Interdisciplinary Social Research
Volume 2, Issue 1
ISSN: 3067-7238

SCHOLARLY SUMMIT
THE ACADEMIC PUBLISHERS

Awareness, Perceptions, and Practices of Saudi Women Toward Medication Use in Pregnancy

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Abstract

Background: Despite the frequent utilization of medicines intake during pregnancy, knowledge gaps and misconceptions regarding their safety remain prevalent among Saudi women.

Aim: This study aimed to evaluate the awareness level of primigravida women regarding the medications usage during pregnancy in Jeddah city.

Methods: This descriptive used cross-sectional research design and was conducted in Jeddah city, Saudia Arab in 2024. A total of 123 individuals were included by using a purposive sampling technique for this quantitative study. SPPS software version 20.0 was used to perform descriptive statistics. Chi-square tests were performed to examine associations between participant characteristics (age categories, educational level, and occupation) and responses to multiple questionnaire items regarding drug use and beliefs during pregnancy.

Results: The findings revealed that 96.8% of participants reported being cautious about medication use during pregnancy. Similarly, 90.5% indicated that they would not use any medication unless it was necessary. Regarding risk awareness, 76.6% participants identified the first trimester as the most critical period for medication exposure ($p < 0.05$). The majority of women reported obtaining drug-related information primarily from gynecologists (55.7%), followed by pharmacists (11%), physicians (8.1%), media (15.4%), and the internet (9.4%). However, a significant proportion of participants expressed that the information provided by both gynaecologists and pharmacists was insufficient ($p < 0.05$). Instead, many relied on alternative sources, with 81% reporting that they regularly consulted the medication's package leaflet for drug-related information. Chi-square tests results showed that most questionnaire items were not significantly associated with demographic variables, except for a few significant associations observed with occupation and educational level ($p < .05$).

Conclusion: This study revealed potential insights from pregnant women of Jeddah regarding medication awareness. It was conducted to address various critical issues of pregnancy and provide evidence to guide safer maternal-fetal health practices.

Keywords: Pregnancy, Fetus, Safety, Beliefs, Drug information, Medication, Saudi Arabia.

1. Introduction

Pregnancy is known as a distinctive physiological state that necessitates meticulous consideration regarding the utilization of drugs for improved maternal health and safe pregnancy (Zaki & Albarraq, 2014). The consumption of medication during pregnancy has increased rapidly (Niriayo et al., 2021). The higher prevalence is all driven by increasing pre-existing medical conditions, including emergency-related medical issues. Due to certain reasons, several treatment requires medications in pregnancy as they cannot be completely avoided because some pregnant women experiences chronic pathological conditions that require immediate and ongoing treatment throughout pregnancy (Zaki & Albarraq, 2014). These medical condition can be defined as asthma, epilepsy, hypertension, and diabetes mellitus, that have to be treated before they become worse and negatively impact the maternal health (Aljoher et al., 2018). Other studies have demonstrated that conditions such as migraine, headache, hyperacidity, nausea, and vomiting commonly require pharmacological management during pregnancy (Zaki & Albarraq, 2014). The variations in pharmacokinetics during pregnancy create challenges and major concerns regarding maternal health and safety. There is a need for appropriate dosing of medications for both the mother and the developing fetus during this time period (Pariente et al., 2016).

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Received: 16-Dec-2025 Revised: 5-Jan-2026 Accepted: 21-Jan-2026

Interdisciplinary Social Research
Volume 2, Issue 1
ISSN: 3067-7238

In the reproductive age there are high chance of occurrence of chronic diseases in pregnant women, along with the advancement of maternal age. These two major factors have lately influenced the increased consumption of prescribed medications in pregnancy (Aljoher et al., 2018). However, well educated women are considered as well informed about the high risks factors relates with the medication during pregnancy but there is a "general fear" that surrounded with the medication use. This fear and misconception can lead to severe repercussions of nausea and vomiting which may left untreated that usually occurs during pregnancy (Al-Khawlani et al., 2024).

Medication during pregnancy has been investigated across various areas (Al-Khawlani et al., 2024). Investigations and studies worldwide confirm a dramatic increase in consumption of herbal and alternative medicine during pregnancies (Abasiubong et al., 2012; Mashayekhi et al., 2009; Wafa et al., 2023). Some of the pregnant women have believed that these herbal medicines are 'natural' and 'safe' compared to conventional drugs. There are a large number of pregnant women who believe that traditional medicine, such as herbs, is effective in treating medical problems, improving health status during pregnancy and being effective in birth and postpartum care in many rural areas of the world (Makombe et al., 2023). In addition, it has also been reported that pregnant women from less privileged areas believed that pharmaceuticals approaches were hazardous and herbal medicines were safe (Alhajri et al., 2022). According to the Complementary and Alternative Drugs (CADs), only use of herbal medication in pregnancy is not always proven as a safe approach, as the major concern is the safety of the foetus and mother, which can be compromised in herbal medication interventions (Aljoher et al., 2018). In addition to that, women generally perceive medication as one of the potential reasons that harms their fetus development and make them further reluctant to consume prescribed drugs by the doctors during this period (Almuhareb et al., 2024).

