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Practice, Risk Perception, and Correlates of Self-Medication Among Pregnant Women in Awka

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Abstract

Background: Despite global discouragement of the practice of self-medication in pregnancy, available data showed that the practice still thrives in many parts of the world, especially the developing nations. Despite the major associated risk of potential harm to the mother and her fetus, self-mediation is believed to be a major driving force behind the increasing burden of anti-microbial resistance. In some parts of Nigeria like Awka city, self-medication in pregnancy is not well-understood due to lack of a comprehensive review study, hence the motivation behind this research.

Objective: This study aimed at assessing the practice, risk perception and correlates of self-medication among the pregnant women residing at Awka, Anambra State of Nigeria. The outcome of this research is hoped to offer a springboard for improving the reproductive health of women in the area.

Methods: A prospective, cross-sectional study was conducted across the Awka city using the following locations: one hospital's antenatal clinic, a town hall and a church hall for data collection. The data was collected when pregnant women gathered on the selected days at these locations. On each site, data was collected with a set of pretested, interviewer-administered, structured questionnaire. Following the returning of the questionnaires, data analysis was done using IBM SPSS version 20 statistical package, as well as Excel package.

Results: The practice of self-medication during pregnancy was very high, with more than half of the women (69.7%) admitted to having self-medicated during pregnancy. More than half of them (61.9%) perceived self-medication in pregnancy as a good practice with little or no associated risks. A significant percentage (31.5%) of them reasoned that self-medication in pregnancy could be risky only to women who become pregnant for the first time (primigravida). Similarly, more than half of the participants opined that herbal remedies are very safe in pregnancy and hardly cause harm to the fetus or the mother. Over seventy percent (70.7%) admitted that self-medication in pregnancy saves time and money, and should be promoted. Among the participants that admitted practicing self-medication in pregnancy, the medications reported to be commonly used include antibiotics (30.7%), antimalarials (83.6%), herbal remedies (21.8%), anti-emetics (61.1%), antipyretics and analgesics (90.2%), vitamins & minerals (95.5%), cold & allergy remedies (56.0%). The major correlates for the practice of self-medication in pregnancy in this study were pregnancy number [P=0.018], educational qualification (P=0.009), and occupation [P=0.007] of the respondents. The level of statistical significance was set at p<0.05.

Conclusion: Self-medication practice among pregnant women in Awka is substantially high, with a low level of risk perception. Because of the high Risk-Benefit ratio associated with self-medication in pregnancy, measures need to be implemented for a paradigm shift from self-medication to professional pharmacotherapy by the pregnant women. This will pave way for achieving a sustainable development goal on maternal-child health in Awka city in particular and Nigeria at large.

Keywords: Self-medication; Practices; Risk perception; Correlates; Antenatal care; Reproductive health; Nigeria.

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Introduction

Self-medication (a.k.a Auto-medication] has been defined by the World Health Organization as the "selection and use of medicines by individuals to treat self-recognized illness or symptoms, or the intermittent or continued use of medications prescribed earlier by a physician for chronic or recurrent diseases or symptoms [1]. The practice of self-medication is common worldwide in both developed and developing countries and may even be more common than the use of prescribed medication. As a matter of fact, there is 32% estimated prevalence of self-medication globally reflecting the high level of this practice worldwide [2]. In a certain study, it was discovered that the prevalence of self-medication in Nigeria was as high as 52.1% [3]. The importance of self-medication as a phenomenon has attracted the interest of health professionals including physicians and policy-makers, especially when drugs become deregulated and change from prescription status to be sold overthe-counter (OTC). Generally, it is accepted that self-medication has an important role in the care of minor illness with many ascribed benefits [4]. In fact the role of self-care, of which selfmedication is a subset of, was emphasized by the World Health Organization [WHO] in (1978) in its "Health for all by year 2000" initiative, which was implemented in many countries of the world. It is good to note that WHO specifically promoted responsible self-medication in which the individual practicing selfmedication becomes well informed concerning the drugs he/ she takes for self treatment. Taking drugs without basic knowledge of the medicines compromises the therapeutic outcomes of such drugs and also places the health of the individual at risk [5]. Pharmacists and the manufacturers of non-prescription medicines share the common goals of providing quality services to the public and encouraging responsible use of medicines. Ensuring that drug products are properly labeled with enclosed leaflet for safe use, are ways for promoting responsible use of medications. Advertising is helpful in informing people about medicines that are available without prescription, and it also offers some information on the advertised drugs especially as it concerns their indications [6]. In most cases, the public does not know which drugs are available for self-medication and the ones that are prescription only medication [POM], hence underscoring advertisement benefits. At the pharmacies where the medications are purchased, the pharmacist has that vital duty of advising the public on drugs allowed to be purchased without prescription. Although self-medication has been promoted by different healthcare delivery systems, the deleterious sequellae of such practice among pregnant women cannot be over-emphasized. Self-medication in pregnancy is a great risk irrespective of consumer's perceived knowledge about the safety of the medicine or previous use history [7]. The negative outcomes of self-medication in pregnancy can be seen in different degrees of congenital deformation observed in some individuals in our societies today [8,9]. History cannot forget the Thalidomide disaster of 1960's where the pregnant women who ingested thalidomide gave birth to children with phocomalia [10]. Various other instances of teratogenic effects of drugs on newborns are also recorded. It has been documented that congenital abnormalities caused by human teratogenic drugs account for 2-3% of total congenital abnormalities. Self-medication by pregnant women can disturb the development of the embryo or fetus and may cause serious structural and functional adverse effects, including low birth weight, premature birth, feeding problems, respiratory problems, malformations, developmental fetal toxicity, and others [11]. Against this backdrop,

