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ATTITUDE TOWARDS ADVERSE DRUG REACTION AMONG PREGNANT WOMEN ATTENDING SPECIALIST HOSPITALS IN MAIDUGURI METROPOLIS, BORNO STATE

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Abstract

The study assessed the attitudes towards adverse drug reactions among pregnant women receiving antenatal care in specialist hospitals. The study hypothesized that there is no significant attitude towards adverse drug reactions in this population. A cross-sectional study design was employed, utilizing a self-developed questionnaire Attitude of Adverse Drug Effect among Pregnant Women Attending Specialist Hospitals (AADEPWASH) to collect data. The study population comprised 750 pregnant women attending antenatal care in four specialist hospitals in Maiduguri Metropolis. A sample size of 384 was determined, with [redacted] participants selected using a two-stage sampling procedure: proportionate and accidental sampling techniques. The questionnaire, validated by experts and with a reliability coefficient of 0.81, collected demographic information and assessed attitudes towards ADRs using a 4-point Likert scale. Data analysis involved descriptive statistics for demographic information and inferential statistics using a one-sample t-test at a 0.05 significance level to test the hypothesis.

Keywords: Attitude, Adverse Drug Reactions (ADR), pregnant women, Specialist hospitals, Medication

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The demographic profile revealed a majority of respondents (78.12%) aged 28-47 years, with 67.97% having at least secondary education. Most were economically active (62.76% employed or self-employed), and 74.48% had three or more pregnancies. Pregnant women attending specialist hospitals in Maiduguri Metropolis, Borno State has positive attitude towards adverse drug reaction. This can be confirmed as majority of the pregnant women 156(40.6%) pregnant women strongly believed that the adverse drug reactions can harm my unborn baby. The one-sample t-test revealed no significant difference in attitudes towards ADRs (mean score = 2.3627, SD = 0.69938) compared to the hypothetical average (2.5), with $t(383) = 1.737$, $p = 0.1010$. This result led to the acceptance of the null hypothesis, indicating no significant attitude towards adverse drug reactions among the study population. The study recommends fostering a supportive environment for discussing medication concerns, educating pregnant women on the importance of ADR reporting, providing clear explanations of medication benefits and risks, and integrating ADR education into routine antenatal care.

Introduction

An adverse drug reaction (ADR) is defined as a harmful or unintended response to a medication that occurs at doses normally used for treatment, diagnosis, or prevention of disease. ADRs can range from mild side effects to severe, life-threatening conditions, and they pose significant concerns for patient safety, particularly among vulnerable populations such as pregnant women. Understanding and monitoring ADRs are crucial for improving medication safety and therapeutic outcomes (World Health Organization, 2020). However, ADRs in pregnant women are of great concern since pregnancy results in changes in physiology which will influence the absorption, distribution, metabolism, and excretion of the medications. Thus, this increases the possibility of ADRs or change their severity. In addition, pregnant women are treated for many diseases with different medications which can be teratogenic for them. Therefore, ADRs should be monitored in order to prevent possible harm to both mother and fetus. The difference between adverse drug reactions in pregnant and non-pregnant women lies in the fact that in pregnant patients the adverse reaction is different from the one in other patients or certain medication is contraindicated. The result of adverse drug reaction may cause preterm delivery, fetal growth retardation or congenital defects (Adebayo, Olorunsogo & Adeyemi, 2020).

A retrospective descriptive cross sectional survey comprised of all the pregnant women attending ANC in Sir Yahaya Memorial Hospital Birnin Kebbi, showed that 49.6% of the respondents were not taking the entire drugs prescribed to them. 25.8% of the

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respondents believed that some drugs prescribed at ANC clinic may be detrimental to them or their fetuses (Jafaru, Yalwa, Muhammad & Ibrahim, 2016). A hospital-based cross-sectional survey among pregnant women found that the large majority held a positive attitude towards safe medication use (91.33%), yet this favourable attitude did not translate into correspondingly high rational practice, revealing a persistent attitude-practice gap that leaves women vulnerable to unrecognized or unreported ADRs (Goruntla, Ganzi, Otturu, Vaddi, Mood, Suchitra, Vishwanathasetty, Veerabhadrappa, Ezeonwumelu & Naik, 2025). Comparable evidence from Riyadh similarly points to variable attitudinal patterns around medication use in pregnancy, with factors such as maternal age, education, and prior pregnancy experience shaping how women perceive and respond to potential drug-related risks (Almuhareb, Al Sharif & Cahusac, 2024).