The consumption of medicines is highly prevalent during pregnancy globally. A multinational web-based study by Lupatteli et al. included (n = 9,459) pregnant women and new mothers with children less than 1 year of age (Lupattelli et al., 2014). The results showed that 81.2% of women reported using at least one medication (prescribed or over-the-counter OTC) during their pregnancies. Additionally, OTC medication use occurred in 66.9% of pregnancies along with other prescription, OTC, and herbal products (Lupattelli et al., 2014). World Health Organisation (WHO), showed that approximately 810 women die each day due to complications they face during their pregnancies (Bashir et al., 2023). Most common reasons are lack of supervision, inadequate health care and unsafe pregnancies, as many maternal complications that lead to death are preventable with appropriate antenatal care (Organization, 2025). In Saudi Arabia, available studies reveal similar patterns, where approximately 40–45% of pregnant women report medication use, most commonly paracetamol, vitamins, and folic acid. In contrast, about 25–30% pregnant women were also reported using herbal products that are often based on family advice rather than professional consultation (Zaki & Albarraq, 2014). However, there is a contradiction in the usage of herbal medication during pregnancy; around 65% of women believed that herbal medicines were unsafe for their maternal health and could cause a high risk to their unborn babies. A few of these can be miscarriage, preterm labour, excessive bleeding, birth defects, drug–herb interactions, as compared to 75% for pharmacological therapies during the pregnancies (Alkhaldi & Alkhammash, 2023).

Beliefs and perceptions about medication consumption during pregnancy have been strongly associated with the patient's awareness and prior knowledge about its accurate usage (Gatti et al., 2009). This study aimed to evaluate the level of awareness and knowledge among primigravida women in Jeddah, Saudi Arabia, regarding the safe use of pharmacological agents during pregnancy. Along with the particular emphasis on their practices and decision-making in relation to medication consumption during primigravidity. This study is considered the first to investigate pregnant women's awareness of safe medication practices in Jeddah City, Saudi Arabia. Despite the increasing global attention on maternal drug safety, there is a lack of evidence from Saudi Arabia, particularly among urban populations with higher educational attainment. Previous research in the region has largely focused on healthcare providers' knowledge or on general patterns of drug utilisation, leaving a critical gap in understanding women's own awareness, perceptions, and practices during pregnancy. Addressing this gap is essential, as women's knowledge and decision-making directly influence maternal and fetal outcomes. This study significantly provides potential insights to healthcare teams with baseline data on the awareness levels of a highly educated generation of women in one of Saudi Arabia's most developed cities. Such insights will not only guide targeted health education and antenatal counselling interventions but also contribute to improving

safe prescribing, reducing self-medication, and ultimately enhancing maternal and neonatal safety.

The objective of this study was to assess the awareness, knowledge, and practices regarding medication use during pregnancy among university-educated primigravida women in Jeddah, Saudi Arabia. It also seeks to identify their primary sources of drug information and evaluate their perceptions of medication-related risks.

2. Literature Review

2.1 Global Trends in Medication Use and Knowledge during Pregnancy

The awareness and practices of proper medication during pregnancy can protect mother and their unborn from several severe complications in pre- and post-pregnancy (Riang'a et al., 2018). In a review of drug therapy use in pregnancy, usage of at least one drug (excluding supplements) was reported in 60%–90% of pregnancies in various countries. Factors contributing include a rising incidence of maternal chronic illnesses (e.g. hypertension, diabetes), increasing maternal age, and more pregnancies that are unplanned (Sun et al., 2020).

Alani et al. conducted a cross sectional study in Malaysia in 2020–2021 investigated 447 pregnant women and revealed that while most had used medications during pregnancy, 52.8% underscored a poor level of knowledge, 83% had poor awareness, and 56.5% held negative beliefs about medication safety in pregnancy. Age, education, and urban/rural residence were significantly associated with knowledge level (Alani et al., 2020).

Moreover, concerns regarding analgesic (pain/fever) medication use have been particularly noted. Analgesic drugs such as NSAIDs and paracetamol are among the most commonly used, yet their safety, dose adjustment, and teratogenic potential are often misunderstood or overestimated by pregnant women (Alyami et al., 2023).

2.2. Self-Medication, OTC Use, and Risk Awareness

Self-medication during pregnancy represents a substantive public health concern, as physiological changes in gestation significantly alter pharmacokinetics (excretion, absorption, metabolism, and distribution), thereby modifying maternal and fetal drug exposure (Pariente et al., 2016). Unsupervised use of OTC drugs or herbal remedies may therefore pose teratogenic or toxic risks (Alosaimi et al., 2022). In contrast, evidence-based supplementation with calcium, folic acid, and essential vitamins during the antenatal period is strongly recommended, as it plays a protective role in preventing neural tube defects, reducing maternal complications, and supporting healthy fetal development (Bashir et al., 2023).