the practice of self-medication in pregnancy should be entirely discouraged. One cannot ignore the fact that total avoidance of pharmacological treatment during pregnancy is not possible and may be dangerous because some women enter pregnancy with medical conditions that require ongoing and episodic treatment (e.g. asthma, epilepsy, and hypertension). Also during pregnancy new medical problems can develop and old ones can be exacerbated (e.g. migraine, headache) necessitating pharmacological therapy. The fact that certain drugs given during pregnancy can prove harmful to the unborn child is one of the classical problems in medical treatment. For these reasons pregnant women, when sick, should always seek medical attention only from professionals for rational drug prescriptions that will protect their lives and those of their unborn babies in the wombs. Findings have shown that pregnant women often come down with several symptoms due to the stress associated with pregnancy. Common symptoms frequently presented by this group of individuals include headache, fatigue, stomach upset, nausea, vomiting, edema, etc. These symptoms often push the pregnant women to self-medication, in a bid to restore their health status. Unfortunately, they engage in this practice with limited or no basic drug information or knowledge, thereby exposing their unborn babies and their own lives to potential iatrogenic harm. Pregnant women often forget that some of these symptoms experienced during pregnancy are self-limiting and therefore do not require pharmacological treatment. With adequate counseling and guided use of certain non-drug treatment approaches, some of the symptoms are overcome, and such counseling can be obtained during ante-natal sessions by physicians and midwives. Greater emphasis should be placed on such non-pharmacological approach as a way of forestalling undesired outcomes of drug use during pregnancy. Beyond the symptoms presented above as the common health challenges that prompt self-medication among pregnant women, the following other various reasons have been tagged as responsible for promoting self-medication during pregnancy, and they include: the urge to self-care, feeling sympathy for the family members during illness, lack of health care services, poverty, ignorance, misconceptions, extensive advertisements on drugs and the availability of drugs in places other than pharmacies, high cost of patronizing doctors in the hospitals, ready access to drugs, greater availability of medicinal products and easy access to medicines, previous medication experience [12], previous maternal illness [13], and poor knowledge regarding medication use and its risks [14]. It is good to note that none of these mentioned reasons justifies self-medication in this set of vulnerable individuals. The mechanisms through which certain drugs cause harm to the growing fetus and sometimes to the mother have been proposed. Some of the drugs can interfere with the genetic processes of the developing fetus thereby causing one form of defect or the other. Some other drugs may cause vasoconstriction of the placenta, hence compromising blood and nutrient supply to the fetus. This event can result in some negative outcomes including abortion, malnutrition or death of the developing baby. Another proposed mechanism has to do with maternal hormone deficiencies and imbalances. Certain female hormones, majorly estrogen, progesterone, and luteinizing hormone play vital roles both in getting pregnant and maintaining the pregnancy to a full term; any interference with the optimal functioning of these hormones can give deleterious effects [15]. For instance, if the progesterone level of the mother happens to be low at any stage of pregnancy, there is the risk of losing the pregnancy through abortion or still birth. Even at the first three months of pregnancy before the placenta takes over the role of producing progesterone, the inability of the corpus luteum [the yellow body] to produce adequate amount of progesterone often results in abortion. Certain drugs are known to interrupt the normal hormonal functions of the body during pregnancy [16]. Drugs of abuse such as cocaine and amphetamines, when used by pregnant women, exert undesirable effects on the fetus. These drugs produce such effects through inhibition of the serotonin transporter, nor-epinephrine transporter, and dopamine transporter. Normally, neurotransmitter transporters terminate the actions of the biogenic amines like serotonin (5-HT), dopamine (DA), and nor-epinephrine by clearing them from the extracellular space and are the primary sites of action for many psycho-stimulants and antidepressant drugs [17]. Inhibition of these transporters in placenta could lead to elevation of serotonin and nor-epinephrine in the intervillous space that may cause uterine contraction and vasoconstriction, resulting in premature delivery, decreased placental blood flow, and intrauterine growth retardation. Again inhibition of neuronal norepinephrine uptake system leads to increased sympathetic activity, resulting in cardiac stimulation and vasoconstriction with consequent hypertension in the mother. This causes a significant decrease in blood flow in the uterine tissue, leading to decreased perfusion of the placenta. As a result, transfer of essential nutrients as well as oxygen from mother to fetus is compromised (18). According to 16, blockade of uterine muscle norepinephrine uptake by certain drugs increases extracellular norepinephrine, which enhances uterine contraction. These effects on placental perfusion and uterine contraction were believed to be responsible for intrauterine growth retardation and premature delivery, which are often observed in women who abuse cocaine and amphetamines during pregnancy. In addition, these drugs were thought to cross the placenta, most probably via diffusion. Once inside the developing fetus, the drugs block the uptake of nor-epinephrine in sympathetic neurons in the fetus, leading to cardiac stimulation and vasoconstriction, actions similar to those seen in the mother. This causes hypertension in fetus, consequently affecting its growth and development. Other mechanisms for drug damaging effects on both mother and child during pregnancy still exists, however, some are not clearly understood. This study determined the practice, risk perception, and correlates of self-medication among pregnant women.

