinic day was done. Respondents were approach for participation at every antenatal clinic day while waiting for their routine antenatal screening. The purpose and objectives of the study were explained to individual respondent after which their voluntary informed consent was obtained to signify their intention for participation in the study. Only the consented respondents were administered the questionnaire which took about 20 minutes to complete. Respondents were told that participation is voluntary and were assured of anonymity and confidentiality of responses.

### Data collection

The interviewer-administered questionnaire consisted of open-ended, closed-ended and 4-point scale response options. The questionnaire was divided into sections. Section A clarified socio-demographic information, section B contains questions that explore opinions on awareness of risks associated with medicine-use in pregnancy and section C contains arrays of question in ranked or ordinal scale to evaluate opinion of pregnant women on the pertinent and contemporary information related to medication use during pregnancy.

### Pre-test and validation of questionnaire

The questionnaire for the study was pre-tested among 10 pregnant women in the ward while content validity was assessed by two scholars from academia. Feedback from the pre-test and validation necessitated the modification of some questions to remove ambiguity and ensure

respondents' clarification of intention. Questions initially design as dichotomous (Yes/No) response option were subsequently rephrased in ordinal scale ranging from strongly agree (assigned value of 1) to strongly disagree (assigned a value of 4).

**Data Analysis**

Data were sorted, coded and analyzed using Predictive Analytics Software (PASW) version 17. Descriptive statistics including frequency, median value or 50th percentile and percentage were used to summarize data. Association between respondents' educational background and opinions in ranked variables were evaluated using Kruskal-Wallis test at  $p < 0.05$  considered significant.

**RESULTS**

The socio-demographic data of participants is shown in Table 1. Ninety six (64.0%) were within the age range of 20-30 years. Majority, 68 (45.3%) were traders; 88 (58.7%) had tertiary or post-secondary education. Seventy (46.7%) were having their first time pregnancy, and 71 (49.7%) were in the third trimester. One hundred and twenty-five (85.6%) had their first antenatal registration at the studied hospital, while 3 (2.1%) had theirs at the mission/spiritual home. Details of responses on place of first antenatal registration and routine antenatal care are shown in Table 2.

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

| <b>Characteristics</b>                      | <b>Frequency, N (%)</b> |
|---|-------------------------|
| <b>Age</b>                                  |                         |
| 20-30                                       | 96 (64.0)               |
| 31-40                                       | 48 (32.0)               |
| 41 and above                                | 6 (4.0)                 |
| <b>Marital status</b>                       |                         |
| Single                                      | 14 (9.3)                |
| Married                                     | 136 (90.7)              |
| <b>Educational background</b>               |                         |
| No formal education                         | 2 (1.3)                 |
| Primary                                     | 8 (5.3)                 |
| Secondary                                   | 52 (34.7)               |
| Tertiary                                    | 88 (58.7)               |
| <b>Occupation</b>                           |                         |
| Trader/Business woman                       | 68 (45.3)               |
| Civil servant                               | 45 (30.0)               |
| Unemployed                                  | 19 (12.7)               |
| Artisan                                     | 9 (6.0)                 |
| Student                                     | 9 (6.0)                 |
| <b>Number of previous pregnancy</b>         |                         |
| One   | 70 (46.7)               |
| Two   | 36 (24.0)               |
| Three                                       | 29 (19.3)               |
| Four  | 7 (4.7)                 |
| More than four                              | 8 (5.3)                 |
| <b>Stage of pregnancy in month (n= 143)</b> |                         |
| 1-3 (First trimester)                       | 19 (13.3)               |
| 4-6 (Second trimester)                      | 49 (34.3)               |
| 7-9 (Third trimester)                       | 71 (49.7)               |
| Above 9                                     | 4 (2.8)                 |

**Table 2: Place of antenatal registration and routine antenatal care by participants**

| Participants' response  | Frequency, N (%) |
|---|------------------|
| <b>Place of first antenatal registration (n =146)</b>                 |                  |
| Adeoyo Maternity Teaching Hospital                                    | 125 (85.6)       |
| Nearby primary health care centre                                     | 10 (6.8)         |
| Nearby private hospital   | 8 (5.5)          |
| Mission/spiritual home  | 3 (2.1)          |
| <b>Place patronise for routine antenatal care and advice (n =150)</b> |                  |
| Adeoyo Maternity Teaching Hospital                                    | 137 (91.3)       |
| Nearby chemist shop   | 5 (3.3)          |
| Patronise nowhere   | 3 (2.0)          |
| Nearby private hospital   | 2 (1.3)          |
| Mission/spiritual home  | 2 (1.3)          |
| Relatives/friends   | 1 (0.7)          |

