

Knowledge, Attitude, and Practices (KAP) of Safe Medication Use Among Pregnant Women Attending Antenatal OPD- A Cross Sectional Observational Study

Vishwa Mehta¹, Meena Atray²

¹2nd Year Resident Doctor, Dept. of Pharmacology, R.N.T Medical College, Udaipur, Rajasthan, India

²Senior Professor, Dept. of Pharmacology, R.N.T Medical College, Udaipur, Rajasthan, India

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Corresponding Author: Dr. Vishwa Mehta

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Abstract:

Background: Safe medication use during pregnancy is essential to prevent adverse maternal and fetal outcomes. However, knowledge, attitudes, and practices (KAP) among pregnant women significantly influence medication-related decisions, particularly in low- and middle-income settings.

Objective: To assess the knowledge, attitude, and practices regarding safe medication use among pregnant women attending antenatal outpatient services.

Methods: A questionnaire-based cross-sectional study was conducted among 95 pregnant women, age 18 years or more, attending antenatal OPD under department of Obstetrics & Gynaecology RNT Government Medical College Udaipur. Data were collected using a structured, interviewer-administered questionnaire assessing sociodemographic characteristics and KAP domains. Descriptive statistics were used for analysis.

Results: The mean age of participants was 27.28 ± 5.45 years. While most women demonstrated positive attitudes toward safe medication use, including consulting healthcare professionals (89.5%) and avoiding unnecessary medications (84.2%) but there exists significant gap in knowledge & attitude as (57.9%) participants preferred natural remedies over prescription drug. Although 85.3% recognized the importance of medications during pregnancy, only 16.8% were aware of potential side effects, and 11.6% knew the critical teratogenic period. Misconceptions were prevalent, with 66.3% believing Complementary & Alternative medicines are always safe and 48.4% considering over-the-counter medications safe. Nearly all participants reported medication use, predominantly iron, calcium, and multivitamins. Despite favourable attitudes, knowledge deficiencies translated into potential risks in medication practices.

Conclusion: A significant knowledge-practice gap exists among pregnant women regarding safe medication use.

Clinical Implications: Integrating structured medication counselling into routine antenatal care can improve awareness, correct misconceptions, and promote safer, evidence-based medication practices.

Keywords: Pregnancy, Medication safety, Knowledge, Attitude, Practice, Antenatal care.

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Introduction

Medication use during pregnancy is a complex clinical and public health issue that necessitates a careful balance between maternal therapeutic needs and fetal safety [1]. Pregnancy-induced physiological changes significantly alter drug pharmacokinetics, including absorption, distribution, metabolism, and excretion, while the placenta permits transfer of many drugs to the fetus, potentially leading to teratogenic effects—especially during the critical period of organogenesis [2]. Although avoidance of medications is often perceived as safest, it is neither practical nor desirable, as untreated maternal conditions such as hypertension, diabetes,

infections, and anaemia may pose greater risks than pharmacotherapy itself [3].

Globally, a substantial proportion of pregnant women are exposed to prescription drugs, over-the-counter (OTC) medications, and herbal products - Complementary and Alternative Medicines during pregnancy [4]. However, the safety of such use is strongly influenced by women's knowledge, attitudes, and practices (KAP) [5]. Emerging evidence consistently demonstrates a paradox wherein pregnant women exhibit relatively positive attitudes toward medication safety but possess limited knowledge, resulting in suboptimal or unsafe practices [6]. Misconceptions regarding the safety of herbal- ayurvedic (Complementary and Alternative

Medications) and OTC medications, along with inadequate awareness of teratogenic risks, further compound this issue [7].

Despite increasing global attention, critical gaps remain in context-specific evidence from developing countries, particularly within Indian antenatal populations, where sociocultural beliefs, health literacy, and access to reliable drug information differ substantially [8]. Moreover, prior studies have largely focused on descriptive KAP assessments, with limited emphasis on the disconnect between knowledge and actual practices in real-world clinical settings [9].

Addressing these gaps is essential, as unsafe medication use during pregnancy is a preventable contributor to adverse maternal and fetal outcomes. Therefore, this study aims to comprehensively evaluate the knowledge, attitude, and practices of safe medication use among pregnant women attending antenatal outpatient services, thereby generating context-relevant evidence to inform targeted educational and clinical interventions.