Methods

Study location and study site: This study was carried out in Awka city which is the capital of Anambra state, Nigeria. Geographically, the city lies 300 meters above sea level in a valley on the plains of Mamu River. It is sited in a fertile tropical valley but much of the original Rain forest has been lost due to clearing for farming and human settlement. Also, the city is located at 199.1 kilometres (123.7 mi), by road, directly north of Port Harcourt in the centre of the densely-populated Igbo heartland in South-East Nigeria. Awka city has an estimated population of 301,657 as of the 2006 Nigerian census, and over 2.5 million as of a 2018 estimate. The inhabitants are predominantly traders, farmers and artisans, and their major languages are Igbo and English.

Study design and participants: A questionnaire-based prospective, cross-sectional study was carried out among pregnant women residing in Awka town. The catchment areas from where we drew participants were antenatal unit of a hospital, a church, and a town hall. Pregnant women who attended these areas during the time of our study (between September and November 2022) were eligible for the study. The hospital used was Anambra State University Teaching Hospital which is located along Enugu-Onitsha express road. Pregnant women who came on ante-natal visit to the hospital on the selected days of our data collection participated in the study. St Michael's Catholic Church was the church used for the study due to its strategic location at the entrance of the city. Pregnant women who attended the church service on the days (four different Sundays) of our study were available for the study. Announcement was made by the end of the mass celebration demanding all the pregnant women to stay behind for important health information, and through that means we got our study participants. Awka Central Town Hall was equally used for the study, and this hall is located at the heart of Awka city. Through the help of the town criers, announcement was made round the city demanding the presence of all pregnant women residing in the city. We were able to administer our questionnaires to the target audience. In all these locations, due consents of the respondents were obtained before participating in the exercise, and only the pregnant women who were resident in Awka city qualified for the exercise. Those who did not show interest for the exercise were excluded and double or multiple participation was discouraged. In other words, no pregnant woman participated in more than one location of the study. Those who had participated in any of the three chosen locations were not allowed to double participate.

Study population: Available record at the time of our research estimated that there were about 1500 pregnant women residing in Awka city. Based on this, calculations were made using Yamane's statistical formula to establish the sample size for our study.

Sampling method/Sample size determination: Random sampling method was employed, and sample size was determined using Taro Yamane's formula for calculating sample size. Taro Yamane, a mathematical statistician developed a statistical formula for determining the sample size of the population under study so that inferences and conclusions reached after the survey can be generalized to the entire population from which the sample was obtained. Taro Yamane's statistical formula is stated as follows.

$$n = N / (1 + Ne^2)$$

n= corrected sample size,

N = population size (N=1500)

e = Margin of error, e=0.03 based on the research condition.

Therefore,

- n = 1500 / 1 + (1500 x 0.03²)
- n = 1500 / (1 + 1500 x 0.0009)
- n = 1500 / (1 + 1.35)
- n = 1500/ 2.35
- n = 638

Additional number 12 was added to the figure to bring the sample size to a total of 650.

Inclusion criteria: All the pregnant women at any gestational age who attended our selected locations [the hospital, the church, and the town hall] on the days we carried out our data collection were included in the research. Only those who gave their informed consent for participating in the exercise, and are resident at Awka were included in the study. As English was the official language of instruction, only those pregnant women who could read and write in English participated in the exercise.