A recent study evaluated by Alhazmi et al. in Madinah included (n=400) pregnant women. Alhazmi et al. evaluated the awareness levels of self-medication during pregnancy and identify primary factors affecting knowledge among Saudi women. The statistical results highlighted that there was a very high usage of OTC analgesics/antipyretics (92.4%) and folic acid (98.5%). However, only 37.5% of participants achieved a "good" awareness level of risks associated with self-medication (Alhazmi et al., 2025).

OTC and prescribed medication knowledge deficit remains pervasive across the globe. Another cross-sectional survey was conducted by Almuhareb et al. in Riyadh. A total of 562 pregnant women were included to assess their understanding, knowledge, attitude and practices of medication among pregnant women. The usage of medication during pregnancy is underscored at 44.7%. Notably, over 58% felt that information from physicians was inadequate or inconsistent, and 65.7% felt similarly about pharmacists. While the overall attitude and practice were positive, it also showed a resistant attitude and hesitancy toward medication use, especially in early pregnancy stages. Additionally, women who possessed higher education and a younger age were positively associated with better beliefs about medication use in this cohort (Almuhareb et al., 2024).

2.3 Use, Perception, and Belief regarding medication in Pregnancy

Several recent Saudi studies have examined medication use, awareness, and beliefs among pregnant women and underscored diverse results (Alhazmi et al., 2025; Alkhaldi & Alkhammash, 2023; Almuhareb et al., 2024), according to research conducted in Nigeria that recruited a sample of 125 pregnant women visited Najran University Hospital. As a result, a total of 26.4% pregnant women were reported to have used antibiotics during pregnancy. The study also discussed that there are various predictors that influence the antibiotic use, such as maternal age, parity (order of pregnancy), BMI, and history of miscarriage (Alshabi et al., 2023). An observational cross-sectional study using convenience and snowball sampling techniques was conducted in Riyadh, Saudia Arab (Almuhareb et al., 2024). The study developed the Belief Medical Questionnaire (BMQ) to assess the beliefs of participants associated with the medication

Interdisciplinary Social Research
Volume 2, Issue 1
ISSN: 3067-7238

usage during pregnancy. However, the participants have demonstrated mixed levels of awareness and practice. Despite nearly half of women, around 44%, reporting that they use medicines during their pregnancies. Furthermore, a significant portion reported inadequate counselling by healthcare professionals (Almuhareb et al., 2024).

3. Materials and Methods

3.1 Study design

This descriptive study used a cross-sectional study design. This quantitative study was conducted in October 2024 in Riyadh Elm University in Jeddah city, Kingdom of Saudia Arab. A validated self-administered questionnaire was designed to collect the data from the participants. The questionnaire was adapted from the previously published studies in a similar domain (Mashayekhi et al., 2009; Zaki & Albarraq, 2014).

3.2 Study sampling and Population

The study included primigravida (first-time pregnant) women who were Jeddah city residents, aged ≥20 years, and held a university degree. This criterion enabled a more reliable assessment of medication knowledge among an educated group. Participants were recruited using purposive sampling technique, as this method allowed the deliberate selection of women who met the specific educational and pregnancy criteria required for the study's objectives. Women with previous pregnancies, those without a university degree, or those with any medical or cognitive condition that hindered participation were excluded.

3.3 Data Collection Procedures

The self-administered survey was distributed among 400 pregnant women in Jeddah during one month. Three hundred and twenty women returned the survey (response rate: 80%). After applying the predefined inclusion and exclusion criteria, only 123 questionnaires were eligible and included in the final analysis. A pilot test, which included 15 participants, was performed prior to the distribution of the questionnaire. The survey consists of 6 sections as follows: Sociodemographic variables, medication use, and risk awareness, source of information, beliefs and knowledge about medication. The questionnaire was based on 6 dimensions in the Arabic language and consisted of 31 structured, closed-ended questions.

3.4 Statistical Analysis

Data were analysed using IBM SPSS Statistics, version 20.0. Descriptive statistics by using frequencies, percentages distribution were computed to summarise sociodemographic characteristics and questionnaire responses. The Chi-square test was employed to examine relationships between categorical variables and levels of medication awareness.

3.5 Ethical Consideration

This proposal was approved after being registered in Riyadh College of Dentistry and Pharmacy (registration number FPGRP/43439002/112). The study was conducted in accordance with the ethical principles of the Declaration of Helsinki, originally adopted in 1964, and adhered to the STROBE (Strengthening the Reporting of Observational Studies in Epidemiology) guidelines for observational research reporting.