One hundred and one (67.8%) liked taking medicine during pregnancy especially if it is prescribed (48; 47.5%). Thirty-six (35.6%) mentioned multivitamin or supplement as medicine that may be taken when desired, 10 (9.9%) mentioned spiritual oil or water, and 7 (6.9%) mentioned herbal remedies. One hundred and twenty-five (85.0%)

were aware that medicine can cause deformity to foetus, and 94 (63.1%) were of the opinion that medicine prescribed by healthcare professionals cannot cause harm to the foetus. Details of respondents' opinion on medication use in pregnancy and awareness of associated risks are shown in Table 3.

**Table 3: Respondents' opinion on risks awareness and medication use in pregnancy**

| Questions or opinion statements  | Frequency, N (%) |
|--|------------------|
| <b>1) Are you aware that medicine can cause foetal deformity? (n=147)</b>                        |                  |
| Yes  | 125 (85.0)       |
| No   | 11(7.5)          |
| I don't know   | 11(7.5)          |
| <b>2) Are you aware that unprescribed medicine can cause harm to the foetus? (n=150)</b>         |                  |
| Yes  | 133 (88.7)       |
| No   | 10 (6.7)         |
| I don't know   | 7 (4.7)          |
| <b>2a) If yes, how did you become aware (n =78)</b>  |                  |
| Through physician  | 37 (47.4)        |
| Through nurses   | 17 ( 21.8)       |
| Through pharmacist   | 7 (9.0)          |
| Through media(radio & television)  | 7 (9.0)          |
| Through relation/family  | 4 (5.1)          |
| Through research(Books)  | 4 (5.1)          |
| Through personal experience  | 2 (2.6)          |
| <b>3) Do prescribed medicine(s) by healthcare professional cause harm to the foetus? (n=149)</b> |                  |
| Yes  | 40 (26.8)        |
| No   | 94 (63.1)        |
| I don't know   | 15 (10.1)        |
| <b>4) Do you take medicine without prescription? (n=147)</b>                                     |                  |
| Yes  | 39 (26.5)        |
| No   | 108 (73.5)       |
| <b>5) Do you like taking medicine during pregnancy? (n =149)</b>                                 |                  |
| Yes  | 101 (67.8)       |
| No   | 48 (32.2)        |
| <b>5a) If yes, which medicine do you prefer to take? (n=101)</b>                                 |                  |
| Any medicine prescribed by physician   | 48 (47.5)        |
| Multivitamins  | 36 (35.6)        |
| Spiritual oil/water  | 10 (9.9)         |
| Herbal remedies  | 7 (6.9)          |
| <b>5b) If no, why don't you like taking medicine?</b>  |                  |
| Do not feel like   | 27 (56.3)        |
| Feeling of discomfort especially vomiting  | 21 (43.7)        |

Thirty nine (29.5%) preferred taking medicines during the first trimester, 62 (47.0%) during the second trimester, and 31 (23.5%) in the third trimester. Ninety one (64.1%) participants mentioned physician, 39 (27.5%) cited nurses, and 9 (6.3%) mentioned pharmacists as healthcare professionals who prescribe or recommend the medicine they used during the pregnancy. Three (2.1%) reported the media as source of medicine information used in the pregnancy. Thirteen (8.7%) claimed to experience problem when taking the prescribed medication during pregnancy. Of these, 6 (46.2%) reported discomfort with the prescribed blood tonic, 4 (30.8%) with antimalarial drugs, and 3 (23.1%) with antibiotic.

The profile of medication use during pregnancy by participants is shown in Table 4. Hematinics/vitamins (259; 72.1%) in different forms either as a single or multiple components was the most commonly used medicines in pregnancy with vitamin B complex (51; 14.2%) constituted the highest proportion. Paracetamol (64; 17.8%) was the only analgesic used by participants. Sulphadoxine-pyrimethamine combination (6; 1.7%) was the most frequently used antimalarial among the pregnant women.