Methodology

A questionnaire-based cross-sectional observational study was conducted among pregnant women attending the antenatal outpatient department under

department of Obstetrics & Gynaecology RNT Government Medical College Udaipur. A total of 95 participants aged more than 18 years were enrolled using a convenient sampling technique after obtaining informed consent in presence of a female attendant. Data were collected using a pre-designed, structured questionnaire comprising four sections: sociodemographic and obstetric characteristics, and knowledge, attitude, and practices (KAP) related to safe medication use during pregnancy. The knowledge domain included questions on drug safety, side effects, and teratogenic risks; attitude was assessed using Likert-scale statements; and practice was evaluated through self-reported medication-related behaviours. The questionnaire was administered through direct interviews to ensure clarity and completeness of responses. Data were entered and analysed using descriptive statistics, including frequency, percentage, mean, and standard deviation. Ethical principles were maintained throughout the study, ensuring confidentiality and voluntary participation. The study aimed to comprehensively assess KAP patterns and identify gaps in safe medication practices among pregnant women.

Results

Demographic and Obstetric Characteristics

Table 1. Sociodemographic Characteristics of Participants (N=95)

Variable	Category	Frequency	Percentage
Age (years)	Mean $\pm$ SD	27.28 $\pm$ 5.453	
Gravida	G1 (First pregnancy)	30	31.6
	G2	33	34.7
	G3 or more	32	33.7
Trimester	First	20	21.1
	Second	28	29.5
	Third	47	49.5
Educational Status	Graduate or Higher	21	22.1
	No formal education	17	17.9
	Primary	9	9.5
	Secondary	48	50.5
Occupation	Homemaker	41	43.2
	Professional	12	12.6
	Skilled Worker	30	31.6
	Unskilled Worker	12	12.6
Residence	Rural	29	30.5
	Semi-urban	25	26.3
	Urban	41	43.2
Regular Adherent to Antenatal Visits	No	35	36.8
	Yes	59	62.1
High Risk Pregnancy/Comorbidities	No	43	45.3
	Yes	52	54.7
History of Stillbirth/Miscarriage	No	72	75.8
	Yes	23	24.2

Medication Use Profile: Almost all participants (98.9%) had been prescribed medications during

pregnancy, with an average of 3.54 ± 1.38 medications used per individual. The most

commonly reported medications included iron and folic acid supplements, calcium, and multivitamins, reflecting routine antenatal care practices. In addition, a subset of participants reported the use of analgesics and antibiotics, often in combination with

nutritional supplements, indicating management of concurrent medical conditions during pregnancy.

Knowledge of Safe Medication Use

Table 2: Knowledge Regarding Medication Use During Pregnancy

Statement	Response	Frequency	Percentage
Prescribed medications during pregnancy	Yes	94	98.9
	No	1	1.1
Know the name of current medicines	Yes	50	52.6
	No	45	47.4
Know some medicines are important during pregnancy	Yes	81	85.3
	No	14	14.7
Know some medicines may not be safe during pregnancy	Yes	60	63.2
	No	35	36.8
Know side effects of medicines during pregnancy	Yes	16	16.8
	No	79	83.2
Know critical period when medicines affect fetus	Yes	11	11.6
	Not sure	49	51.6
	No	35	36.8
Know that Medication therapy should be modified in chronic illness during pregnancy	Yes	21	22.1
	No	74	77.9
Best person to decide medicine safety	Doctor	78	82.1
	Pharmacist	14	14.7
	Family Member	3	3.2

Attitude Toward Medication Use

Table 3: Attitude Toward Medication Use During Pregnancy

Statement	Agree n (%)	Neutral n (%)	Disagree n (%)
Consult doctor before taking medicines	85 (89.5)	3 (3.2)	7 (7.4)
Avoid medicines unless absolutely necessary	80 (84.2)	15 (15.8)	0
Natural/herbal medicines are always safe	63 (66.3)	24 (25.3)	8 (8.4)
Prefer natural remedies over prescription drugs	55 (57.9)	29 (30.5)	11 (11.6)
Topical preparations are safe in pregnancy	43 (45.3)	47 (49.5)	5 (5.3)
Report unusual symptoms/side effects	90 (94.7)	5 (5.3)	0