4. Results

4.1 Sociodemographic Information

A total of 123 pregnant women participated in this study. The majority of respondents (78%) were between 20 and 30 years of age, while 18.7% were in the age group of 30–40 years, and only 3.3% were younger than 20 years. In terms of educational attainment, most participants were university graduates (75.6%), whereas 24.4% had obtained a postgraduate qualification. Almost half of the women were housewives (49.6%), while 27.6% were employed in health-related fields, and 22% reported other forms of employment. Additionally, the majority of respondents (89.4%) reported no history of smoking, whereas 7.3% admitted smoking occasionally, and 2.4% reported being regular smokers. Table 1 shows the detailed sociodemographic information.

4.2 Medication Use

Table 2 revealed important insights into patterns of medication use during pregnancy in Jeddah. Approximately 25.2% of participants reported using medications throughout the entire pregnancy, while 14.6% used them during the first trimester, a critical period of organogenesis, where drug safety is most concerning. In addition, 13.8% of respondents were unsure of the timing of their drug use, highlighting a knowledge gap regarding safe medication practices. On the other hand, a large proportion (78%) of women reported not using medications without a prescription, suggesting an overall reliance on healthcare professionals. However, 13.8%

admitted to self-medication, which remains clinically significant given the potential risks to fetal development. Regarding pregnancy outcomes, only 4.9% of participants reported having an abnormal child. Importantly, just 0.8% explicitly attributed the abnormality to drug use, though 4.1% expressed uncertainty, indicating the need for improved education and counselling about teratogenic risks. Additionally, 8.1% of women reported a history of abortion, though the association with drug exposure was not directly established in this dataset.

Table 2. Medication Use Patterns among Pregnant Women (n=123)

Constructs	Categories	Frequency	Percent
Time of using the drug	First trimester	18	14.6
	Second trimester	13	10.6
	Third trimester	8	6.5
	Whole period	31	25.2
	Don't know.	17	13.8
Taking the drug without a prescription	Yes	17	13.8
	No	96	78
	No	99	80.5
Do you have an abnormal child	Yes	6	4.9
If the cause of the abnormality was the drug	I don't have a problem	76	61.8
	Yes	1	0.8
	No	12	9.8
	I don't know	5	4.1
History of abortion	No	94	76.4
	Yes	10	8.1

4.3 Risk Awareness among Pregnant Women

Table 3 shows the results of awareness of the critical time for drug usage during pregnancy among pregnant women in Jeddah. The majority of participants (66.7%) correctly identified the first trimester as the most critical period for drug safety, with a valid percentage of 76.6%. Only 3.3% considered the second or third trimester as the most vulnerable period, while a considerable proportion (13.8%) reported being uncertain. The emerging trends showed these findings based on different sociodemographic factors. Age effect: Younger women (20–30 years) demonstrated greater awareness (74.4%) compared to those aged 30–40 years (25.6%). Education effect: Postgraduate women (29.3%) showed slightly higher accuracy in identifying the first trimester than university-level participants (70.7%), suggesting advanced education enhances awareness. And lastly, the Occupation effect: Housewives were more likely to identify the first trimester correctly (48.8%), though a notable proportion (52.9%) were also among those uncertain, compared to women in

Table 3. Awareness of Critical Time for Drug Use during Pregnancy (n=123)

Critical Time	Overall (n, %)	By Age (20–30 yrs vs. 30–40 yrs)	By Education (University vs. Postgraduate)	By Occupation (Housewife vs. Others)
First trimester	82 (66.7%)	61 (74.4%) vs. 21 (25.6%)	58 (70.7%) vs. 24 (29.3%)	40 (48.8%) vs. 20 (24.4%)
Second trimester	4 (3.3%)	4 (100%) vs. 0 (0%)	4 (100%) vs. 0 (0%)	1 (25%) vs. 0 (0%)
Third trimester	4 (3.3%)	4 (100%) vs. 0 (0%)	4 (100%) vs. 0 (0%)	2 (50%) vs. 2 (50%)
Don't know	17 (13.8%)	15 (88.2%) vs. 2 (11.8%)	14 (82.4%) vs. 3 (17.6%)	9 (52.9%) vs. 5 (29.4%)

Interdisciplinary Social Research
Volume 2, Issue 1
ISSN: 3067-7238

other occupations who showed higher variability.

4.4 Source of Information

Table 4.1 shows that the major information resource for pregnant women was their gynaecologists (57.1%), followed by media (13.3%), pharmacists (13.3%) and general physicians (12.2%). The majority of women who relied on gynaecologists were aged 20–30 (83.9%) and had a university education (82.1%).

Table 4.1 Information resources (From where do you obtain drug information?)

