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A Cross-Sectional Study on the Use of Analgesic Medications among Pregnant Women Attending Primary Health Care Centers in Basra City – Iraq

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Abstract. Analgesics are widely used to relieve pain during pregnancy; however, their safety remains a concern due to potential maternal and fetal risks. In Basra, Iraq, pregnant women frequently use analgesics such as paracetamol and NSAIDs, yet limited data exist regarding their prevalence, types, and associated factors in this population. Despite global studies on medication safety, there is insufficient evidence on the patterns of analgesic use among Iraqi pregnant women and their knowledge regarding associated risks. This study aimed to determine the prevalence, types, and influencing factors of analgesic use among pregnant women attending Maternal and Child Health units, and to assess the association between analgesic use and demographic characteristics. A cross-sectional study of 200 pregnant women revealed that 60% reported using analgesics during pregnancy. Paracetamol was the most frequently used (46%), primarily for symptoms of the common cold (27%). While 41% of women believed analgesics were safe, 32% perceived potential risks, and 23% demonstrated limited awareness. The majority obtained information from drug leaflets (45%). No significant associations were found between analgesic use and demographic variables ($p > 0.05$). This study provides the first structured evaluation of analgesic use among pregnant women in Basra, highlighting gaps in knowledge and perceptions of drug safety. The findings underscore the need for targeted educational programs and strengthened counseling by healthcare providers to promote safe and rational analgesic use during pregnancy.

Highlights:

1. 60% of pregnant women reported using analgesics during pregnancy.
2. Paracetamol was the most frequently used analgesic, mainly for common cold symptoms.
3. Knowledge about safe use of analgesics during pregnancy was generally poor, with drug leaflets being the main information source.

Keywords: Analgesics, Medication use, Pregnancy, Prevalence, Primary Health Care Centers, Maternal and Child Health

Introduction

Pregnancy involves physiological changes that require special care, including cautious medication use. Pregnant women need adequate knowledge and a positive attitude toward

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safe drug use, as some medications may cause fetal abnormalities or other harmful effects [1]. Pain during pregnancy, whether pregnancy-related or due to acute or chronic conditions, must be managed effectively, as poorly treated pain can lead to anxiety, depression, and hypertension [2]. Despite the high prevalence of analgesic use during pregnancy, many women avoid treatment due to fear of harming the fetus. However, untreated pain may pose greater risks. Therefore, both pregnant women and healthcare providers should understand the safety of analgesics and weigh the risks of treatment versus non-treatment during pregnancy and breastfeeding [3].

Although pregnant women are generally advised to avoid medications, many still use analgesics like paracetamol or non-steroidal anti-inflammatory drugs (NSAIDs). These drugs can cross the placenta and may affect the fetus. Due to ethical concerns, direct testing on pregnant women is not possible; thus, evidence linking analgesic use to fetal reproductive disorders comes mainly from epidemiological and experimental studies [4].

Analgesics are drugs used to relieve pain without inducing loss of consciousness. The choice of analgesics depends on the cause and intensity of the pain. Analgesics are classified based on their narcotic properties. Non-opioid analgesics include two categories: The first category includes NSAIDs are used for mild to moderate pain and do not cause CNS depression or dependency. NSAIDs possess analgesic, antipyretic, and anti-inflammatory effects, and are commonly used, including by pregnant women, especially during the first trimester [5]. The second category includes analgesics with little or no anti-inflammatory effect, such as acetaminophen (paracetamol), which is considered effective and safe throughout pregnancy when used at therapeutic doses. Studies have shown no increased risk of congenital anomalies. Opioid analgesics, like codeine, morphine, and pethidine, are used for moderate to severe pain. Codeine is also found in many over-the-counter products [2, 3].

The FDA developed a five-category system (A, B, C, D, X) to classify drugs based on their risk during pregnancy. Category A drugs are considered the safest, while Category X drugs are known to cause fetal harm and are contraindicated in pregnancy [6].

Regarding trimester-specific risks, evidence indicates that the use of nonsteroidal anti-inflammatory drugs before conception or during the first trimester may elevate the risk of miscarriage, unlike Paracetamol [7]. NSAIDs such as diclofenac and naproxen can cross the placenta early in pregnancy, potentially increasing the risk of miscarriage [8].

While prenatal exposure to paracetamol in the first and second trimesters has been associated with some adverse effects, such as the development of cryptorchidism in newborn males, it remains the safest analgesic for pregnant and childbearing women when administered at the lowest effective dose for the shortest period if possible [9-11]. Other studies have shown that paracetamol, when used alone, does not cause miscarriage in the first trimester, does not increase fetal risk during this period, and is considered safe for use in pregnancy [8, 12–14].

Conversely, during the third trimester, NSAIDs have been shown to adversely affect fetal development by inducing premature closure of the ductus arteriosus, leading to pulmonary arterial hypertension and respiratory diseases. Additionally, NSAID use in the third trimester has been associated with oligohydramnios, neonatal anuria, and kidney dysfunction, necessitating their avoidance during this period [15].