Socio-demographic factors have been found to influence attitudes towards ADRs in pregnancy. Education level, age, parity, and cultural background can all play a role in shaping perceptions and behaviors (Lupattelli et al., 2014). For instance, women with higher education levels may be more likely to seek information about medication risks, while cultural beliefs may influence perceptions of the safety of traditional remedies versus modern pharmaceuticals. The role of healthcare providers in shaping attitudes towards ADRs is critical. Studies have shown that the quality of patient-provider communication can significantly impact a woman's understanding of medication risks and benefits (Jasper et al., 2001). However, healthcare providers face challenges in communicating risk effectively, balancing the need to inform patients without causing undue anxiety. In specialist hospital settings, where high-risk pregnancies are often managed, attitudes towards ADRs may be particularly complex. Women attending these facilities may have pre-existing health conditions requiring medication, potentially influencing their risk perception and attitudes towards ADRs (Widnes & Schjøtt, 2017). Additionally, the increased medical surveillance in these settings may heighten awareness of potential risks.

The advent of the internet and social media has also significantly impacted attitudes towards ADRs in pregnancy. While these platforms can provide valuable information and support, they can also be sources of misinformation, potentially skewing perceptions of medication safety (Sayakhot & Carolan-Olah, 2016). The challenge for healthcare providers is to guide patients towards reliable sources of information while addressing misconceptions that may arise from online sources. Understanding the attitudes of pregnant women towards ADRs is crucial for several reasons. It can inform the development of targeted educational interventions, improve patient-provider communication, and ultimately lead to more informed decision-making regarding medication use during pregnancy. Furthermore, it can help identify gaps in attitude and areas where support is needed to ensure optimal maternal and fetal health outcomes.

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Within Maiduguri specifically, this attitudinal gap is likely compounded by the post-insurgency healthcare context, where disrupted pharmacovigilance infrastructure, limited health worker time for counselling, and low general awareness of formal ADR reporting channels may further discourage pregnant women attending specialist hospitals from recognizing, disclosing, or acting on adverse drug reactions experienced during antenatal care, underscoring the need for context-specific assessment of this attitude in the study area.

Hypothesis

There is no significant attitude towards adverse drug reaction among pregnant women attending specialist hospitals in Maiduguri Metropolis, Borno state

Methodology

The study adopted cross-sectional research design. Cross-sectional research is a type of observational research that collects data from a sample of participants at a single point in time. It is often used to describe the characteristics of a population, identify associations between variables, and measure the prevalence of health outcomes. (Saunders & Thornhill, 2016).

The population for this study comprise all pregnant women attending antenatal care in specialist hospitals in Maiduguri Metropolis, Borno state. This specialist hospital are state specialist hospital, Umar Shehu Ultramodern Hospital, Muhammed Shuwa Hospital (Nursing home) and Maryam Abatcha Women and Children Hospital, with population of 750 (Borno State Hospital Management, 2023). The sample size for the study is three hundred and eighty four (384). Proportionate sampling techniques and accidental sampling techniques. The proportionate sampling techniques was used to distribute questionnaires to each specialist hospitals in Maiduguri Metropolis, Borno State, while availability sampling techniques was used to administer the questionnaire to the respondents.

The research instrument used for this study was a self-developed questionnaire named Attitude towards adverse drug reaction among pregnant women attending specialist hospitals in Maiduguri Metropolis, Borno State Attitude of Adverse Drug Effect among Pregnant Women Attending Specialist Hospitals (AADEPWASH). The questionnaire was divided be into two sections A, and B. Section "A" on demographic information of the respondents. Section "B" on attitude of adverse drug effect among pregnant pregnant women attending specialist hospitals in Maiduguri Metropolis, Borno State. Nworgu, (1991) stated that information relevant to the construction of instruction could be gathered from textbooks, libraries, references materials and experiences gained during the programme and regular consultation with the supervisors while drawing research

questions. A 4 point Likert type scale respond mode was used. The statements of the questionnaire afforded the respondents to answer by ticking one respond, for example, the respondents were requested to indicate their opinion by ticking in the appropriate column as follows; SA=Strongly Agree, A=Agree, D= Disagree, SD=Strongly Disagree. In validating the research instrument, a draft copy of the questionnaire was scrutinized and reviewed by experts in the Department of Physical and Health Education. To determine the reliability of the instrument, split- half test was used to determine the reliability coefficient test for which reliability was calculated and administered and reliability coefficient was 0.81

The completed questionnaire were collated and coded. Data were presented in tables. The statistical techniques used to describe the data was descriptive statistics of frequency counts and percentages were employed to organized and describe demographic information while inferential statistics of one sampled t-test was used to answer research the formulated hypotheses at 0.05 significance level.