Exclusion criteria: We excluded all the pregnant women who appeared at the sites of our data collection, but did not give their informed consent to participate in the study. We excluded double or multiple participations by making sure that any pregnant woman who had earlier participated in the exercise at one of the three selected locations did not participate in the other two locations. Those pregnant women who did not obtain any formal education, and so could not read and write in English language were excluded in the study. We also excluded all the pregnant women who reside outside the Awka city. Again, those pregnant women who were critically ill and could not give unbiased response were excluded from the study.

Data collection/processing: Relevant data for the analysis was collected through the distribution of structured and validated questionnaires among the participants under the study. A total of fifteen eligible pregnant women were used for the pilot survey. These fifteen pregnant women were excluded from the main study. The outcome of the pilot study helped us to make certain corrections and modification before carrying out the main survey.

Study period: Our study [both pilot survey and main study] took place within a space of 2 months, between the month of August and September 2022.

Data analysis: Data analysis was done using descriptive statistics. The data was subsequently analyzed electronically with the Statistical Package for Social Sciences (SPSS) software, and Excel package; the presentation of data was done using frequency tables and charts. Research questions were answered using descriptive statistics of frequency tables.

Ethical approval: In each of the data collection points, a written permission to carry out our research was obtained from the relevant authorities. Confidentiality was ensured and the values and norms of participants were well studied and respected to avoid any misconception during and after data collection. All respondents were duly informed that the survey was voluntary and that they were not under compulsion to participate, and anyone was free to decline at any point during the study. All sources of data obtained in the course of the study were duly acknowledged and confidential.

Results

Result on the socio-demographics: A total of 650 questionnaires were distributed and 632 questionnaires were returned properly filled making a response rate of 97.2%. From the results, the modal age bracket was 20-30 years (38.4%); the majority of the respondents were of Igbo extraction (85.1%). The dominant gestational stage of the participants was third trimester 255 (40.3%). Overall, 57(9.0%) had no formal education, with close to half of them 261(41.3%) obtaining tertiary education. The greater number of the respondents was attempting their fourth pregnancy with a count of 127(20.1%). Details of the demographic characteristics are presented in the Table 3.

Table 1: Respondents	' demographic data
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S/N	Demographic variables	Description	n (%)	P-values (at 95% C.I)	
		Less than 20 yrs	96(15.2)		
1.455		20-30 yrs	234(38.4)		
		31-40 yrs	183(29.0)		
1. Ag	;e	41-50 yrs	99(15.7)	0.093	
		More than 50 yrs	11(1.7)		
		Total	632(100)		
		Married	518(82.0)		
		Single	76(12.0)	0.154	
2. M	arital status	Divorced	38(6.0)		
		Total	632(100)		
		First	97(15.3)		
		Second	120(19.0)		
		Third	117(18.5)		
3. Pr num	egnancy ber	Fourth	127(20.1)	0.018	
		Fifth	98(15.5)		
		More than fifth	73(11.6)		
		Total	632(100)		
		No formal education	57(9.0)		
		Primary education	131(20.7)		
4. Ed quali	lucational ification	Secondary education	183(29.0)	0.009	
		Tertiary institution	261(41.3)		
		Total	632(100)		
		First trimester	138(21.8)		
E G	stational ago	Second trimester	239(37.8)	0.221	
5. Ge	estational age	Third trimester	255(40.3)	0.231	
		Total	632(100)		
		House wife	92(14.6)		
		Civil servant	187(29.6)		
6. 04	cupation	Business woman	178(28.2)	0.007	
0.00		Student	136(21.5)		
		Others	39(6.2)		
		Total	632(100)		
		Igbo	538(85.1)		
7. Tri	ibes/Languages	Hausa	53(8.4)	0.143	
	ibes/ Languages	Yoruba	41(6.5)		
		Total	632(100)		

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Table 2: Practice of self-medication.

Item	Not at all (n%)	Rarely (n%)	Often (n%)	Always (n%)
Do you take drugs on your own volition (i.e. not by doctor's prescription) during pregnancy	192(30.4)	79(12.5)	217(34.3)	144(22.8)
If "Yes", what is your major reason for practicing	It saves time	It saves money	Lack of healthcare system near my area	Having prior experience with the drugs
self-medication in pregnancy (thick only one op tion)	198(45.0)	283(64.3)	56(12.7)	95(20.0)

Table 3: Risk perception of the respondents on SM in pregnancy.