Response	Overall (n, %)	By age (20–30 vs 30–40 yrs)	By education (Univ vs Postgrad)	By occupation (Housewife vs Other*)
Pharmacist	13 (13.3%)	8 (61.5%) vs 5 (38.5%)	9 (69.2%) vs 4 (30.8%)	3 (75.0%) vs 1 (25.0%)
Gynecologist	56 (57.1%)	47 (83.9%) vs 9 (16.1%)	46 (82.1%) vs 10 (17.9%)	34 (69.4%) vs 15 (30.6%)
Physician	12 (12.2%)	7 (58.3%) vs 5 (41.7%)	6 (50.0%) vs 6 (50.0%)	4 (57.1%) vs 3 (42.9%)
Media	13 (13.3%)	9 (69.2%) vs 4 (30.8%)	10 (76.9%) vs 3 (23.1%)	6 (60.0%) vs 4 (40.0%)
All sources	4 (4.1%)	4 (100.0%) vs 0 (0.0%)	3 (75.0%) vs 1 (25.0%)	2 (66.7%) vs 1 (33.3%)

Table 4.2 revealed that only about half of respondents (49.5%) reported receiving complete information from the prescriber, 28.2% reported partial counselling, and 22.3% reported receiving no information at all. Younger (20–30 years) and university-educated women were more likely to report at least partial counselling during their pregnancies, while a substantial minority (≈22%) received no counselling at all.

Table 4.2 Physician counselling (During prescribing, did the doctor give you complete information about the prescribed drug?)

Response	Overall (n, %)	By age (20–30 vs 30–40 yrs)	By education (Univ vs Postgrad)	By occupation (Housewife vs Other*)
Yes (complete information)	51 (49.5%)	38 (74.5%) vs 13 (25.5%)	37 (72.5%) vs 14 (27.5%)	27 (52.9%) vs 24 (47.1%)
A little (partial)	29 (28.2%)	23 (79.3%) vs 6 (20.7%)	21 (72.4%) vs 8 (27.6%)	15 (51.7%) vs 14 (48.3%)
No (did not receive)	23 (22.3%)	19 (82.6%) vs 4 (17.4%)	19 (82.6%) vs 4 (17.4%)	10 (43.5%) vs 13 (56.5%)

Table 4.3 shows that the majority of the participants reported routinely checking the drug leaflet (81.0%). On the other hand, the small minority never check the leaflet (4.8%). Housewives comprised a large share of the "Yes" group (48.2%) of leaflet-checkers.

4.5 Beliefs and Knowledge about Medication

Table 5 shows the results regarding the predominant cautious attitude among pregnant women toward medication use. Nearly three-quarters (74.8%) agreed that women should be more cautious regarding drugs in pregnancy. While 69.9% indicated that medication should only be taken when necessary, emphasising a risk-avoidance approach. Regarding natural remedies, responses showed mixed beliefs. While 32.5% considered them safer than medications, almost half (48%) simultaneously acknowledged that "natural does not equal safe when you're pregnant," reflecting a growing awareness that herbal products are not inherently risk-free. About the knowledge of medication risks, only a minority (6.5%) believed that all medicines are harmful, and nearly half (47.2%) disagreed that "medications do more harm than no medications". It is noteworthy that more than half (56.1%) agreed that using medicines to restore maternal

health is better for fetal well-being than leaving illness untreated, which demonstrates recognition of the risks of untreated maternal conditions. However, the awareness of postpartum pharmacological changes was evident, with 60.2% acknowledging that some drugs may require dose adjustments after pregnancy, an area rarely explored in previous studies.

Table 4.3 Leaflet checking (Do you check the drug leaflet?)

Response	Overall (n, %)	By age (20–30 vs 30–40 yrs)	By education (Univ vs Postgrad)	By occupation (Housewife vs Other*)
Yes (routinely)	85 (81.0%)	63 (74.1%) vs 22 (25.9%)	59 (69.4%) vs 26 (30.6%)	41 (64.1%) vs 23 (35.9%)
Sometimes	15 (14.3%)	14 (93.3%) vs 1 (6.7%)	14 (93.3%) vs 1 (6.7%)	8 (88.9%) vs 1 (11.1%)
No	5 (4.8%)	5 (100.0%) vs 0 (0.0%)	5 (100.0%) vs 0 (0.0%)	3 (60.0%) vs 2 (40.0%)

Table 5: Beliefs and Knowledge about Medication

Study variables	Agree (%)	Don't agree (%)	Don't know (%)
Natural remedies are safer than medications	40 (32.5)	33 (26.8)	22 (17.9)
Natural doesn't equal safe when you're pregnant	59 (48.0)	15 (12.2)	21 (17.1)
Medications do more harm than no medications	23 (18.7)	58 (47.2)	14 (11.4)
All medications are harmful	8 (6.5)	80 (65.0)	7 (5.7)
Natural remedies can generally be used by pregnant women	35 (28.5)	36 (29.3)	24 (19.5)
It is better for the fetus that you use medicines and get well than to have an untreated illness during pregnancy	69 (56.1)	12 (9.8)	14 (11.4)
A pregnant woman should be more cautious regarding drug use during pregnancy	92 (74.8)	0 (0.0)	3 (2.4)
A woman who takes medicines should stop their treatment during pregnancy	33 (26.8)	35 (28.5)	25 (20.3)
You shouldn't take any medicine while you are pregnant unless it is necessary	86 (69.9)	2 (1.6)	7 (5.7)
Some drugs need to be redone after pregnancy	74 (60.2)	4 (3.3)	17 (13.8)

4.6 Relationship with Healthcare Providers

Table 6 demonstrates that a large majority (79.5% of women aged 20–30 and 76.9% of university-educated participants) informed their doctor about ongoing medication use. However, postgraduate women (42.9%) and health-related professionals (21.4%) reported lower disclosure rates, which is surprising since higher education and a medical background would typically predict stronger communication. Most women (78.4% university; 79.7% in the 20–30 group) reported that their provider explained the prescription. In contrast, postgraduate women (38.9%) and especially health-related professionals (55.6%) reported that doctors did not provide explanations, possibly because providers assumed these women already had sufficient knowledge.