**Table 4: Profile of medicine used by pregnant women during the current pregnancy**

| Medicines (n = 359)   | Frequency N (%) |
|---|-----------------|
| <b>Analgesic</b>  |                 |
| Paracetamol   | 64 (17.8)       |
| <b>Vitamins/hematinics (n = 259)</b>  |                 |
| <i>a. Single/Monocomponent</i>  |                 |
| Vitamin B-complex   | 51(14.2)        |
| Folic acid  | 41(11.4)        |
| Ferrous sulphate  | 33 (9.2)        |
| Ascorbic acid (Vitamin C)   | 32 (8.9)        |
| <i>b. Multicomponents</i>   |                 |
| Multivitamins   | 35 (9.7)        |
| Amino acid/Iron supplement  | 17 (4.7)        |
| Calcium, L-lysine, zinc (Calcimax <sup>(R)</sup> )                                | 17 (4.7)        |
| Vitamin B1, B2, B6, B12, zinc, (Pregnant care <sup>(R)</sup> )                    | 12 (3.3)        |
| Blood tonic   | 10 (2.8)        |
| Calcium gluconate, calcium lactobionate (Cac-1000 <sup>(R)</sup> )                | 4 (1.1)         |
| Soya protein hydrosylate (Protobex <sup>(R)</sup> )                               | 3 (0.8)         |
| Calcium carbonate, Vitamin D3 (Pure Cal <sup>(R)</sup> )                          | 2 (0.6)         |
| Folic acid and ferrous polymaltose (Mumfer <sup>(R)</sup> )                       | 2 (0.6)         |
| <b>Antimalarial (n = 24)</b>  |                 |
| Sulphadoxine-pyrimethamine (Fansidar <sup>(R)</sup> )                             | 6 (1.7)         |
| Artemether-lumefantrine (Coartem <sup>(R)</sup> )                                 | 4(1.1)          |
| Primaquine  | 1(0.3)          |
| Artesunate  | 1(0.3)          |
| Proguanil (Paludrine <sup>(R)</sup> )   | 1(0.3)          |
| Pyrimethamine   | 1(0.3)          |
| Unspecified   | 10 (2.8)        |
| <b>Anthelmintics</b>  |                 |
| Albendazole (Zentel <sup>(R)</sup> )  | 1 (0.3)         |
| <b>Antacid</b>  |                 |
| Sodium bicarbonate, Calcium carbonate, sodium alginate (Gaviscon <sup>(R)</sup> ) | 4 (1.1)         |
| <b>Others (n =7)</b>  |                 |
| Cod liver oil   | 2 (0.6)         |
| Omega-3 (Marina 1000 <sup>(R)</sup> )   | 3 (0.8)         |
| Pseudoephedrine, ammonium chloride (Cough syrup <sup>(R)</sup> )                  | 2 (0.6)         |

Participants' responses to pertinent and contemporary information about medication use and risk awareness in pregnancy are shown in Table 5. Majority (77; 55.4%) disagreed with the fact that conventional or orthodox medicines do more harm than good when use in pregnancy, while substantial proportions (57; 38.8%) agreed that prescribing too many medicines during pregnancy may be unnecessary. Most participants (84; 58.7%) supported the fact that prescription of medicine in pregnancy should be restricted to individual care plan. A

substantial number (74; 50.7%) disagreed with the fact that herbal medicine is safer to use during pregnancy than orthodox/allopathic medicine, and participants strongly agreed (71; 47.7%) that herbal medicine should not be used during pregnancy without physician's advice. There was a significant association between educational background and opinion on herbal medicine use in pregnancy without physician's advice (p = 0.00). Participants with primary education had the highest mean rank (75.4) suggesting those who mostly disagreed with

the statement on herbal medicine use in pregnancy without physician's advice compared to those with tertiary or post-secondary education (mean rank: 52.0). Participants (61; 41.5%) agreed with the fact that

adherence to routine antenatal medicines is mandatory, and mostly disagreed (80; 56.3%) that all medicines should be considered as poison in pregnancy (Table 5).

**Table 5: Relationship between educational status and participants' response to pertinent and contemporary information about medication use and risk awareness in pregnancy**