S/N	Item description	Yes n(%)	No n(%)	Not sure n(%)	
1	Are you aware of self-medication in pregnancy	618(97.8)	9(1.42)	5(0.78)	
2	Self-medication in pregnancy carries no serious risk to the fetus or the mother	391 (61.9)	147(23.3)	94(14.8)	
3	Abortion or miscarriage can result from self-medication in pregnancy	239(37.8)	195(30.9)	198(31.3)	
4	Self-medication can cause the death of a growing fetus in the womb, or harm the mother	281(44.5)	197(31.2)	154(24.3)	
5	Self-medication could be risky only on women who become pregnant for the first time (i.e. the first timers).	199(31.5)	124(19.6)	309(48.9)	
6	Self-medication in pregnancy is risky only during the first trimester (i.e. the first 3 months of pregnancy).	207(32.6)	147(23.3)	278(44.1)	
7	Self-medication in pregnancy saves time and money and should be encouraged	447(70.7)	82(13.0)	103(16.3)	
8	Herbal remedies are very safe in pregnancy and hardly cause harm to the fetus or the mother	296(46.8)	192(30.4)	144(22.8)	
9	Have you heard or learnt about category X drugs and their use in pregnancy	569(90.0)	23(3.6)	40(6.4)	

Table 4: Risk assessment of some selected drugs in pregnancy.				
S/N	Drugs	Risk Assesment		
		Safe n(%)	Unsafe n(%)	Not sure n(%)
1	Paracetamol	236(37.3)	84(13.3)	312(49.4)
2	Ibuprofen & other NSAIDs	113(17.9)	90(14.2)	429(67.9)
3	Ciprofloxacin & other flouroquinolones	287(45.4)	79(12.5)	266(42.1)
4	Vitamin A & other oral retinoid medications	309(48.9)	63(10.0)	260(41.1)
5	Codeine	319(50.5)	75(11.9)	238(37.7)
6	Warfarin (Coumadin)	390(61.7)	86(13.6)	304(24.7)
7	Lorazepam & other benzodiazepines	428(67.7)	63(9.97)	87(22.3)
8	Thalidomide	218(34.5)	59(9.3)	355(56.2)
9	Chloramphenicol	198(31.3)	152(24.1)	282(44.6)
10	Lisinopril & Losartan	294(46.5)	112(17.7)	226(35.8)
11	Carbamazepine & other anti-seizure drugs	188(29.7)	97(15.3)	347(55.0)
12	Lithium	210(33.2)	116(18.4)	314(48.4)
13	Lipitor & other statins	276(43.7)	82(13.0)	274(43.3)
14	Tetracycline antibiotics	259(41.0)	58(9.2)	315(49.8)
15	Amphetamine	200(31.6)	119(18.8)	313(49.6)

 Table 5: Drugs commonly used in self-medication in pregnancy.

S/N	Drugs	N(%)
1	Antibiotics	135(30.7)
2	Anti-malarias	368(83.6)
3	Anti-emetics	269(61.1)
4	Cold & cough remedies	246(56.0)
5	Vitamins & Minerals	420(95.5)
6	Herbal remedies	96(21.8)
7	Antipyretics and analgesics	397(90.2)
8	Antihypertensive drugs	89(20.2)
9	Diuretics	136(30.8)