Table 1: Demographic Attributes of Respondents

Variables	Frequency	Percent
Age		
18-27years	45	11.72
28-37years	173	45.05
38-47 years	127	33.07
48 years and above	39	10.16
Educational Qualification		
Non-formal education	52	13.54
Primary level	71	18.49
Secondary level	152	39.58
Tertiary level	109	28.39
Occupation		
House-wife	49	12.76
Student	94	24.48
employed	117	30.47
Self employed	124	32.29
Parity		
1-2	98	25.52
3-4	150	39.06
5 and above	136	35.42
Total		

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Table 1, presents the demographic attributes of the respondents in this study. The age distribution shows that the majority of respondents (78.12%) fall within the 28-47 year age range. The largest group is 28-37 years (45.05%), followed by 38-47 years (33.07%). There's a smaller representation of younger (18-27 years) and older (48 years and above) pregnant women, at 11.72% and 10.16% respectively. This distribution suggests that the study primarily captured women in their prime reproductive years, with a notable number of older mothers as well. The educational background of respondents is diverse. The largest group (39.58%) has secondary level education, followed by those with tertiary education (28.39%). Combined, these two groups represent 67.97% of the sample, indicating that the majority of respondents have at least a secondary level of education. However, a significant portion (32.03%) have primary level education or no formal education, highlighting the varied educational backgrounds in the study population. The occupational distribution shows a diverse range of professional statuses. The largest group is self-employed (32.29%), closely followed by employed respondents (30.47%). Together, these two groups represent 62.76% of the sample, indicating that the majority of respondents are economically active. Students form a significant portion (24.48%), which is interesting given the age distribution. House-wives represent the smallest group (12.76%). The parity distribution shows that the majority of respondents (74.48%) have had 3 or more pregnancies. The largest group is women who have had 3-4 children (39.06%), closely followed by those with 5 or more children (35.42%). A quarter of the respondents (25.52%) have had 1-2 children.

Research Question 1: What is the attitude pregnant women attending specialist hospitals in Maiduguri Metropolis, Borno State towards adverse drug reaction?

Table 2: Attitude towards Adverse Drug Reaction among Pregnant Women Attending Specialist Hospitals in Maiduguri Metropolis, Borno State

S/N	Statement	SA	A	DA	SD
1.	I believe adverse drug reactions can harm my unborn baby.	156(40.6%)	145(37.8%)	40(10.4%)	43 (11.2%)
2.	I am concerned about experiencing side effects from medications during pregnancy.	138(36.1%)	145(37.8%)	49 (12.8%)	51(13.3%)
3.	I think it is important to report any side effects I experience while on medication.	159(41.4%)	131(34.1%)	30 (7.8%)	60(15.7%)
4.	I believe that medications prescribed by my doctor are safe during pregnancy.	134(34.9%)	119(30.9%)	61(15.9%)	70(18.3%)
5.	I feel confident in my knowledge about adverse drug reactions.	127(33.1%)	121(31.5%)	61(15.9%)	75 (19.5%)

S/N	Statement	SA	A	DA	SD
6.	I think avoiding medications altogether is the best way to prevent ADRs.	129 (33.6%)	117 (30.5%)	77(20.1%)	61(15.8%)
7.	I trust healthcare providers to inform me about the risks of medications during pregnancy.	133(36.7%)	115 (29.9%)	61(15.9%)	75(19.5%)
8.	I believe that ADRs are common and unavoidable during pregnancy.	145(37.8%)	122 (31.8%)	56(14.6%)	61(15.8%)
9.	I feel anxious about taking medications prescribed during pregnancy.	171(44.5%)	147(38.3%)	29(7.6%)	37(9.6%)
10.	I would stop taking a medication if I suspected it was causing side effects.	185(48.2%)	147 (38.3%)	29(7.6%)	23 (5.9%)

Source: filed source Key: strongly agree=SA, Agree=A, Disagree=D, Strongly Disagree=SD

