

**EMERGENCY CONTRACEPTION AND COMPLICATION RATES: CROSS-SECTIONAL STUDY CONDUCTED IN AZADI TEACHING HOSPITAL**

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**ABSTRACT**

**Background:** Emergency contraception is a critical component of reproductive health services, especially in emergency situations where women present after unprotected intercourse or contraceptive failure. The effectiveness of emergency contraception is largely time-dependent, with the best outcomes obtained when provided within the first 24 hours of exposure. **Objectives:** To assess the clinical features, indications, timing of presentation, and complication rates associated with emergency contraceptive usage among married women who presented to Azadi Teaching Hospital. **Methods:** This a prospective observational study conducted in the emergency department of Azadi Teaching Hospital in Kirkuk during the period from January 2025 to December 2025. A total of 50 married female patients who requested emergency contraception were enrolled. The study included patients who presented within 120 hours of unprotected intercourse or contraceptive failure and patient with willingness to participate in the study. While patients with known pregnancy at the time of presentation or those with hypersensitivity to levonorgestrel or having history of chronic liver disease or active thromboembolic disorders and use of hormonal contraception within the previous 7 days were excluded from the study. **Results:** The study includes 50 married women with a mean age of  $28.3 \pm 6.1$  years (range: 18-43 years). Twenty-nine patients (58%) were from urban areas, whereas 21 patients (42%) were from rural areas. The majority were multiparous (62%), whereas 38% were primiparous. The majority of patients (56%) presented within 2 hours, while (28%) of the study participants presented within 24-72 hours and just (16%) of them presented after 72-120 hours. Furthermore, (44%) of the study participants presented due to missed pills, to less extent (36%) due to unprotective sexual intercourse. Only 20% presented due to irregular use of traditional contraceptive methods. It's evident that nausea was reported by 11 (22%) patients, followed by lower abdominal pain in 9 (18%) patients, menstrual irregularity in 8 (16%) patients, headache or dizziness in 6 (12%) patients and vomiting in 5 (10%) patients. Two individuals (4%) were confirmed pregnant during follow-up urine pregnancy testing. Both individuals were diagnosed more than 72 hours after unprotected intercourse and had a history of intermittent contraceptive use. During the study period, no serious adverse effect was reported, including thromboembolic events, allergic responses, or maternal fatalities. **Conclusion:** Emergency contraception was most commonly used by young reproductive-age women, due to missed oral contraceptive pills and unprotected intercourse, with early presentation contributing to a low pregnancy rate. The drug was generally safe and well tolerated, with very minor and self-limiting side effects noted.

**KEYWORDS:** Contraception, Drugs, Emergency, Iraq, Kirkuk.**1- INTRODUCTION**

Emergency contraception (EC) is a critical component of reproductive health services, especially in emergency situations where women present after unprotected intercourse or contraceptive failure.<sup>[1]</sup> The effectiveness

of EC is largely time-dependent, with the best outcomes obtained when provided within the first 24 hours of exposure.<sup>[2]</sup> Many low- and middle-income countries, like Iraq, continue to have limited access to structured family planning programs, and emergency departments

are frequently the primary source of care for urgent gynecological concerns.<sup>[3]</sup>

In Iraq, societal and religious variables have a substantial influence on reproductive health-seeking behavior. Married women are the most likely to request emergency contraception, frequently following contraceptive failure or irregular use of traditional methods. Fear of unexpected pregnancy, inadequate access to contemporary contraceptive counseling, and the scarcity of reproductive health clinics all contribute to the reliance on hospital emergency departments for this service.<sup>[4]</sup> Although emergency contraceptive pills, particularly levonorgestrel, are universally regarded as safe and effective, concerns remain about adverse effects, improper use, and delayed presentation.<sup>[5]</sup> Common side effects include nausea, vomiting, abdominal pain, menstruation abnormalities, and dizziness.<sup>[6]</sup> In Iraqi hospitals with limited resources, follow-up procedures are frequently inadequate, and reporting of negative outcomes is insufficient.

Despite the increased need for emergency contraception, there is a lack of local data on utilization and complication rates among Iraqi women. Understanding these aspects is critical for directing clinical practice, improving patient counseling, and designing culturally sensitive reproductive health policies. The aim of this study was to assess the clinical features, indications, timing of presentation, and complication rates associated with emergency contraceptive usage among married women who presented to Azadi Teaching Hospital.