Discussion

Self-medication in pregnancy was found to be very high (69.7%) in Awka city of Anambra State, with a very low risk perception of the respondents. This finding is in accordance with that of a similar work done in Sokoto, Nigeria by [19] where the prevalence of self-medication in pregnancy was found to be 67.9%. Another work with a similar high prevalence was done in Oyo, Nigeria by [20] with prevalence of 51.0%. High prevalence of self-medication in pregnancy has equally been reported in the research performed in Jos-North by 7 where 62.9% practiced self-medication in pregnancy. Even outside Nigeria, a similar work carried out by [21] in Ethiopia yielded similar prevalence of 69.4%. However, a much lower prevalence was recorded in the work done in Umuahia, Nigeria by [22]; and also in the work done in Port Harcourt by [2] in which a prevalence of 31.0% (95% CI=26.7-73.3) was recorded. On the other hand, in a similar work carried out in Nigeria recorded a very high prevalence of self-medication of 74.3% [23]; another similar work with high prevalence was carried out at Jos-Plateau, Nigeria in which 85% prevalence of self-medication in pregnancy was reported [24]. This differences observed in the above published works could be due to the study setting, health policies regarding medication use, and the methods applied, such as the studied population and recording period considered to assess self-medication practice among pregnant women. Although almost all the respondents (97.8%) were aware of selfmedication in pregnancy, they generally showed very low risk perception to the practice. For instance, up to 61.9% admitted that self-medication in pregnancy carries no risk to the developing fetus or the mother. A similar work in Sokoto reported a poor risk perception by the respondents on the practice of self-medication during pregnancy [19]. In our work, a significant percentage (31.5%) of the respondents were of the opinion that self-medication in pregnancy could be risky only on primigravida, an opinion that is false. Report by [25] in their work done in Tigra, Ethiopia showed that self-medication can negatively affect the fetus and its mother irrespective of the gravidity status. On the statement that "self-medication in pregnancy saves time and should be encouraged," more than half of the participants (70.7%) responded in affirmative. They are ignorantly seeing the economic gain of such practice, without knowing the gravity of the potential danger associated with it. To confirm their ignorance of the negative humanistic outcomes of self-medication in pregnancy, almost of all of them (90%) admitted having not heard of category X drugs and their use in pregnancy. These are a group of medications that have shown positive evidence of fetal risk and should not be used during pregnancy; the risk to the fetus clearly outweighs any potential benefit to the mother [26]. Some examples of category X drugs and their effects on the fetus are (a) oral contraceptives, which can prevent normal implantation or cause hormonal imbalance that can terminate pregnancy; (b) Vitamin A and its derivatives, which can cause birth defects and miscarriages (c) Thalidomide, which caused a serious disaster in the 60s should not be taken by a pregnant woman. Even a single dose of thalidomide taken during pregnancy can cause severe birth defects or death of the unborn baby. On risk assessment of the respondents based on the intake of some selected drugs during pregnancy, the study showed low risk perception. This can be seen by the high percentage of "Not sure" ticked by the respondents against most of these drugs. Even most of the drugs they ticked "Safe" belonged to the category X group of drugs. For instance, nearly half of the respondents (48.9%) and (34.5%) indicated that vitamin A and thalidomide respectively are safe for medication during pregnancy. A significant percentage of them indicated that codeine (50.5%) and amphetamine (31.6%) were safe for use in pregnancy. Research findings have shown that such substances of abuse have the tendency to harm the developing fetus through different mechanisms, including reducing placental blood flow and nutritional supply to the fetus [27]. The most commonly self-medicated drugs shown in this study include vitamins & minerals (95.5%), perhaps due to the fact that pregnancy demands much vitamins and minerals for the optimal development of the fetus. Lack of certain trace elements during pregnancy often results in poor birth outcomes. For instance, lack of vitamin B9 [folic acid] can result in a severe structural deformity called neural tube defect, a birth defect that the brain and spinal cord. According to [28], deficiencies of trace elements like

zinc, copper and magnesium have been implicated in various reproductive events like infertility, pregnancy wastage, congenital anomalies, pregnancy induced hypertension, placental abruption, premature rupture of membranes, still births and low birth weight. Our study equally showed that antipyretics & analgesics are commonly implicated in self-medication by respondents during pregnancy with as high as 90.2% count. This widespread use of this class of drugs may be linked to increased body production of prostaglandin, a chemical pain mediator. Another class of drugs found to be commonly implicated in selfmedication in pregnancy is antimalarials with up to 83.6% of the respondents admitted using it. In Nigeria, malaria disease is common in pregnancy, and can cause serious complications if not properly managed or prevented. Our study also showed that 61.1% of the respondents admitted that they self-medicate with anti-emetics. Especially in the first trimester, pregnant women often experience symptoms of nausea and vomiting. According to [29], nausea and vomiting are common experiences in pregnancy, affecting 70-80% of all pregnant women. Drug classes discovered in our study to be commonly used in self-medication in pregnancy appear to be similar to findings in other studies [30,31]. About the major reason for practicing self-medication in pregnancy, we discovered that "money saving" was the commonest reason given by the respondents with a count of 64.3%, followed by time saving (45.0%) having prior experience with the drugs (20.0%); and lack of healthcare facilities in the vicinity (12.7%). This trend is similar to the findings from studies carried out by [19,32,33,22,7]. Major correlates to self-medication in pregnancy discovered in this study include educational qualification [P-value=0.009; occupation P-value=0.007]; & pregnancy number (P-value=0.018). This is in line with the finding in a study carried by [11,34].

Study limitations and strengths: Finally, our study had some limitations. The study was a cross—sectional one suggesting that it cannot provide adequate evidence of causality regarding self-medication and its practice, risk perception and correlates. The study was limited to Awka city alone which will not give a precise reflection of what is happening to other parts of the country. Therefore, similar study needs to be replicated in some other parts of Nigeria. Again, the data, which is self-reported, is subject to recall bias. The strength of this study includes the high response rate of 97.2%, and large sample size of 632 which collectively accord higher precision to the results. Data collection for the study was not only based on a hospital facility, a church and a town hall were also used to give higher credibility to the study.