Table 2 which is on attitude towards adverse drug reaction among pregnant women attending specialist hospitals in Maiduguri Metropolis, Borno State indicated that 156(40.6%) pregnant women strongly believed that the adverse drug reactions can harm my unborn baby, 145(37.8%) agreed, 40(10.4%) disagreed while 43 (11.2%) strongly disagreed that adverse drug reactions can harm my unborn baby. The table also revealed that 138(36.1%) of the pregnant women strongly concerned about experiencing side effects from medications during pregnancy 145(37.8%) agreed, 49 (12.8%) disagreed while 51(13.3%) concerned about experiencing side effects from medications during pregnancy. 159(41.4%) of the participants strongly agreed that it is important to report any side effects experienced while on medication, 131(34.1%) agreed, 30 (7.8%) disagreed while 60(15.7%) strongly disagreed that it is important to report any side effects experienced while on medication. The table also showed that 134(34.9%) believe that medications prescribed by doctors are safe during pregnancy, 119(30.9%) agreed, 61(15.9%) disagreed while 70(18.3%) strongly disagreed believe that medications prescribed by doctors are safe during pregnancy.

Moreover, the table revealed that 127(33.1%) feel confident in their knowledge about adverse drug reactions, 121(31.5%) agreed, 61(15.9%) disagreed while 75 (19.5%) strongly disagreed with this notion. 129 (33.6%) of the study participants think avoiding medications altogether is the best way to prevent ADRs, 117 (30.5%) agreed, 77(20.1%) disagreed while 61(15.8%) strongly disagreed that avoiding medications altogether is the best way to prevent ADRs. Similarly, 133(36.7%) trust healthcare providers to inform them about the risks of medications during pregnancy, 115 (29.9%) agreed, 61(15.9%) disagreed while 75(19.5%) strongly disagreed healthcare providers to inform them about the risks of medications during pregnancy. In the same vein, 145(37.8%) strongly agreed that ADRs are common and unavoidable during pregnancy, 122 (31.8%) agreed, 56(14.6%) disagreed while 60(15.7%) strongly disagreed that ADRs are common and unavoidable during pregnancy. 171(44.5%) of the pregnant women strongly agree that they feel anxious about taking

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Prof. A.S. Hossein [Saskatchewan]

medications prescribed during pregnancy, 147(38.3%) agreed, 29(7.6%) disagreed while 37(9.6%) strongly disagreed that they feel anxious about taking medications prescribed during pregnancy. The result indicated 185(48.2%) strongly agreed that they would stop taking a medication if I suspected it was causing side effects, 147 (38.3% agreed, 29(7.6%) disagreed while 23 (5.9%) strongly disagreed that they would stop taking a medication if I suspected it was causing side effects. Hence, pregnant women attending specialist hospitals in Maiduguri Metropolis, Borno State has positive attitude towards adverse drug reaction.

Table 3: Summary of One-Sample t-test on attitude towards adverse drug reaction among pregnant women attending specialist hospitals in Maiduguri Metropolis, Borno state

Variables	N	Mean	Std. Deviation	Df	t-test	Prob	decision
attitude towards adverse drug reaction among pregnant women attending specialist hospitals	384	2.3627	0.69938	383	1.737	0.1010	accepted
Constant Mean		2.5					

Table 3, presents the results of a one-sample t-test performed to determine whether the attitudes of pregnant women towards adverse drug reactions (ADRs) attending specialist hospitals in Maiduguri Metropolis differ significantly from a constant mean value. The t-test statistic measures how far the sample mean (2.3627) deviates from the hypothesized constant mean (2.5) in units of standard error. The t-test statistic of 1.737 and the p-value of 0.1010 suggest that this difference is not statistically significant. Since the p-value is greater than 0.05, the difference between the sample mean and the constant mean could have occurred by chance, and the null hypothesis (that the mean attitude score is equal to 2.5) is accepted. Therefore, There is no significant attitude towards adverse drug reaction among pregnant women attending specialist hospitals in Maiduguri Metropolis, Borno state.