| Variables  | Strongly agree<br>N (%) | Agree<br>N (%) | Disagree<br>N (%) | Strongly disagree<br>N (%) | 50 <sup>th</sup><br>Percentile or<br>median value | K-W p-value<br>for educational<br>background |
|--|-------------------------|----------------|-------------------|----------------------------|---|--|
| 1. During pregnancy, prescribing too many medicines is unnecessary                 | 27(18.4)                | 57(38.8)       | 51 (34.7)         | 12(8.2)                    | 2.0   | 0.05   |
| 2. Herbal medicine is safer than conventional when use in pregnancy                | 15(10.3)                | 12 (8.2)       | 74 (50.7)         | 45(30.8)                   | 3.0   | 0.75   |
| 3. Conventional medicines do more harm than good when use in pregnancy             | 7(5.0)                  | 31(22.3)       | 77 (55.4)         | 24(17.3)                   | 3.0   | 0.10   |
| 4. All medicines should be considered as poison in pregnancy                       | 9 (6.1)                 | 13 (8.8)       | 75 (50.7)         | 51(34.5)                   | 3.0   | 0.07   |
| 5. Taking medicine during pregnancy is a discomfort                                | 14(9.4)                 | 22(14.8)       | 75 (50.3)         | 38(25.5)                   | 3.0   | 0.02*  |
| 6. Adherence to routine antenatal medicine is difficult during pregnancy           | 20(13.8)                | 39(26.9)       | 65 (44.8)         | 21(14.5)                   | 3.0   | 0.40   |
| 7. During pregnancy, medicine should be restricted to individual care plan         | 21(14.7)                | 84(58.7)       | 31 (21.7)         | 7(4.9)                     | 2.0   | 0.40   |
| 8. Routine antenatal medicine is mandatory in pregnancy                            | 58(39.7)                | 58(39.7)       | 25 (17.1)         | 5(3.4)                     | 2.0   | 0.09   |
| 9. Commitment to antenatal medicine is warranted by pregnant women                 | 63(42.9)                | 61(41.5)       | 18 (12.2)         | 5(3.4)                     | 2.0   | 0.59   |
| 10. All medicines should be considered harmful to foetus                           | 13(9.2)                 | 14(9.9)        | 80 (56.3)         | 35(24.6)                   | 3.0   | 0.22   |
| 11. Medicine use endangers lives of mother and child                               | 11(7.3)                 | 33(22.0)       | 57 (38.0)         | 49 (32.7)                  | 3.0   | 0.53   |
| 12. I have interest in taking medicine when i am pregnant than when am not         | 24(16.1)                | 52(34.9)       | 56 (37.6)         | 17 (11.4)                  | 2.0   | 0.08   |
| 13. Herbal medicine should not be used during pregnancy without physician's advice | 71(47.7)                | 51(34.2)       | 10 (6.7)          | 17 (11.4)                  | 2.0   | 0.00*  |
| 14. Herbal medicine can be used generally by pregnant women                        | 14(10.0)                | 34(24.3)       | 47 (33.6)         | 45 (32.1)                  | 3.0   | 0.65   |

\*Significant difference with Kruskal-Wallis (K-W) tests for opinions and educational background; N= number; Strongly agree=1, Agree = 2, Disagree = 3, Strongly disagree = 4

## DISCUSSION

Medication use in pregnancy has always created a challenge in antenatal care due to potential foetal risk associated with the use (Kacew, 1994). Availability and access to medicine-related information as well as beliefs of pregnant women about medications determine their decision on drug administration during pregnancy

(Jorgensen *et al.*, 2006; Mardby *et al.*, 2007; Jondottir *et al.*, 2009; Menckeberg *et al.*, 2008).

In the present study, it was observed that a large number of participants were having their first time pregnancy and were largely found to have their antenatal registration and advice in the studied hospital. This is quite promising, and the encouraging gesture among pregnant populace may possibly be viewed as part of the positive outcomes of the

free antenatal care initiative or policy by the local, state and federal government. This coupled with the incessant campaigns by concerned stakeholders on the need for pregnant women to seek medical attention earlier in their pregnancy so as to stem the tides of child and maternal mortality which is the third of the eight Millennium Development Goals (MDGs) (MDG Task Force Report, 2009; Gender in Nigeria Report, 2012). However, of note and concern were some of the pregnant women who patronized mission/spiritual home where competent healthcare personnel and facilities may not be available for comprehensive antenatal care and screening. Although, there may be need to seek spiritual or divine intervention while pregnant, absolute desert from hospital antenatal care and screening should be totally discouraged among pregnant women.

A substantial number of pregnant women claimed to like taking medicine during pregnancy especially if it is prescribed and majority were aware that unprescribed medicine may have harmful effects on the foetus. Awareness of the need to shun the use of unprescribed medicines in pregnancy may be partly considered as a positive result from the constant enlightenments and awareness creation through the television and radio media by various stakeholders involved in the actualization of the 3<sup>rd</sup> MDGs. Several studies have shown that pregnant women commonly use medications during pregnancy, as well as pointed to the fact that pregnant women have sufficient knowledge about high risk medication in pregnancy. As a result, there is usually a “general fear” for medication use during pregnancy on account of harmful potential to the foetus (Einarson, 2007; Nordeng *et al.*, 2010, Bello *et al.*, 2011; Muhammad *et al.*, 2013).