Conclusion

This study showed high prevalence and low risk perception among pregnant women residing in Awka city of Anambra State, Nigeria. Widespread sensitization of the members of the public, especially the womenfolk and provision of comprehensive healthcare services in the city at subsidized costs for the pregnant women are crucial for combating the menace of selfmedication during pregnancy. The print and social media involvement information creation will assist in creating awareness to this group concerning the associated risks in the practice of self-medication during pregnancy. As financial reason was part of the reasons for this practice, women empowerment should be promoted by creating employment opportunities to improve the economic status of women. Furthermore, the government should make and implement laws that will guide the sale and distribution of drugs and enforce existing ones. The present coverage of the National Health Insurance Scheme should be extended to cover all pregnant women so that the economic burden of orthodox care will be ameliorated.

References

- 1. WHO Guidelines for the regulatory assessment of medicinal products for use in self-medication. Available at. 2000. https://apps.who.int/iris/handle/10665/66154 (Accessed January 31, 2022).
- Clement KE, Wegbom AI, Kitoye GS, Ordu LS, Jaja ID, Peter JE, Harold I, Onyema C, Pepple BG, & Adeniyi F.F Prevalence and Factors Influencing Self- Medication among Pregnant Women Attending Antenatal Clinics in Urban Tertiary . Hospitals in Nigeria; Journals of BioMed. 2023; 3: 1.
- Wegbom AI, Edet CK, Raimi O, Fagbamigbe AF, Kiri VA, Self-Medication Practices and Associated Factors in the Prevention and / or Treatment of COVID-19 Virus: A Population-Based Survey in Nigeria. Front. Public Health. 2021; 9: 606801. [Google Scholar] [CrossRef].
- Alghanim SA Self-medication practice among patients in a public healthcare system. Eastern Mediterranean Health Journal. 2011; 75: 5.
- Dayani G, Responsible self-medication: review of the process of pharmaceutical attendance; Brazilian Journal of Pharmaceutical Sciences. 2009; 45: 4.
- 6. Jennifer S, Direct-to-Consumer Advertising for Drugs; Center for Ethical Organizational Cultures Auburn University. 2016. http:// harbert.auburn.edu.
- 7. Joseph BN, Ezie IJ, Aya BM, & Dapar MLP Self-medication among Pregnant ,Women Attending Ante-natal Clinics in Jos-North, Nigeria; International Journal of Tropical diseases. 2016; 21(1).
- Sidney MD. Teratogenic agents and congenital malformations; The Journal of Pediatrics. 1963; 63(4) 1.
- Thiago M.N, Debora GM, georgio GM, Emmanuel C Teratogens: a public health issue – a Brazilian overview; Journal of Genetics and Molecular Biology. 2017; 40(2): 387- 397.
- 10. James HK, and Anthony RS. Thalidomide: The Tragedy of Birth Defects and the Effective Treatment of Disease; ILSI Health and Environmental Sciences Institute, Washington, DC 20005; and Tetra Tech Sciences, Arlington, Virginia. 2011; 22201-3397.
- 11. Abdu T, Abebe GF, Slomon AN, & Mengistie YG Self-Medication and Associated Factors Among Pregnant Women Attending Antenatal Care at Kemisie General Hospital, North East Ethiopia; Journ National Library of Medicines. 2020; 14: 1969-1978.
- 12. Beyene M and Beza S.W Self-medication practice and associated factors among pregnant women in Addis Ababa, Ethiopia; Journal of National Library of Science. 2018.
- Abeje G, Admasie C, Wasie B Factors associated with self medication practice among pregnant mothers attending antenatal care at governmental health centers in Bahir Dar city administration, Northwest Ethiopia, a cross sectional study; Pan African Medical Journal. 2015. doi: 10.11604/pamj.2015.20.276.4243.
- Ahmad A, Patel I, Mohanta, GP. and Balkrishnan R. Evaluation of Self-Medication Practices in Rural Area of Town Sahaswan at Northern India. Annals of Medical and Health Sciences Research. 2014; 4: 73-78. https://doi.org/10.4103/2141-9248.138012.
- 15. Napso T, Yong H E J, Lopez-Tello J, & Sferruzzi-Perri, A. N. The Role of Placental Hormones in Mediating Maternal Adaptations to Support Pregnancy and Lactation.Frontiers in Physiology. 2018. doi:10.3389/fphys.2018.01091.