Discussion

The finding that 156 (40.6%) of pregnant women attending specialist hospitals in Maiduguri Metropolis strongly believed that adverse drug reactions can harm the unborn baby suggests a reasonably positive attitude towards ADR awareness among the study population, particularly given that this represents the single largest response category on this item and reflects a heightened perception of risk that is generally protective of maternal and fetal health. This finding is consistent with a hospital-based cross-sectional

survey in India, which similarly reported that the majority of pregnant women held a positive attitude towards safe medication use, with high awareness that inappropriate drug use could compromise pregnancy outcomes, even though this awareness did not always translate into correspondingly cautious practice (Goruntla et. al, 2025). The result also aligns with evidence from Riyadh City, where pregnant women's attitudes toward medication-related risk were shaped by an underlying awareness that drugs taken in pregnancy could affect the fetus, a belief that tended to promote more cautious medication-seeking behaviour (Almuhareb et. al, 2024). However, the fact that strong agreement was recorded by less than half of respondents, rather than an outright majority, indicates that a considerable proportion of women in Maiduguri may still underestimate or be uncertain about the fetal risks associated with ADRs, a pattern that mirrors the neutral-to-passive attitudinal tendencies reported among health professionals in pharmacovigilance-focused KAP studies and suggests that awareness of ADR-related fetal harm in this post-insurgency setting, while present, has not yet become a uniformly internalized belief across the antenatal population (Alwidyan, Odeh, Ibrahim, Harahsheh & Banat, 2025). This underscores the continued need for targeted antenatal health education in Maiduguri specialist hospitals to reinforce and consolidate this generally positive but not yet universal attitude towards the risks of adverse drug reactions in pregnancy**.**

The findings of this study indicate no significant attitude towards adverse drug effects (ADEs) among pregnant women attending specialist hospitals in Maiduguri Metropolis, Borno state. This result aligns with studies existing in literature on attitude towards adverse drug effects (ADEs) among pregnant women attending specialist hospitals setting. Duggan and Street (2015) found that trust in healthcare providers significantly influences patients' medication beliefs and adherence. In specialist settings, where providers are perceived as experts in high-risk pregnancies, women may feel more confident in the safety of prescribed medications. This trust could potentially override concerns about ADEs. Specialist hospitals often provide more comprehensive patient education compared to general antenatal care settings. Lupattelli et al. (2015) demonstrated that higher health literacy is associated with more balanced attitudes towards medication risks and benefits. If the specialist hospitals in this study offer thorough education about medication use during pregnancy, it could lead to a more balanced, less fearful attitude towards ADEs. Twigg et al. (2016) found that perception of need for medication influences attitudes towards potential side effects. In cases where medication is crucial for managing maternal health conditions, the perceived benefits may outweigh concerns about ADEs, leading to a less significant attitude towards these effects. Nordeng et al. (2010) noted that familiarity with medication can influence risk perception. Women who have been using medications safely before and during

pregnancy may have less significant attitudes towards ADEs due to their positive experiences.

Petersen et al. (2015) found that risk perception can be influenced by the immediacy and concreteness of the risk. The more pressing health issues managed in specialist settings might overshadow concerns about medication effects. Zagorodnikova et al. (2012) observed significant variations in attitudes towards medication use among pregnant women in different countries. The lack of significant attitude in this study could reflect cultural factors specific to the study population that promote acceptance of medication use during pregnancy. Jasper et al. (2001) demonstrated that the framing of risk information significantly influences women's risk perception. If providers in these settings are particularly skilled at communicating balanced information about medication risks and benefits, it could lead to less fearful attitudes among patients. Widnes and Schjøtt (2017) noted that previous experiences with medication use during pregnancy can influence current attitudes. Bonari et al. (2005) emphasized the importance of balanced discussions about both the risks of medication use and the risks of untreated maternal illness. Healthcare providers should continue to provide comprehensive counseling about medication safety, even if patients don't express significant concerns. Gendron et al. (2012) suggested that pregnancy-specific medication counseling tools could be beneficial. Developing and testing such tools in specialist hospital settings could provide valuable insights into how to maintain balanced attitudes towards ADEs.

Conclusion

Based on the findings of this study, it was concluded that pregnant women attending specialist hospitals in Maiduguri Metropolis, Borno State has positive attitude towards adverse drug reaction.

Recommendations

To improve the attitudes of pregnant women toward adverse drug reactions (ADR) in specialist hospitals in Maiduguri Metropolis, Borno State, the followings were recommended:

1. Healthcare workers should foster a supportive and open environment where pregnant women feel comfortable discussing any concerns about their medications or potential side effects. This can be achieved through regular, empathetic communication during antenatal visits.
2. Educate pregnant women that reporting adverse drug reactions is essential for their safety and the safety of their unborn child. Encourage them to view reporting ADRs as a positive step in taking charge of their health, rather than as a burden or an indication of failure.

3. Healthcare providers should explain not only the benefits of medications but also the potential risks and what constitutes an ADR. Pregnant women are more likely to develop a proactive attitude if they clearly understand why certain medications are prescribed and the potential for side effects.

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