## 2- PATIENTS AND METHODS

This a prospective observational study conducted in the emergency department of Azadi Teaching Hospital in Kirkuk during the period from January 2025 to December 2025. A total of 50 married female patients who requested emergency contraception were enrolled. The study included patients who presented within 120 hours of unprotected intercourse or contraceptive failure and patient with willingness to participate in the study.

While patients with known pregnancy at the time of presentation or those with hypersensitivity to levonorgestrel or having history of chronic liver disease or active thromboembolic disorders and use of hormonal contraception within the previous 7 days were excluded from the study.

Data collection form was used to collect information such as age, residence (urban or rural), parity, time between intercourse and presentation, reason for requesting emergency contraception, previous contraceptive method, and reported adverse effects within seven days of drug administration.

All patients took a single dose of 1.5 mg levonorgestrel as per hospital protocol. Patients were advised about potential adverse effects, the significance of follow-up, and the need for pregnancy testing if menstruation was delayed for more than seven days.

The primary outcome was the rate of complications associated with emergency contraceptive use. Secondary outcomes included the incidence of pregnancy and the frequency of certain adverse effects.

Statistical analysis involved descriptive statistics. Continuous values were reported as mean  $\pm$  standard deviation, and categorical variables as frequencies and percentages.

## 3- RESULTS

The study includes 50 married women with a mean age of  $28.3 \pm 6.1$  years (range: 18-43 years). Twenty-nine patients (58%) were from urban areas, whereas 21 patients (42%) were from rural areas. The majority were multiparous (62%), whereas 38% were primiparous.

Figure 1 shows distribution of the study participants according to time of presentation. The majority of patients (56%) presented within 24 hours, while (28%) of the study participants presented within 24-72 hours and just (16%) of them presented after 72-120 hours.

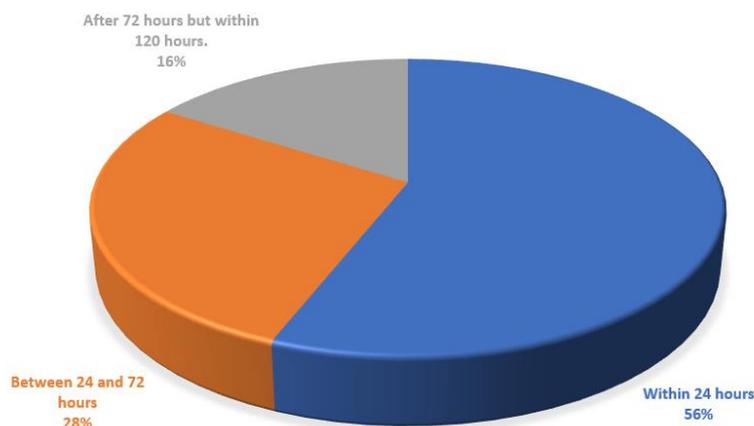
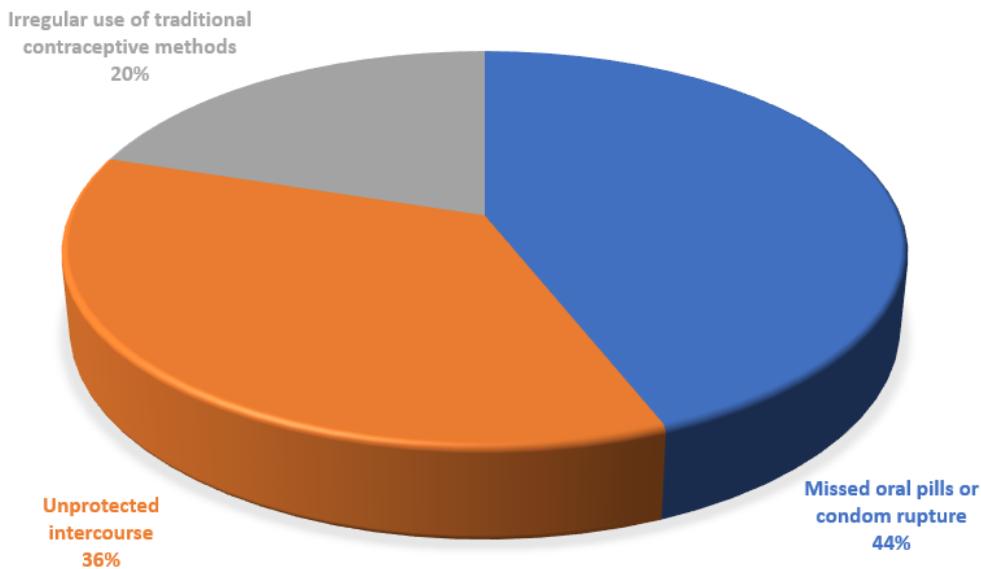