4.7 Chi- Square Analysis

Table 7 shows the chi-square analysis results. The chi-square results showed several significant relationship between participants' demographic characteristics and their responses. Occupation was significantly associated with the source of drug information, p = .009, with the

Interdisciplinary Social Research
Volume 2, Issue 1
ISSN: 3067-7238

likelihood ratio also supporting this association (p = .015). Educational level was significantly related to the belief that natural remedies are safer than medications, p = .018, likelihood ratio p = .020, as well as to the perception that it is better for the fetus that medicines be used to recover except leaving illnesses untreated during pregnancy, p = .038, likelihood ratio p = .041. Furthermore, a significant relationship was observed between occupation and whether the healthcare provider gave complete information or instructions when prescribing new medications during pregnancy, p = .006, likelihood ratio p = .009, with a linear-by-linear association also confirming the trend (p = .019).

Table 6: Frequency of participants' responses for the health care provider relationship

Question	Response	20–30 yrs	30–40 yrs	University	Postgraduate	Other occ.	Housewife	Health related
When you met your doctor to confirm pregnancy, did you inform him about the medication you were taking?	Yes	62 (79.5%)	16 (20.5%)	60 (76.9%)	18 (23.1%)	17 (21.8%)	39 (50.0%)	22 (28.2%)
	No	12 (85.7%)	2 (14.3%)	8 (57.1%)	6 (42.9%)	2 (14.3%)	9 (64.3%)	3 (21.4%)
When you received a new prescription during pregnancy, did the provider explain it?	Yes	59 (79.7%)	15 (20.3%)	58 (78.4%)	16 (21.6%)	17 (23.0%)	43 (58.1%)	14 (18.9%)
	No	15 (83.3%)	3 (16.7%)	11 (61.1%)	7 (38.9%)	3 (16.7%)	5 (27.8%)	10 (55.6%)

5. Discussion

The awareness and perception to use medication during pregnancy depends of various situations and can varies with different demographics factors such as age, higher educational levels, and occupations. The access and availability towards drug-related information and positive attitude on its usage directly related to their own decision on drug administration during pregnancy. This study examined the medication use, risk awareness, information behaviours, beliefs, and patient–provider communication about medicines during pregnancy among women in Jeddah, Saudi Arabia. The findings showed that a considerable proportion of the participants (25.2%) have used medications during their pregnancy. Overall, the findings have shown a mix of patterns of results related to cautious attitudes, knowledge gaps, and variations in demographic factors. However, the timing of consumption has varied as most women consume medication prescribed by their physicians throughout pregnancy (25%), followed by their first trimester (15%) and so on. The results are consistent with the study conducted by Bashir et al., which estimated the attitude and knowledge of women regarding their maternal health and pregnancy safety (Bashir et al., 2023).

Additionally, the Chi-square test results indicated that most questionnaire items were not significantly associated with demographic variables, except for a few significant associations observed with occupation and educational level ($p < .05$).

Self-medication is also a major issue during pregnancy, in this study around 13.8% of women have admitted to taking self-medication and drugs without consulting a doctor. However, self-medication without a physician's prescription is considered as harmful. Some medication may contain teratogenic substances that can negatively affect the embryo or fetal development in several ways