- 16. Ravindu G & Avinash SP Vaccines During Pregnancy ,Drugs Used to Treat Heart and Blood Vessel Disorders During Pregnancy, Antidepressants During Pregnancy, Antiviral Drugs During Pregnancy, Social Drugs During Pregnancy, Illicit Drugs. During Pregnancy, Drugs Used During Labor and Delivery; MSD Manual, consumer version. 2022.
- Mads BL, Sonders MS, Mortenson OV, Gaynor AL, Zahnisar NR, & Amara S.G Dopamine Transport by the Serotonin Transporter: A Mechanistically Distinct Mode of Substrate Translocation; Journal of Neuroscience. 2011; 31(17): 6605- 6615. DOI: https:// doi.org/10.1523/JNEUROSCI.0576-11.
- 18. Vadivel G Drugs of abuse and human placenta; National Library of Medicines Journ. 2011.
- 19. Aisha A, Awosan KJ, Mario H, Adeniyi S Awareness, risk perception and practice of self-medication among pregnant women attending ante-natal clinics in Sokoto, Nigeria; Journal of Drug Delivery & Therapeutics. ISSN. 2018; 2250-1177.
- Olaniyan A B, Ikeola A A, Aishat B U, Chukwuma D U, & Olufunmilayo I. F.(2021): Pattern and determinants of self-medication among pregnant women attending antenatal clinics in primary health care facilities in Ogbomoso, Oyo State, Nigeria: J Interval Epidemiol Public Health. 2021; 4(3): 7. DOI: https://doi. org/10.37432/jieph.2021.4.3.36.
- 21. Abera J, Getnet M, Mekonnen S, Firehiwot A, & Dumessa E Self-Medication and Contributing Factors Among Pregnant Women Attending Antenatal Care at Public Hospitals of Harar Town, Ethiopia; National Library of Medicine. 2018. PMCID: PMC6178140 PMID: 30337871.
- Obi OC & Anosike C A cross-sectional study on the knowledge, attitude, and practice of pregnant women regarding medication use and restriction during pregnancy; Journ of National Library of Medicine 2023. doi: 10.1016/j.rcsop.2023.100308.
- 23. Fakeye TO & Rasaq A, & Musa IE Attitude and use of herbal medicines among pregnant women in Nigeria. BMC Complement Altern Med. 2009. doi: 10.1186/1472-6882-9-53.
- 24. Andy E, Godwin A, Barry BA, Ramatu M Self Medication Practice among Pregnant Women AttendingAntenatal Clinic in Selected Hospitals in Jos, Nigeria. International Journal of Nursing and Health Science. 2014; 1(6): 55-59.
- 25. Yirga LN, Mohammed K, Asgedom SW, Demoz GT, Shishay W, & Kidu G (2021): Self-medication practice and contributing factors among pregnant women; Journ of PLOS One collection, Ethiopia.
- Omkar S, Agrawal P, Ruchika G, & Ayush A Drugs in pregnancy: an update; Journal of SAFOG. 2014; 6(3): 7- 11. DOI: 10.5005/ jsafog-6-3-vii.
- Ross EJ, Graham DL, Money KM, & Stanwood GD Developmental Consequences of Fetal Exposure to Drugs: What We Know and What We Still Must Learn; Journal of National Library of Medicine. 2014. doi: 10.1038/npp.2014.147.
- Pathak P, & Umesh K Role of trace elements zinc, copper and magnesium during pregnancy and its outcome Indian Journal of Pediatrics. 2004. doi: 10.1007/BF02828116.
- 29. Noel ML & Sumona S Nausea and Vomiting of Pregnancy; Journal of National Library of Medicine. 2011. doi: 10.1016/j. gtc.2011.03.009.
- Mohammed A, Asgedom SW, Demoz GT, Wahdey S, & Gidey K Self-medication practice and contributing factors among pregnant women; Journ of National Libray of Medicine. 2021. doi: 10.1371/journal.pone.0251725.

- Niriayo YL, Mohammed K, Asgedom SW, Demoz GT, Wahdey S, Gidey K Self-medication practice and contributing factors among pregnant women. PLoS ONE 2021; 16(5): 0251725. https://doi.org/10.1371/journal.pone.0251725.
- 32. Yahkub BM, Monsurat A, Saidu AK, Saleh A, Rehinatu A, Zainab GI, & Hashiya MG Self-medication in Pregnancy and Associated Factors among Antenatal Patients of a Tertiary Facility in North-Eastern Nigeria; African Journal of Health Sciences. 2022; 35: 5.
- Nkrumah J, Yao-Gbagbo F, Gbagbo FY Self-Medication among Pregnant Women in Effutu and Agona West Municipalities of the Central Region of Ghana. 2019; 26.
- 34. Adama S, Lauren JW, Joshua A, Sandra K, & Adongo P.B Selfmedication practice of pregnant women in northern Ghana: An analytical cross-sectional study; African Journal of Reproductive Health. 2021; 25(4): 89.

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