Figure 1: Distribution of the study patients according to their time of presentation.

Figure 2 shows that the majority of patients (44%) of the study participants presented due to missed pills, to less extent (36%) due to unprotective sexual intercourse.

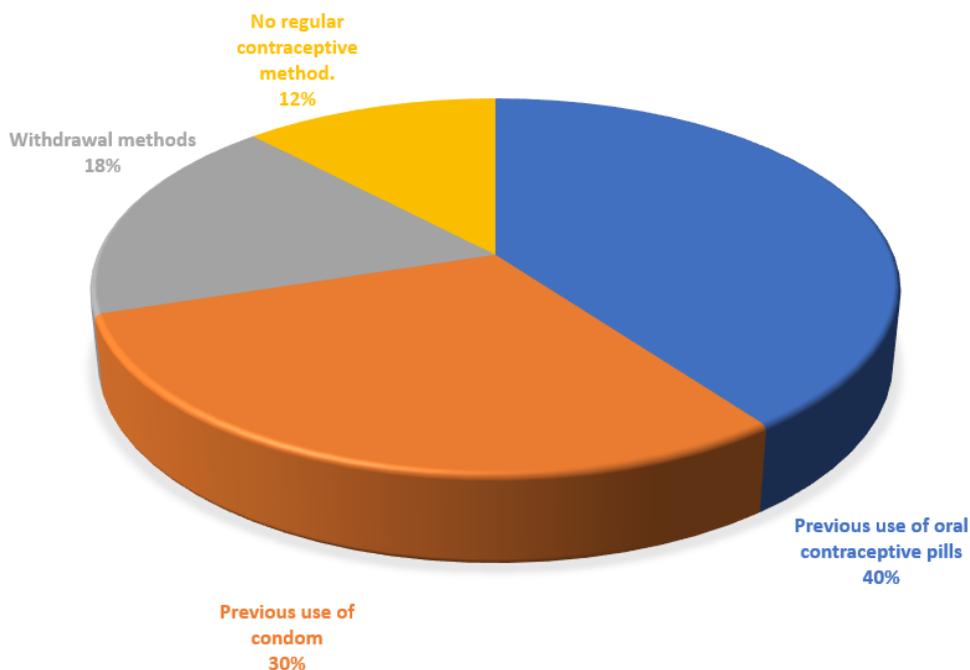
Only 20% presented due to irregular use of traditional contraceptive methods.



**Figure 2: Patients cause of presentation.**

Figure 3 shows distribution of the study patients according to their previous contraceptive use. It's evident that 40% of the study patients were used oral

contraceptives, to less extent 30% were used condom, 18% were used withdrawal method and 10% reported no regular contraceptive use.



**Figure 3: Distribution of the study patients according to their previous contraceptive use.**

Table 1 shows numbers and percents of adverse effects reported by the patients. It's evident that nausea was reported by 11 (22%) patients, followed by lower

abdominal pain in 9 (18%) patients, menstrual irregularity in 8 (16%) patients, headache or dizziness in 6 (12%) patients and vomiting in 5 (10%) patients.

**Table 1: Reported adverse effects.**

Adverse effect	Number	Percent
Nausea	11	22%
Vomiting	5	10%
Lower abdominal pain	9	18%
Headache or dizziness	6	12%
Menstrual irregularity	8	16%

Two individuals (4%) were confirmed pregnant during follow-up urine pregnancy testing. Both individuals were diagnosed more than 72 hours after unprotected intercourse and had a history of intermittent contraceptive use. Moreover, seven patients (14%) returned to the emergency department due to persistent vomiting or concerns about menstruation delays. All were treated conservatively, and no hospitalizations were required. Additionally, the drug was well tolerated by the majority of patients (96%), with minimal and self-limiting side effects. During the study period, no serious adverse effect was reported, including thromboembolic events, allergic responses, or maternal fatalities.