Practices of Medication Use

Table 4: Practice Regarding Medication Use During Pregnancy

Practice Variable	Response	Frequency	Percentage
Currently taking medication during pregnancy	Yes	95	100.0
Check with doctor before new medication	Always	19	20.0
	Sometimes	71	74.7
	Never	5	5.3
Check medication leaflet	Yes	29	30.5
	No	66	69.5
Ask purpose and safety of prescribed medication	Yes	29	30.5
	No	66	69.5
Ask pharmacist how to take medications	Yes	91	95.8
	No	4	4.2
Taken OTC medicines without consulting doctor	Yes	78	82.1
	No	17	17.9
Experienced side effects/adverse events	Yes	37	38.9
	Not sure	15	15.8
	No	43	45.3

Discussion

The present study provides important insights into the knowledge, attitude, and practices (KAP) of safe medication use among pregnant women, revealing a clear discrepancy between positive attitudes and inadequate knowledge, which ultimately affects rational practices. These findings are consistent with several recent studies across different settings.

In the current study, although a majority of participants demonstrated positive attitudes toward medication safety (e.g., consulting doctors and avoiding unnecessary drugs), knowledge regarding critical aspects such as teratogenic risk periods and side effects was markedly low. Similar findings were reported in a recent study by Metwally et al. (2026) [10], where only 18% of participants had good knowledge despite 94.6% exhibiting positive attitudes, highlighting a persistent knowledge deficit among pregnant women. This reinforces the notion that awareness alone does not translate into adequate understanding.

Comparatively, a study by Goruntla et al. (2024) [11] reported relatively higher knowledge levels (75.3%) and positive attitudes (91.3%), yet rational practice remained significantly low (35%). This aligns closely with our findings, emphasizing a knowledge–practice gap, where even informed individuals may fail to adopt safe medication behaviours. The persistence of this gap across diverse populations suggests systemic issues such as inadequate counselling and lack of continuous education.

Furthermore, our study identified misconceptions regarding CAM- (Complementary and Alternative Medicines) and OTC medications, with a substantial proportion believing them to be safe. Similar misconceptions were highlighted in a study by Nirmani et. al. (2024) [12], where 93% of participants believed medicines could be used at any stage of pregnancy and 87% considered antibiotics as OTC drugs. Such findings underscore the widespread nature of unsafe beliefs, particularly in low- and middle-income countries.

In contrast, some studies have reported relatively better practice outcomes. For instance, Obi et al. (2023) [13] found that over 90% of participants demonstrated good medication practices despite poor knowledge, suggesting that strong healthcare system engagement may compensate for knowledge gaps. However, our findings indicate that such compensatory mechanisms may not be uniformly present across all settings.

In the present study, a single-center design and relatively small sample size limit the generalizability

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of results to broader populations. Also the use of convenience sampling method and interviewer-administered questionnaire may introduce selection bias, interviewer bias, recall bias and social desirability bias. This study employed descriptive analysis without advanced inferential or regression modelling to identify predictors of KAP.

Overall, the present study corroborates global evidence that positive attitudes are not sufficient to ensure safe medication practices, particularly in low income settings where the presence of inadequate knowledge and persistent misconceptions are prevalent along with unmet healthcare needs. These findings highlight the urgent need for structured, targeted antenatal educational interventions, focusing not only on awareness but also on correcting misconceptions and improving practical decision-making.

Conclusion

In conclusion, this study demonstrates that while pregnant women exhibit encouraging attitudes toward safe medication use, substantial deficiencies in knowledge and persistent misconceptions undermine rational practices. The evident knowledge–practice gap highlights a critical vulnerability in maternal healthcare, where positive intent does not necessarily translate into safe behaviour. Given the widespread use of medications during pregnancy, these gaps may contribute to preventable maternal and fetal risks. Therefore, integrating structured, evidence-based medication counselling into routine antenatal care is imperative. Strengthening patient education, improving health literacy, and enhancing doctor–patient communication can significantly promote informed decision-making and ensure safer medication practices during pregnancy.

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Dr Meena Atray: Proofread and supervised the manuscript

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