Respondents in this study believed that medicine use during pregnancy is not harmful provided the medicine is used in accordance with healthcare provider’s advice and with caution. This is in agreement with previous studies reporting that pregnant women are often concern about the risks associated with medicine use during pregnancy and are very cautious (Koren *et al.*, 1989; Sanz *et al.*, 2001; Einarson, 2007). Interestingly, most women in this study neither agreed with herbal medicine use in pregnancy nor supported herbal medicine use without physician’s advice. This seems contrary to reports from survey studies among British, Italian and Norwegian pregnant women where over 57.8%, 50% and 36% of the women, respectively used herbs during pregnancy (Nordeng and Haven; 2004; Holst *et al.*, 2009). Fakeye *et al* (2009) also reported that more than two-third (67.5%) of pregnant women in their study used herbal medicines in crude forms or as pharmaceutical pre-packaged dosage forms. Although, herbal medicines may have some inherent benefits, its use in pregnancy needs to be discouraged since the components may not have been fully investigated for potential teratogenicity. Thus, there is generally a need for continuous and ongoing counseling of pregnant women on the negative consequences of unguided use of medicines including herbal supplements during pregnancy.

Hematinics and paracetamol were the most frequently used medicine among participants. This may be expected since the major components of routine antenatal medicines for every pregnant woman are usually combination of

hematinics unless when it is contraindicated. Folic acid and ferrous salt are necessary ingredients for foetal growth and development. Also, the widespread use of paracetamol is not surprising, since it is one of the few analgesics that are safe to use in pregnancy. Nonetheless, frequent maternal use of paracetamol during pregnancy may be associated with wheezing and asthma in early childhood (Mohammed *et al.*, 2013), thus, pregnant women should be advised to always use it with caution when desired. A study has also reported hematinics and paracetamol as the most commonly used medicines among pregnant women (Bello *et al.*, 2011). Sulphadoxine-pyrimethamine (SP) combination was the most commonly used antimalarial by participants. The SP combination is the recommended regimen for intermittent preventive treatment for malaria in pregnancy especially during the first and second trimester. Most of the medicines reported by participants are considered relatively safe using the FDA drug risk classification in pregnancy. This may be adduced to the fact that the ongoing campaigns and enlightenments by concerned public and private stakeholders on the need to avoid indiscriminate use of medicine in pregnancy might have been yielding positive effect, and this perhaps implying that women are generally educated to avoid medicine use during pregnancy on account of the perceived aftermath effect to the developing foetus (Bello *et al.*, 2011; Mohammed *et al.*, 2013).

It is noteworthy that majority of the participants disagreed that all medicines should be considered as poison in pregnancy, while a substantial proportion strongly support pregnant women’s mandatory commitment/adherence to routine antenatal medicines. These are quite encouraging and they are gestures that need to be continuously emphasized by healthcare providers during prenatal, antenatal and postnatal counseling and care. Optimal adherence to prescribed routine antenatal medicines by pregnant women will contribute to reduction in the incidence of avoidable complications of pregnancy.

In this study, a higher level of education is associated with some opinions about medication use in pregnancy as indicated by most respondents with post-secondary education who were strongly in support of the statement stating that herbal medicine should not be use during pregnancy without physician’s advice. Socio-demographic factors including educational background have been reported as significant factor that may impact on patients’ attitudes and opinions toward medication use in pregnancy (Horne and Weinman, 1999; Phatak and Thomas, 2006; Mardly *et al.*, 2007). Notwithstanding the useful findings from this study, it is however limited by the small sample size and short period of study. Thus, future study may need to consider larger sample size so as to ensure a far-reaching conclusion.

## CONCLUSION

It can be concluded from this study that a substantial proportion of pregnant women mostly liked using the prescribed medicines during pregnancy, and were strongly in support of mandatory adherence to routine antenatal medicines. Also, majority disagreed that all medicines

should be considered as poison in pregnancy, and were aware that medicines can cause harmful effects to the foetus. Most women neither agreed with herbal medicine use in pregnancy nor supported herbal medicine use without physician's advice, with possession of higher educational status having positive influence on the latter

opinion. These are quite encouraging, however, there is generally a need for continuous and ongoing counseling of pregnant women on rational use of medicine, emphasizing the consequences of unguided use of medicines including herbal supplements during pregnancy.

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