#### 4. DISCUSSION

This study assessed the clinical features, indications, adverse effects, and short-term results of married women seeking emergency contraception. The average age of 28.3 years and the prevalence of multiparous women are comparable with reproductive-age groups who frequently use emergency contraception treatments. Similar demographic characteristics have been found in regional and worldwide research, with women in their twenties accounting for the bulk of emergency contraception users, indicating active reproductive life and continuous contraceptive needs.<sup>[7-8]</sup>

More than half of the participants presented within twenty hours following unprotected intercourse or missing pills, demonstrating a rather high understanding of the significance of early administration. Emergency contraception must be used as soon as possible after intercourse to maintain efficacy. The World Health Organization recommends that levonorgestrel-based regimens be administered as soon as feasible, within 72 hours, as they are more effective when taken early.<sup>[9]</sup> The early presentation found in this sample may account for the low pregnancy rate (4%) detected during follow-up.

Missed oral contraceptive pills were the most common cause of presentation, followed by unprotected intercourse. This pattern is consistent with prior study showing that poor or inconsistent use of regular contraceptive techniques is a primary driver of emergency contraception use.<sup>[10]</sup> Notably, 40% of individuals had previously used oral contraceptives, indicating that adherence concerns, rather than a complete lack of contraception, were the primary contributing cause. Similar findings have been reported in recent contraceptive behavior study, which identify user failure as a key driver of unintended pregnancy risk.<sup>[11]</sup>

This study's adverse effect profile was minor and self-limiting, with the most common being nausea, lower abdomen pain, menstrual irregularity, headache, and vomiting. These results are consistent with the established safety profile of levonorgestrel-based emergency contraception, which is generally well tolerated and seldom causes major problems. According to recent systematic reviews, gastrointestinal symptoms and transient menstrual abnormalities are the most commonly reported side effects, with no substantial increase in thromboembolic or serious adverse events in healthy women.<sup>[12-13]</sup> Importantly, no serious adverse effects were reported in this study, confirming the previously proven safety of emergency contraceptive pills.

The pregnancy rate of 4% in the current study is close to published failure rates of levonorgestrel emergency contraception when given within the prescribed timeframe. Delays in dosing beyond 72 hours are known to reduce efficacy, as seen in the two confirmed pregnancy cases in this study. Recent study data shows that the time of consumption, along with ovulation timing and body mass index, remains the most important determinant of emergency contraceptive pills effectiveness.<sup>[14]</sup>

Overall, the study's findings are consistent with current global evidence supporting the safety and efficacy of emergency contraception when administered correctly and promptly. Improving patient education on the consistent use of conventional contraceptive methods and the prompt administration of emergency contraception may further prevent unintended pregnancy.

This study has many limitations that must be noted. First, the limited sample size reduces the statistical power and generalizability of the findings. Second, the single-center design may not be representative of emergency contraception use in other healthcare settings or areas. Third, the follow-up period was brief and based mostly on return visits and urine pregnancy testing, which may have underestimated delayed pregnancies or late unfavorable effects. Furthermore, data on body mass index, ovulation time, and precise timing between intercourse and drug intake were not thoroughly examined, despite the fact that these factors may have an impact on contraceptive effectiveness. Finally, self-reported data on contraceptive use and symptoms may be prone to recall bias.

#### 5- CONCLUSION

This study found that emergency contraception was most commonly used by young reproductive-age women, due to missed oral contraceptive pills and unprotected intercourse, with early presentation contributing to a low pregnancy rate. The drug was generally safe and well tolerated, with very minor and self-limiting side effects noted. To further prevent unintended births and improve reproductive health outcomes, it is advised that patient

education on consistent contraceptive usage, prompt provision of emergency contraception and increased awareness in urban as well as rural areas.

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#### CONFLICT OF INTEREST

About this study, the authors disclose no conflicts of interest.

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