Table 7: Chi-square analysis

Question	Grouped by	Pearson χ^2	df	p (Asymp. Sig., 2-sided)	N (Valid Cases)
Do you take this drug without a prescription?	According to age	0.124	1	0.724	113
Do you take this drug without a prescription?	According to the educational level	0.147	1	0.701	113
Do you take this drug without a prescription?	According to the occupation	0.085	2	0.958	113
What is the critical time for drug use during pregnancy?	According to Age Categories	3.967	3	0.265	107
What is the critical time for drug use during pregnancy?	According to the educational level	3.926	3	0.270	107
What is the critical time for drug use during pregnancy?	According to the occupation	7.826	6	0.251	107
From where did you use to obtain drug information?	According to Age Categories	7.158	4	0.128	98
From where did you use to obtain drug information?	According to the educational level	5.847	4	0.211	98
From where did you use to obtain drug information?	According to the occupation	20.420	8	0.009*	98
Do you check the leaflet?	According to age	4.225	2	0.121	105
Do you check the leaflet?	According to the educational level	5.637	2	0.060	105
Do you check the leaflet?	According to the occupation	5.327	4	0.255	105
During prescribing, did the doctor give you complete information about the prescribed medication?	According to Age Categories	0.662	2	0.718	103
During prescribing, did the doctor give you complete information about the prescribed medication?	According to the educational level	0.968	2	0.616	103
During prescribing, did the doctor give you complete information about the prescribed medication?	According to the occupation	3.367	4	0.498	103
During dispensing, did the pharmacist give you complete information about the prescribed drug?	According to Age Categories	5.317	2	0.070	101
During dispensing, did the pharmacist give you complete information about the prescribed drug?	According to the educational level	2.354	2	0.308	101
During dispensing, did the pharmacist give you complete information about the prescribed drug?	According to the occupation	2.602	4	0.626	101
Natural remedies are safer than medications	According to age Categories	0.289	2	0.866	95
Natural remedies are safer than medications	According to the educational level	7.999	2	0.018*	95

Interdisciplinary Social Research
Volume 2, Issue 1
ISSN: 3067-7238

Cont. Table 7

Question	Grouped by	Pearson χ^2	df	p (Asymp. Sig., 2-sided)	N (Valid Cases)
Natural remedies are safer than medications	According to the occupation	8.040	4	0.090	95
Natural doesn't equal safe when you're pregnant	According to Age Categories	0.016	2	0.992	95
Natural doesn't equal safe when you're pregnant	According to the educational level	1.548	2	0.461	95
Natural doesn't equal safe when you're pregnant	According to the occupation	2.749	4	0.601	95
Medications do more harm than no medications	According to Age Categories	1.996	2	0.369	95
Medications do more harm than no medications	According to the educational level	2.795	2	0.247	95
Medications do more harm than no medications	According to the occupation	1.501	4	0.826	95
All medications are harmful	According to Age Categories	2.455	2	0.293	95
All medications are harmful	According to the educational level	0.044	2	0.978	95
All medications are harmful	According to the occupation	4.568	4	0.335	95
Natural remedies can generally be used by pregnant women	According to Age Categories	2.383	2	0.304	95
Natural remedies can generally be used by pregnant women	According to the educational level	1.048	2	0.592	95
Natural remedies can generally be used by pregnant women	According to the occupation	5.859	4	0.210	95
It is better for the fetus that you use medicines and get well than to have an untreated illness during pregnancy	According to Age Categories	1.968	2	0.374	95
It is better for the fetus that you use medicines and get well than to have an untreated illness during pregnancy	According to the educational level	6.516	2	0.038*	95
It is better for the fetus that you use medicines and get well than to have an untreated illness during pregnancy	According to the occupation	1.346	4	0.854	95
A pregnant woman should be more cautious regarding drug use during pregnancy	According to Age Categories	0.344	1	0.557	95
A pregnant woman should be more cautious regarding drug use during pregnancy	According to the educational level	0.107	1	0.744	95
A pregnant woman should be more cautious regarding drug use during pregnancy	According to the occupation	0.499	2	0.779	95

Cont. Table 7

Question	Grouped by	Pearson χ^2	df	p (Asymp. Sig., 2-sided)	N (Valid Cases)
A woman who takes medicines should stop their treatment during pregnancy	According to Age Categories	0.484	2	0.785	93
A woman who takes medicines should stop their treatment during pregnancy	According to the educational level	2.494	2	0.287	93
A woman who takes medicines should stop their treatment during pregnancy	According to the occupation	4.071	4	0.396	93
You shouldn't take any medicine while you are pregnant unless it is necessary	According to age Categories	0.824	2	0.662	95
You shouldn't take any medicine while you are pregnant unless it is necessary	According to the educational level	0.721	2	0.697	95
You shouldn't take any medicine while you are pregnant unless it is necessary	According to the occupation	1.458	4	0.834	95
Some drugs need to be redone after pregnancy	According to Age Categories	2.974	2	0.226	95
Some drugs need to be redone after pregnancy	According to the educational level	1.112	2	0.574	95
Some drugs need to be redone after pregnancy	According to the occupation	4.585	4	0.333	95
When you met your doctor to confirm you are pregnant, did you inform him about the medication you are taking?	According to Age Categories	0.292	1	0.589	92
When you met your doctor to confirm you are pregnant, did you inform him about the medication you are taking?	According to the educational level	2.409	1	0.121	92
When you met your doctor to confirm you are pregnant, did you inform him about the medication you are taking?	According to the occupation	0.989	2	0.610	92
When you get a new prescription while you are pregnant, did the provider?	According to Age Categories	0.119	1	0.730	92
When you get a new prescription while you are pregnant, did the provider?	According to the educational level	2.302	1	0.129	92
When you get a new prescription while you are pregnant, did the provider?	According to the occupation	10.267	2	0.006*	92

(Niriayo et al., 2021). Almuhareb et al. highlighted that the major reason why pregnant women choose not to take medication during pregnancy to treat nausea and vomiting is because of the teratogenic effect that leads them to opt for a non-pharmacologic alternative (Almuhareb et al., 2024). Similar findings were reported by Tuha et al. discussed that the most common reasons reported in the study for practicing self-medication is to have a prior experience with same drug previously prescribe by the physician, cost effective and time saving (Tuha et al., 2020).