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Our knowledge regarding the use of analgesics among pregnant women and the identification of associated factors is essential to prevent harmful drug use, reduce the risk of birth defects and pregnancy complications, and ultimately promote maternal and child health. Therefore, this **study aims** to determine the prevalence, types, and factors associated with analgesic use among pregnant women, as well as to assess the relationship between analgesic use and demographic characteristics.

Methodology

-Design of the study: Descriptive, cross-sectional questionnaire-based study.

-Setting of the study: The study was conducted at the Maternal and Child Health (MCH) Unit in three primary health care centers (Al Saif, Ezz El-Din Salim, and Hassan Al-Basri Centers), in Basra city, Iraq.

-The sample of the study: A random sample of 200 pregnant women was selected. Data were collected using a structured questionnaire consisting of two parts: demographic information and details on analgesic use (prevalence, types, and associated factors). Ethical approval was obtained from the college ethics committee and Basra's health directorate.

-**Statistical analysis:** Data were analyzed using SPSS version 26, with results presented as frequencies and percentages. The chi-square test assessed associations between analgesic use and demographic variables, with a p-value < 0.05 considered statistically significant.

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Variables		**No.**	**(%)**
Age	13-20	50	25.0
	21-30	94	47.0
	31+	56	28.0
Education Level	Illiterate	10	5.0
	Primary	82	41.0
	Secondary	80	40.0
	Collage	28	14.0
Occupation	Housewife	182	91.0
	Employed	18	9.0
Number of Previous Pregnancies	Primigravida	64	32.0
	2-3	66	33.0
	4-5	50	25.0
	>5	20	10.0
Stages of Pregnancy	1st trimester	20	10.0
	2ed trimester	44	22.0
	3rd trimester	136	68.0
Chronic Diseases	Yes	10	5.0
	No	190	95.0
Pregnancy-Related Diseases	Yes	42	21.0
	No	158	79.0

Results

Table (1): Demographic characteristics of pregnant women (n = 200)

Table 1 showed that nearly half of the pregnant women (47%) were aged 21–30 years. In terms of education, 41% had completed primary school and 40% secondary school. The majority (91%) were housewives. About 32% were primigravida, while 33% had 2–3 children. Most participants (68%) were in their third trimester. Additionally, 5% had chronic illnesses, and 21% had pregnancy-related conditions.

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Table (2): Responses of Pregnant Women to Survey Questions on Analgesic Drug Use (n = 200)

Survey Item	No.	%
Aware of the meaning of analgesic drugs	164	82.0
Have prior information about analgesic drugs	46	23.0
Sources of information		
- Information obtained from doctors	20	10.0
- Information obtained from friends or relatives	6	3.0
- Information obtained from drug leaflets	90	45.0
- Information obtained from the media	20	10.0
- No identifiable source of information	66	33.0
Used analgesic drugs before pregnancy	164	82.0
Used analgesic drugs during the current pregnancy	120	60.0
Experienced side effects from analgesic drug use	28	14.0
Perceptions of analgesic use during pregnancy		
- Believes analgesics are safe during pregnancy	82	41.0
- Believes analgesics are harmful during pregnancy	64	32.0
- Uncertain about the safety of analgesics during pregnancy	54	27.0
Believes topical analgesics are safe during pregnancy	72	36.0

Table 2: revealed that while 82% of pregnant women were aware of the term "analgesic drugs," their knowledge about their safe use was limited. Only 23% had sufficient information, and 45% cited the drug leaflet as their main information source. Analgesic use was reported by 82% before pregnancy and 60% during the current pregnancy. Most (86%) did not report any side effects. Regarding safety perceptions, 41% believed analgesics are safe during pregnancy, 32% believed they could be harmful to both mother and baby, and 36% considered topical analgesics safe during pregnancy.

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Table (3): The use of analgesic drugs by pregnant women (n=120)

Variable	No.	%
Indication for analgesic use		
- Headache	16	8.0
- Common cold	54	27.0
- Muscle-joint pain	8	4.0
- Dental pain	8	4.0
- Back pain	12	6.0
- Others	18	9.0
Prescriber of analgesic drugs		
- Doctor	100	50.0
- Pharmacist	16	8.0
- Self-administration	4	2.0
Types of analgesic drugs used		
- Paracetamol	92	46.0
- Ponstan (Mefenamic acid)	14	7.0
- Antibiotics	12	6.0
- Diclofenac	8	4.0
- Ibuprofen	6	3.0

As shown in **Table 3,** the most common reason for analgesic use among pregnant women was the common cold (27%). Half of the participants (50%) used analgesics prescribed by doctors. Paracetamol was the most frequently used analgesic, reported by 46% of the women.