The study also discussed the knowledge of risk awareness in the early stages. A majority of 66.7% of the participants have correctly identified that the first trimester is the most critical time period for drug safety. The findings also highlighted that the younger women aged between 20 and 30 years, highly educated women and housewives were well aware and showed high recognition, highlighting the demographic differences in recognising risk awareness.

Interdisciplinary Social Research
Volume 2, Issue 1
ISSN: 3067-7238

The findings are consistent with the study conducted by Wafa et al., as similar demographics underscore similar results (Wafa et al., 2023).

A cross-sectional study by Wafa et al. collected 615 self-reported questionnaires from pregnant women in Tabuk City, which investigated the quantity and scope of medication use in pregnant women. The demographics showed that the majority of the participants lived in the urban areas and had university degrees and higher education (Wafa et al., 2023). The results showed that the majority of participants used at least one class of medication, 77.6% such as vitamins, and 13.5% used medication for nausea and vomiting. A large majority believed the first trimester to be the critical period for potential medication-related risks. In contrast, 95.9% expressed a preference to avoid medications during that trimester. Despite this, one-third showed a negative perception that physicians and doctors prescribed over-medication as considered natural remedies as a safer approach (Wafa et al., 2023).

Gynaecologists are considered an important source of information about prevention during pregnancy, especially for primigravida (Ross et al., 2009). In order to provide optimal knowledge and guidance to pregnant women, the gynaecologists and physicians should have adequate knowledge about complications that may occur during pregnancy. This study underscored that gynaecologists were reported as the major source of medication information (57.1%) over pharmacists. According to Abasiubong et al., it is necessary that health care professionals understand the restrictive attitude of patients that may arise due to several reasons. However, some of the reasons are herbal medications, cultural barriers, and less education and awareness towards medication intake in pregnancy (Abasiubong et al., 2012). The findings are also aligned with the study conducted by Alyami et al. who reported that 40.77% of the participants did not receive any information about medication use during pregnancy (Alyami et al., 2023). Conversely, in developing countries, it has been reported that the frequency of pregnant women considering self-medication or taking advice from their elders without a prescription is their first priority.

This study underscored distinctive findings by evaluating the medication use during pregnancy in Saudi Arabia. This not only assessed pregnant women's perceptions of medication safety and risk but also systematically stratified and interpreted these perceptions according to key socio-demographic determinants, including age, educational level, and occupational background. Additionally, this study provides nuanced insights into how knowledge and attitudes toward medication differ among women of varying age groups, educational attainment, and professional backgrounds. This stratified analysis offered a more comprehensive understanding of medication-related decision-making during pregnancy and generated baseline evidence of the health care department in Saudia Arab. The findings also highlighted the need for the development of tailored health education strategies and more individualised antenatal counselling programs in Jeddah and other regions of Saudi Arabia.

6. Conclusion

This study underscored that medication use during pregnancy is common among the participants, but there are some knowledge gaps and constraints that were faced by pregnant women in Jeddah. Additionally, the findings also demonstrated that women were cautious but not an absolutist stance toward drug use, and many proactively checked leaflets. The imperfect information about drugs in pregnancy from physicians and pharmacists needs further improvement in the future. However, a significant gap was identified in inadequate counselling even among educated women. These insights underscore the need for improved antenatal counselling protocols, an enhanced role for pharmacists, and tailored educational interventions targeting both women and health providers to improve maternal-fetal safety in Jeddah and other regions of Saudi Arab.

6.1 Strengths and Limitations

This study added valuable insights into the current landscape of awareness, knowledge and attitudes of pregnant women towards the usage of medication during their first pregnancy. In contrast, this study has certain limitations. The study was conducted only in Jeddah city and included only university-educated primigravida women, which indicates the findings cannot be generalised to all pregnant women in Saudi Arabia. The cross-sectional study design was used, which restricted the ability to infer causality between knowledge and outcomes. However, the study only assessed knowledge and awareness from the participants, which did not directly evaluate actual medication safety practices or clinical outcomes beyond self-report.

6.2 Future Recommendation

It is recommended that future studies should include

a more diverse sample that includes women of different educational levels, multiparous women, and participants from multiple regions of Saudi Arabia. Future studies should employ longitudinal or prospective study designs that help establish causal relationships between medication use and pregnancy outcomes. Higher authorities should take initiatives to start educational campaigns, antenatal counselling modules, and pharmacist-led awareness programs for a better understanding of medication use and its effectiveness in improving safe medication use.

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Interdisciplinary Social Research
Volume 2, Issue 1
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