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Table (4): Associations of Age Group, Educational Status, Occupation, and Number of Previous Pregnancies with Analgesic Use among Pregnant Women (n = 200)

Variables		Analgesic medications used in pregnancy				Total	X^2	df	P
		yes	%	No	%				
Age	13-20	34	68.0	16	32.0	50	6.19	2	0.10
	21-30	60	63.0	34	36.2	94			
	31+	26	46.4	30	53.6	56			
	Total	120	60.0	80	40.0	200			
Education status	Illiterate	6	60.0	4	40.0	10	2.56	3	0.5
	Primary	54	65.9	28	34.1	82			
	Secondary	46	57.5	34	42.5	80			
	Collage	14	50.0	14	50.0	28			
	Total	120	60.0	80	40.0	200			
Occupation	Housewife	112	61.5	70	38.5	182	0.98	1	0.20
	Employed	8	44.4	10	55.6	18			
	Total	120	60.0	80	40.0	200			
Number of previous pregnancies	Primigravida	38	59.4	26	40.6	60	3.84	3	0.30
	2-3	38	57.6	28	42.4	66			
	4-5	28	56.0	22	44.0	50			
	>5	16	80.0	4	20.0	20			
	Total	120	60.0	80	40.0	200			

Table 4 showed no statistically significant association between age group, education level, occupation, or number of previous pregnancies with the use of analgesic medications among pregnant women (p value > 0.05).

Discussion

In our current study, 60% of pregnant women reported using analgesic medications during their pregnancy. By contrast, a study conducted in Addis Ababa, Ethiopia, found that a significantly higher 90.6% of pregnant women had taken analgesics since the beginning of their pregnancy. 45% of participants in our study cited reading the accompanying drug leaflet as their primary source of information about analgesic use. Meanwhile, in Ethiopia, the most common sources were healthcare providers: 43.2% of women relied on physicians, and 41.9% on pharmacists. In both studies, paracetamol emerged as the most widely used analgesic during pregnancy. Importantly, both studies identified a poor level of knowledge among

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pregnant women regarding analgesic use, underscoring the need for improved educational outreach and medical counseling [16].

In contrast to our present study, a longitudinal investigation in Norway found that total analgesic use among pregnant women declined steadily from early pregnancy through its later stages. Analgesics that are not recommended or lack sufficient safety data experienced notable reductions. In particular, groups such as NSAIDs, opioids, and triptans fell sharply—each being used by less than 6% of women during pregnancy. Meanwhile, paracetamol remained the overwhelmingly most commonly used analgesic throughout pregnancy [17]. Our results are also different from a German longitudinal cohort study, were reported that 47.3% used an analgesic at least once during pregnancy, and of those, a striking 85.7% used paracetamol as their main analgesic treatment [18].

Two studies done in the United Arab Emirates indicated that analgesic drug use is high, with 55.1% and 63.4% of the pregnant women using paracetamol during pregnancy, respectively, as compared with our result [19, 20].
A cross-sectional study carried out in Brazzaville indicates a higher prevalence of 94.4% for self-medication, with analgesics being the most commonly used drugs. Paracetamol is the most commonly used analgesic in both studies, though its usage rate is higher in the Brazzaville study, 70.1% compared to ours (46%). Common cold symptoms are the primary reason for analgesic use (27%) in the present study, while in Brazzaville, headaches (42.2%) are the most common reason, followed by fever, malaria, and urinary tract infections. We found that 32% of pregnant women believed that analgesic medications posed potential risks to both mother and fetus. In contrast, the Brazzaville study found that no pregnant woman was aware of the maternal and child health risks of drugs used in self-medication [21].

A Saudi Arabia study reports approximately 40% of pregnant women use medications during pregnancy. Paracetamol is the most commonly used analgesic in both studies. However, we report a higher usage rate (46%) compared to the Saudi Arabia study (13.2%). The Saudi study found inadequate provision of drug-related information from physicians and pharmacists, with women relying more on medication pamphlets. Both studies indicate that pregnant women are cautious about medication use. In our study, 41% considered analgesics safe, while 32% believed they posed risks. The Saudi Arabia study found that most women had a positive attitude toward medications but believed pregnant women should be more cautious regarding drug use during pregnancy, and found a significant association between analgesic use and demographic variables [22].

A study done in Turkey, which reports a lower prevalence of medication use, was 45.6% compared to our study 60%. Also reports a higher prevalence of herbal product use (47.3%) compared to our study (3.9%). Our result identifies paracetamol as the most commonly used analgesic, whereas the Turkey study identifies agents for the nervous system (32.8%), anti-infective drugs (20.8%), and agents for the alimentary tract and metabolism (19.2%) as the most commonly used medications [23].

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Conclusion

Drug intake during pregnancy is common among most pregnant women. Paracetamol is the most common analgesic drug that is taken by most pregnant women. The overall knowledge of pregnant women about analgesic drugs is poor.

Recommendation

1. Increase knowledge and awareness among pregnant women about the safe and rational analgesic drugs during pregnancy by developing and delivering educational programs.
2. Enhance physicians and other health care providers in educating pregnant women about analgesic drugs or medications in general through counseling on their visit to the clinic, antenatal care center, or hospital.

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